Dissociation, Victimisation, and their Associations with Voice Hearing in Young Adults Experiencing First-Episode Psychosis

Eleanor Judith Longden

Submitted in accordance with the requirements for the degree of
Doctor of Philosophy (Ph.D)

The University of Leeds
Institute of Psychological Sciences and Faculty of Medicine and Health

July, 2014

The candidate confirms that the work submitted is their own and that appropriate credit has been given where reference has been made to the work of others.

Acknowledgements

Abstract

Background: It has been proposed that voice hearing, even in the context of psychosis, is associated with high levels of dissociation - especially amongst individuals with a history of childhood abuse. This thesis studies these relationships using more rigorous research methods than have been applied in much existing observational work, and contributes original evidence for understanding the incidence of, and associations between, voice hearing, dissociation, and life adversity (particularly childhood sexual abuse: CSA) in a first-episode psychosis sample.

Study 1 and 2: Evaluates current knowledge on associations between (1) voice hearing and dissociation, and (2) voice hearing and CSA using systematic, critical literature review. Both studies found strong associations between key variables, although methodological limitations in the literature preclude assumptions of causal relationships.

Study 3: Employs self-report measures and a retrospective case-control design to assess voice hearing, dissociation, psychological distress, and adversity exposure within a pseudo-random sample of voice hearers (n=31) and non-voice hearing controls (n=31). CSA and dissociation were significantly higher amongst case participants. Dissociation retained a significant association with voice hearing when controlling for pre-illness adversity exposures and psychological distress.

Study 4: Employs self-report measures and a cross-sectional between-groups design to assess dissociation, distress, and voice phenomenology within a pseudo-random sample of voice hearers with (n=23) and without (n=23) self-reported CSA exposure. CSA severity was associated with higher dissociation. Both groups reported similar voice characteristics, although CSA survivors perceived voices as more omnipotent. Emotional responses to voices showed strongest associations with psychological distress when controlling for dissociation and adversity exposure.

Summary: Considerable heterogeneity was apparent for all measures between and within groups of voice hearers and non-voice hearers, and voice hearers with and without CSA exposure. Associations between voice hearing and dissociation remain significant when controlling for adversity exposure and the type of stress, anxiety, and depression that occurs in the more general context of psychosis. However, while dissociation increases the likelihood of voice hearing *per se*, psychological distress has stronger associations for experiencing voices as negative. The datasets are interpreted within the context of wider clinical/conceptual debates around the role of dissociation, distress, and adverse life events in psychosis, and are used to generate recommendations for both therapeutic intervention and future research.

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

This thesis is concerned with an unusual and striking human experience: the hearing of voices with no objective origin and which no one else can hear. Voice hearing[1] is an intriguing topic – encompassing both the nuances of perception and the nature of self – and has been discussed and documented for over 2,000 years of human history; alternatively feared, reviled, celebrated, consecrated, and meticulously deconstructed within such diverse specialties as anthropology, philosophy, psychiatry, psychology, and theology. In different historical eras, cultures, and societies, it has been named and understood in numerous ways: *locutions*, *language magic*, *splinter psyches* and, most commonly in modern times, *auditory hallucinations* (Watkins, 2008). It is a complex phenomenon and, unsurprisingly, the responses to it have been equally intricate and varied. As McCarthy-Jones (2012) expresses it, voice hearing has been "understood as a symptom of disease as well as a source of otherworldly communication. Those hearing voices have been viewed as mystics, potential psychiatric patients or simply…people with unusual experiences, and have been beatified, esteemed, as well as drugged, burnt or gassed" (p.i).

Although biological accounts of voice hearing have always existed (the ancient Greeks, for example, posited it was caused by an excess of black bile), the predominant framework for centuries was demonic possession or divine inspiration (Smith, 2007). However, from the late 19th century onwards, more secular explanations began to dominate.[2]

---

[1] In professional literature, 'verbal' or 'auditory hallucinations' are more predominant terminology. However, whilst such phrases are intended to be neutral and technically descriptive, they can provoke resistance in people with lived experience of voice hearing, who can perceive them as stigmatising, loaded with the assumption that voices are not subjectively real, and/or that they imply voices are best explained as part of a disease process (e.g., Corstens et al., 2014; Dillon & May, 2002; McCarthy-Jones, 2012). In turn, 'auditory hallucinations' is not a phrase that voice hearers themselves use to describe their experiences (Beavan, 2007; Karlsson, 2008). Owing to the preference for the idiom *voice hearing* in favour of *hallucination* by service-user organisations (e.g., the English Hearing Voices Network [HVN], 2012; HVN New South Wales, 2012; Intervoice, 2010), as well as the responsibility to use language in ways that are not alienating to mental health service-users (e.g., Boyle, 2011; Corstens et al., 2014; Woods, 2013), the term 'voice hearing' will therefore be employed in the thesis. An additional factor is that it presents a more accurate description of the construct being assessed, i.e., human vocalisations as opposed to any kind of aural intrusion, a concept which is discussed further in Chapter 2.

[2] This is less applicable in some contemporary non-Western cultures, where both malign and emotionally enriching voices are often framed as spiritual experiences, including communing with one's ancestors (e.g., the New Zealand Maori), increasing receptiveness to alternative realms and realities (e.g., African Sangomas/traditional healers), or as part of Shamanic practice (e.g., the Alaskan Inuit-Yupik).

Today voice hearing has ubiquitous connotations with psychiatric illness and emotional chaos, popularised in the media as a bizarre, hazardous sign of disturbance (e.g., Leudar & Thomas, 2000; Owen, 2012) and allied extremely closely with schizophrenia (Bentall, 2004; Smith 2007). Nevertheless, while the experience has been characterised as "a symptom of brain disease just like blindness or hemiplagia" (Stephane et al., 2003, p.186), the claim that voice utterances are psychologically meaningful in relation to the lives of those who hear them (rather than arbitrary content induced by disease) has a long history in the disciplines of psychiatry, psychology, and philosophy, being argued over the decades by such theorists as Bleuler, Jaspers, Jung, Laing, and Pinel (McCarthy-Jones, 2012). It has also been recognised for many years that voice hearing is not only prevalent in a range of non-psychotic mental health complaints, but is also widely reported amongst those in good psychological health and no history of psychiatric contact (see Johns et al., 2014, for review).[3] Furthermore, recent work suggests that the types of voices traditionally considered indicative of schizophrenia in phenomenological terms (e.g., externally located, sensorially vivid, experienced involuntarily, accompanied by low insight/reality testing) may be just as likely to be endorsed by patients with non-psychotic diagnoses and even, in some instances, amongst non-patients (see Longden, Madill & Waterman, 2012a; Moskowitz & Corstens, 2007, for review).

The seemingly widespread occurrence of voice hearing across various age ranges, cultures, and different patient and non-patient samples – and the experiential similarities of many aspects of voice hearing between these groups – has thus done much to augment the possibility that voices are more closely linked with emotional, cognitive, and psychosocial variables *per se* rather than particular psychiatric diagnoses. Crucially, this contention also applies to voice hearing in the context of psychosis/schizophrenia – despite prevailing frameworks which suggest it cannot be primarily accounted for in terms of psychological mechanisms (see Table 1.1). As such, it is the intention of this thesis to apply rigorous methods to explore associations between a specific psychological construct – dissociation – and the origins and maintenance of voice hearing within individuals experiencing first-episode psychosis.

---

[3] Estimates are variable, most generally as a function of the age group examined and how voice hearing is defined. For example, prevalence is in the region of 40% in adolescents and young adults (e.g., Pearson et al., 2008; Posey & Losch, 1983) compared to a median of 13.2% in the adult general population (Beavan, Read, & Cartwright, 2011). Similarly more complex voice utterances, such as entire conversations, are endorsed less frequently than hearing single phrases (e.g., Barrett & Etheridge, 1992; Posey & Losch, 1983). Given that the lifetime prevalence of clinically identified, functional psychosis ranges between 0.2% (narrowly defined criteria) and 0.7% (broadly defined: Kendler et al., 1996), an implication of this research is that many more people hear voices than receive treatment for psychosis. Indeed, several prevalence studies report that only a minority of respondents (between 1/3 and 1/5) had sought any kind of psychiatric assistance for their voices (see Longden et al., 2012a).

Table 1.1   Prevalent categorisations for voice hearing.

	Biological framework	Psychological framework
Typical	Hypnogogic hallucinations Sensory deprivation Use of psychotropic substances	Bereavement responses Spiritual experiences Hypnosis
Pathological	Psychosis Temporal lobe epilepsy Delirium	Posttraumatic stress responses Peritraumatic responses Acute emotional stress

Source. Compiled by the author.

1.1   Contemporary and Historical Perspectives on Voice Hearing, Psychosis, and Dissociation

On face value, the proposition that voice hearing in the context of psychosic disorders can be most appropriately understood as dissociative may seem like an improbable claim; not least because contemporary interpretations of 'dissociation' and 'psychosis' are construed as very different entities. On one hand, dissociation is generally defined as a mental defence to trauma exposure that permits individuals to psychologically detach from events that are too emotionally distressing for the psyche to process (van der Hart, Nijenhuis & Steele, 2006), subsequently expressed as a disruption to the normal integration of psychobiological functioning (American Psychiatric Association: APA, 2000). Psychosis, in contrast, is a general psychiatric term for a loss of contact with reality, including sensory experiences without external origin (hallucinations) and objectively false ideas (delusions). Although psychotic states may be induced through toxins, psychoactive substance use, or general medical conditions (APA, 2000), functional psychotic syndromes like schizophrenia are widely conceptualised as brain disorders that may be initiated or exacerbated by psychosocial stress, but are primarily biogenetic in origin. As such, voice hearing in the context of psychosis is often regarded and responded to quite differently from that in individuals with dissociative diagnoses, which, in clinical terms, includes the recommendation of medication as a first-line treatment response (Sommer et al., 2012), less access to psychological therapies (Schizophrenia Commission, 2012), and a greater reluctance on the part of clinicians to engage with voices' affective content and context (Romme & Morris, 2013).

Yet despite this contemporary conceptual and clinical estrangement, the notion that voice hearing in the context of psychosis can be understood as dissociative is virtually as old as psychiatry itself. For example, the writings of several 19th century pioneers observed that florid displays of psychosis, including voice hearing, could be incited by acute psychological stress (Moreau de Tours, 1865), and appeared associated with hypnotic states (i.e., induced

dissociation: Forel, 1907/1927) as well as dissociation-based 'hysteria' (Charcot, 1868). Later work by Prince (1922) characterised voice hearing (including in the context of psychosis) as dissociated subconscious thoughts and introspections, whereas other theorists contended that acute psychosis itself was a dissociative condition related to the expression of unconscious emotions (Janet, 1907) wherein psychological functioning became pathologically fragmented and non-cohesive (Bleuler & Jung, 1908; Jung, 1907/1909).[4] In this respect voice hearing was not a principal attribute of either Kraepelin's *dementia praecox* or Bleuler's *schizophrenia*; indeed, the latter deemed voice hearing to be illustrative of so many conditions that it was better defined as a consequence of 'loosened associations' than as a key psychotic symptom (Bleuler, 1911/1960).[5] Indeed, by the early 20th century, numerous theorists were using dissociative mechanisms to deconstruct manifestations of psychosis. What had arisen as two independent initiatives was now shifting towards a fused, intersecting paradigm as understandings of schizophrenia/functional psychoses and hysteria/dissociative conditions began, cautiously, to converge (Middleton, Dorahy & Moskowitz, 2008).

In some respects, this line of theorising reached its apex with the work of Bleuler, whose emphasis on the rupture and fragmentation of psychological faculties (in his view the key deficiency in schizophrenia and the inspiration for its name, from the Greek, *split mind*) supplies a compelling combination of psychotic and dissociative concepts (Middleton et al., 2008; Moskowitz & Heim, 2011).[6] Ironically, however, Bleuler was also the partial architect of its decline, with his entrenched belief in schizophrenia's biogenetic origins hastening a declining interest in trauma-based dissociation (Moskowitz et al., 2008). Nevertheless, after

---

[4] See Middleton et al. (2008) for a discussion of how many early theorists considered dissociation-like mechanisms, such as 'ego-fragmentation' and 'dissolution of self-experience,' as indispensable for a more precise understanding of psychosis.

[5] Contemporary links between psychosis and voice hearing can be largely traced to Schneider's (1959) influential 'first-rank symptoms' of schizophrenia, in which voices commenting and/or conversing, bizarre delusions, and believing one's thoughts are audible delimit the major pathognomic symptoms. Nevertheless, Schneider concurred with Kraepelin and Bleuler that voice hearing was not fundamental to schizophrenia and included it primarily because it was clearly recognisable and thus easy for clinicians to detect (Bentall, 2004; Smith, 2007). Significantly the new edition of the DSM (APA, 2013) has now de-emphasised the significance of Schneiderian-type voice hearing in schizophrenia, despite the link being maintained in all previous editions (Grohol, 2013). In turn, this corresponds with evidence that voices commenting/conversing, as well as other Schneiderian symptoms, are not only prevalent in individuals meeting diagnostic criteria for dissociative disorders, they may occur more frequently in these populations than in those designated schizophrenic, even after excluding patients with comorbid psychosis from research samples (e.g., Dorahy et al., 2009; Kluft, 1987; Laddis & Dell, 2012a-b; Putnam, 1989; Ross et al., 1989a-b; Ross et al., 1990).

[6] For example, Ross (2008) argues that many cases classed as schizophrenic by Bleuler would be deemed dissociative by today's standards on the grounds that they strongly resemble modern conceptions of dissociative identity disorder (DID). For example, his early writings feature numerous examples of patients shifting executive control, manifested by changes in mannerisms, facial expression, voice, and identity whereby "the patient thinks, feels, and acts in many respects as if…he consisted of different personalities, that he becomes 'split' to a psychotic degree" (Bleuler & Bleuler, 1986, p.663).

many decades of relative neglect, the question of comorbidity between dissociative and psychotic syndromes is now once again becoming a focus of scientific interest, energising the exploration of new, dynamic avenues within the psychiatric literature (e.g., Ross & Keyes, 2004; Şar et al., 2010; Schäfer, Reitmeier, Langer, Aderhold & Harfst, 2008; Schäfer et al., 2012; Vogel et al., 2009, 2011; Yu et al., 2010). For example, some theorists (e.g., Hemsley, 2005; Moskowitz et al., 2009; Rudegeair & Farrelly, 2003; Read, van Os, Morrison & Ross, 2005) have characterised the positive symptoms of schizophrenia (including voice hearing) as the result of decontextualised, disaggregated stimuli that intrude into the executive self, wherein "disturbed connectivity or coherence…may negatively affect the normal patterns of synchronous activity…[that constitute] integrative functions of consciousness" (Bob & Mashour, 2011, p.1046; see also Bob, Susta, Glaslova & Boutros, 2010). Similarly, Scharfetter (2008) uses the concept of *ego fragmentation* to illustrate how dissociation between different psychological faculties – in effect, a decomposition of ego dimensions – can lead to mental disintegration, the annihilation of self-experience, and a lack of coherent, integrated sense of self and identity. According to this dimensional model, dissociative mechanisms function on a spectrum, with disorders like depression, anxiety, and phobias (where self-states are loosely disconnected yet essentially cohesive) distinguishable from dissociative and psychotic conditions (where psychological functioning is fragmented and non-cohesive) in terms of the extremity of dissociation. Thus the chaotic mental states observed in psychosis can be seen as a reflection of complete psychic fragmentation, in contrast to the variable disaggregation of solitary faculties (e.g., memory, perception, motor functions) that characterise less clinically severe disorders (see also the Hierarchy of Classes of Personal Illness model: Foulds & Bedford, 1975).

1.2   Voice Hearing, Dissociation, and Traumatic Life Events

As will be discussed in Chapter 2, dissociation can often occur without prior trauma exposure. However, within clinical populations, there has been an overarching therapeutic and conceptual emphasis on dissociation as sequelae to intense psychological stress (e.g., Read et al., 2005; Ross & Halpern, 2009; van der Hart et al., 2006). Therefore an additional, formative theme for situating dissociation within the aetiology of voice hearing is the association between voice hearing and traumatic, adversarial life events. In this respect there is a rapidly accruing literature, derived from a variety of sampling and assessment protocols, different patient and non-patient populations, and assorted cross-sectional, retrospective, and prospective research designs, that suggests adversity exposure is associated with voice hearing (as well as psychosis itself) in a substantial number of cases (e.g., Bak et al., 2005a; Bentall, Wickham, Shevlin & Varese, 2012; Corstens & Longden, 2013; Cutajar et al., 2010a-b; Janssen et al., 2004; Romme et al., 2009; Schreier et al., 2009; Shevlin et al., 2010). Indeed,

the first critical literature review into psychosis and childhood maltreatment (Read et al., 2005) found more significant associations between abuse and voice hearing than for any other psychotic symptom. These rates were even more elevated when studies without control groups were incorporated into the analysis, leading the authors to suggest a potentially causal, dose-response relationship between trauma and voice hearing.

Relevant variables appear to be diverse and broadly defined, including childhood maltreatment, peer bullying, adulthood sexual assault, and experiences of bereavement and loss (see Longden et al., 2012a for review). However, at the time of writing, a specific life event that has received most research attention in respect to voice hearing is childhood sexual abuse (CSA). Indeed, in a narrative review of psychosis and childhood maltreatment, Hammersley and Fox (2006) conclude that the relationship between voice hearing and CSA "is consistently the most reliable finding" (p.152). In this respect, it has also been suggested that CSA is a stronger predictor of dissociation relative to other forms of childhood abuse (Kisiel & Lyons, 2001; Schäfer et al., 2012; Zlotnick et al., 1994) and has been identified as a significant factor in transitioning from 'at risk' states to full psychosis when controlling for other risk factors and trauma exposures (Bechdolf et al., 2010; Elklit & Shevlin, 2011). The link between CSA and psychosis on one hand, and dissociation and voice hearing on the other, make it an important variable in the current research, and the issue of putative associations between voice hearing and CSA will be explored more fully in Chapter 2.

How might a trauma-dissociation framework account for voice hearing as unintegrated percepts? According to van der Hart et al.'s (2006) Structural Model of Dissociation, trauma exposure (particularly early, relational victimisation characterised by entrapment, disempowerment, and loss of control) may splinter the personality into systems that are fixated on the psychologic impact of harmful events, counterbalanced by systems focused on daily functioning. This can be seen as one of the core dynamics of dissociation: a structural partition of the psychobiological action systems constituting personality, wherein sensory and psychological representations of distressing events fail to become integrated (Dorahy & van der Hart, 2007). Within such a framework, voice hearing has been conceived as 'disowned,' disaggregated representations of past events (i.e., trauma-fixated) that aurally encroach on functioning-focused parts of the personality and are consequently perceived as depersonalised and perceptually and cognitively decontextualised (Moskowitz & Corstens, 2007; Moskowitz et al., 2009; Ross, 2008).

In neurological terms, Diederan et al.'s (2010) finding that voice hearing occurs in association with heightened activation of bilateral language regions, and deactivation of the parahippocampal gyrus (which contributes to memory retrieval, and transmission from the hippocampus to association areas), could also support a dissociation model in terms of disassimilated, involuntary intrusions from long-term memory, possibly mediated via

dopaminergic innervation. This position further demonstrates a degree of overlap with literature from the field of developmental traumatology, which has drawn attention to the similarities between the neurological impact of trauma on the developing brain and the structural cerebral changes characteristic of schizophrenia (e.g., dopamine, serotonin, and norepinephrine irregularities; ventricular enlargement; and hippocampal damage: Aas et al., 2012; Hoy et al., 2012; Read, Perry, Moskowitz & Connolly, 2001; Read, Fosse, Moskowitz & Perry, 2014; Sheffield, Williams, Woodward & Heckers, 2013a). Specifically, these changes can also be linked to disturbances in the memory system outlined above, including (but not limited to) deficits in spatial and temporal contextual processing within the hippocampus (Steel, Fowler & Holmes, 2005), which in turn is consistent with the finding that voice hearing in those diagnosed with schizophrenia is associated with poorer performance on temporal context memory tasks (Brébion, David, Jones, Ohlsen & Pilowsky, 2007). As such, the perceptually/cognitively decontextualised intrusions characteristic of voice hearing (i.e., experienced as current rather than understood in the context of past events) may in part be associated with adversity-induced hippocampal inactivation (McCarthy-Jones, 2012). Furthermore, childhood abuse has been linked with changes in gray matter volume of both the superior temporal gyrus (Tomoda et al., 2011) and anterior cingulate cortex (Thomaes et al., 2010), as well as abnormalities in the arcuate fasciculus (Choi, Jeong, Rohan, Polcari & Teicher, 2009); all areas of the brain associated with voice hearing liability (e.g., Allen, Larøi, McGuire & Aleman, 2008; de Weijer et al., 2011; Hubl et al., 2004; Levitan, Ward & Catts, 1999) and, in turn, also implicated in the faulty attributions of self-generated events to external sources (e.g., Hubl et al., 2004; Raij et al., 2009; Seal, Aleman & Maguire, 2004).

1.3   The Current Research

Taken together, this confluence of theoretical, clinical, and historical evidence suggest that proposals to conceptualise voice hearing in psychosis patients as a dissociative experience merits further study. Theoretical and research interest around voice hearing and dissociation has been growing since a landmark paper by Moskowitz and Corstens in 2007; and due to the pace of development and corresponding surge of investigative interest, a comprehensive review of this area is beyond the scope of the current chapter. In this respect, a critical review of research that privileges dissociation in the origin and maintenance of voice hearing is provided in Chapter 3. Essentially, however, this is work that builds on foundations originally laid over a century ago by such pioneers as Bleuler, Janet, and Jung and includes several key propositions, including the suggestion that many people who hear voices have a history of trauma; that traumatised people are more likely to dissociate; and the postulation, outlined above, of several possible mechanisms to account for voices as dissociated representations of self, or self-other relationships. Indeed, interest in its putative dissociative origins has

increased to such an extent in recent years that the claim has even been made that "voice hearing, in all populations, is essentially dissociative in nature" (Moskowitz, 2012, p.417).

Nevertheless, despite the considerable gains made in recent years, the broad position that *all* voice hearing in the context of psychosis is dissociative (e.g., existing narrative reviews by Longden et al., 2012a and Moskowitz & Corstens, 2007) remains problematic, and several lines of enquiry have not been satisfactorily resolved. At the most basic level, this begins with a series of conceptual and definitional problems within the broader literature. This issue will be explored further in Chapter 2 but, in brief, includes a considerable discordance over what the term 'dissociation' is being used to refer to; consensual and contextual disagreement over what constitutes 'trauma,' including how one can abstract a generalised psychological 'trauma' response from the broad range of stressors that constitute 'traumatic events;' and whether a trauma-dissociation framework for voice hearing can be reconciled with the recognised fact that that trauma does not inevitably lead to dissociation, and that not all dissociative individuals have been traumatised. Furthermore, while definitions of 'voice hearing' show a little more clarity, Chapter 2 will also expound on the value of assessing the experience beyond the simple presence/absence of voices to incorporate their subjective characteristics (form and content), the subsequent influence of these upon the hearer (impact and appraisals), as well as considerations of what voice hearing, in the context of the thesis, is *not* (e.g., differentiating from intrusive thoughts, sleep-related or substance-induced hallucinations, or those attributable to organic or state-dependent circumstances).

These definitional problems lead on to existing practical and empirical limitations. Firstly is the potentially serious confound posed by psychological distress. Variables like depression, stress, and anxiety are a major factor in the general context of psychosis, as well as being strongly associated with adversity exposure, voice hearing severity (e.g., Krabbendam et al., 2004; Morrison, 1998; Romme & Escher, 2000), and levels of dissociation (e.g., Lewis-Fernández et al., 2010; Lipsanen et al., 2004). Nevertheless, it is not yet established whether associations between voice hearing and dissociation remain significant amongst psychosis populations when psychological distress is controlled for. Secondly, the emotional appraisals and representations that patients develop about their voices are decisive factors for influencing clinical outcomes (e.g., Connor & Birchwood, 2011; Morrison, 1998; Romme & Escher, 2000; Romme & Morris, 2013); yet despite the indications of a relationship between dissociation and the presence/absence of voices in psychosis, it remains to be established what impact (if any) dissociation may have on how voices are experienced at a phenomenological level, including whether dissociation increases the likelihood of more distressing voices, or simply voice hearing *per se*. Finally, while several previous investigations have explored the associations between voice hearing and adverse life events (e.g., Read et al., 2003; Romme et al., 2009; Üçok & Bikmaz, 2007), and voice hearing and

dissociation (e.g., Perona-Garcelán et al., 2008, 2011a-b,) in psychosis populations, comparatively few studies have provided careful examinations of the relationship between all three. Of the research addressing these links (their valuable contribution to the field notwithstanding), a number of limitations are apparent (e.g., Dorahy et al., 2009; Laddis & Dell, 2012b; Perona-Garcelán et al., 2010; Varese et al., 2012b). This includes measures of trauma that are restricted to childhood maltreatment rather than broader definitions of adversity, a lack of data around the timing of adversity exposure relative to voice onset, a pervasive use of non-random convenience samples, and insufficient information to determine to what extent control/comparison groups who did not hear voices were drawn from comparable clinical populations. In turn, data are also lacking around the likelihood of hearing voices amongst psychosis patients with high levels of dissociation and adversity exposure relative to those without.

The purported link between voice hearing and CSA (as well as claims of specific relationships between dissociation and voice hearing on one hand, and dissociation and CSA on the other) also invites speculation as to whether exposure to sexual trauma might affect voice phenomenology in a particular way. Nevertheless, despite a literature that claims consistent links between CSA and voice hearing, it is still not clearly understood what (if any) specific impact it may have on the way voices are experienced relative to other types of childhood maltreatment. Existing studies with small samples of mixed-diagnosis psychiatric patients have found that CSA appears associated with both command hallucinations (Ellenson, 1985, 1986; Read et al., 2003) and Schneiderian-type voices (Hammersley et al., Read et al., 2003; Ross, Anderson & Clark, 1994), with one investigation reporting that CSA survivors had a tendency to perceive their voices as more malevolent compared to those with no CSA history, particularly if CSA had occurred at a young age (Offen, Waller & Thomas, 2003). However, despite provisional indications that CSA may influence voice severity in some cases, there remains a lack of information regarding whether sexual trauma might influence voice characteristics, including how this may be affected by factors like dissociation and psychological distress. Furthermore, despite evidence that various features of the CSA experience itself – such as age of onset, relationships between victim and perpetrator, and penetrative as opposed to non-penetrative abuse – can influence clinical outcomes (e.g., Bulik et al., 2001; Kendler et al., 2000; Watson & Halford, 2010) there is a pervasive lack of data as to what influence such variables might have on voice-related representations and attributions.

It is in response to these gaps in current knowledge that the present study was developed with the objectives outlined in section 1.3.3. As such, the intention of the thesis is to explore some of the existing conceptual and methodological shortcomings in this area (see Chapters 2-4), and to address elements of these within a robust research design (see Chapter

5), whilst still acknowledging the limitations – and possibilities for future investigation – that this enterprise, in itself, still presents (see Chapter 8).

1.3.1 Implications of the Current Research

Obtaining quality empirical evidence for potential associations between life adversity, voice hearing, and dissociative experience within psychosis populations is an important endeavour in both clinical and theoretical terms. Firstly, in addition to existing gaps in the literature outlined in sections 1.1.2 and 1.1.3, the current research presents an exploration and synthesis of voice hearing that accords with several of the objectives identified during the first (Waters, Aleman, Fernyhough & Allen, 2012) and second (Waters, Woods & Fernyhough, 2014) assemblies of the International Consortium for Hallucination Research as desirable for promoting theoretical advancement. Specifically, this includes (1) contextualising the personal interpretations of hallucinations, including their differing phenomenology; and (2) locating the contributions of social influences and psychological processes in hallucinations. In turn, by investigating the impact of dissociation as a specific, putative factor in voice hearing, the thesis also accords with the Consortium's recommendation that research "energetically pursue[s] alternative treatment options" (Waters et al., 2014, p.25) and strives to identify suitable candidates for therapeutic intervention.

In this respect, while therapies for dissociative disorders reject the notion of voice hearing as a solitary (atomistic) phenomenon, it has been claimed that psychological interventions for psychotic patients are less likely to incorporate the contextual and intersubjective features of voices into treatment plans (e.g., Bentall, 2004; Johnstone, 2011; Romme & Morris, 2013). Furthermore, despite the conceptual and clinical overlaps between psychosis and dissociation described previously, posttraumatic stress is significantly under-detected in psychosis populations (Lommen & Restifo, 2009), with such individuals less likely to receive an appropriate clinical response when trauma is disclosed relative to those with non-psychotic diagnoses (Agar & Read, 2002). This has additional relevance in treatment terms when considering that, despite advances in the use of neuroleptics, some voice hearing experiences – including the most stressful, high-risk varieties – may prove non-responsive to pharmacological treatments in a substantial number of cases (Corstens, Longden, Rydinger, Bentall & van Os, 2013; McCarthy-Jones, 2012; Sanjuan, Aguilar & Artigas, 2010). This problem is further compounded by the variable adherence rates to drug regimens amongst psychosis patients (Voruganti, Baker & Awad, 2008), the potential for debilitating side-effects after long-term neuroleptic use (Ananth, Parameswaran & Gunatilake, 2004), and the elevated risk of suicide amongst patients experiencing distressing, treatment-refractory voices (Fialko et al., 2006). As such, exploring and evidencing the extent of the putative links between voice hearing, adversity, dissociation, and psychological distress can help inform complimentary

therapeutic strategies that are based on understanding and addressing the role of emotional representations and/or distressing life events in voice emergence and maintenance. This is a timely stance, increasingly advocated by influential clinical platforms like the *British Journal of Psychiatry,* which has published a series of editorials (e.g., Kleinman, 2012; Bracken et al., 2012; Read & Bentall, 2012) arguing the need to expand therapeutic responses to complex mental health problems that incorporate a greater emphasis on psychological mechanisms and the precipitating role of social and emotional conflict (see also Coles, Keenan & Diamond, 2013; Read, Dillon & Lampshire, 2014; Thomas & Longden, 2013).

Finally – whilst fully acknowledging the value of such initiatives – it is also important to identify what proportion of voice hearers may *not* report experiences consistent with the prevailing victimisation-dissociation framework. As described previously, the paradigm of trauma-based dissociation has gained rapid ascendance in the past few years; yet, like any other model, it is unlikely to provide a wholly inclusive account that meets the needs and circumstance of all individuals who hear voices. Gaining a more nuanced understanding of how these variables may manifest amongst a reasonably unbiased sample of psychosis patients is therefore valuable if an unhelpful and over-zealous application of the dissociation paradigm is to be avoided.

1.3.2   Research Context and Epistemological Position

As discussed previously, this thesis forms part of a growing tradition that seeks to explore the phenomenon of voice hearing beyond the narrow restrictions of 'schizophrenic symptom.' This is a timely endeavour, because in recent years the experience has begun to inhabit social and scientific arenas that are more integrated and comprehensive than any previously available. At a societal level, this is reflected in the rapid growth of Intervoice, the organisational body of The International Hearing Voices Movement, which was established in 1997 and has since developed 'Hearing Voices Networks' in 25 countries across five continents, seeking to promote support, awareness, and understanding of voice hearing as well as foster positive, collaborative alliances between 'experts by experience' (voice hearers, their friends and family members) and 'experts by profession' (clinicians, academics, activists: see Intervoice, 2010). In turn World Hearing Voices Day, launched in 2006, is now commemorated annually around the world with conferences, gatherings, and demonstrations that celebrate the voice hearing experience and challenge discrimination, stigma, and pessimism. Correspondingly, this growing attention is mirrored by a burgeoning research investment in voice hearing as a subject of interest in its own right, rather than just one of several characteristic symptoms of schizophrenia spectrum disorders (Bentall, 2013). For example, The International Consortium for Hallucination Research (which expends particular resources around voice hearing) held its inaugural meeting at the British Institute of

Psychiatry in 2011 and is now in its fourth year. In the UK, Durham University has recently established 'Hearing the Voice,' a multi-disciplinary research project that combines phenomenological, hermeneutic, and neuroscientific approaches to improve understandings of voice hearing (Durham University, 2014); in the Netherlands, Utrecht University has likewise developed a research initiative devoted to studying the experience in isolation from other first rank psychotic symptoms (Hersencentrum, 2013). In turn, scholars of phenomenology have lately begun to reflect on the clinical, cultural and political identities encapsulated by the term 'voice hearer' (Woods, 2013), wherein voices themselves can be approached as "real, meaning-laden 'actors' in the theater of the mind" (Jones & Shattell, 2013, p.562). Taken together, the work of the following chapters attempts to complement these scientific and social shifts; firstly by considering the voice hearing experience as a construct of interest in its own right; and secondly, by exploring the associations between voices and the social/emotional conflicts in the lives of those who hear them.

This, in turn, leads to my own positioning within this research field. The concept of *reflexivity* is an awareness of the personal influences an investigator brings to deriving meanings from data, whilst also recognising the difficulty of keeping detached and 'outside' of one's subject matter throughout the research process (Alvesson & Sköldberg, 2009). Within the social sciences, reflexive practice has done much to further understandings of how empirical and theoretical work is derived, constructed, and organised; a process that Mauthner and Douchet (2003) characterise as "[recognising] the partial, provisional and perspectival nature of knowledge claims" (p.416). Although more generally the province of qualitative research, there is also merit in applying reflexivity to research – like the current thesis – that is based in a more positivistic paradigm (Ryan & Golden, 2006).

My existing involvement in this area could be seen as "situated knowledges" (Haraway, 1988, p.575), in that the production of theory and ideas are embedded in a particular social and cultural context; that of critical psychology and critical mental health. In this respect both my academic background, as well as clinical and professional experience in terms of National Health Service [NHS] employment and public speaking, have advocated both for psychosocial understandings of voice hearing (e.g., Corstens & Longden, 2013; Longden, 2013a-b; Longden, Corstens & Dillon, 2013) as well as understanding voice hearing as a dissociative stress response (e.g., Dillon, Johnstone & Longden, 2012; Longden et al., 2012a; Longden, Moskowitz, Corstens, Dorahy & Perona-Garcelán, in press). As such, this entailed bringing a number of beliefs and assumptions regarding the inherent value of these frameworks into the research process. However, whilst my immersion in this literature means I am not truly neutral when advocating in merits, it has also provided advantages in being thoroughly and reflectively aware of its limitations.

My position within this field could thus be seen as what Costa and Kallick (1993) describe as a candid, 'critical friend;' bearing witness over an issue for which one has a high degree of positive regard, but against which one is also willing to suspend belief and level provocative queries and constructive critique. In doing so, dual interests can be served: applying objectively rigorous and precise methods to either bolster evidence for a particular stance or, alternatively, honestly and constructively identifying its weaknesses.

1.3.3 Research Aims and Hypotheses

This project aims to contribute novel evidence to current debates surrounding the putative associations between voice hearing, dissociation, and adverse life events (particularly, but not exclusively, CSA) amongst individuals with first-episode psychosis. In doing so, the work of the following chapters seeks to accomplish several goals that will ultimately develop these fields of inquiry though both theoretical and practical exploration. In the first phase, the techniques of critical systematic review will be employed to evaluate the scope and quality of knowledge in two key areas: specifically, associations between voice hearing and dissociation (Study 1), and voice hearing and CSA (Study 2). The second component of the thesis is empirical and comprises two separate investigations. Study 3 will employ retrospective, case-control methods to provide data on the types of adversities reported by patients with and without voice hearing experiences, the levels of dissociation in these two groups, and generate unique evidence on the way dissociative symptoms co-occur with both adversity exposure and affective processes like anxiety, depression, and stress. In Study 4, a between-groups comparison will be used to explore associations between CSA and subjectively-rated voice characteristics and attributions amongst psychosis patients and, for the first time, to derive data on the associations between these factors and measures of dissociation and psychological distress. Although much existing research has considered either the presence/absence of CSA, or differentiated between molestation and rape, the current investigation will also consider a much broader range of CSA characteristics, including number of perpetrators, the relationship between perpetrator(s) and victim, duration, frequency, and experiences of disclosure.

In contrast to much existing work, which has predominantly recruited patients with diagnoses of chronic schizophrenia-spectrum conditions (as well as non-clinical samples and patients with non-psychotic disorders: see Chapter 3), the current research will be undertaken amongst young adults experiencing a first-episode of psychosis, and will thus enhance the type of evidence currently available for understanding the relationship between dissociation and voice hearing in this population. In addition, it is intended to minimise some of the methodological limitations of previous cross-sectional/observational work in this area. Primarily, this includes the use of pseudo-random sampling; detailed definition and operationalisation of key constructs, including different features of CSA and voice hearing; a

comprehensive and inclusive assessment of the types and temporal sequences of adversity exposures; and controlling for the type of affective disturbances that may arise in the more general context of psychosis.

These aims have been refined into the following, specific hypotheses in Study 3:

1) Self-reported exposure to adverse victimisation events will reliably precede voice hearing onset.
2) The prevalence of CSA exposure will be significantly higher in voice hearers than non-voice hearers from the same clinical population.
3) Measures of dissociation will be significantly higher in voice hearers compared to non-voice hearers.
4) There will be a significant, positive association and confidence of estimate between voice hearing and dissociation after controlling for psychological distress and levels of adversity exposure.

The following predictions have been formulated for Study 4:

1) Measures of CSA severity will be associated with greater levels of dissociation.
2) Individuals with a history of CSA will report more negative voice-related attributions and beliefs than non-CSA survivors.
3) Measures of dissociation will show significant positive associations with measures of voice hearing severity when controlling for psychological distress and adversity exposure.

1.3.4 Structure of the Thesis

This thesis aims to explore the experiences of, and associations between, voice hearing, dissociation, and adverse life events (particularly CSA) in a group of young adults with first-episode psychosis. In Chapter 2 these three constructs will be analysed and defined in greater detail, including an exploration of the different phenomenological characteristics of voice hearing, aetiological theories of dissociation, and issues surrounding trauma taxonomies and measurement. Chapters 3 and 4 locates the thesis within a broader research framework through presenting critical, systematic literature reviews around voice hearing and dissociation, and voice hearing and CSA. In addition to identifying recurrent themes and findings in existing work, these chapters will also identify limitations in current research, including an analysis of methodological weaknesses that compromise the ability to infer causal associations between voice hearing, dissociation, and CSA. Chapter 5 discusses the design of the two empirical studies within the thesis, including the ways they accord with the

tradition of descriptive epidemiological research. The challenges of conducting observational studies, and viable strategies to maximise rigour and reliability, will also be highlighted in this section. The second half of this chapter then develops this premise further through introducing the specific methods and assessment instruments employed in the current research, including a discussion of their relative merits and limitations. Chapters 6 and 7 present novel, empirical data from both studies, and comprise a detailed descriptive and inferential analysis of dissociation, voice hearing, psychological distress, and exposure to CSA and other adversities amongst patients experiencing a first-episode of psychosis. Finally, Chapter 8 draws these results together and combines them with the theoretical exploration of previous chapters. By locating the current findings within a broader clinical and conceptual literature, the chapter will demonstrate the original and beneficial contribution that the thesis has provided. Additional strategies are also discussed for refining and generating new knowledge in order to advance this important area.

Chapter 2

Construct Definition

A research enterprise centred around voice hearing, dissociation, and trauma necessarily requires some consideration of what these concepts imply. The purpose of the following chapter is to review the meaning of these core terms, including a summary of how they are currently used within the wider literature, suggestions for applying them in the most precise way, and various rationales for employing particular definitions within the thesis.

2.1   Voice Hearing

Voice hearing, at its most basic definition, refers to the auditory perception of human vocalisations in an absence of objective, corresponding stimuli (Bentall, 1990; Esquirol, 1838/1865; Slade & Bentall, 1988). For some it may be a fleeting and dispassionate event, yet in others inspire such profound and fundamental changes in personal, social, and cultural experience as to possess the equivalent "primitive immediacy" of a genuine sensory incident (Bell, Raballo & Larøi, 2010, p.378). Indeed, according to Bell et al. (2010, p.378), perceptions like voice hearing are anomalous:

> "…not so much due to the fact that they occur in the absence of sensory stimulation (in this sense, we are all hallucinating to some degree owing to the constructive nature of visual perception itself) but by the fact that the perception is accompanied by other feelings, such as urgency, certainty, and vividness."

Correspondingly, the numerous ways in which voice hearing can be experienced make its phenomenology an important concern from both a clinical and research perspective; not only in the objective sense of 'symptoms,' but also the broader meaning of 'subjectivity' (Blackman, 2001; Woods, 2013; Romme et al., 2009). In this regard, the concept of voice hearing has been reified within the thesis in terms of its *primary characteristics*, its *secondary features,* and the subsequent *impact and appraisals* that the experience may evoke (see Table 2.1). These qualities have been derived from a review and synthesis of available literature, and are discussed in detail below.

Table 2.1   Core defining characteristics, secondary features, and impact and appraisals associated with voice hearing.

Category	Sub-category		Descriptor
Primary form	Percept-like experience in an absence of appropriate stimulus		Not attributable to objective, corresponding stimuli, but experienced as sensation (as opposed to ideation) and induces the equivalent impact of a corresponding real perception
	Human vocalisation		Articulated human utterances (in either the hearer's own language or a foreign language), including spoken words, song, whispering, laughing, muttering, crying, shrieking, or screaming
	Experienced in a conscious state		Not a sleep-related (hypnogogic or hypnopompic) hallucination
	Not induced by organic or state-dependent factors		Not attributable to psychoactive substance use, to a medical and/or physical condition, or to context-dependent environmental circumstances (e.g., sensory deprivation)
Secondary features	Form	(i) Location	May emanate from outside or inside the head, from some other part of the body, or from an object like a radio or television set
		(ii) Acoustic volume	May be soft and subdued, an equivalent volume to the hearer's own voice, or loud and strident
		(iii) Frequency and duration	May occur weekly, daily, hourly or continuously; and for seconds, minutes, or hours at a time
		(iv) Number of voices	May range from a single voice, or small groups of voices, to 'crowd' sounds
		(v) Complexity and clarity	May vary in linguistic, semantic, and syntactic complexity; communicate in single words or phrases; or instigate entire conversations

Table 2.1 cont.

	Content	(i) Affective content	Voices may be neutral (e.g., impartial or banal), negative (e.g., malicious and threatening), or positive (e.g., a source of comfort and guidance)
		(ii) Personification	Voices may manifest as different genders/ages and may be identified with persons living or dead; known or unknown to the voice hearer; or with deities, supernatural, or non-human entities
Impact and appraisals	Control		The voices may be unamenable to direct and voluntary control, or alternatively can be summoned and dismissed at will. They may also be systematically triggered by particular affective or situational cues
	Beliefs about origin		Individuals may perceive their experiences as psychological and internally generated; as communication from an autonomous, external agent; or as a combination of both
	Distress		Voices may cause emotional distress and/or disrupt and impede social or occupational functioning. Alternatively they may be valued, and successfully incorporated and coped with as a customary part of life

Source: Compiled by the author.

2.1.1 Primary Characteristics of Voice Hearing

For the purposes of the thesis, the objective presence of voice hearing was defined according to particular parameters: (1) *a percept-like experience in the absence of appropriate stimulus*, which manifests as (2) *a human vocalisation*, which is experienced in (3) *a conscious state*, and which is (4) *not induced by organic or state-dependent circumstances.* In addition to clearly operationalising the construct of interest, these criteria also enabled the exclusion of phenomena, such as intrusive thoughts, that may be erroneously labelled as voice hearing, as well as types of voice hearing that were not relevant to the study aims, such as context-specific voices (e.g., those experienced during bereavement). For a discussion of how these objective characteristics were measured, please see Chapter 5.

2.1.1.1 Percept-Like Experiences in the Absence of Appropriate Stimulus

The earliest clinical exposition of 'hallucination' is generally ascribed to Esquirol (1838/1865), who famously described the phenomena as "the inward conviction of a presently

perceived sensation at a moment when no external object capable of arousing this sensation is within the field of…senses" (pp. 84-85). Over the years, this designation has remained relatively consistent: For example, the APA (2000) denotes "a sensory perception without external stimulation of the relevant sensory organ" (p.767), whereas Slade and Bentall (1988) conceive hallucinations as "any percept-like experience which (a) occurs in the absence of an appropriate stimulus, (b) has a full force or impact of the corresponding (real) perception and (c) is not amenable to direct or voluntary control by the experiencer" (p.23). In contrast, determining what constitutes a clinically-relevant hallucination is nowhere near so well-defined. The role of secondary features in influencing voice hearing's pathological character is discussed more fully in later sections of this chapter. However, in terms of its primary form, voice hearing can fundamentally be defined as a susceptible individual claiming to "'hear' the speech in the absence of the actual speaker" (Hoffman, 1986, p.503).

In this respect, it is also important to differentiate between voices and seemingly similar cognitive phenomena. According to Liester (1996, 1998), voice hearing anchors a continuum with other mental events, with *inner speech*, or the *inner voice* ('true' perceptions associated with the ego), at one end of the spectrum and hallucinations (a more extreme complement to the transcendent experiences of revelation, imagination, and intuition) at the other. *Inner speech* is an ambiguous term that has been defined in an assortment of ways, including "the overlapping region of thought and speech" (Jones & Fernyhough, 2007, p.148), "thinking in words" (McGuire et al., 1995, p. 596), verbal thought (Vygotsky, 1934/1987), and simply "speech without sound" (de Guerrero, 2005, p. 22). Some varieties of inner speech, such as intrusive thoughts, may bear some similarities to voice hearing in that both can be experienced as unwanted and uncontrollable mental events (Morrison & Baker, 2000). Nevertheless they are separate phenomena, with voice hearing experienced as a distinctly perceptual sensation rather than the type of ideation associated with thoughts and inner speech (Langdon, Jones, Connaughton & Fernyhough, 2009).

2.1.1.2 Human Vocalisation

Although the phrase 'auditory hallucination' is frequently and generically used in professional literature as synonymous with voice hearing, the usage of this term is not restricted solely to the hearing of human speech. For example, McIsaac and Eich (2004) have documented patients hearing police sirens during posttraumatic flashbacks, Cheyne and Girard (2007) report on hallucinated animal noises in patients suffering sleep paralysis, and reports of hallucinatory music (Close & Garety, 1998) and environmental sounds, such as rustling leaves (David, 1994), have been observed in populations of psychotic patients. Similarly, the UK Hearing Voices Network includes any 'unusual' aural experience in its remit (Downs, 2005). For the purposes of the thesis, voice hearing will be used solely to refer to the hearing of

human vocalisations, including non-articulated speech, such as crying, laughing, or screaming, or unintelligible human utterances, like muttering or whispering. However, the sounds may not necessarily be perceived as uttered by a human being; for example, see Blackman (2001), Romme et al. (2009), and Watkins (2008), for accounts of 'robotic' voices, 'demonic' voices, or voices attributed to angels and animals.

2.1.1.3 Conscious State

Hypnogogic hallucinations occur at the boundaries of consciousness leading out of sleep (hypnopompia), or at the onset of sleep (hypnagogia). The hearing of voices (particularly, though not exclusively, one's name being called), music, and indeterminate sounds are a common feature of both experiences (Balkin et al., 2002) and can manifest with such vividness and clarity that individuals may rise from their bed to investigate the noise's source (Watkins, 2008). Sleep-related hallucinations can also manifest in other sensory modalities, including visual, nociceptive, and proprioceptive. For example, the sense of falling, then jerking oneself awake to avoid hitting the ground, is a common example of an 'equilibrioceptive' hypnogogic hallucination (Ohayon, 2000).

Some studies in the general population include hypnogogic hallucinations as a measure of voice hearing (e.g, Barrett & Etheridge, 1992; Posey & Losch, 1984; Pearson et al., 2008), and hypnopompia and hypnagogia are often regarded as an indication of hallucinatory proneness or predisposition (a construct characterised by the experience of vivid mental events, such as daydreams, auditory and/or visual hallucinatory experiences, and religious hallucinatory experiences; Bentall & Slade, 1985; Paulik, Badcock & Maybery, 2006; Slade & Bentall, 1988). Nevertheless, they are essentially considered normal, non-pathological phenomena that occur in between 12.5% (hypnopompia) and 37% (hypnagogia) of the general population (Ohayon et al., 1996). For this reason, sleep-related voice hearing was not included as a remit within this thesis.

2.1.1.4 Not Induced by Organic or State-Dependent Circumstances

Although frequently perceived as synonymous with psychological disturbance, voice hearing may also be the province of medical- and/or organically-induced states. In addition to being characteristic of various non-psychiatric conditions, including migraine, Huntington's disease, and focal epilepsy, voice hearing can also be induced by the consumption of various non-prescription psychoactive substances (many substance-related disorders in DSM-5, for example, include voice hearing as part of their diagnostic criteria: APA, 2013). Furthermore, some prescription medications can also induce voice hearing in otherwise healthy individuals, including such commonly prescribed drugs as lanoxin (for hypertension), ranitidine (for gastric ulcers), and combined hydrochlorothiazide and triamterene (for cardiac problems).

Voice hearing of this type was excluded as a variable of interest within the thesis. Similarly, the thesis did not incorporate voice hearing experiences that are attributable to specific context-dependent states, such as periods of isolation and/or sensory deprivation (Asaad & Shapiro, 1986), bereavement (Grimby, 1993), imaginary childhood companions (Pearson et al., 2001), hypnosis (Slade & Bentall, 1988), or near-death experiences (Greyson & Stevenson, 1980).

2.1.2 Secondary Characteristics of Voice Hearing

The classic concept of a hallucination as a 'sensory perception in the absence of sensory stimulation' is perhaps one of the most lucid and precise in clinical psychiatry (Sims, 2002). However, as noted by Bell et al. (2010), such narrow definitions inevitably fail to depict the full range, interpretation, and construal of the perceptual distortions to which humans are liable. Correspondingly, voice hearing can be seen as possessing numerous features that are secondary to the mere 'presence' or 'absence' of voices, all of which are subjectively experienced in diverse ways. These variables can be categorised within two central themes, each comprising a subset of different factors: (1) form (*location, frequency and duration, acoustic volume, number of voices,* and *complexity and clarity*); and (2) content (*affect* and *personification*). Given the emphasis that Study 4 places on secondary voice characteristics, the clinical and theoretical significance of these terms will also be considered, in addition to providing definitions. The measurement of these characteristics was assessed separately from the objective presence of voice hearing, and is discussed more fully in Chapter 5.

2.1.2.1 Form

The form in which voices manifest incorporates a number of structural characteristics that, taken together, determine the perceptual qualities of the voice hearing experience.

2.1.2.1.1 Location

The spatial locus of voice hearing is most commonly defined according to the following three parameters: external (emanating from outside the head and heard through the ears); internal (experienced within the head); or a combination of both (Haddock, McCarron, Tarrier & Faragher, 1999). Individuals may report voices as originating from external space, or from a specific source, such as environmental features (e.g., rustling leaves, passing traffic), from other people, from animals, or generated from mechanical objects like a television set (Hatashita-Wong & Silverstein, 2003; Nayani & David, 1996; Romme et al., 2009). Voices may also be 'heard' in other parts of the body, such as the stomach or neck, although such experiences are relatively unusual (Watkins, 2008). For some individuals a voice(s) location is

clear and distinct, whereas others experience voice location as nebulous and indeterminate (Romme et al., 2009). Both Nayani and David (1996) and Romme, Honig, Noorthoorn and Escher (1992) have reported that more 'experienced' voice hearers may be more likely to hear voices inside the head, with voices shifting from external to internal as coping improves and distress is reduced. However, the possible mechanisms for this change were not explicitly explored by either group of authors, and to date it is not fully understood what psychological or neurological variable determine voice hearing locus. For example, while voices heard through the ears were traditionally deemed conceptually further from normal thought (and therefore more pathological in character) than internally located voices, it is now generally recognised that voice location has no clinically predictive value in terms of variables like psychotic or non-psychotic diagnostic status, malevolent/benevolent content, and medication reliance (e.g., Copolov, Trauer & Mackinnon, 2004a; Judkins & Slade, 1981; Moskowitz & Corstens, 2007). Indeed, the revised version of DSM-IV (APA, 2000) ceased linking external voices with schizophrenia, despite doing so in all previous editions.

2.1.2.1.2 Acoustic volume

The acoustic intensity of voice hearing appears to be extremely variable, manifesting as quieter than the hearer's own voice, of equivalent levels, slightly louder, or dramatically more vociferous (Haddock et al., 1999). For example, a survey of 100 voice hearers with psychotic diagnoses (Nayani & David, 1996) found that while the majority of the sample (73%) reported voices speaking at a "normal conversational volume," 14% described whispers, and 13% stated that their voices shouted. Typically, angry voices were more likely to be loud and strident, whereas third-person commentary was heard at conversational volume. A large phenomenological study of 199 voice hearers (McCarthy-Jones et al., 2014), mainly with a diagnosis of schizophrenia, reported comparable results with voices most commonly speaking in a normal conversational tone, but also whispering (31%) or shouting (4%). Stephane, Thuras, Nasrallah, and Georgopoulos (2003) similarly report that voice utterance may be experienced as comparable to normal conversation, as louder or softer, and may vary in volume over time. However, with the exception of Andrew, Grey, and Snowdon (2008), who found that patients reported louder voices than non-patients, the few studies comparing voice hearing volume in different populations suggest that it may not reliably vary between individuals diagnosed with schizophrenia and either non-patients (Daalman et al., 2011a; Leudar, Thomas, McNally & Glinski, 1997) or those diagnosed with non-psychotic conditions (Kingdon et al., 2010).

2.1.2.1.3 Frequency and duration

Another dimension in which voice hearing may vary is the length and regularity of occurrence. Nayani and David (1996) found that 12% of their sample experienced voices once or twice a day, 36% several times a day, 37% 'most of the time,' and 15% 'constantly.' Voice encounters could last from seconds to minutes (33%) to around 30 minutes (25%) or in excess of one hour (42%). Significant correlations were found between frequency and duration. Likewise a comparison of voice hearing experiences between patients diagnosed with schizophrenia (n=5) and posttraumatic stress disorder (PTSD: n=13) found that the majority heard voices at least once a week, with 40% of the schizophrenia group and 38% of the PTSD group hearing them daily (Jessop, Scott & Nurcombe, 2008). The 199 individuals surveyed by McCarthy-Jones et al. (2014) were also most likely to hear voices for hours at a time (59%), with fewer reporting durations of seconds (12%) or minutes (31%).

Available evidence suggests that clinical populations experience voices more frequently and/or for a longer duration than non-patients (e.g., Andrew et al., 2008; Cottam et al., 2011; Daalman et al., 2011a; Honig et al., 1998), although the association between voice regularity and subsequent impact is not conclusive. For example, while an investigation amongst 236 university students (Larøi & van der Linden, 2005) reported significant associations between frequency and perceiving voices as positive, a corresponding survey of verbal hallucinatory experiences within 184 members of the general population (Lawrence, Jones & Cooper, 2010) found that frequency was associated with increased depression and anxiety and the tendency to view voices as hostile and omnipotent. However, neither frequency nor duration of voice hearing appears to be stable. Rather it may fluctuate over time as a function of enhanced coping, successful psychological and/or pharmacological therapy, or in response to environmental and psychosocial stressors (Romme et al., 2009).

2.1.2.1.4 Number

The number of voices an individual hears is generally not static, rather varying over the life course (Corstens & Longden, 2013; Jenner et al., 2008; Romme et al., 2009). In terms of point prevalence, Nayani and David (1996) found that the number of reported voices ranged from one to 14 (an average of 3.2) amongst 100 patients with a diagnosis of psychosis. In addition, 57% of participants reported hearing 'crowd sounds' in terms of numerous people talking or mumbling simultaneously. Corstens and Longden (2013) likewise found the most common experience amongst their sample of 100 voice hearers, principally diagnosed with schizophrenia, was to hear between two and five voices, with a minority of participants (7%) reporting more than 20. Similar to Nayani and David, some individuals also experienced multiple crowd-type voices (although it is also possible for smaller groups of voices to speak simultaneously: Stephane et al., 2003). McCarthy-Jones et al. (2014) also found that their 199

participants heard an average of 4.3 voices (SD=4.9), although 28% also reported an 'uncountable' number.

2.1.2.1.5 Complexity and clarity

The linguistics of voice hearing are generally conceptualised in terms of syntax (i.e., utterances in the first, second, or third person) and complexity (i.e., hearing words, sentences, or conversations). In contrast, acoustic clarity has been characterised by Stephane et al. (2003) as 'clear' (comparable to external speech), or 'deep' (like internal speech or thinking in words). According to Junginger and Frame (1985), who used self-report measures to assess phenomenological voice characteristics (loudness, clarity, location, and perceived reality) in 52 psychiatric patients, clarity was the variable that was most reliably reported. However, contrary to the traditional assumption that external voices are perceived as more 'real,' (i.e., 'true' as opposed to 'pseudo' hallucinations) acoustic clarity was not associated with external voices. McCarthy-Jones et al.'s (2014) sample of 199 voice hearers likewise typically described their voices as 'clear' (46%) or 'very clear' (24%), with 77% additionally stating that voice utterances were coherent, and 85% rating their reality as 'very real' as opposed to 'somewhat real' or 'dream-like' (11%).

Nayani and David (1996) reported an average of three to five words per voice utterance amongst a sample of 100 patients with psychosis, with a range spanning from none (i.e., crowd sounds) in one patient, to 125 words in another. The number of words spoken by voices was significantly correlated with frequency (i.e., individuals who heard voices habitually were more likely to report a wider array of vocabulary). The authors used voice types (e.g., critical, neutral, pleasant, frightening) as an index of 'prosodic complexity' and found that the average number was six per patient. In turn, prosodic complexity was significantly correlated with the total number of different utterances, but not with illness duration or amount of hospital admissions. Furthermore, these authors suggest that the complexity of voice utterances may increase over time. Linguistically, voices may also resemble genuine persons in the voice hearer's life (Corstens & Longden, 2013; Hoffman et al., 1994; Miller, O'Connor & Di Pasquale, 1993), although some studies have found that voices experienced internally are more likely to manifest as linguistically complex and systematised than external voices (Stephane et al., 2003; Nayani & David, 1996).

2.1.2.2 Content

The content of voice utterances includes a selection of factors that influence the psychological qualities of the experience.

2.1.2.2.1 Affect

At its most basic, the division in voice hearing's affective content can be characterised as negative and/or distressing, positive and/or non-distressing, or neutral and/or affectively impartial. According to an analysis of 50 voice hearers by Beavan and Read (2010), affectively positive content may be characterised as advice and guidance, the provision of information, compliments, encouragement, or comfort. In contrast, negative content may feature pernicious advice and information, criticism or threats of harm to self/others, or valenced sounds such as screams or cries. In turn, neutral or ambiguous content was characterised as mundane advice or information provision, comments, repetition, instructions, nonverbal sounds, premonitions, or calling the name of the voice hearer. In 44% of cases, participants heard a mixture of all three categories, a variability that has been reported by other authors (e.g., Corstens & Longden, 2013; Honig et al., 1998; Johns, Hemsley & Kuipers, 2002).

As may be imagined, the simplicity of the positive/negative/neutral distinction is not always adequate in phenomenological terms for capturing the range of emotional material inspired and engendered by voices. Indeed, not only is designating voice content as benevolent or malign highly subjective (e.g., a voice instructing an individual to "get out of bed and tidy the house" may be perceived as a helpful motivator, or as critical and imperious), some individuals may attribute benign and malicious properties to their voices simultaneously (Sayer, Ritter & Gournay, 2000). Nevertheless the substance of voice hearing is a significant predictor of subsequent incapacity and distress. As such, and despite Schneider's (1959) emphasis on the structural characteristics of voice hearing for determining clinical status (see Chapter 1), it may be that an excess of negative voice content, or the absence of positive content, are more reliably indicative of incipient psychopathology (Beavan & Read, 2010; Daalman et al., 2011a; Romme et al., 2009). In this respect, studies have consistently shown that psychiatric samples are significantly more likely to hear malign, demoralising voices than non-clinical groups (see Johns et al., 2014; and Larøi et al., 2012, for review), whereby content incorporates abuse, curses, criticism, threats, or overbearing commands.

The prevalence of positive voices has been studied in less detail, although estimates suggest between 33% to 60% of psychiatric patients report hearing positive or pleasing voices at least once (e.g., Copolov, Mackinnon & Trauer, 2004b; Honig et al., 1998; Nayani & David, 1996; Jenner et al., 2008; Sanjuan, Gonzalez, Aguilar, Leal & van Os, 2004), with some even recruiting the support of benevolent voices to counter more negative, disturbing ones (Davies, Thomas & Leudar, 1999; James, 2001; Jenner et al., 2006; Romme et al., 2009). Indeed, according to Jenner et al. (2008, p.244), the "protective power and problem-solving capacity" attributed to positive voices can, in some cases, render them a valuable therapeutic resource that can be utilised for coping enhancement (see also Romme & Escher, 2000; Romme et al., 2009). Furthermore, the high value placed on benevolent voices can potentially

deter treatment-seeking for more negative ones, in the fear that all voices will be eradicated in consequence (Jenner et al., 2008; Jenner, 2006). In a sample of 199 patients, mostly diagnosed with schizophrenia, nearly half of the respondents (47%) stated that they would miss their voices 'a lot or often' if they went (McCarthy-Jones et al., 2014).

Voice(s)' affective content may also be influenced by situational and contextual variables. In an intriguing demonstration, Schafer and Martin (1969) showed how expectancy and demand characteristics shape voice utterances, whereby a patient's voices altered in tone depending on cues in experimenter dress and demeanour. Skirrow, Jones, Griffiths, and Kaney (2002) have similarly found that voice content can be affected by current media events, particularly for those whose personal histories make the coverage particularly significant. In contrast, a study of 41 patients with first-episode psychosis reported that attributions for recent stressful events influenced core voice hearing themes in terms of persecutory, depressive, or grandiose content (Raune, Bebbington, Dunn & Kuipers, 2006). These findings are consistent with the claim that, since hallucinations are by definition self-generated, it is reasonable to suppose that content reflects interactions between individual and environmental variables (Bentall, 1990, 2004; Slade & Bentall, 1988; Romme & Escher, 2010), as well as the hopes, fears, and vulnerabilities of the voice hearer (Corstens, Escher & Romme, 2008; Johnstone, 2011; Hornstein, 2009; Romme & Escher, 2000), albeit in a possibly disguised and distorted way (Corstens & Longden, 2013; Longden, Corstens, Escher & Romme, 2012b; Romme et al., 2009).

2.1.2.2.2 Personification

Many voice hearers are able to formulate coherent, interpersonally significant accounts of what or whom is speaking to them (Corstens & Longden, 2013). Furthermore voices can be appraised under many guises, with individuals sometimes proffering different explanatory identities for each of the voices they hear (Romme et al., 2009). In general, voice content is cited as the most helpful strategy for distinguishing between voices; with menacing, punitive utterances ascribed to unseen enemies or evil entities, and benevolent, encouraging voices characterised as religious figures, or comforting and instructive guides (Birchwood & Chadwick, 1997). In addition to content, other variables used to personify voices may include accompanying non-auditory hallucinations, contextual cues (such as the circumstances in which voices are heard), the identity voices claims for themselves, or the resemblance of voice characteristics to known persons (Birchwood & Chadwick, 1997; Leudar & Thomas, 2000; Romme et al., 2009). Researchers have also identified specific cultural variations in the manner by which voices are interpreted. For example, while psychiatric patients in Western cultures are more likely to attribute persecutory or technological themes, those in more traditional African (Scott, 1967), Asian (Suhail & Cochrane, 2002), Middle Eastern (Atallah,

El-Dosoky, Coker, Nabil & El-Islam, 2002), and Maori (Beavan, 2007) societies ascribe voice hearing experiences to deceased ancestors or spiritual entities with greater frequency.

In a sample of 100 patient voice hearers, Corstens and Longden (2013) found that 78% were able to assign identities to different voices, the most common representation being aspects of the voice hearer themselves, such as themselves at a certain age (48%) or abusive family members (45%). Nayani and David (1996) also found that 61% of their participants could identify voices, with 'delusional personas' (e.g., voice of God, the Devil, robots etc., n=15) clearly distinguishable from real-life identifications of known and significant people (e.g., neighbours, relatives, doctors etc., n=46). In contrast, a comparison between 14 persons diagnosed with schizophrenia and 14 non-patients found that a minority (three patients and four non-patients) experienced solely 'incognito' voices whom they could not individuate, the majority (six patients and seven non-patients) heard voices whom they aligned with individuals in their social worlds, with four patients and one non-patient hearing a blend of incognito and aligned voices (Leudar et al., 1997). The non-patients were more likely to identify voices as family members or themselves, whereas patients were more likely to characterise theirs as public figures or supernatural beings. Participants used a combination of conduct factors (how the voice expressed itself) and situational factors (the circumstances in which it typically appeared) to distinguish and individuate their voices.

Similar patterns are reported by Close and Garety (1998) and du Feu and McKenna (1999), who found that 70% of their respective participants could firmly identify at least one of their voices. In contrast, the first large-scale investigation into the experience of non-clinical voice hearers found that out of 173 respondents, 44% identified their voices as gods or spirits, 31% as a 'special gift,' 28% as known acquaintances, and 18% as a 'good guide' (Romme & Escher, 1989). The finding that non-clinical groups are particularly likely to ascribe their voices to a spiritual or religious framework has since been replicated by other researchers (e.g., Andrew et al., 2008; Cottam et al., 2011; Heriot-Maitland, Knight & Peters, 2012; Jackson & Fulford, 1997).

Two qualities frequently ascribed to voices are gender and age. Although some voices may manifest with indeterminate age and gender (Leudar & Thomas, 2000), surveys in Western samples suggest that male voices are more typical (Corstens & Longden, 2013; McCarthy-Jones et al., 2014; Nayani & David, 1996); with individuals under 30 additionally reporting young voices (i.e., children, teenagers, or young adults), and individuals over 30 more likely to identify their voices as middle-aged (Nayani & David, 1996). This latter study also found that it was common to characterise voices as a higher social class than oneself, and to hear voices speaking in a different accent to one's own (although these nuances were always of a personally and/or culturally relevant provenance for the voice hearer).

Finally, voice identity may often be closely associated with one's past experience (for example, a victim of sexual violence may continue to hear the voice of the perpetrator long after the event: Romme et al., 2009). According to some authors, such ego-dystonic, posttraumatic intrusions are consistent with the notion of voices reflecting dissociated traumatic content, which (in contrast to flashbacks) are often experienced without awareness that what is occurring is an internal (memory-based) event, instead being interpreted as external and current (Corstens et al., 2012; Moskowitz, Read, Farrelly, Rudegeair & Williams, 2009; Longden et al., 2012a-b). Recent research by Dorahy et al. (2009) amongst 63 individuals with a diagnosis of schizophrenia or DID has provided some support for this contention, in that levels of dissociation increased the likelihood of voices personifying influential persons from the patient's past.

2.1.3   Impact and Appraisals

The impact and appraisals generated by voice hearing are derived from a combination of primary and secondary characteristics, and can be gauged in terms of the subjective effect of these factors on the voice hearer. As with the secondary characteristics discussed above, the emotional and behavioural impact of voices were assessed separately from the objective presence of voice hearing, which is discussed more fully in Chapter 5.

2.1.3.1 Distress

The intensity of distress induced by voices is believed to be an important index of latent psychopathology, and is therefore a common discriminator between clinical and non-clinical populations wherein healthy voice hearers are less likely to be disturbed by voice presence (e.g., see Johns et al., 2014, for review). Numerous variables appear to govern individual distress in response to voice hearing (e.g., preoccupation with voices, their perceived power and influence, intrusiveness, or frequency). However, a growing body of research suggests that links between voice hearing and psychopathology are strongly influenced by an individual's interpretation of and/or emotional response to their voices (e.g., Bak et al., 2005b; Krabbendam et al., 2004; Morrison, 1998; Romme et al., 2009; Trower, Birchwood & Meaden, 2010). That is, the problem may not inevitably be the presence of voices *per se*, but rather the person's capacity to integrate and make sense of the voice hearing experience, and by extension the emotional representations embodied by the voices. One implication of this position is that of voice hearing as a psychological sequelae to stress exposure, whereby distressing intrusiveness will recede if the underlying reasons for voice presence are addressed and resolved. There is some emerging support for this therorising (e.g., Andrew et al., 2008; Corstens et al., 2008; Nurcombe, Scott & Jessop, 2008; Romme et al., 2009; Suri, 2010), and the notion forms the basis of the international 'Hearing Voices Movement,' a user-led

initiative concerned with developing self-help and coping strategies, reducing the stigma associated with voice hearing, and emphasising the possible role of life events in its origin and maintenance (Hornstein, 2009; Intervoice, 2010; James, 2001, Longden et al., 2013).

2.1.3.2 Control

The notion of control has been extensively studied within voice hearing, and it is suggested that individuals who perceive themselves as having low mastery over powerful voices become more threatened and demoralised by them (Morrison, Haddock & Tarrier, 1995). The significance of such appraisals was first described by Bauer (1970), who reported how a voice's "terrifying and compelling quality" may induce a sense of entrapment and powerlessness on the part of the voice hearer (p.169). Specifically, the concept of command hallucinations refers to voices that issue instructions and directives to the hearer, varying from the innocuous (e.g., wearing a particular item of clothing) to serious social transgressions, or risk of harm to self and/or others. Prevalence estimates fluctuate, although rates of between 13% (Suhail & Cochrane, 2002) and 53% (Lee, Chong, Chan & Sathyadevan, 2004) have been reported amongst samples of psychotic patients. Estimates of compliance rates are equally variable, ranging from 32 to 35% (McCarthy-Jones et al., 2014) and 88.5% (Hersh & Borum, 1998).

Although the content of command hallucinations is often distinguished from non-directive voice hearing in terms of greater hostility, reliance, and self-punishment themes (Rogers et al., 1990), benevolent voices are more likely to be responded to with unquestioning obedience than aggressive ones (Beck-Sander et al., 1997; Rudnick, 1999). Observance may also be influenced by the individual's current state, such as self-injuring whilst depressed, but in its more extreme form can result from fear of the penalties of resisting (Lee et al., 2004; Leudar & Thomas, 2000; Meaden, Birchwood & Trower, 2010; Trower et al., 2004). Other factors appearing to relate to compliance are the presence of voice-related delusions (Junginger, 1990, 1995), familiarity with the voice issuing the command (Rudnick, 1999), the acceptability of the command itself (Barrowcliff & Haddock, 2010), the voice hearer's locus of control (Longden & Waterman, in preparation); the consequences of obeying the demand, the likelihood of acquiescence achieving a valued goal, and power schemas concerning beliefs about voice authority and influence (Beck-Sander et al., 1997). Some authors have also suggested that externalising threatening psychological events, such as rage, guilt, or shame, as voices can be seen as an attempt to minimise cognitive dissonance (Festinger, 1957) by diminishing personal accountability and assigning it to an external other (see Bentall, Haddock & Slade, 1994; Chadwick, Birchwood & Trower, 1996; Morrison et al., 1995). Research has also suggested that the presence of destructive command hallucinations may be related to trauma exposure in some individuals, including childhood abuse (Dorahy et al.,

2009; Read et al., 2003) and combat trauma (Holmes & Tinnin, 1995). Indeed, levels of posttraumatic symptomatology (particularly dissociation) may be a significant predictor of the likelihood of experiencing command hallucinations and perceiving oneself as a subordinate self-as-object that is dominated and entrapped by powerful voices (Dorahy et al., 2009), as well as the ego-dystonic sensation of voices as independent and uncontainable (Anketell et al., 2010).

In contrast, some individuals exert such control over their voices that they can dismiss or summon them at will. This is often a capacity developed as part of a wider rubric of enhanced coping (Corstens et al., 2008). For example, the UK Hearing Voices Network provides guidance on the concept of 'time-sharing,' whereby voice hearers practice scheduling structured time to spend with their voices, coupled with neglecting and dismissing them at other times (Downs, 2005; May & Longden, 2010). Enhancing perceptions about control and omnipotence is a central component for individuals undergoing cognitive behavioural therapy for voice hearing (Chadwick, Sambrooke, Rasch & Davies, 2000; Meaden et al., 2010; Trower et al., 2010), as beliefs in subjective influence over voice(s) is related to lower compliance to all types of command, whether, innocuous, severe, or self-harming (Beck-Sander et al., 1997). For example, Cognitive Therapy for Command Hallucinations is a specialised therapy that incorporates: (a) disputing and reframing power beliefs about voices; (b) creating psychological formulations for voice presence, including the possible role of traumatic experiences; and (c) promoting control and coping strategies (Meaden et al., 2010).

2.1.3.3 Beliefs about Origin

Some voice hearers report a simultaneous blend of internally and externally generated voices classified as 'voices are me' and 'voices are not me' (Romme & Escher, 2006). Correspondingly, individuals may offer a plethora of explanations for voice presence, ranging from the supernatural, psychic, or paranormal, to the religious or spiritual, and the psychological, biological, or technological (Romme et al., 2009; Watkins, 2008).

Beliefs about the origins of voice hearing, and one's subsequent response to it, are related in complex, reciprocal ways. More specifically, voices can be identified as self-generated (i.e., coming from within the voice hearer) or externally sourced (i.e., derived from the outside world), with each belief accounted for within frameworks of varying coherence and plausibility (see Figure 2.1). In clinical terms, an important index of patients' explanatory frameworks is whether they have insight and can recognise voices as a self-generated reality. Technically insight is not an experienced part of voice hearing itself, rather a subsequent appraisal by the voice hearer (essentially equivalent to a secondary delusion: Moskowitz & Corstens, 2007). Nayani and David (1996), who investigated the voice hearing experiences of

100 patients with diagnoses of assorted psychotic syndromes, found no statistically significant associations between insight and reality testing, leading them to conclude that: "insight does not derive, solely, from the experience of the quality and form of the hallucination" (p.188). Hallucinatory experiences and delusional thought proneness do not appear to overlap in the general population (Preti et al., 2007), and a prospective, 10-year study of 2,524 German adolescents has similarly reported that while delusion content appears contingent on the presence of hallucinations, voice hearing is not contingent on the presence of delusions (Smeets et al., 2012). Correspondingly, several authors have argued that delusions can plausibly be understood as confused efforts to explain the sensory anomalies associated with hallucinations (in all modalities), particularly amongst those who readily attribute affective, atypical, and negative occurrences to suspected external dangers (Bentall et al., 2001; Dodgson & Gordon, 2009; Henquet et al., 2005; Morrison 2001, 2004, 2005).

SELF-GENERATED		EXTERNALLY GENERATED	
⇩	⇩	⇩	⇩
Implausible/ delusional explanation	Plausible/ coherent explanation	Implausible/ delusional explanation	Plausible/ coherent explanation
⇩	⇩	⇩	⇩
"My voice comes from a brain implant"	*"My voices are self-criticism"*	*"My voices are demons"*	*"My voices represent my abuser"*
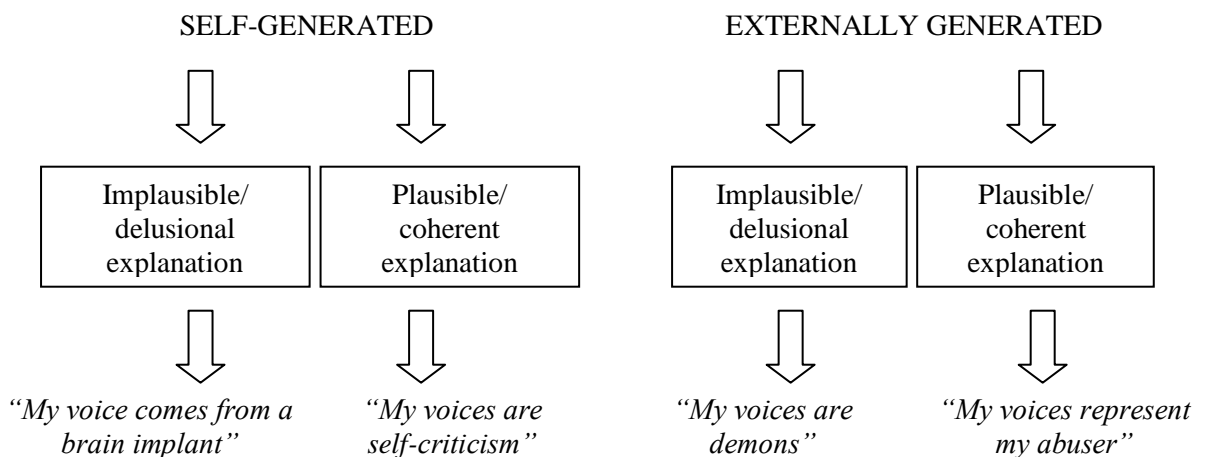
Figure 2.1   Potential beliefs about voice origin, and subsequent attributions.

Source: Compiled by the author.

Unsurprisingly, those who develop delusional ideation to explain their voices generally exhibit greater clinical need, higher comorbidity for negative symptoms, and higher rates of mood disorders, anxiety, suicidal ideation, and non-genetic risk factors (e.g., childhood abuse, urbanicity) than those experiencing either voice hearing or delusions in isolation (Smeets et al., 2012). In this respect, and consistent with Morrison's (1998) theory of voice continuance, depression and anxiety have been shown to be significant determinants both of voice hearing persistence and developing subsequent psychosis (Escher et al., 2002a, 2002b, 2004; Yoshizumi et al., 2004). For example, a prospective cohort study by Krabbendam et al. (2005) examined the outcomes of a random sample of 4,670 individuals with no lifetime evidence of any psychotic disorder. Participants were assessed at baseline and at one and three years later, with demographic variables, lifetime presence of depression, and

the presence of delusional ideation at Time Two all controlled for. After adjusting for confounding variables, individuals reporting voice hearing at baseline and depression at Year One had a significantly higher risk of developing psychosis at Year Three compared to non-depressed voice hearers.

In this respect, research with recovered and/or non-patient voice hearers indicates that locating one's voices within a personally meaningful and/or non-threatening context may be protective against the fear and demoralisation linked with poor prognosis in voice hearing (a significant number of non-clinical voice hearers, for example, conceptualise their voices as religious or spiritual communications: see McCarthy-Jones, Waegeli & Watkins, 2013). Access to a constructive, normalising, and personally significant framework for one's voices thus appears to be an important factor for coping successfully with the experience (Garrett, 2010; Heriot-Maitland et al., 2012; Romme et al., 2009).

2.1.4 Challenges and Limitations in the Literature

A discussion of weaknesses in the voice hearing literature as they specifically relate to the current research aims are presented in Chapters 3 and 4. Nevertheless there remain some broader problems regarding the utility, reliability, and generality of studies in this area that warrant additional acknowledgement here (for a discussion of how some of these issues influenced the design choices of the current research, please also see Chapter 5). Firstly, despite construct definition being an important pre-requisite for research endeavours, authors in this domain do not always provide a precise definition of what 'auditory hallucinations' is being used to refer to (e.g., verbal and/or non-verbal hallucinations, whether sleep-related or substance-induced hallucinations are excluded; and, when applicable, whether reported rates are prevalence or incidence). This is of particular relevance for research in non-clinical samples, and there is a need for refined methods with which to define and establish the presence of hallucinations in individuals with no identifiable psychiatric or neurological diagnoses (Johns et al., 2014; see also Chapter 4). Similarly, just as individuals diagnosed with schizophrenia do not constitute a behaviourally or clinically homogenous group, there is no reason to suppose that participants who hear voices can themselves be simply categorised.[7]

---

[7] This imprecision in selection criteria also extends to patient voice hearers. Although psychiatric diagnoses are notoriously unreliable and encompass participants who are widely heterogeneous in respect to different variables (Kirk & Kutchins, 1994), it is not uncommon for research papers to only report diagnoses without confirming how these were ascertained and, in some cases, without identifying diagnostic criteria. Similarly, the inclusion or otherwise of patients with comorbid conditions like neurological damage or substance dependency is not always stated. Aboraya et al. (2006) attribute causes of diagnostic unreliability to clinician interpretation, patient reporting, and psychiatric nomenclature; and suggest the presentation of diagnostic criteria, symptom definition, and the employment of structured clinical interviews as measures for enhancing the reliability of diagnostic labels. "In [the] service of precision and replicability," Cash (1973, p.280) likewise recommends

For example, Romme and Escher's (1993, 1997, 2000) three-phase model (startling; organisational; stabilisation) indicates that individual reactions to, and appraisals of, their voices vary substantially according to how long voices have been present; whereas McCarthy-Jones et al. (2014) argue that phenomenological subtypes of voices may exist (e.g., hypervigilance voices, memory-based voices, voices which are repetitive and do not generate novel content), which in turn are not explicable using the same neurocognitive models. Despite this there is a notable lack of specificity in the literature about the different dimensions of voice hearing, and any differential effects of these on dependent measures (e.g., voice content and characteristics, the number of voices reported by participants, the frequency/duration of voices, and whether voice hearing is acute or chronic), despite such factors being of central importance to voice hearers themselves (Beavan, 2007; Beavan & Read, 2010; Corstens & Longden, 2013; Romme et al., 2009).

In terms of design limitations, the voice hearing literature suffers from the same pervasive limitation as other branches of clinical research, in that insufficient detail is often given about participant selection. This is important, because of the considerable variation in the course and outcomes of mental health disorders and the influence of psychosocial variables on these (see also Chapters 3 and 4). Indeed, it has been claimed that factors associated with recruitment can account for the same amount of variance in outcome research as the use of medication *vs.* placebo (Hirsch, 1986). In this respect, a second consideration pertains to the use of comparison groups. While it is valuable to assess participants with and without an outcome of interest, reliability is strengthened when samples share as many other features as possible (Bhopal, 2004). However, it is not uncommon in this literature (as well as in schizophrenia research more generally) to compare voice hearing patients with non-clinical samples from the general population. Although this practice pre-supposes that group differences occur as a function of variables specific to the status of experiencing hallucinations (or, when patient and non-patient voice hearers are compared, as a function of psychiatric status), it cannot separate out such important influences as hospitalisation, neuroleptic drugs[8], and nonspecific psychopathology (Cash, 1973). Other studies likewise

---

administering standardised psychometric tools/diagnostic instruments as part of participant recruitment rather than just during data collection (preferably by independent professionals blinded to the study predictions). Eisenman (1966) and Zigler and Philips (1961) have even suggested that tools like the Minnesota Multiphasic Personality Inventory are superior gauges of symptom similarity than traditional diagnostic labels, which can also communicate specific, theoretically relevant characteristics according to well-defined, psychometric criteria.

[8] Given that the express purpose of psychiatric drugs is to modify cognition and behaviour, medication is a particularly important confound that can contaminate the assessment of both overt measures and putative psychological processes. Nevertheless, studies frequently omit to mention whether participants were receiving medication during the investigation, or discuss the possible impact of drugs on relevant measures (see also Chapter 3). This is an important limitation, as variations within clinical populations, and between patient and non-patient groups, may sometimes be attributable to the extent of medication use (Blanchard, 1992).

only evaluate voice hearers on single or repeated measures (or amongst sub-groups of voice hearers with schizophrenia-spectrum diagnoses), without reference to either non-patients or voice hearers with non-psychotic conditions. However, although more arduous to design and implement, such multi-comparison studies (e.g., Daalman et al., 2012; Perona-Garcelán et al., 2008; Varese et al., 2012b) are better placed to reduce confounding and limit the number of alternative interpretations for results. Similarly, neglecting to include an adequate comparison/control group obscures whether or not the findings are specific to hallucinating individuals (with or without a particular diagnostic status), or if they might be equally applicable to other psychiatric populations, or even non-clinical groups. In turn, these issues are compounded by a widespread use of convenience/opportunity samples, and insufficient attention to confounding variables (see also Chapters 3 and 4).

Conceptually, a further weakness in this literature is that work can be heavily theory-driven, in that studies may often be aimed at generating or elaborating theories rather than refuting them. Such approaches frequently govern the selection of variables under study and steer results towards confirming pre-assumed models; and, as such, there is not always sufficient acknowledgement that the findings could be equally well explained by alternative models, variables, or explanatory frameworks. This is a difficulty that extends into schizophrenia /psychosis research more generally, and has been summarised in early review by Cash (1973), who reflected on "a frequent inability to replicate empirical findings. Moreover, the findings are consistently subject to numerous alternative interpretations" (p.278). Conversely, however, it should be noted that there are still several areas in this field that remain *under*-theorised. As discussed in Chapter 1, this may be partly because voice hearing was traditionally subsumed within the broader study of schizophrenia syndromes, and has only become a subject of scientific interest in its own right relatively recently. In this respect the International Consortium on Hallucination Research has identified a series of gaps within the literature whose development could promote both theoretical and clinical advancement (Waters et al., 2014). These include: refining understandings of the unique and shared processes between voice hearing and other hallucination modalities; developmental changes (e.g., studies in children, adolescent, and elderly participants); improving understandings of the social determinants of hallucination emergence and recovery; employing experimental tasks with good construct validity and translating neuroscience findings into targeted therapeutic interventions; utilising methods from the humanities and social sciences in order to contextualise the subjective, personal significance of hallucinations; domain convergence and divergence in trans-diagnostic studies (psychosis; personality, sensory, and neurological disorders; non-patient populations); and, in terms of trauma-related hallucinations, investigating whether representations of adverse events can be altered, and

whether semantic expectations can be influenced in order to change stimulus processing pathways (Waters et al., 2014).[9]

2.1.5   Summary

The term 'voice hearing' will be used within the thesis to refer to the percept-like experience of human speech (or other non-verbal vocalisation) that occurs in a conscious state in an absence of appropriate external stimulus, and which cannot be attributed to a known cause (e.g., organic or state-dependent circumstances). Together, these primary characteristics capture the objective presence of voice hearing, and will be used to identify participants as 'voice hearers.' The experience will then be explored at a more subjective level in terms of voice characteristics (form and content), and the subsequent influence of these upon the hearer (impact and appraisals). On the basis of reviewed literature it is suggested that these secondary qualities substantially influence levels of distress and clinical need, and as such can provide more detailed insights into participants' experiences than only assessing the presence or absence of voices. Details on the measurement of these constructs is provided in Chapter 5.

2.2   Dissociation

Dissociation is an ambiguous concept to define, and there is considerable lack of consensus amongst those who study it on the most appropriate designation (Nijenhuis & van der Hart, 2011). Indeed, of the three constructs discussed here, the definition of dissociation is not only the most contentious, but has historically undergone the largest modifications.

In descriptive terms, dissociation refers to a partial/total disturbance of the normal integration of psychobiological functioning, wherein thoughts, percepts, emotions, and memories cannot be consistently assimilated into consciousness (APA, 2013; Dorahy & van der Hart, 2007). However, while some authors use the term to capture a hypothetical mental process, others employ it in an illustrative way to encompass specific clinical conditions. Holmes et al. (2005) therefore suggest that dissociation can be subsumed under two concepts: as *compartmentalisation* of psychological processes, whereby discrepancies exist between two sources of information (e.g., consciousness and physiological indicators); or as *experiential detachment* in terms of a psychological defence against traumatic events and memories. In turn, Dell (2009) suggests that contemporary *de facto* understandings of dissociation represent

---

[9] In this regard, facilitating the exchange of information and ideas though interdisciplinary collaboration is a strategy recommended by the ICHD to promote more comprehensive understandings of voice hearing. A recent example is the *Hearing the Voice* project, based at Durham University in the UK, which combines research from the perspectives of phenomenology, hermeneutics, and cognitive neuroscience through partnership with academics/clinicians from a range of disciplines, as well as individuals who hear voices (Durham University, 2014).

a synthesis of Janetian and Freudian theory in terms of (1) a process of pushing away intolerable information; (2) the ensuing cluster of disaggregated material and mental activity, and (3) the intrusion of this material into consciousness.

2.2.1 Historical Shifts in Definitions of Dissociation

The clinical relevance of dissociation has only become a subject of research interest relatively recently, the resurgence being partly attributable to increased acknowledgement of posttraumatic symptomatology, controversies surrounding the concept of DID, and associated neuroimaging work, psycholobiological studies, and epiodemiological data (van der Hart & Dorahy, 2009). The concept of dissociation itself actually dates back to the late 1800s, with the French psychiatrist Pierre Janet generally credited with the authoring of it.[10] Unlike his predecessors and contemporaries, Janet (e.g., 1898, 1907, 1909, 1911/1983) was the first theorist to openly and systematically discuss how dissociative phenomena can function as psychological responses to overpowering stress, as well as directly implicating their role in posttraumatic sequelae (van der Hart & Horst, 1989). However in contrast to Freud, the "metapsychologist extraordinaire" (Dell, 2009, p.722), Janet was cautious of unrestrained theorising, preferring structural, descriptive synopses and observational reports. As such, he made no definitive claims about the 'causes' of mental disaggregation.

Janet's clinical investigations with highly dissociative patients ultimately led him to suggest that consciousness is not characterised by a monolithic, unitary identity, rather by divisible (sometimes competing) subsystems whose integration could be compromised by stress, subsequently becoming disrupted, fragmented, and 'split off' (*dédoublement*). For example, his conceptualisation of hysteria (an expansive category that subsumes various contemporary trauma-related disorders, such as PTSD and borderline personality disorder [BPD]: Herman, 1992) was as a "malady of personal synthesis" and "a form of mental depression characterised by a retraction of the field of consciousness and a tendency to the dissociation [i.e., division] and emancipation of the systems of ideas and functions that constitute personality" (Janet 1907, p.332). His work had a profound influence on a generation of subsequent theorists, not least Freud, Jung, Bleuler, Binet, and Breuer (Moskowitz, 2008). However Freud's initial enthusiasm for Janetian theory gradually began to decline as a function of the personal enmity between the two men; and his own clinical ideas, coupled with ambitions to establish an international psychoanalysis movement, ultimately led him to abandon dissociative models in favour of the concept of unitary unconscious repression.

---

[10] Although prior to Janet's seminal work, the concept of structural divisions within consciousness/personality were already being theorised within French psychiatry. Fashionable terms included *psychological disaggregation, division of the personality,* and *double consciousness,* and Janet himself often transposed 'dissociation' for 'disaggregation' in his writings (van der Hart & Dorahy, 2009).

According to van der Hart and Horst (1989) "premature acceptance of Freud's idiosyncratic position vis-à-vis dissociation and consciousness probably delayed an appreciation of the alternative Janetian view" (p.8). Bleuler (1911/1960), for example, was profoundly influenced by Freud's ideas in favour of Janet's, despite the strong confluence between dissociation psychology and his conceptualisation of schizophrenia (see Chapter 1). Ultimately, modern understandings of dissociation would come to represent a synthesis of Janet's *descriptions* and Freud's *explanations* (Dell, 2009). For example, the idea of dissociation as a motivated and effortful defensive manoeuvre owes less to Janet's theory of passive dissaggregation[11] than to Freud's thesis of the universal human tendency to actively disown unwanted information from conscious awareness. In contrast, the Janetian concept of the subconscious and psychological automatism accounts for dissociative divisions in the personality in a way that Freud's somewhat conservative insistence on unitary consciousness does not (e.g., Freud, 1915, 1925; see Dell, 2009).

The legacy of dissociative psychology was pursued by a small but diligent group of North American theorists in the late 1800s, including such notable figures as William James, Morton Prince, and Boris Sidis. Nevertheless, the popularity of psychoanalysis and behaviourism saw dissociative theory fall out of favour in the first half of the 20th century. This decline did not start to reverse until the 1970s when Ernest Hilgard (1977) published his theory of neodissociation and the problems of divided consciousness (which owed much to Janet's work), and the burgeoning interest in 'multiple personality' (i.e., DID) in the 1980s (Rieber, 2010). As noted by van der Hart and Dorahy (2009), there are currently two dominant contemporary models of dissociation: "the *narrow* [conceptualisation], and the *broad* conceptualisation]" (p.20; emphasis added). In the former, dissociation is deemed a compartmentalisation of personality into independent subsystems, each mediated by separate consciousness and subconscious. The most renowned example is the Structural Model of Dissociation (e.g., van der Hart et al., 2006), which posits that the personality of traumatised individuals contains two or more subsystems that are insufficiently integrated within a biopsychosocial whole.[12] According to the model, it is these fragmentations which induce the constellation of dissociative symptoms, including *positive* (intrusions like voices and flashbacks) and *negative* (paralysis, amnesia, loss of procedural skills, and other functional

---

[11] Janet primarily saw dissociation as a failure to integrate material; its possible role as an adaptive defence mechanism was more of a secondary consideration.

[12] In turn, this theory owes much to the work of Charles Myers (1940), a First World War physician, who observed how traumatised soldiers manifested schisms between an 'apparently normal personality' (ANP), directed towards adaptive functioning, engagement, and responsibilities; and an 'emotional personality' (EP), preoccupied by traumatic events and fixated on threat. See also the writings of William McDougall (1926) on dissociation: "Normal personality, as we know it in ourselves and in our neighbours, is the product of an integrative process…and is susceptible to disintegration that results in the manifestation of two or more personalities in and through the one bodily organism" (p.545).

deficits), which in turn can manifest psychologically (*psychoform*; e.g., memory loss, voice hearing) or physically (*somatoform;* e.g., anesthesia, bodily pain related to trauma). Such 'narrow' definitions are more congruent with Janet's work, in that they preserve his distinction between dissociation (divisions in the personality) and other alterations of consciousness or attention. In contrast the 'broad' model is a more phenomenological approach that, in addition to the structural divisions emphasised by the 'narrow' definition, also incorporates general psychological disunity within its conception of dissociation. This 'broad' perspective is encapsulated by the DSM-IV's (APA, 2000) designation in the preface to its section on dissociative disorders: "a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment" (p.477). Thus while the 'broad' model maintains Janet's emphasis on psychic disunity, it also includes symptoms (such as absorption and peritraumatic depersonalisation) that exceed the trauma-induced personality fragmentation emphasised by the 'narrow' definition (van der Hart & Dorahy, 2009).

In the last few decades the 'broad' definition has attained greater acceptance and popularity than the former. This is likely due to a number of factors (for further discussion, see van der Hart & Dorahy, 2009), not least the increase of self-report measures assessing enduring dissociative traits (e.g., depersonalisation and derealisation: Bernstein & Putnam, 1986; Riley, 1988; Sanders, 1986) and more transient characteristics of dissociative states (e.g., identity alteration, which occur over the DID 'trait': Cardeña et al., 2000; Krüger & Mace, 2002; Marmar et al., 1994). Crucially, such instruments emphasise 'broad' phenomenology and provided foundations for the empirical exploration of affective, environmental, developmental, and experiential correlates of dissociation.[13] However, despite its widespread acceptance, the 'broad' conceptualisation of dissociation is not without its detractors. The main criticism includes concerns that it sacrifices reliability (symptoms are easy for clinicians to identify and assess) for validity (what is being measured are not true indices of dissociation; e.g., Laddis & Dell, 2012a-b); and that the original core concept of dissociation – as a schism between psychobiological faculties – is stifled and diluted amongst the wide assortment of other experiences (Nijenhuis & van der Hart, 2011). Such considerations complicate assessment attempts, a difficulty compounded by the fact that many available instruments are lengthy, require specialist expertise to administer, and thus lend themselves more readily to clinical than research purposes (Frankel, 2009).

Despite this confluence of definitions, there still remain a number of experiences that would not be counted as dissociative amongst proponents for either of the two models. These include partial or confused perceptions like *déjà vu* (an inexplicable sense of familiarity for a

---

[13] Other factors include influential work on 'non-pathological' dissociation (e.g., Hilgard, 1977), and expositions on peritraumatic dissociation, which focussed on changes in consciousness and awareness during trauma exposure itself (e.g., Marmar et al., 1994).

particular event), *jamais vu* (a familiar scenario that is experienced as novel), *presque vu* (a failure to retrieve words from memory, despite feeling retrieval is imminent), and *déjà entendu* (an erroneous belief that one has heard something previously). Indeed, the distinction between dissociation and normal alterations of consciousness was first articulated by Janet (1927/2007), who asserted in his early writings that "When one doesn't notice something, doesn't make some associations with it, this is not 'dissociation'" (p.375).

2.2.2   Normal *vs*. Pathological Dissociation

As discussed above, definitions of dissociation have shifted dramatically from its 19th century origins; no longer referring solely to structural divisions in the personality, but encompassing a wide array of disturbances in attention, perception, and consciousness. Some contemporary theorists therefore suggest that dissociation exists on a continuum, with 60-65% of non-patient samples endorsing some kind of non-pathological dissociative experience (Waller, Putnam & Carlson, 1996)[14]. Nevertheless, while transient alterations of consciousness such as imaginative involvement (i.e., an extreme and constricted attentional focus) can be classified as dimensional variables which are benign at any level, taxonomic analysis suggests that pathological dissociation is typological, negative in its impact, and is typically associated with trauma exposure (Waller et al., 1996: see also Chapter 5, section 5.4.2.2). In contrast, normal dissociation is distributed in a continuous form, may be genetically based, and is not necessarily trauma-related (Waller & Ross, 1997).[15] For example, even within the 'narrow' definition of dissociation discussed above, it is acknowledged that transitory personality divisions can occur in susceptible individuals without predisposing adversity (e.g., as part of hypnotic suggestion: Nijenhuis & van der Hart, 2011). In this respect, Butler et al. (1996) propose that a susceptibility to experiencing normative dissociation is a necessary but not sufficient condition for pathological manifestations; rather trauma exposure in combination with dissociative predisposition is needed to initiate the transfer from one to the other.

Besides the general question of subjective distress and dysfunction, elements such as recurrence, controllability, duration, and organisation of the experience can be employed to differentiate pathological from non-pathological presentations (Cardeña & Gleaves, 2007; Dalenberg & Paulson, 2009). In addition Dell (2009) has specified two discrete types of 'normal' dissociation. The first, Type I, is survival-orientated and time-limited (e.g., peritraumatic responses such as tonic immobility or detachment from one's body), whereas

---

[14] It should also be noted that the putative continuum model is not unanimously accepted. For example, Butler (2006) argues that this metaphor fails if one considers the shift from continuum to taxon, whereby normative dissociation becomes pathological.
[15] When first conceptualising dissociation, Janet (1907) also conceded that integrative capacities could be reduced by factors like fatigue, physical illness and/or genetics, but not uniquely and exclusively by trauma.

Type II encompasses more specialised capacities that may be consciously or unconsciously motivated, and are culturally valued and meaningful (e.g., creative automatisms, hypnotic responses, and transcendent experience).

2.2.3   Dissociative Phenomena and Dissociative Disorders

DSM-5 (APA, 2013) deems dissociative disorders as syndromes that disturb or impair identity, memory, perception, and/or consciousness to the extent of disrupting psychological functioning and adjustment. At present, the following five conditions are classified under the rubric of dissociative disorders: depersonalisation disorder, dissociative amnesia, dissociative fugue, DID, and dissociative disorder not otherwise specified. The attempt to conceptualise dissociative disorders in terms of observable manifestation (as opposed to more psychodynamic characteristics) is consistent with the increasingly descriptive taxonomy adopted by recent editions of the DSM, and taken together, they capture the core constellation of dissociative phenomena (see Table 2.2).

2.2.3.1 Depersonalisation Disorder (DPD)

DPD is characterised by severe and recurring episodes of detachment from the environment (derealisation) and/or one's sense of self (depersonalisation). This may be experienced in the form of 'disowned' feelings, thoughts, and behaviour, such as a pervasive sense of unreality, or not being in control of one's actions, emotions, or mental processes (APA, 2013). Sufferers may report a range of disconnection phenomena, including a profound sense of alienation from their bodies and detachment from reality. DPD is often co-morbid with unipolar and bipolar depression, panic disorders, anxiety disorders, and some personality disorders, particularly borderline, avoidant, and obsessive-compulsive types (Simeon et al., 1997). Traditionally, however, it has been deemed clinically distinct from psychosis in that reality testing remains unimpaired and individuals retain the capacity to discriminate between objective reality and their own subjective experience (Simeon & Abugel, 2006).

2.2.3.2 Dissociative Amnesia

Formerly classified as psychogenic amnesia, dissociative amnesia refers to memory loss precipitated by severe emotional stress in the absence of structural neurological trauma (Heilbronner, Martelli, Nicholson & Zasler, 2002). It is not associated with an incapacity to form new long-term memories (anterograde amnesia), but is instead characterised as a substantial form of retrograde amnesia, wherein individuals are unable to recall previous experience, in addition to loss of declarative and autobiographical memory (Markowitsch,

Table 2.2   Typology of dissociative phenomena.

Dissociative Phenomena[a]	Exemplars
Depersonalisation	Feelings of inauthenticity Self-negation and objectification Detachment from one's body, including loss of sensation/distorted views of one's body Ability to disregard pain Hearing hallucinatory voices and dialogue Emotional numbing Out-of-body experiences, or encountering self-image outside the body
Derealisation	A persistent sense of unreality about the world Surroundings appear far away or distorted (e.g., the sensation of looking at the world through a 'fog' or a tunnel) Feeling that customary environments are unfamiliar Friends or family seem like strangers Sensory alterations (e.g., changes in shape, size, or colour of objects)
Amnesia	Finding oneself in a place and having no memory of arriving there Lack of memory for significant events The experience of 'losing time' Loss of declarative and explicit memory 'Micro' (localised) amnesias Selective memory loss Impromptu wandering
Identity confusion	Uncertainty about one's identity Experiencing distortions in time/place/situation Uncertainty of boundaries between self and others Pronounced confusion about sexuality/ gender
Identity alteration	Observable changes in one's role or identity, including shifting into alternate personality states Loss of memory for significant personal information Referring to oneself as 'we' Forgetting a learned procedural talent or skill Utilising different handwriting, tone of voice, names and/or world view Having specific knowledge, the acquisition of which is not remembered

Note. Derived from The Dissociative Experiences Scale (Carlson & Putnum, 1993) and the Structured Clinical Interview for Dissociative Disorders (Steinberg, 1994; Steinberg et al., 1990).

[a] The robust presence of any five of these features is considered indicative of a dissociative disorder (APA, 2000). Aetiology must be psychosocial rather than biological in origin (although this presumption does not imply an absence of neurological underpinnings).

2003). In contrast to the global amnesiac characteristics of dissociative fugue, situation-specific dissociative amnesia arises as a localised response to acutely distressing events, such as combat trauma (van der Hart, Brown & Graafland, 1999), sexual assault (Mechanic, Resick & Griffin, 1998), and witnessing death (Elliott, 1997) or extreme violence (Loewenstein, 1991), although it is also evident in survivors of prolonged and/or recurring trauma, such as hostage situations (Herman, 1997) and chronic childhood abuse (Chu, Frey, Ganzel & Matthews, 1999). So-called conversion symptoms may also be part of the amnesiac lacunae, including sensory and motor disturbances, whereby certain sensations and movements become inaccessible to memory (van der Hart & Horst, 1989).

2.2.3.3 Dissociative Fugue

Previously referred to as psychogenic fugue, dissociative fugue states are rare conditions which manifest as impromptu yet purposeful travelling/wandering and significant, generalised memory loss for personally identifying information. Dissociative fugues are generally preceded by a period of overwhelming stress, although must occur in the absence of physical trauma, a general medical/psychiatric condition, or ingestion of psychotropic substances for a diagnosis to be made (APA, 2000). Individuals experiencing a fugue state will generally lose their autobiographical memory and, in the subsequent identity confusion, possibly assume a new, pseudo-identity (Coons, 1999). In more extreme cases, a loss of procedural skills, such as reading and/or disturbed semantic memory will also be evident (Serra et al., 2007). Fugues mostly endure between a period of hours and several days, although prolonged episodes of a few months or longer have been recorded (Coons, 1999), and while global amnesia often resolves spontaneously, memory loss for the precipitating stressful episode, as well as the fugue itself, will often persist (Rajah et al., 2009).

2.2.3.4 Dissociative Identity Disorder (DID)

The most complex form of clinical dissociation, DID (formerly known as multiple personality disorder) is characterised by significant amnesia for personal information, accompanied by the existence of two or more autonomous personality states (i.e., 'alters' or 'parts') that recurrently assume control of behaviour and distinguish themselves from the 'host' personality (APA, 2000). Identity alteration may be evidenced by a lack of continuity in behaviour, emotion, cognition, speech, perceptions, and/or memories, and is often observable to others in addition to self-report from the individual (who may not be aware of the existence of dissociated self-states: Ross & Halpern, 2009). DID is associated with the experience of repeated trauma, generally from childhood and often from multiple abusers, which tends to be of a particularly extreme and serious nature (Ross, 2006). As a diagnosis it remains controversial (Gleaves, May & Cardeña et al., 2001; Piper & Merskey, 2004a). Patients will

frequently be misdiagnosed (often with schizophrenia, BPD, or PTSD: Caplan & Cosgrove, 2004), and a degree of scepticism and lack of consensus surrounds the veracity of DID itself: for example, that alters are essentially iatrogenic rather than autonomous entities (Merckelbach, Devilly & Rassin, 2002; Piper & Merskey, 2004b), or that the condition is a cultural phenomena created by over-zealous or unscrupulous therapists (Gharaibeh, 2009; Paris, 1996). However, existing psychobiological research with DID patients does not support the iatrogenic hypothesis, with symptom provocation studies identifying discrete cerebral activation, cardiovascular reactions, and affective/sensorimotor responses between neutral and traumatic identity states in response to trauma-related memory scripts (Reinders et al., 2006; see also Reinders et al., 2003, 2010; Şar, Unal & Öztürk, 2007). As such, a review of the validity of the DID construct has led to the diagnosis being retained in DSM-5 (indeed, criteria have broadened from DSM-IV to include reported symptoms of identity disruption, as opposed to only observed ones, and to encompass non-traumatic amnesia: APA, 2013b).

2.2.3.5 Dissociative Disorder Not Otherwise Specified (DDNOS)

A wide-ranging category, DDNOS is used to capture any form of pathological dissociation not encompassed by the specified dissociative disorders criteria. A substantial quantity of patients fall under this grouping (Foote et al., 2006; Johnson et al., 2006), with some estimates suggesting it to be as high as 60% (Saxe et al., 1993). Examples of DDNOS include attenuated forms of DID (e.g., absence of amnesia, or identity alteration without distinct personality states); derealisation in an absence of depersonalisation; stupor, coma, or loss of consciousness unattributable to physical causes; or dissociative states in survivors of persistent coercion, persuasion, or indoctrination, such as political prisoners, hostages, or cult members (APA, 2000). Dissociative trance (disturbances in consciousness, memory, motor control, or identity that are indigenous to specific cultures, yet not a customary part of collective cultural and/or religious practice) can also be included under the remit of DDNOS.

2.2.4   Challenges and Limitations in the Literature

In reviewing the dissociation literature, several difficulties become apparent. Firstly is what Lynn et al. (2012) refer to as the "prevailing posttraumatic model of dissociation" (p.48), in that insufficient attention has been paid to reconciling traumatic frameworks (e.g., unintegrated, affectively laden information; avoidant information-processing; somatisation) with sociocognitive models (e.g., cognitive failures, fantasy-proneness, memory errors, attentional inhibition). Thus while trauma is recognised as prevalent developmental precursor of dissociation, it is also true that dissociative experiences can occur in the absence of objective stress exposure, and this requires equally thorough empirical/theoretical deliberation and definition, in which authors seek both corroborating *and* falsifying data for their

hypotheses[16] (Cardeña, 2011). A second, related point, is that the prevailing Structural Model of Dissociation is itself based on a construct (personality) within which judgements of 'normality' or 'unity' are culturally driven and determined, and which in turn may affect "the likelihood of dissociation, its form, and its pathological significance" (Kirmayer, 2011, p.466). In this respect, for example, cross-cultural research shows that dissociative symptoms frequently arise in non-adverse circumstances as part of ritual pursuits and do not manifest as structural divisions in the psyche, but rather as intrusions of external agencies (e.g., 'spirits': Seligman, 2005; Somasundaram, Thivakaran & Bhugra, 2008). Third is the ongoing need to distinguish more actively between (1) dissociative processes and (2) the symptoms that arise from these (Brown, 2011; Cardeña, 1994; Nijenhuis & van der Hart, 2011), including symptoms that are related to dissociations between cognitive subsystems, and those that are better characterised as alterations or restrictions of consciousness (Brown, 2006; Holmes et al., 2005; Rodewald, Dell, Wilhelm-Gößling & Gast, 2010). In this respect, for example, Brown (2011) advocates the pragmatism and utility of sub-classifying different dissociative phenomena (e.g., dissociative compartmentalisation, dissociative detachment) in order to expand definitions beyond the broad/narrow dichotomy of what counts as 'true' dissociation.

A fourth, associated, issue is an ongoing need to relate dissociative phenomena to explanatory mechanisms (e.g., neurobiological research of adequate sample size that prospectively maps and assesses dissociative processes in response to stress exposures, illness course, and therapeutic intervention: Brand et al., 2012; and complementary tools and strategies that can facilitate knowledge of their phenotypes and associated biological/cognitive underpinnings: Dalenberg et al., 2007). A final, recurring limitation in some quarters of the dissociation literature is an overly faithful – occasionally inflexible – adherence to the work of Pierre Janet. While his writings are of unquestionable value in themselves, some authors (e.g., Bowman, 2011; Bryant, 2009; Cardeña, 2011) have plausibly argued that the field needs to exert itself more vigorously beyond a century-old theory that is overly restrictive and pre-dates modern conceptions of attachment theory and neurobiological data. As Bowman (2011) has observed, "We should utilize Janet's genius but not allow our 21st-century field to be pinned to it alone" (p.448).

---

[16] For additional reflections on this, see Butler (2006, 2011) who suggests that conventional views of dissociation as pathological and rare must be integrated with the existing, substantial evidence that dissociation can also form a normal part of adaptive functioning. Such an endeavour is valuable, she argues, because distinguishing relevant processes, variances, and conceptual similarities between normative and pathological dissociation could help provide a unifying framework, as well as enhance understanding of how dissociative disorders may develop. From this perspective, dissociation can therefore be seen as a normative human capacity, whereby pathological presentation is the result of "underlying processes… [becoming] subverted, distorted, or commandeered by the exigencies of traumatic experience" (Butler, 2011, p.455).

Taken together this means that of the constructs outlined in this chapter, the concept of dissociation is beset by the most contradiction and suffers from a lack of precise definition. This inevitably influences subsequent empirical, theoretical, and therapeutic discourse, as different authors (at different times) dispute what the term 'dissociation' is actually being used to refer to. This controversy is pithily summarised by Nijenhuis and van der Hart (2011, p.416):

> Some understandings of dissociation are so broad that a host of common psychobiological phenomena would qualify as dissociative. Overly narrow conceptualizations of dissociation exclude phenomena that originally, and for good reasons, have been regarded as dissociative. A common lack of conceptual distinctions between dissociation as process, organization, deficit, psychological defense, and symptom adds to the current confusion.

This problem is two-fold. On the one hand, overly liberal definitions can corrode the discriminant validity of dissociation (in research terms, some authors claim this problem is compounded by the fact that measures of the construct are over-inclusive, and thus falsely overstate dissociation levels through assessing symptoms that appear dissociative but are actually not: e.g., Njenhuis & van der Hart, 2011; Schäfer, Aderhold, Freyberger & Spitzer, 2008; Steele et al., 2009). On the other, conceptual dogmatism risks sacrificing comprehensiveness for precision, thus negating broader (and clinically useful: Brown, 2011) understandings of what is meant by the concept of dissociation. These hindrances are somewhat self-perpetuating, in that they arise from the way that dissociation's lack of definitional clarity allows it to be used without due reflection on its various connotations and meanings (and which may often serve to support a particular author's favoured stance). In this respect a direct recommendation comes from the psychiatrist Elizabeth Bowman (2011), who has used an opinion piece in the *Journal of Trauma & Dissociation* to issue a candid challenge to prominent theorists in the field: a collaborative effort to devise an inclusive definition of dissociation for presentation and publication at the International Society for the Study of Trauma and Dissociation congress. While acknowledging that such an endeavour "would be difficult and…require flexibility, respect, and much ego restraint to prevent each party from promoting only his or her own theory" (p.449), she persuasively frames such an undertaking as an effective means of facilitating greater effectiveness for both therapeutic responses and research enterprises.

2.2.5 Summary

The construct 'dissociation' will be operationalised within the thesis in terms of emotional and experiential detachment. As such, symptoms of dissociation will be considered both in terms of disaggregated material and mental activity (e.g., amnesia), and the intrusion of this material

into consciousness (e.g., voice hearing). In lieu of contemporary disputes about the most appropriate measures of dissociation, 'broad' conceptualisations will be considered (i.e., more general psychic disunity) in addition to 'narrow definitions' (i.e., structural divisions with the personality). In turn, subscale scores will also be reported separately (rather than just mean scores) in order capture a more nuanced presentation of dissociative experience (for a fuller discussion of measurement issues, please see Chapter 5). However, for the sake of parsimony, neither acute, peritraumatic dissociation nor somatoform symptoms of dissociation will be assessed, as neither of these components are necessary for answering the research questions.

2.3   Trauma

Psychological trauma refers to 'psychic injury' (i.e., negative emotional reactions) resulting from exposure to deeply distressing events that typically overwhelms the victim's coping capacity and creates an intense sense of fear, helplessness, and vulnerability (Herman, 1992). The concept of trauma as psychologically (as opposed to physically) damaging was first articulated by William James (1894) in a now famous review of Breuer and Freud's *On the Psychical Mechanism of Hysterical Phenomena*: "certain reminiscences of the shock fall into the subliminal consciousness…If left there, they act as permanent psychic traumata, thorns in the spirit, so to speak" (p.199).[17] This early designation captures several interrelated elements that are central to the deleterious impact of traumatic events: (1) the incident itself, (2) the distressed state resulting from exposure to it, and (3) the ensuing difficulties if beliefs and emotions surrounding the experience are not adequately processed (Brison, 2003; Levine, 1997; Mollon, 1996).

2.3.1   What Constitutes a Traumatic Event?

Although trauma can be induced by a range of physically (e.g., natural disasters) or interpersonally threatening occurrences (e.g., assault), common themes appear to be that of fear, betrayal and shattered assumptions (DePrince & Freyd, 2002). This may include a violation of the victim's belief system, their sense of self, their trust in the world, and/or their attachments to family or community (Herman, 1997). Unlike most DSM-5 conditions, PTSD is singular in that its diagnostic criteria requires a specific aetiologic event – a traumatic stressor(s) – without which the diagnosis cannot be assigned. The DSM's current 'Criterion A' definition of trauma is quite broad: The person must have been exposed to a traumatic event in which they experienced, witnessed, or were confronted with events that involved

---

[17] See also the work of neurologist Albert Eulenberg (1878), who proposed that the concept of 'psychic shock' be replaced with 'psychic trauma,' wherein the "sudden action of vehement emotions" upon the brain was posited to induce a molecular concussion analogous with physical trauma (p.589).

actual or threatened death or serious injury, or a threat to the physical integrity of self or others. However, while DSM-IV also required that the person's response must involve intense fear, helplessness, or horror, the latter criteria was removed in DSM-5 (APA, 2013) in recognition of the heterogeneity of acute stress reactions. At present, PTSD is recognised as a syndrome encompassing three clusters of symptoms: (1) persistent re-experiencing (e.g., nightmares, flashbacks, intense physical and/or emotional responses to trauma-reminders, intrusive trauma recollections); (2) emotional numbing (e.g., reduced capacity for experiencing positive emotions, pessimism about the future, amnesia) and continual avoidance of stimuli reminiscent of the trauma; and (3) heightened arousal (e.g., insomnia, hypervigilence, an inflated startle response), in addition to various co-morbidities like depression and substance use. Diagnosis requires that symptoms are evident at least one month post-exposure and a cause of clinically significant distress and/or impairment, making it less prevalent and more prolonged than the more commonly diagnosed condition of acute stress response.

Unlike previous definitions (APA, 1980), this revised classification acknowledges subjective perception of threat as well as the impact of witnessing, as opposed to directly experiencing, adverse events. Thus, instead of being linked to a normative standard, the DSM recognises the role of individual reactions in classifying an event as traumatic. Furthermore, it no longer insists that a PTSD-qualifying stressor must be "an event that is outside the range of usual human experience" and could not be one which would be "usually well tolerated by other members of one's cultural group" (APA, 1980, p.250). Taken together, this new threshold recognises the range of diverse experience (and subjective perceptions of them) that influences the classification of experience as psychologically traumatising. Correspondingly, the American Psychological Association's Trauma Group (2000) defines a traumatic stressor as an event that "leads to the disorganization of a core sense of self and world and leaves an indelible mark on one's world views that psychological disorders often follow upon exposure" (p.7). Exemplar experiences provided by the group included sexual assault, childhood abuse, domestic violence, military engagement, and prolonged harassment. In turn, this designation exceeds the DSM's classification by conceptualising trauma in terms of its adverse impact on emotional wellbeing (including, but not restricted to, clinical presentations characteristic of PTSD).

This emphasis on survivors' personal interpretations also underscores the importance of not treating traumatic events in a purely numerical fashion, instead acknowledging the meaning the person attributes to them (either at the time or retrospectively) and the ways in which they are conceptualised. An example is provided by Kilpatrick et al. (1989) who illustrate the case of a rape survivor who did not develop posttraumatic symptoms in the aftermath of her attack, but at a later date when learning that the perpetrator had assaulted and

killed other women. Although the event was unaltered, her reappraisal of it as latently life-threatening induced PTSD. Conversely, Bracken, Giller & Summerfield (1995) describe a Ugandan torture survivor who credited his ordeal with strengthening his spiritual life: by identifying his suffering with that of Christ, he felt his sense of religion was enhanced and ultimately made the experience a positive one.

The customary sequelae to psychological trauma generally incorporate a range of physical and emotional responses. The severity of these is contingent on numerous interrelating factors, including available support for the survivor, their resilience and coping style, access to restorative relationships, the type of trauma involved, the age at which it occurred, and its length and duration (Herman, 1997; McNally, Bryant & Ehlers, 2003; Scaer, 2005). Although there are numerous theories that attempt to explicate the impact of trauma, including the experience of alternating re-experiencing and avoidance symptoms, Brewin, Dalgleish, and Joseph's (1996) dual representation theory of posttraumatic stress is probably the most parsimonious. According to this account, there are three main possible outcomes for emotional processing after trauma exposure: (1) *completion/integration* (full processing occurs and the person experiences no subsequent symptoms); (2) *chronic emotional processing* (the person is persistently and chronically preoccupied with the aftermath of the trauma, leading to cognitive intrusions, depression, and anxiety); and (3) *premature inhibition of processing* (wherein memories are inhibited or avoided, resulting in reactivated intrusions in later life).

2.3.1.2 Victimisation Experiences

It is increasingly acknowledged that interpersonal trauma (i.e., traumatic stressors that are enacted by other people in a premeditated, exploitative and/or violating way) generally induce more complex and severe reactions in survivors than impersonal events (i.e., an accident or natural disaster: see Anders, Frazier & Frankfurt, 2011; Anders, Shallcross & Frazier, 2012; Charuvastra & Cloitre, 2008). An important concept within the notion of interpersonal trauma is that of *victimisation*, a type of adversity that is characterised as exploitative, emotionally horrifying, physically and/or sexually violating, and in which a powerful perpetrator can manipulate the victim's vulnerability in a deliberate and calculated way (Widera-Wysoczańska & Kuczyńska, 2010). Childhood maltreatment, in all forms, is a common example of chronic victimisation, although elderly and/or disabled adults are also at heightened risk (Courtois, 2010). In contrast, non-victimising trauma can be seen as impersonal, random, and is not exploitative. More ambiguous 'crossover' events include those which have a human cause but are not personally directed at the victim (e.g., a motoring accident caused by human error or negligence). According to Courtois (2010), these latter types of stressors generally induce reactions that are more severe than those evoked by purely

impersonal trauma, but less severe than trauma that is fully victimising and interpersonal in nature.

A central characteristic of victimisation is *intrusiveness*, in the sense of the victim's autonomy, integrity, and dignity being coercively imposed upon, and *powerlessness*, in that the perpetrator exploits the victim's vulnerability, dependency and/or inability to resist (e.g., targeted bullying or discrimination, childhood abuse and neglect, domestic violence, systematic exploitation, coercion, deprivation, or violation). As such, these traumas are particularly likely to occur at developmentally vulnerable periods in which dependency, infirmity, or disempowerment augment the victim's defenselessness. Although victimisation can be a single occurrence that takes place suddenly and without warning (e.g., an assault by a stranger), it can also become chronic and repeated over time (e.g., sexual abuse by a family member). In the latter instance, repetitive violation may become progressively severe in some cases if the perpetrator grows increasingly demanding or emboldened; as 'trauma bonds' arise between victim and abuser; and/or as the victim becomes more incapacitated and hopeless, correspondingly moving towards a condition of pliancy and accommodation (Courtois, 2010).

The psychological impact of chronic victimisation may include strong feelings of guilt, humiliation, defilement, rejection, betrayal, subjugation; and a pervasive sense of passivity, and loss of control, which in turn can induce hopelessness, resignation and despair (Elias, 1986; Harris, 1987). Victimisation is associated with an increased risk of social, occupational, and vocational impairment (Ochberg, 1988), as well as heightened risk for serious emotional disturbance, including depression (Gladstone, Parker & Malhi, 2006), dissociation (Courtois & Ford, 2009), and psychosis (Bebbington et al., 2004). Because these traumas take place within interpersonal contexts and are enacted by other human beings, they can also have grave implications for one's personal identity; sense of safety, trust and self-worth; and ability to relate positively to others (Courtois, 2010).

While PTSD is used to capture the psychological impact of acute trauma, the aftermath of chronic, prolonged, and/or cumulative victimisation does not conform to a PTSD diagnosis (Herman, 1992, 1997). Although not yet recognised by the DSM, the concept of 'complex posttraumatic stress disorder' (CPTSD) is increasingly being used to capture the psychological response to chronic, coercive victimisation that occurs in the context of entrapment, disempowerment, and loss of control (Cook et al., 2005; Courtois & Ford, 2009; Terr, 1991). The long-term impact of such abuses may manifest in a variety of domains, including interpersonal and/or attachment dysfunction, identity disturbance, affective instability, dissociation, somatisation, and cognitive impairments (Cook et al., 2005; Courtois & Ford, 2009; Herman, 1992, 1997). Due to this combination of DSM-5 Axis I (developmental), II (personality), III (physical health problems), and IV (psychosocial impairments) syndromes, many individuals who have endured complex trauma therefore do

not meet diagnostic criteria for PTSD, often receiving diagnoses of schizophrenia, bipolar disorder, or BPD (Courtois, 2010).

2.3.1.3 Childhood Abuse

According to the World Health Organisation (WHO: 1999), childhood abuse refers to "any act, or failure to act, that violates the rights of the child" (p.13), thus compromising their health, survival, wellbeing, dignity, or development, and which is enacted in the context of a relationship of power, trust, or responsibility (WHO, 2006). This includes sexual, physical, and psychological maltreatment, and neglect or negligence (see Table 2.3). The thesis incorporates all these types of abuse, with 'childhood' additionally defined as the developmental span from birth to age 16 years (the age of legal majority in the UK).

Evidence suggests that childhood abuse can be profoundly traumatic and is associated with a range of adverse physical and psychosocial outcomes (WHO, 2006). It is also a reliable predictor for numerous adulthood psychiatric conditions including dissociative disorders (e.g., Ross, 1997), depression (e.g., Parker et al., 1997), BPD (e.g., Western et al., 1990), anxiety disorders (Heim & Nemeroff, 2001), and psychosis (e.g., Read et al., 2005). An increasing body of literature also suggests a significant, dose-response relationship between cumulative abuse experiences and subsequent mental health difficulties (e.g., Bifulco et al., 2002; Lange, Kooiman, Huberts & Van Oostendorp, 1995; Janssen et al., 2004; Mullen et al., 1996; Read, 1998; Schenkel et al., 2005), although there is some evidence that childhood sexual abuse (CSA) may be particularly linked with poorer long-term outcomes (Chu & Dill, 1990; Waldinger, Swett, Frank & Miller, 1994; Zlotnick et al., 1994).

Table 2.3   Categories of childhood abuse.

Subtypes	Exemplars
Neglect	Failure to provide a child's basic needs, including: adequate food, clothing, or hygiene; nurturing or affection; enrolment in school; provision or maintenance of necessary healthcare
Sexual abuse	Sexual exploitation/ violation, including: physical sexual contact; asking or pressurising a child to engage in sexual activities, regardless of the outcome; indecent exposure towards a child; displaying pornography to a child; using a child to produce pornography
Physical abuse	Physical aggression, including: punching, kicking, bruising, pulling hair or ears, biting, slapping, burning, stabbing, choking, or shaking

Table 2.3 Cont.

Psychological abuse	Emotional violations, including: antipathy; name-calling; ridicule; degradation; destruction of personal belongings; harming pets; excessive criticism; inappropriate or excessive demands; routine humiliation; withholding communication

Source: Compiled by the author.

2.3.1.3.1 Childhood sexual abuse

Of the various forms of childhood maltreatment, this thesis pays particular attention to CSA. As discussed in Chapters 1 and 3, this emphasis is on the grounds that sexual maltreatment has been specifically associated with voice hearing over other types of childhood trauma (e.g., McCarthy-Jones, 2011; Read et al., 2005; Shevlin et al., 2010). In addition, it is purported to have a "unique relationship" with dissociation (Kisiel & Lyons, 2001, p.1034) in that CSA, particularly when severe, appears to exert a predominant impact on dissociative symptoms compared to other forms of childhood abuse (e.g., Briere & Runtz, 1987, 1988; Chu et al., 1999; Draijer & Langeland, 1999; Ross, 1997; Zlotnick et al., 1994). It is defined by the WHO (2006, p.10) in the following way:

> [The] involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared…or that violate the laws or social taboos of society…[and is enacted] between a child and an adult or another child who by age or development is in a relationship of responsibility, trust or power, the activity being intended to gratify or satisfy the needs of the other person.

CSA is increasingly recognised as occurring on a continuum, with dichotomous assessments of 'present' or 'absent' inadequate to capture the complexities of sexual victimisation, as well as its impact and aftermath (Watson & Halford, 2010). Specifically, CSA characteristics can be organised within different classes of severity, with more adverse psychosocial outcomes associated with: greater physical intrusion by the perpetrator (penetration, relative to genital touching, relative to non-contact: e.g., Kendler et al., 2000); abuse by multiple rather than single perpetrators (e.g., Elliott & Briere, 1992); abuse that is enacted by a family member rather than an acquaintance or stranger (e.g., Wind & Silvern, 1992); a lack of, or negative response to, disclosure (e.g., Ullman, 2002); general dysfunction in the victim's family or origin (Watson & Halford, 2010); and the presence of force or coercion (e.g., Bulik, Prescott & Kendler, 2001). However it is important to note the lack of consensus that exists around the use of these characteristics as discrete indicators of severity: for example, which ones are most indicative and which impact most injuriously on adulthood outcomes (Fassler et al., 2005). Furthermore, the fact that different aspects of CSA are likely

to moderate each other's effects (e.g., penetrative abuse may be especially damaging if coercively perpetrated by a family member: Hulme & Agrawal, 2004; Trickett, Noll, Reiffman & Putnam, 2001), means it behoves researchers to consider the impact of multiple aspects of abuse (Watson & Halford, 2010). In this respect, the field is still a long way from creating an acceptable 'algorithm' of severity.

2.3.1.4   Post-Childhood Trauma

While many studies have focussed on the psychological impact of childhood trauma exposure, adulthood experiences of violation and adversity can also influence mental health outcomes. For example, sexual and/or physical assault has been associated with the onset and maintenance of dissociative phenomenon (Feeny, Zoellner & Foa, 2000a), as well as PTSD (Dunmore, Clark & Ehlers, 1999) and psychotic-type symptoms (Kilcommons & Morrison, 2008) in adults with no previous psychiatric history. In contrast, military veterans with combat-related PTSD exhibit elevated rates of co-morbid dissociative and psychotic-like experiences compared to those without PTSD (Anketell et al., 2010; Brewin & Patel, 2010), whereas heightened risk for psychotic-like symptoms has been found amongst political prisoners exposed to torture (Beebe, 1975; Kira, 2002; Wenzel, Kieffer & Strobl, 1999), and refugees traumatised by oppressive political regimes (Bhui et al., 2003; Kinzie & Boehnlein, 1989; Kinzie et al., 1990).

Individuals who have experienced childhood abuse may also be at a higher risk of subsequent physical or sexual re-victimisation in adulthood, including physical violence from partners (Becker, Stuewig & McCloskey, 2010), and sexual assault from strangers (Cloitre et al., 1996) and mental health professionals (Ritsher, Coursey & Farrell, 1997). In addition to its independent clinical and social significance, adulthood trauma exposure is also a potential mediating factor in the association between childhood adversity and subsequent mental health difficulties (Read et al., 2005). These effects may be distal rather than proximal (Brewin, Andrews & Valentine, 2000) and be influenced by a number of intervening predictor variables, including access to social support (Herman, 1997); the experience of guilt and shame (Andrews, Brewin, Rose & Kirk, 2000); social, educational, or intellectual disadvantage (Brewin, Andrews & Rose, 2000); and developmental characteristics such as childhood behavioural, temperamental, family environmental, and neurodevelopmental factors (Koenen et al., 2007).

2.3.2   Trauma Severity: Consensus *vs*. Contextual Views

As discussed previously, an emphasis on subjective interpretation has generated a progressive trend in the literature to dilute the 'severity' of what qualifies as a traumatic stressor. Given that a range of painful, damaging events appear to precipitate emotional crisis, definitions of

trauma are therefore no longer confined to extreme maltreatment in the restricted, life-threatening sense required for a diagnosis of PTSD. Trauma and the development/persistence of distress are almost certainly related in complex and reciprocal ways. As such it is appropriate for researchers and clinicians to consider the subjective perception of traumatic events in addition to their purely objective dimensions.

Traditionally it was assumed that most individuals can tolerate the vicissitudes and stressors of daily life, whereas virtually anyone's adaptive capabilities are beleaguered by trauma. Nevertheless, divergence and indecision in defining Criterion A has not subsided with either the passage of time or increased knowledge; and debates over the aetiological links between trauma exposure and psychiatric disorder are set to continue into DSM-5 and beyond (Kilpatrick, Resnick & Acierno, 2009). Controversies in mitigating what qualifies as a traumatic event is partly attributable to the clinical and forensic implications of 'criterion creep' (Rosen, 2004), whereby removing the gatekeeper function of Criterion A through less restrictive definitions could induce an unwarranted increase in the prevalence of PTSD diagnosis, potentially rendering it meaningless (Rosen & Lilienfeld, 2008). Nevertheless, the seeming capacity of 'low magnitude' events (e.g., divorce, unemployment, sudden bereavement) to induce posttraumatic syndromes amongst diverse populations contests the fundamental presumption on which PTSD was initially derived: that events of catastrophic extremity are the principal cause of specific constellations of trauma-response symptoms (McNally, 2004). Thus events such as bereavement or relationship breakdown are understood as "rendering obsolete the individual's assumptive world and requiring a psychosocial transition that could generate internal turmoil [and] denial" (McHugo et al., 2005, p. 115).

Similarly, while fear is genuinely considered the cardinal emotional response to trauma (APA, 2000), the role of vehement responses like guilt, shame, sadness, anger, and betrayal are also increasingly recognised as germane to psychological traumatisation[18] (Brewin et al., 2000b, 2009; Maier, 2007). Military personnel, for example, are trained to tolerate extreme situations, yet may still develop PTSD-type syndromes without reporting intense fear at the time trauma occurred (Adler et al., 2008). Indeed, according to Brewin et al. (2009), PTSD's reliance on aetiological criterion should be more an object of historical interest than practical relevance. Psychiatric research into life events indicates that psychological stress exists along a continuum, with no precise, conceptual demarcation between what differentiates an 'ordinary' stressor from a traumatic one (Brewin et al., 2009;

---

[18] These emotions have also been implicated in 'posttraumatic decline' (c.f. Titchener, 1986) in terms of their disintegrative effect on the personality. Specifically, they can induce dissociation in susceptible persons; hinder the capacity to amalgamate and integrate new information; provoke exhaustion, helplessness, emotionality, and/or inertia; and ultimately impair the recovery process if the individual remains fixated on the trauma.

Weathers & Keane, 2007). This issue is complicated even further when subjective appraisal and meaning-making elements are taken into account.

Indeed, it may be the case that psychological trauma does not have the aetiological status initially envisaged by DSM-III in that it interacts with idiosyncratic psychological and biological features of the person concerned (which in themselves may change over time). Both psychopathology (e.g., symptom profile, symptom complexity, comorbidities) and subjective distress could therefore be perceived as discrete markers of reactivity and sensitisation to stress and trauma (Novac & Hubert-Schneider, 1998). Both Brewin et al. (2009) and Marshall, Amsel, and Suh (2008) have emphasised that lower magnitude stressors could actually be anticipated to initiate (pathological) trauma reactions in persons with a heightened reactivity to stress, a susceptibility that may be genetically heritable (Boyce & Ellis, 2005), epigenetic (Meaney, 2001), or interact with lifetime trauma and/or elevated rates of previous trauma exposure (Glaser, van Os, Portesgijs & Myin-Germeys, 2005). In this regard, the evidence that events 'inadequate' for Criterion A can be associated with PTSD is only unexpected if no license is allowed for individual variations in stress vulnerability.

2.3.2.1 Cumulative Trauma

In additionally important to acknowledge aggregate exposure to multiple stressors over the life-course, which is a relevant issue both conceptually and, in research terms, with respect to accurate measurement. Several epidemiological investigations (see Kilpatrick et al., 2009, for review) have shown that the community incidences of multiple trauma exposure and/or multiple victimisation experiences are between 33% and 54%. For example, an individual may have endured childhood abuse, a physical assault as a young adult, and a life-threatening injury as a mature adult, and ultimately exhibit intrusions and/or avoidance symptoms that integrate one or all of these incidents. Unfortunately however, few studies incorporate comprehensive and inclusive measures of psychopathology in reference to all potentially qualifying traumas and/or stressors. This ultimately precludes a satisfactory assessment of cumulative trauma exposure (particularly in terms of whether it may account for PTSD symptoms induced by a recent event that does not qualify as a DSM-criterion stressor).

According to Kira et al. (2008) cumulative trauma can be understood in terms of two dynamics: core traumas ('the accumulation') and triggering traumas ('the kindling'). While the first type of event acts as stress sensitisation, the second initiates the post-trauma response (the so-called 'final straw'). Similarly, Brown and Harris' (1978) seminal investigation has highlighted the impact of 'linked' events, wherein cumulative or triggering stressors may be more powerful if they are meaningfully connected in some way. This formulation pertains to the notion of individual vulnerability, or *threshold*, which was originally and famously elaborated by the psychiatrist T. A. Ross (1941) in response to his observations of soldiers in

the First World War: "All of us have our breaking point. To some it comes sooner than to others" (p.66). Information is currently lacking regarding the specific combinations and duration of exposures that are sufficient to induce the onset and maintenance of posttraumatic syndromes in previously healthy individuals with good adaptive capability. Similarly, awareness of how stressors in high-risk situations (e.g., military engagement) emulate those in more domestic scenarios (e.g., spousal or childhood abuse) is intriguing but meagre (although see Herman, 1992, 1997). Systematic investigation of types and sub-types of traumatic stressors is therefore needed in order to determine the extent of their association to trauma-spectrum conditions. For example, Dohrenwen (2000, 2006, 2010) has proposed a typology of characteristics for stressful life events (in which narrative descriptions are objectively rated) that specify their nature and extent as risk factors for psychopathology: (1) stressor dimension (valence, level of predictability, centrality, magnitude, exhaustion potential and source); the (2) associated general characteristics of the latter; and (3) event-specific characteristics (persistent life threat, persistent threat to physical integrity, persistent threat to ability to satisfy basic needs, and persistent threat to interpersonal goals or resources).

In addition, situations in which these events are enacted should also be considered in determining their traumatic character and impact. Significantly, major adverse events in a hazardous environment (e.g., military combat) may share features with those enacted in a domestic sphere (e.g., prolonged childhood abuse). For instance, sexual assault by a non-partner is not only exceedingly negative, it is also unpredictable, externally induced, and potentially life-threatening, even though it may occur in an environment which is otherwise non-hazardous and in which social support is directly obtainable.

2.3.3   Challenges and Limitations in the Literature

Theory and research in the trauma field suffers somewhat from a lack of conceptual clarity which, similar to the construct of dissociation, arises from the inherent difficulties in attempting to define or delimit 'trauma' in a precise manner. On the contrary, the concept of traumatic stressors "[brings] together diverse situations according to nosological and cultural conventions" (Kirmayer, 2011, p.466), wherein subsequent (putative) posttraumatic responses can unpredictably range from the negligible or non-existent, to transitory/peritraumatic dissociation, to complex and chronic psychopathology. Thus, amongst other issues, research remains divided on how to distinguish a 'normative' stress response from a 'pathological' one; how to specify target stressors when non-traumatic adversities can induce equal loadings of impairment and distress; and why severe stressors do not unilaterally evoke psychological symptoms, including ways in which individual differences in temperament, social support, meaning-making, and resilience might influence this.

The situation is further complicated by the fact that the trauma literature's main clinical construct, PTSD, is itself subject to significant speculation and controversy. In this respect, and in anticipation of revised conceptual criteria in DSM-5, Spitzer, First, and Wakefield (2007) reflect on how "Since its introduction into DSM-III…no other…diagnosis…has generated so much controversy in the field as to the boundaries of the disorder, diagnostic criteria, central assumptions, clinical utility, and prevalence in various populations" (p.233). For example, while some authors argue that PTSD is no more than a social construction (e.g., Summerfield, 2001), others contest that the concept's core suppositions and "inner logic" (Young, 2004, p.130) – the existence of an explicit syndrome elicited by exposure to Criterion A stressors – do not hold up to scrutiny, wherein DSM-criteria PTSD actually characterises a non-specific syndrome of psychiatric distress rather than a specific construct with a distinct, trauma-based aetiology (e.g., Bodkin, Pope, Detke & Hudson, 2007; Breslau, Reboussin, Anthony & Storr, 2005). Thus even if one assumes that the PTSD construct is valid (which is not an uncontested point in itself), there remains the possibility that symptom criteria can be interpreted in such variable ways that they end up encompassing non-pathological emotional responses; or that they are indiscriminate and reference too many generic symptoms of low mood/responses to negatively valenced events (Spitzer et al., 2007). As can be seen from the previous discussion of victimisation exposure, this complexity is further compounded by the fact that traumatic events appear to be broadly non-specific in their association with mental health problems (e.g., CSA alone has been linked with PTSD, psychosis, mood and anxiety disorders, substance use problems, eating disorders, and BPD).

The latter issue, in turn, is also closely linked to research limitations in how trauma responses are operationalised, which it is claimed can create misleading and inflated results. For example, a notorious demonstration by Lees-Haley, Price, Williams, and Betz (2001) using The Impact of Event Scale (Horowitz, Wilner & Alvarez, 1979: a popular measure in PTSD research), found that the scores of 58 non-patient participants approximated ranges associated with traumatic responses in respect to a target 'stressor' - the worst film or television programme they had recently watched. Other identified issues include the way that outcomes in trauma research are often too limited, wherein an emphasis on PTSD-type symptoms occurs at the expense of less obvious sequalae, such as functioning within interpersonal relationships (Anders et al., 2012), somatisation (Nijenhuis & van der Hart, 2011), and an unhelpful separation of cognitive/affective psychological phenomena from the social, political, and cultural context of trauma and violence (Bracken et al., 1995). Regarding the latter point, Bracken et al. (1995) argue that PTSD discourse involves several assumptions based on Western concepts of individuality (i.e., the aftermath of trauma as an internal, intra-psychic event positioned within the individual), which in turn have only limited relevance to

the assessment and assistance of those from non-western communities. This is an important consideration given the magnitude of trauma resulting from military action, political violence, and human-made and natural disasters impacting many non-industrialised societies, in which the applicability (or not) of the PTSD construct in subsequent research must be suitably and sensitively defined (Bracken et al., 1995).

Another limitation in the trauma literature, possibly unique in respect to other branches of psychiatric research, is that trauma-spectrum disorders are unusually vulnerable to malingering and fraud in terms of litigants seeking military/civilian compensation claims or engaging in personal injury suits. In recognition of this, DSM-IV introduced a guideline for detecting malingering that was unique to PTSD; nevertheless, very few peer-reviewed articles make any reference to assessment of malingering, even when research samples are known to comprise plaintiffs.[19] True rates of malingering are unknown, although the fact that Resnick (2003) has provided an estimate as high as 50% suggests that the problem is too serious to be ignored, and underscores Lees-Haley's (1986) sardonic observation that "If mental disorders were listed on the New York exchange, PTSD would be a growth stock to watch'' (p.17). Rosen and Taylor (2007) note that "feigned cases of PTSD can compromise the integrity of the PTSD database, with the result that tainted findings may be misperceived as sound data" (p.224), and these authors provide a detailed discussion of the implications of recruiting participants in PTSD studies who are actively pursuing litigation or disability benefits. Similarly, Coyne and Thompson (2007) argue that transparency in trauma research must be extended to investigators themselves, wherein the latently contaminating influence of financial incentives are regulated in the same way that ties to pharmaceutical companies are in psychosis research (e.g., researchers must disclose any latent conflict of interest, particularly an existing or aspiring role as expert witness in compensation claims[20]). Rosen and Taylor (2007) similarly conclude that editors of relevant journals should confer and derive guidelines for the evaluation, assessment, and reporting on the condition/status of participants in order to maintain the integrity of trauma data.

Other, more general assessment issues in trauma research include an inevitable but problematic reliance on retrospective self-reporting, which McHugh and Treisman (2007) argue could be usefully supplemented when possible by objective, corroborating information on exposures, as well as pre-exposure functioning. In a related point, some authors (e.g., McNally, 2003; McNally et al., 2007; Rosen and Taylor, 2007) have also queried the extent to

---

[19] For example, survivors of shipwrecks (e.g., Eid, Johnsen, & Thayer; Yule et al., 2000), motor accidents (e.g., Blanchard et al., 1996) and combined natural/technological disasters (e.g., Murphy & Keating, 1995).
[20] Coyne and Thompson (2007) provide the example of Avina and O'Donohue's (2003) widely-derided claim that hearing a chauvinistic joke can constitute a traumatic event – an unusual stance that becomes more comprehensible when considering that one of the authors served as an expert witness in sexual harassment suits.

which researchers and participants may involuntarily co-create a traumatised presentation as a function of assessment artefacts, such as leading questions; demand characteristics; 'top-down' assumptions of a causal, aetiological link between exposure and outcome; and the role of social influences in creating erroneous attributions and re-interpretations of symptoms. As Coyne and Thompson (2007) see it, this is about moving away from "presumptions [that] have too often driven strong interpretations of weak…data, rather than being fashioned into testable hypotheses themselves" (p.226). In this respect the work of Bodkin et al. (2007) cautions against the automatic attribution of PTSD-type presentations to trauma after finding 78% (28/36) of sequentially sampled patients with major depression met DSM-IV criteria for PTSD, despite being classified by blinded raters as not experiencing Criterion A-level traumas. Bodkin et al. caution that these issues are often insufficiently acknowledged during assessment because investigators' queries about symptoms are frequently located in terms of a pre-supposed causal framework.

A further recurring limitation in some studies is a failure to use standardised assessments for measuring non-Criterion A events. Given that Criterion A events themselves are differentially associated with PTSD (Breslau, Kessler & Peterson, 1998), it is logical that non-Criterion A stressors may also have variable risk associations, and to accord equal care to their measurement (Anders et al., 2012). However, research often opts for open-ended questions about 'other stressful events' for assessing the latter (e.g., Mol et al., 2005), which in turn may inflate estimates of PTSD symptoms in relation to specific exposures (i.e., participants may only nominate unusually distressing experiences), as well as reduce the likelihood of accurate prevalence estimates (for a comparison of checklist assessment with single-item assessment, see Pierce et al., 2009). Although it is scarcely plausible that associations between posttraumatic symptoms and trauma exposure are always an artefact of how these phenomena are measured, such concerns do emphasise the need for more thoughtful consideration in designing and conceptualising trauma research. In this respect, Coyne and Thompson (2007) advocate more research that purposefully demonstrates 'bad' examples (e.g., Lees-Haley et al., 2001, described above), and studies recruiting populations who would fulfil PTSD diagnostic criteria yet have not experienced Criterion A stressors (to determine whether patients attribute symptoms to adverse events when not induced to do so by researchers: e.g., Bodkin et al., 2007). Other recommendations to reduce what Rosen (2004) deems 'criterion creep' (see also McNally's, 2003, treatise on 'bracket creep') is discouraging studies that neglect to determine the exact nature of trauma exposure, or assess symptoms with measures of negligible validity and/or which do not contain sufficient items to comprehensively examine PTSD symptoms. Often classified as 'PTSD-like' presentations, such studies nevertheless tend to be referenced and debated in the literature as if they are referring to clinical states of ascertained validity (Coyne & Thompson, 2007).

Taken together the trauma construct can be seen as contentious and conceptually ambiguous; something which is perhaps inevitable, given that fear and distress are facets of human life that defy simple descriptive frameworks (Bracken et al., 1995). The construct certainly serves a valuable function in terms of stimulating and supporting theoretical/empirical work that strives to understand the human cost of adverse events, and there is no reasonable case to call for the concept of posttraumatic syndromes to be abandoned. Nevertheless their current limitations need to be recognised, and there remains a demonstrable need for research that aims to test the habitual assumptions about trauma more critically. As Coyne and Thompson (2007) have written in their discussion of the useful and unhelpful 'heuristics' of posttraumatic responses, "an open-minded, skeptical attitude toward the conceptualisation, nosology, and assessment of posttraumatic disorders can [ultimately] yield fresh interpretations of the literature and new research" (p.224). Adopting this kind of critical, questioning stance is a worthwhile enterprise that could strengthen rather than impair the field, reducing artificial consensus of what constitutes trauma, what can justifiably be reified as a posttraumatic response, and improve understandings not only of who becomes distressed and overwhelmed; but also, crucially, why so many people do not.

2.3.4 Summary

In reviewing the literature, it is clear that there are considerable difficulties in attempting to abstract a generalised psychological 'trauma' response from the broad range of stressors that constitute 'traumatic events' – especially when considering the wide variations in individual, adaptive capacity, and the influence of social and political contexts on these. Firstly, however, it becomes clear that definitions of trauma – in terms of an emotionally overwhelming event – should not be restricted to the type of extreme maltreatment and/or life-threatening danger encapsulated by PTSD Criterion A. Instead, recent research places increased emphasis on the subjective interpretation of negative events rather than their purely objective characteristics. Notwithstanding this, the word *trauma* carries powerful cultural associations that risk obscuring the broad definitional scope sought within the thesis. For this reason *adversity* or *adverse life events* will henceforth be used in preference, as it is felt that these terms are better suited for capturing the meaning of the construct as it is intended within this project: a range of stressors that may induce emotional suffering in some individuals, yet would not necessarily be deemed traumatic in the conventional sense, or inevitably fulfil the conditions of PTSD Criterion A (e.g., peer bullying, bereavement, being fostered or placed in institutional care). As such a more generic term, like adversity, not only indicates the spectrum of events being considered, but also their diversity.[21]

---

[21] This also corresponds with concerns expressed by some groups of mental health service-users and carers, who contend that both political activism and academic/clinical subcultures

Adversity is therefore defined as significant events that are subjectively distressing, carry substantial negative valence, and whose associated memories and/or emotions may be difficult to process, and which may lead to intrusions and/or emotional avoidance. In this respect, two specific variants of adversity will also be employed, defined as victimisation events (violence or threat deliberately inflicted by another person; e.g., CSA, bullying) and non-victimisation events (non-interpersonal stressors that do not involve a perpetrator; e.g., illness, natural disasters). In turn, these events may be single incident or chronic, and cumulative across the lifespan. For a discussion of how instruments were selected and applied to assess these constructs, please see Chapter 5.

---

use 'trauma' as synonymous with childhood abuse (particularly CSA), which can feel alienating, overly restrictive, and insufficiently acknowledging of other forms of oppression or injustice (J. Dillon, personal communication).

Chapter 3

Study 1: Systematic Literature Review for Evidence of a Causal Association between Voice Hearing and Dissociation

The following chapter presents a systematic review of research assessing associations between the constructs of voice hearing and dissociation, as defined in Chapter 2, in order to evaluate the current state of knowledge in this area. Although two narrative reviews currently exist (Longden et al., 2012a; Moskowitz & Corstens, 2007), no study to date has critically and systematically examined research on voice hearing and dissociation across different clinical and non-patient samples, including the possibility of a causal relationship between the two. This gap in the literature, added to the convergence of supporting theoretical knowledge discussed in Chapter 1, was a primary rationale for conducting the current review.

3.1 Aims of the Review

Two explicit aims were formulated: (1) to establish evidence for an association between the experience of voice hearing and the experience of dissociation in different clinical and non-clinical groups; and (2) to determine to what extent an observed association represents a causal relationship. In this respect, empirically demonstrating a relationship between voice hearing and dissociation is an important endeavour (even in an absence of discernible causal associations), in terms of verifying whether there is a heightened probability of voice hearers exhibiting (other) dissociative experiences, and the attendant clinical and conceptual inferences of such a finding.

3.2 Method

3.2.1 Search Procedure

The processes of search, extraction, and data synthesis were informed by guidelines prescribed by the Centre for Reviews and Dissemination (CRD: 2009). Relevant papers were searched for using the electronic databases BNI (1985 to March 2013), CINAHL (1982 to March 2013), HMIC (1979 to March 2013), MEDLINE (1950 to March 2013), and PsycINFO (1967 to March 2013). All databases were searched using the OVID interface and employed the following search terms: (verbal hallucination* OR auditory hallucination* OR voices OR voice hearing OR psychotic symptoms OR positive symptoms of schizophrenia OR

Schneiderian OR psychosis) AND (dissociation OR dissociative OR depersonali*ation OR dereali*ation OR absorption). References and citing articles from selected papers were checked manually in order to locate additional studies. In order to identify any relevant, newly-published articles not yet indexed in electronic databases, a hand-search of key journals[22] published two months previously was also performed (CRD, 2009).

3.2.2   Inclusion Criteria

Studies were included for review if they were published in English-language peer-reviewed journals and employed quantitative methods to report on associations between voice hearing and indices of dissociative experience in children, adolescents, or adults.

1) Studies pertaining to 'auditory hallucinations' without specifying voice hearing were included, as human vocalisations are identified as by far the most common form of aural hallucinatory experience (e.g., Corstens & Longden, 2013; Leudar & Thomas, 2000; Nayani & David, 1996). In cases where 'hallucination' was used without specifying modality, authors were contacted directly for clarifying information and studies classified accordingly where possible.

2) Because dissociation has been suggested as a putative mechanism for voice hearing *per se* (e.g. Longden et al., 2012a; Moskowitz & Corstens, 2007; Moskowitz et al., 2009)*,* samples with both psychotic and non-psychotic diagnoses were incorporated into the search, as well as mixed diagnostic groups, and studies assessing voice hearing in non-patients.[23]

3) It is not standard practice to exclude studies from reviews on the basis that they fail to meet quality assessment criteria (CRD: 2009), as this may inform the standards required for future investigations. Studies were therefore included irrespective of methodological rigour.

4) Given the contentions surrounding the definition and measurement of dissociation (see Chapter 2), studies were only included that used standardised measures of dissociative experience.

---

[22] *Journal of Trauma & Dissociation*; *Journal of Traumatic Stress*; *Journal of Nervous and Mental Disease; Psychological Medicine.* Determined by analysing the results of database searches to identify which journals contained the largest number of relevant publications.
[23] Sometimes referred to as 'healthy voice hearers' (e.g., Andrew et al., 2008; Honig et al., 1998; Sommer et al., 2010), and generally defined as individuals who regularly hear voices, are free of neurological disorders, and have no current or previous history of mental health service use (Moritz & Larøi, 2008).

5) Similarly, studies were only eligible for inclusion if they employed standardised instruments for assessing voice hearing presence.[24]

3.2.3 Exclusion Criteria

Studies were omitted from the review according to the following conditions:

1) Case studies and case reviews (e.g., Nurcombe et al., 2008, 2009), or conference abstracts (e.g., Schäfer et al., 2008).

2) Studies using voice hearing as an example of a dissociative symptom without examining the specific association between dissociative experience and voice onset, maintenance, or manifestation (e.g., Lauterbach et al., 2008).

3) Studies examining associations between voice hearing and posttraumatic symptoms without explicit reference to dissociation (e.g., Butler, Mueser, Sprock & Braff, 1996).

4) Studies that analysed dissociation in relation to positive psychotic symptoms (e.g., Schäfer et al., 2012; Vogel et al., 2009, 2011), or Schneiderian symptoms of schizophrenia (e.g., Ross & Keyes, 2004) without reporting sub-analyses for voice hearing.

3.2.4. Inferring Causality

In order to determine possible causal associations between voice hearing (health outcome) and dissociation (putative mediating agent), each study was assessed according to the perspectives on causal inference specified by Bradford Hill (1965): (1) temporal relationship between items, (2) strength of the association, (3) evidence of a dose-response relationship, the (4) consistency, (5) plausibility, (6) coherence, and (7) specificity of the association, (8) the consideration of analogous explanations, and (9) experimental evidence (whereby limiting exposure reduces outcome frequency). Although these factors cannot, in themselves, provide indisputable evidence for or against assumptions of causality (Phillips & Goodman, 2004), the criteria are widely employed in medical sciences as a helpful means of establishing necessary, minimal conditions for causation (Swaen & van Amelsvoort, 2009).

---

[24] The exception to this was Yoshizumi, Murase, Honjo, Kaneko, and Murakami (2004) who utilised a questionnaire of their own design. However, information provided in the paper demonstrated that voice hearing was operationalised clearly: *"Have you ever heard or are you currently hearing somebody's voice that no one around can hear?,"* and contained rigorous supplementary and screening questions to elaborate voice content, participants' convictions about the reality of their experiences, and to differentiate hypnogogic/ hypnopompic hallucinations from those experienced in a conscious state.

3.2.5   Quality Assessment

Quality assessment was undertaken to determine potential flaws in research design or conduct, and the implication of this for the robustness of the findings. Evaluations of data quality were guided using the Graphical Appraisal Tool for Epidemiological Studies (GATE: Jackson et al., 2006). This standardised framework is organised across four sections and assesses such dimensions as selection bias, study design, confounders, blinding, methods of data collection, intervention integrity, and analysis. The first section (Population) evaluates key sample criteria to determine external validity, whereas sections two (Method of selection of exposure [or comparison] group), three (Outcomes), and four (Analyses) determine internal validity. An abridged version of the quality assessment is presented in Tables 3.1–3.3. For the template GATE checklist, please see Appendix A.

3.2.6   Analysis Strategy

Prior to analysis, articles were organised into three common categorisations for voice hearing: populations with a diagnosis of psychosis, populations with non-psychotic mental health diagnoses, and non-patient groups (e.g., Honig et al., 1998; Longden et al., 2012a; Moskowitz & Corstens, 2007). Data extraction was synthesised into a qualitative, descriptive format organised on the basis of: (1) study sample (number of participants, age and gender, clinical features, number and characteristics of controls); (2) study setting and characteristics (design, assessment tools, parameters of methodological quality and statistical testing, country in which research was conducted, any disclosed conflict of interest); and (3) relevant outcomes (rates of dissociation amongst voice hearers and control/comparison groups, rates of voice hearing amongst dissociative individuals and control/comparison groups, effect sizes, relevant causal criteria). For a sample data extraction form, please see Appendix B. Results of relevant statistical test(s) were then compiled into a spreadsheet using SPSS v.20 software for Windows (SPSS Institute, Chicago, Illinois). These findings primarily consisted of analyses of variance, t-tests, Pearson's correlations, point-biserial correlations, and regression/multiple regression procedures, and either compared measures of dissociation between voice hearers and non-voice hearers, or looked at the strength of the association between voice hearing and dissociation (see Appendix B2). A forest plot was subsequently constructed in order to illustrate and compare the respective correlation coefficients and confidence intervals associated with each of these studies. One study (Escher et al., 2004) did not contain usable results for pooling data, and was therefore excluded from this part of the review.

Although clinical and methodological variations mean that a level of statistical heterogeneity is inevitable when pooling data, it is also important to confirm that differences between studies are not so broad as to render comparisons meaningless (Higgins et al., 2003).

Heterogeneity was therefore assessed using the *Q*-statistic (chi-square) test for interaction (CRD, 2009). Nevertheless, given the risk that statistically combining data from observational studies may yield "precise but…spurious results" due to distortions from confounding and selection bias (Egger, Schneider & Davey-Smith, 1998, p.140), the study also retained the narrative elements of a systematic review in order to identify and document sources of heterogeneity, and interpret subsequent findings accordingly.

3.3   Results

3.3.1 Search Results

Nineteen articles met inclusion criteria for the review, virtually all of which were cross-sectional and observational investigations with small to moderate sample sizes. Papers were most commonly excluded on the basis of having no criteria and/or outcome of interest (e.g., reporting on hallucinations *per se*), or for the use of non-quantitative methods (e.g., case studies and case reviews). The data extraction process for the review is depicted in Figure 3.1.

3.3.2 Publication Bias

Possible publication bias (e.g., selective reporting of analysis/outcome, language bias, citation bias: Sterne et al., 2011) was assessed using the funnel plot method to measure effect size against sample size (see Figure 3.2).[25] The 'hollow' asymmetry of the plot was likely attributable to the inclusion of a large number of low-sample studies (Song, Khan, Dinnes & Sutton, 2002) and the combination of 'high precision' and 'low precision' data in terms of effect size relative to sample size, statistical power, and alpha levels in the original studies (Light & Pillemer, 1984). Nevertheless, the roughly inverted distribution and wide scattering of small studies was not suggestive of significant bias (Cochrane Collaboration, 2002), although it should be noted that funnel plots lose accuracy when, as in the present case, only a small number of studies are available and when there is statistical heterogeneity (CRD, 2009). As such, the possibility of latent publication bias could not be entirely discounted.

---

[25] The recommended practice for creating funnel plots is plotting the standard error of the intervention effect estimate on the vertical axis (Sterne & Egger, 2001). However, given that the reviewed studies did not incorporate treatment effects as part of their designs, sample size was used as an alternative (CRD, 2009). Effect was plotted on a logarithmic scale using Cohen's *d* on the horizontal axis, a standard measure of effect size in medical literature (McGough & Faraone, 2009). For the latter, results of relevant statistical test(s) were gathered into a spreadsheet using Microsoft Excel 2010 for Windows to create the plot. When Cohen's *d* was not provided within the papers, it was calculated by converting relevant test statistics (primarily Pearson's correlation coefficients between measures of dissociation and voice hearing; and standardised mean difference between groups of voice hearers and non-voice hearers) into *d* values (Grissom & Kim, 2005).

```
┌─────────────────────┐   ┌─────────────────────┐   ┌─────────────────────┐
│  Database search     │   │ Reference searching │   │ Colleague suggestions│
│     (n=282)          │   │       (n=8)         │   │      (n=3)          │
└─────────────────────┘   └─────────────────────┘   └─────────────────────┘
```

Titles reviewed (n=293)

240 rejected on
title/abstract review

53 screened

34 rejected

18: No criteria/outcome of interest
7: Inappropriate design
4: Foreign language publication
3: Non-standardised measures
2: Duplicate study

19 articles reviewed for supplementary analyses

Voice hearing and dissociation in psychosis patients (n=9)	Voice hearing and dissociation in non-psychotic patients (n=3)	Voice hearing and dissociation in non-patients (n=7)
8 cross-sectional 1 case-control	2 cross-sectional 1 case-control	6 cross-sectional 1 longitudinal

Figure 3.1 Flowchart depicting the data extraction process for the systematic review.
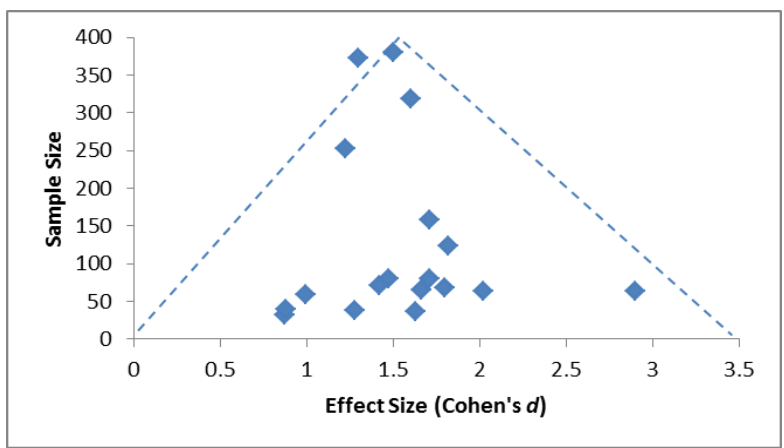
Figure 3.2 Funnel plot assessing possible publication bias within the review.

3.3.3   Voice Hearing and Dissociation in Psychotic Clinical Populations

Of the studies meeting inclusion criteria for the review, nine examined associations between voice hearing and dissociation in patients diagnosed with psychotic disorders. These studies principally assessed participants in receipt of a schizophrenia diagnosis, although conditions such as psychosis, schizoaffective disorder, and schizoid personality disorder were also included. Eight employed cross-sectional methods, with one (Varese, Barkus & Bentall, 2012b) utilising a retrospective case-control design. A range of assessment tools were evident, frequently self-report measures, although structured clinical interviews were employed in two studies to assess dissociation, and in seven to determine voice hearing presence/severity (see Table 3.1).

3.3.3.1 Cross-Sectional Studies

Significant contributions to this area have been made by Perona-Garcelán and colleagues, who have published a series of papers examining between-group differences in associations between voice hearing and different indices of dissociation in psychosis populations. An early investigation comparing patients with non-clinical controls (Perona-Garcelán et al., 2008) revealed graded group differences, with the highest mean DES-II scores amongst those actively hearing voices (n=17), followed by remitted voice hearers (n=16), which in turn were higher than patients with no history of voice hearing (n=18), and non-patients (n=17) scoring the lowest. Comparable results were reported in a later study (Perona-Garcelán et al., 2011a), which comprised three groups of patients diagnosed with schizophrenia (those reporting voices and delusions: n=27; with delusions only: n=20; with remitted positive symptoms: n=28) and two control groups (patients with non-psychotic mental health conditions: n=18; and a non-clinical sample: n=27). When DES-II subscales were examined, voice hearers scored significantly higher on depersonalisation, and higher on measures of absorption than all groups except the patient controls. Similarly, Perona-Garcelán et al. (2010) reported that out of 37 adults diagnosed with psychotic disorders, those patients evincing pathological levels of dissociation (DES-II ≥25; n=8) scored significantly higher on voice hearing measures than those with non-pathological dissociation, an effect that was not observed for delusions.

In successive work, Perona-Garcelán et al. (2011b) examined specific relationships between voice hearing and depersonalisation, rather than global dissociation measures (e.g., mean DES-II scores). In the first study, depersonalisation was moderately associated with voice hearing and delusions in 59 patients with schizophrenia spectrum diagnoses. However, while depersonalisation mediated associations between voice hearing and self-focused attention (a preoccupation with self-referent information that is common in psychosis), the

Table 3.1   Descriptive summary of studies assessing voice hearing and dissociation in psychosis populations.

Study	*n*	Sample and setting[a]	Method	Assessment tools: 1.Voice hearing 2.Dissociation	Key results	Quality assessment and validity issues
Dorahy et al. (2009)	63	Convenience sample, mean age 41.61 (SD=11.12) 16 patients with a history of childhood maltreatment diagnosed with SZ, female to male ratio 4:12 18 patients with no history of childhood maltreatment diagnosed with SZ, female to male ratio 3:15 29 patients diagnosed with DID, female to male ratio 0:29 Northern Ireland and Australia	Cross-sectional. Self-report measures and clinical interview. Logistic regression and multivariate analysis of variance	1= MUPS 2= DES-II; DDIS	Voice hearing more pervasive in DID than SZ group, regardless of abuse history. Pathological dissociation predicted five severity variables: commanding voices, feeing controlled by voices, hearing more than two voices, hearing content relating to influential persons in the patient's life, and content that reiterated past memories (Exp(β) = 1.03 to 1.05). DID sample also more likely to hear voices before age 18, report child and adult voices, and experience other hallucination modalities	Small convenience samples. Possibility of recall bias in retrospective reporting of childhood maltreatment and voice onset

| Kilcom-mons & Morrison (2005) | 32 | Convenience sample

Patients diagnosed with SZ spectrum disorders, mean age 34.50 (SD=9.96), female to male ratio 7:25

UK | Cross-sectional. Self-report measures and structured clinical interviews. Correlational, one-way analysis of variance, and multiple regression analyses | 1=PANSS

2=DES-II | Depersonalisation significantly predicted hallucinations after controlling for cumulative effect of trauma and negative self-cognitions (F=4.28, p = .005). DES–II subscale scores showed stronger associations with voice hearing (r=.32 for absorption; r=.59 for depersonalisation; r=.52 for dissociative amnesia) than for delusions (r=.22; r=.21; r= -.01) or global positive psychotic symptoms (r=.32; r=.22; r=.33) | Small convenience sample. Large number of correlational analyses heightened probability of Type I errors |
| Laddis & Dell (2012b) | 80[b] | Convenience sample

40 patients diagnosed with DID, mean age 40.1 (SD=8.00), female to male ratio 37:3

40 patients diagnosed with SZ, mean age 42.1 (SD=10.00), female to male ratio 14:26

USA | Cross-sectional. Self-report measures and structured clinical interviews. Analysis of variance, point-biserial correlations | 1 = MID (FRS & PS scales)

2 = MID; SCID-D-R | Voice hearing significantly correlated with a diagnosis of DID and negatively correlated with a diagnosis of SZ. Compared to SZ patients, DID group scored significantly higher on measures of dissociation and were more likely to hear child voices, and angry, persecutory, arguing, or commenting voices. In SZ patients, voice hearing accounted for 91.5% of the variance in mean MID scores | Sample heterogeneity due to differentials in gender and educational background. No power calculation. Retrospective reporting of dissociative symptoms from half of SZ sample |

| Perona-Garcelán et al. (2008) | 68 | Convenience sample

17 voice hearing patients diagnosed with SZ, mean age 37.18 (SD=8.77), female to male ratio 3:14

16 remitted voice hearing patients diagnosed with SZ, mean age 39.88 (SD=9.10), female to male ratio 5:11

18 non-voice hearing patients diagnosed with SZ spectrum disorders, mean age 36.39 (SD=7.89), female to male ratio 2:16

17 non-clinical controls, mean age 41.35 (SD=10.21), female to male ratio 10:7

Spain | Cross-sectional. Clinician-rated measures and self-report scales. Tamhane t-tests and multiple regression analysis | 1=PANSS

2=DES-II | DES-II total scores significantly higher for voice hearers than non-voice hearers (t= 18.31, p=.001) or non-clinical controls (t=23.98, p=.0001). Mean DES-II scores (SD not stated) were highest for patients actively hearing voices (27.5), followed by remitted voice hearers (14.65), patients with no history of voice hearing (9.19), and non-patients (3.52). Depersonalisation, rather than DES-II total, was the only dissociative variable to predict voice hearing presence and severity | Small convenience sample. No power analysis. No adjustment for confounding variables |

Perona-Garcelán et al. (2010)	37[e]	Convenience sample Outpatients diagnosed with SZ spectrum disorders. Mean age 35.83 (SD=5.15), female to male ratio 6:31 Spain	Cross-sectional. Clinician-rated measures and self-report scales. Mann–Whitney U-test and t-test analysis	1=PANSS 2=DES-II	Participants with highest mean DES-II scores (≥25; n=8) scored significantly higher on the PANSS hallucination item for presence and severity of voices (U=39.50, p=.003) than those with non-pathological levels of dissociation. Same effect not observed with delusions	Loss of power due to small sub-group analyses. No adjustment for confounding variables
Perona-Garcelán et al. (2011a)	124	Convenience sample 27 psychosis patients with voices and delusions,[f] mean age 38.81 (SD=8.95), female to male ratio 5:22 20 psychosis patients with delusions only,[f] mean age 36.05 (SD=7.48), female to male ratio 5:15 28 psychosis patients with remitted positive symptoms,[f] mean age 38.18 (SD=7.61), female to male ratio 7:21 22 clinical controls with no history of psychosis,[g] mean age 39.32 (SD=12.80), female to male ratio 16:6.	Cross-sectional. Clinician-rated measures and self-report scales. Analysis of variance procedures, Welch and Tamhane t-tests, correlational analysis	1=PANSS 2=TAS; CDS	Voice hearers scored significantly higher on depersonalisation than any other group, and significantly higher on absorption than all groups except clinical controls. Depersonalisation (β =.67, t=10.07, p=.0001) had the strongest predictive power for voice severity.	No randomisation. Sample heterogeneity due to differentials in gender and medication usage. Risk of covariance between measures of dissociation and affective disturbance

27 non-clinical controls, mean age 37.04 (SD=12.07), female to male ratio 13:14

Spain

Perona-Garcelán et al. (2011b)	59	Convenience sample 37 outpatients diagnosed with SZ with voice hearing and delusions, mean age 38.97 (SD=9.16), female to male ratio 9:28 22 outpatients diagnosed with SZ with delusions only, mean age 37.32 (8.21), female to male ratio 5:17 Spain	Cross-sectional. Clinician-rated measures and self-report scales. Sobel test, multiple regression and correlational analyses	1=PANSS 2=CDS	Voice hearing presence and severity significantly correlated with depersonalisation (r=.49, p<.001). Depersonalisation mediated association between self-focussed attention and voice hearing, but not self-focussed attention and delusions, on both multiple regression analysis (β=.39, p=.003) and the Sobel test (Sobel z=2.24, p=.025)	Risk of covariance between measures of dissociation and psychosis
Perona-Garcelán et al. (2012a)	71[h]	Convenience sample Patients with psychotic disorders, mean age 39.08 (SD=8.98), female to male ratio 17:54 Spain	Cross-sectional. Clinician-rated measures and self-report scale. Simple and multiple mediation analysis	1=PANSS 2=DES-II	Depersonalisation was the only DES-II subscale to mediate the association between childhood trauma and voice hearing, but no subscales mediated between trauma and delusions	Risk of covariance between dissociation and psychosis measures. No power analysis or adjustment for confounders

| Varese et al. (2012b) | 65 | Convenience sample

15 voice hearing patients,[i] mean age 45.6 (SD= 12.2), female to male ratio 9:6

14 remitted voice hearing patients,[j] mean age 39.4 (SD=13.3), female to male ratio 7:7

16 non-voice hearing patients,[k] mean age 48.3 (SD=12.2), female to male ratio 5:11

20 non-clinical controls, mean age 39.5 (SD=14.6), female to male ratio 9:11

UK | Retrospective case-control. Self-report measures and structured clinical interview. Analysis of variance and chi-square tests | 1=PANSS; LSHS-R

2= DES-II | Voice hearers had significantly higher DES-II scores compared to healthy and non-hallucinating clinical controls (all p's <.01). In aggregated and psychiatric samples, hallucination-proneness was associated with DES-II scores. Dissociation positively mediated the effect of childhood trauma, particularly sexual abuse, on hallucination-proneness for all groups | Risk of selection bias in convenience sample. Potential presence of dissociative disorders not assessed |

Note. **SZ** = schizophrenia; **MUPS** = Mental Health Research Institute Unusual Perceptions Schedule (Carter et al., 1995); **DES-T** = Dissociative Experiences Scale-Taxon (Waller et al., 1996); **DDIS** = Dissociative Disorders Interview Schedule (Ross, 1997; Ross et al., 1989b); **PANSS** = The Positive and Negative Syndrome Scale for Schizophrenia (Kay et al., 1987); **DES** = Dissociative Experiences Scale (Bernstein & Putnam, 1986); **MID** = Multidimensional Inventory of Dissociation (Dell, 2006a); **FRS** = first rank symptoms of schizophrenia; **PS** = psychosis screen; **SCID-D-R** = Steinberg (1994); **BAVQ** = Beliefs About Voices Questionnaire (Chadwick & Birchwood, 1995); **DES-II** = Revised Dissociative Experiences Scale (Carlson & Putnam, 1993); **CDS** = Cambridge Depersonalisation Scale (Sierra & Berrios, 2000); **TAS** = Tellegen Absorption Scale (Tellegen & Atkinson, 1974); **LSHS-R** = Revised Launay-Slade Hallucination Scale (Bentall & Slade, 1985)

[a] Unless otherwise stated, all patients diagnosed with DSM-IV criteria. [b] No current substance abuse, or history of brain damage, bipolar disorder, or earlier diagnosis of dissociative disorder (schizophrenia sample). [c] Schizophrenia (n=29), psychosis (n=1), manic-depressive psychosis (n=1), psychotic depression (n=1), schizoid personality disorder (n=1). [d] Schizophrenia (n=21), psychosis (n=1), manic-depression (n=1), psychotic depression (n=1), schizoid personality disorder (n=1). [e] Schizophrenic disorder (n=34), schizoaffective disorder (n=3). [f] Paranoid schizophrenia (n=57), undifferentiated schizophrenia (n=1), delusional disorder (n=1). [g] Adjustment disorder (n=8), major depressive disorder (n=6), dysthymic disorder (n=4), generalised anxiety disorder (n=3), panic disorder with agoraphobia (n=1). [h] Paranoid schizophrenia (n=66), schizoaffective disorder (n=3), delusional disorder (n=1). [i] Schizophrenia (n=13), schizoaffective disorder (n=2). [j] Schizophrenia (n=10), schizoaffective disorder (n=4). [k] Schizophrenia (n=11), schizoaffective disorder (n=5), delusional disorder (n=1).

same effect was not found for delusions. Similar results were also reported by Kilcommons and Morrison (2005) in an early exploratory study of posttraumatic stress symptoms in 32 patients with schizophrenia spectrum diagnoses. These authors likewise found that associations with DES-II subscales were more pronounced for voice hearing than for delusions or global positive psychotic symptoms. Furthermore, depersonalisation remained a significant predictor of voice hearing after controlling for the cumulative effect of trauma severity. In addition, Perona-Garcelán et al. (2012a) also provided evidence for the specificity of associations between voice hearing and dissociation compared to other positive psychotic symptoms. In a sample of 71 patients with schizophrenia spectrum disorders, DES-II mean and subscale scores were correlated with voices and delusions, although associations were stronger for voice hearing and, with the exception of depersonalisation, at a level of greater statistical significance. Furthermore, depersonalisation mediated between trauma and voice hearing, but no measures of dissociation mediated between trauma and delusions.

Finally, two studies compared measures of voice hearing and dissociation between patients diagnosed with schizophrenia and those with dissociative disorders. The first, Laddis and Dell (2012b), found that levels of dissociation were significantly lower amongst patients diagnosed with schizophrenia (n=40), who were additionally less likely to report child voices, aggressive voices, persecutory voices, and voices commenting on thoughts/conduct than the DID patients (n=40). Conversely, however, the voice hearing scale from the Multidimensional Inventory of Dissociation (MID: Dell, 2006a) showed the strongest correlation with mean dissociation scores amongst the schizophrenia sample, accounting for 92% of the variance. This was higher than the best predictor of variance in DID patients' dissociation scores (the MID's Ego-Alien Experiences scale: 81%). Dorahy et al.'s (2009) results were comparable to Laddis and Dell (2012b), in that pathological dissociation was significantly higher amongst DID patients (n=29), compared to those diagnosed with schizophrenia with a history of childhood maltreatment (n=16), or a diagnosis of schizophrenia and no abuse history (n=18), with voice hearing likewise more pervasive in the DID group than either of the schizophrenia samples. On the basis of issues arising during assessment and treatment, five criterion variables were additionally selected to generate a voice hearing severity measure: (1) hearing more than two voices, (2) hearing commanding voices, (3) feeling controlled by voices, (4) voice content relating to influential person in patient's life, (5) voices content reiterating past memories. Similar to Laddis and Dell (2012b), dissociation was associated with voice hearing across diagnostic groups, with measures of pathological dissociation significantly predicting the likelihood of all five criteria.

3.3.3.2 Case-Control Studies

The only case-control study in the series, Varese et al. (2012b), also reported significant associations between hallucination-proneness and dissociation in a small sample of patients with schizophrenia spectrum disorders and healthy controls. Those actively hearing voices (n=15) scored significantly higher on the DES-II (all p's <.01) compared to a non-clinical sample (n=20), patients with remitted hallucinations (n=14), and patients with no lifetime history of hallucinations (n=16). In addition, hallucination-proneness was significantly associated with dissociation measures in both aggregated and psychiatric samples, and mediated the impact of childhood trauma on hallucination-proneness for all groups. However, while auditory signal detection abnormalities were more manifest in active and remitted voice hearers, these differences were not associated with DES-II scores, suggesting that dissociation may not influence reality discrimination (i.e. the capacity to discern between external and internal cognitive events) in conjunction with voice hearing.

3.3.3.3 Critical Appraisal of Studies in Psychotic Clinical Populations

A consistent weakness across this literature concerned sampling methods, wherein few attempts were made by authors to account for recruitment strategies. In this respect the majority of studies relied on non-random convenience samples, which potentially compromises external validity through systematic selection bias. In addition, few studies provided information about the ethnic or socio-economic backgrounds of their participants and the majority of papers showed clear gender differentials within their samples (although it is arguable that this could reflect true population differences: e.g., schizophrenia may be more frequently diagnosed in men [Castle, 2000] and women may be more commonly diagnosed with DID [Ross & Norton, 1989]). In contrast participants' diagnostic status were precisely defined and well-characterised according to clear, uniform criteria, specifically: DSM-IV (Kilcommons & Morrison, 2005; Laddis & Dell, 2012b; Perona-Garcelán et al., 2008, 2010, 2012a) and DSM-IV-TR (Dorahy et al., 2009; Perona-Garcelán et al., 2011a-b; Varese et al., 2012b). However, with the exception of two studies (Dorahy et al., 2009; Laddis & Dell, 2012b), who screened for the presence of DID, most authors did not address the latent bias of co-morbid dissociative disorders in their samples of psychosis patients.

Several recurrent limitations were also apparent that may have affected the internal validity of the reviewed studies. Potential confounders in the association between voice hearing and dissociation were generally unacknowledged, and in this respect a lack of consideration for other explanatory factors – such as anxiety, stress, depression, and cumulative trauma exposure – was a major and persistent limitation across the reviewed studies (for further discussion, see section 3.4.1). Furthermore, although the choice of statistical tests was generally appropriate, suitable corrections were not always applied: for example, Kilcommons and Morrison (2005) deemed Bonferroni's correction for multiple

comparisons too conservative owing to the exploratory nature of the study which, by the authors' admission, increased the probability of Type 1 errors.

In several instances, between-group comparisons were also made with heterogeneous samples. As discussed above, this included differentials in gender, but also extended to variables like levels of education (e.g., Laddis & Dell, 2012b) and medication usage (Perona-Garcelán et al., 2011b). Both these factors could be considered potential sources of bias, as neuroleptic medication can differentially impact on cognitive variables (e.g., attention, verbal fluency, executive functioning, and working memory: Meltzer & McGurk, 1999), whereas years in educational attainment may function as a (admittedly crude) proxy for IQ (Crawford & Allan, 1997). Other authors (e.g., Perona-Garcelán et al., 2008, 2011b) did not provide any information on group composition beyond diagnosis, gender, and age. Other studies either did not employ control groups (e.g., Perona-Garcelán et al., 2010), or risked a loss of statistical power through performing analyses on small and/or unbalanced sub-groups of patients (e.g., Perona-Garcelán et al., 2010, compared voice hearing in eight patients with pathological dissociation to 29 with lower DES-II scores; whereas Dorahy et al., 2009, conceded that the larger number of DID patients in their sample reporting abuse, in conjunction with the greater levels of dissociation within this group, may have magnified the impact of dissociation on voice characteristics.

An observable strength across the reviewed studies was well-defined classifications of voice hearing and dissociation, which were consistently assessed using instruments with proven reliability and validity. However, notwithstanding this, a pervasive limitation for accurate assessment was potential covariance between measures of dissociation and psychosis. While some studies did address this (e.g., Perona-Garcelán et al., 2012a, who removed the DES-II's voice hearing item in order to avoid covariance with interrelated items on the PANSS), few authors acknowledged the importance of selecting instruments that assess dissociation while not overlapping with measures of psychotic phenomena. Indeed, Laddis and Dell (2012b) explicitly raised this concern by proposing that while voices (and other intrusions) may have appeared phenomenologically similar between their DID and psychosis samples, and hence could be measured by the same scales, at an aetiological level this assumption is unsound. Given the high correlation in the schizophrenia sample between delusions and voices ($r=.84$) compared to that in the DID patients ($r=.10$), the authors suggest that voices in schizophrenia have different mechanisms to those in DID and should be interpreted as psychotic phenomena rather than dissociative in origin, wherein the "dissociative-like, delusional experiences of passive-influence in schizophrenia [are] somewhat phenomenologically similar to, but etiologically quite different from, the dissociative, passive-influence symptoms of DID" (p.411). A more general problem may also have been compounded in this particular study, given that half of the patients in the

schizophrenia sample (in remission) were asked to retrospectively report on dissociative symptoms. Although these ratings demonstrated face validity, the authors conceded that they should still be treated with caution.

3.3.4 Voice Hearing and Dissociation in Non-Psychotic Clinical Populations

Three studies explored links between voice hearing and dissociation in psychiatric patients with non-psychotic mental health conditions, primarily PTSD, using either cross-sectional methods or a case-control design. All relied on self-report instruments for measures of dissociation, although voice hearing presence and severity was determined with a mixture of self-report tools and structured and semi-structured clinical interviews (see Table 3.2).

3.3.4.1 Cross-Sectional Studies

Both analyses reported significant associations between measures of voice hearing and the presence of dissociation. Altman et al.'s (1997) sample comprised 38 adolescents with non-psychotic mental health problems, mostly conduct disorder, amongst which dissociation had the strongest independent association with voices after controlling for schizotypal cognitions and affective disturbance. In contrast, Brewin and Patel (2010) examined voice hearing and dissociation within the context of posttraumatic symptoms. In their analysis of military veterans with either current PTSD (n=93), remitted PTSD (n=21), or without PTSD (n=44), voice hearing was differentially distributed between groups, being significantly higher in patients with current or remitted PTSD. In turn, voice hearing endorsement was significantly correlated with retrospective measures of peritraumatic dissociation and current measures of pathological dissociation. In a further analysis, this time with civilian PTSD patients (n=30), rates of voice hearing were significantly higher compared to comparison groups of patients diagnosed with affective disorders (n=39) and trauma-exposed adults who did not exhibit PTSD (n=13). In the majority of cases, voice onset occurred after traumatic events and, as with the military sample, voice presence was significantly correlated with scores of pathological dissociation.

3.3.4.2 Case-Control Studies

One study (Anketell et al., 2010) assessed measures of dissociation in voice hearers (n=20) compared with non-voice hearers (n=20). All participants were diagnosed with chronic PTSD, and while there were no group differences in levels of thought suppression or severity of

Table 3.2   Descriptive summary of studies assessing voice hearing and dissociation in non-psychotic clinical populations.

Study	*n*	Sample and setting [a]	Method	Assessment tools: 1.Voice hearing 2.Dissociation	Key results	Quality assessment and validity issues
Altman et al. (1997)	38 [a]	Convenience sample Adolescents with non-psychotic disorders. Mean age 15.95 (SD=1.64), female to male ratio 17:21 USA	Retrospective case-control. Self-report measures and clinical interview. Univariate and multivariate analysis of variance tests, and multiple regression analysis	1= DIS; DES item 27 2= DES	After controlling for schizotypal cognitions and affective disturbance, dissociation had the strongest independent association with voice hearing (F=7.81, p<.01)	Potential loss of power from small sample of voice hearers. Drug-induced or hypnagogic hallucinations not controlled for
Anketell et al. (2010)	40 [b]	Convenience sample 20 voice hearing patients with chronic PTSD, mean age 46.2 (SD=12.1), female to male ratio 19:1 20 non-voice hearing patients with chronic PTSD, mean age 44.2 (SD=12.9), female to male ratio 7:14 Northern Ireland	Cross-sectional, case-control. Self-report measures and clinical interview. Chi–square analysis and multivariate analysis of variance	1=PANSS 2=DES-II; DES-T	Voice hearers had significantly higher general (F=7.80, p< .01) and pathological dissociation scores (F=6.21, p< .05) compared to non-voice hearers. No significant differences in PTSD symptom severity or thought suppression	Predominantly male sample. No power analysis. Presence of psychotic disorder not formally assessed

Brewin & Patel (2010)		Convenience sample	Cross-sectional. Self-report measures and clinical interview. Correlational analysis, univariate analysis of variance, and chi-square tests	1=DES-II (item 27); semi-structured clinical interview	*(a) Military sample* Voice hearing correlated with retrospective measures of peritraumatic dissociation (r=.24, p <.01) and current pathological dissociation (r=.68, p<.001)	Lack of sensitivity in voice hearing measure. Loss of power due to small sample of voice hearers. Confounding variables not controlled for
	158	*(a) Military sample* 93 veterans with PTSD, mean age 36.89 (SD=5.97), female to male ratio 3:90				
		21 veterans with past PTSD, mean age 35.00 (SD=2.59), female to male ratio 1:20		2=DES-T; PDEQ	*(b) Civilian sample* Voice hearing significantly higher in PTSD group than trauma controls or depressed patients (χ^2_2 = 32.44, p< .001). Voice hearing significantly correlated with measures of pathological dissociation (r = .65, p< .001)	
		44 veterans without PTSD, mean age 35.57 (SD=3.91), female to male ratio 0:44				
	82[c]	*(b) Civilian sample* 30 civilian PTSD patients, mean age 40.67 (SD=11.16), female to male ratio 16:14				
		13 traumatised non-patient controls, mean age 34.69 (SD=13.11), female to male ratio 5:8				
		39 depressed patient controls, mean age 38.36 (SD=8.13), female to male ratio 26:13				
		UK				

Note. **DIS** = Psychotic Symptoms List from the Diagnostic Inventory Schedule (Robins et al., 1982); **DES** = Dissociative Experiences Scale (Bernstein & Putnam, 1986); **PANSS** = The Positive and Negative Syndrome Scale for Schizophrenia (Kay et al., 1987); **DES-II** = Revised Dissociative Experiences Scale (Carlson & Putnam, 1993); **DES-T** = Dissociative Experiences Scale-Taxon (Waller et al., 1996); **PDEQ** = Peritraumatic Dissociative Experiences Questionnaire (Marmar et al.,1997).

[a] Mostly referred for conduct disorder and/or a history of trauma or abuse. No evidence of psychotic, organic, or developmental disorders. [b] Diagnosed with DSM-IV criteria chronic PTSD (i.e., symptoms persisting ≥ 3 months after index trauma). [c] Trauma controls had experienced criterion A trauma, but did not meet criteria for PTSD; depressed controls diagnosed with major depressive disorder (n=39) with co-morbid anxiety disorders (n=20) and no history of BPD or psychosis.

posttraumatic symptoms, voice hearing patients had significantly higher general and pathological dissociation scores.

3.3.4.3 Critical Appraisal of Studies in Non-Psychotic Clinical Populations

In general, the most persistent methodological limitations were those shared by the studies assessing groups of psychosis patients: specifically, a reliance on cross-sectional associations within small, convenience samples; and insufficient acknowledgement of bias and confounding (see also section 3.4.1). As with the previous group of studies, the issue of possible co-variance between measures of psychosis and dissociation were not always adequately addressed. For example, although Anketell et al. (2010) identified the presence of schizophrenic psychosis as an exclusion criterion, this possibility was not formally assessed amongst participants. Similarly, Brewin and Patel (2010) did not screen for co-morbid Axis I or Axis II disorders that might have been associated with elevated rates of voice hearing. However Altman et al. (1997) did formally evaluate for psychotic or neurological conditions, and as a result excluded two participants from the study. Two investigations also addressed potential overlaps in different measures: Anketell et al. by removing the DES-II and DES-T voice hearing items from a multivariate analysis of variance, in which dissociation was a dependent variable; and Altman et al. by eliminating the DES-II voice hearing item to avoid overlap with Psychotic Symptoms List items drawn from the Diagnostic Inventory Schedule (Robins et al., 1982). However Brewin and Patel used the DES-T as a primary measure of both pathological dissociation (total score) and voice hearing itself (item 8), despite the issues of co-linearity such a step would most likely create.

An additional measurement limitation related to the assessment of voice hearing. None of the studies adequately addressed the possibility of drug-induced or hypnagogic hallucinations, or confirmed to what extent participants experienced persistent as opposed to transitory voice hearing experiences, or even the type of vocalised thoughts that could be mistakenly classified as voices (e.g., Shevlin et al., 2010). For example, Brewin and Patel (2010) used responses to item 27 on the DES-II as an index of voices hearing (*"Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things they are doing…what percentage of the time [does this happen] to you?"*), even though there is no supporting data for the reliability/validity of isolating the item in this way.

All three studies employed small samples, and in two cases faced an additional loss of power due to small and/or unbalanced sub-group analyses of voice hearers. For example, only 32% (12/38) of Altman et al.'s participants reported voice hearing; whereas Brewin and Patel compared dissociation measures in differential groups of voice hearers with current PTSD (65%: 14/21), remitted PTSD (58%: 54/93) or no PTSD (21%: 9/44). Recruitment was limited to convenience samples in all three studies, and in the case of Anketell et al. and Brewin and

Patel was predominantly male. Anketell et al. additionally acknowledged that the generalisability of their findings may have been compromised by the nature of the sample which, as survivors of the Northern Ireland 'Troubles,' had experienced unusually sustained trauma and as such may not represent a typical PTSD cohort. In turn, the mean IQ of Altman et al.'s sample was estimated as 73, which similarly is unlikely to be representative of general adolescent clinical populations. Finally, although Altman et al. controlled for schizotypal cognitions and depression, the other two studies did not asses confounding variables that might have been independently associated with both dissociation and voice hearing (for further discussion, see section 3.4.1).

3.3.5   Voice Hearing and Dissociation in Non-Clinical Populations

Seven studies were found that examined relationships between voice hearing and dissociation in non-patient groups. Of these, three used predominantly student samples, one compared measures between sexually assaulted and non-assaulted adults, and three recruited school-aged children. With the exception of Escher et al. (2002a-b, 2004), which was a three-year longitudinal study combining self-report scales (dissociation) and clinician and researcher-rated interviews (voice hearing), all employed cross-sectional methods and self-report measures (see Table 3.3).

3.3.5.1 Cross-Sectional Studies

Analysis indicated consistent associations between dissociation and actual voice hearing, or pre-disposition/proneness towards auditory hallucinations amongst non-clinical groups. In terms of the student samples, Perona-Garcelán et al. (2012b) found that individuals with high hallucination-proneness (n=55) scored significantly higher on measures of depersonalisation and absorption than those with medium (n=235) or low proneness (n=28). In turn, these measures of dissociation predicted hallucination-proneness amongst the sample in multiple regression analysis when controlling for measures of emotional vulnerability (loss of cognitive confidence; positive beliefs about worry; cognitive self-consciousness; negative beliefs about uncontrollability and danger; need to control thoughts). Morrison and Petersen (2003) also found that voice hearing predisposition amongst adults and university students (n=64) was significantly correlated with both DES-II total and subscale scores, with dissociation accounting for more variance in voice hearing predisposition than positive beliefs about voices. Finally, Glicksohn and Barrett (2003) assessed 252 students and reported

Table 3.3   Descriptive summary of studies assessing voice hearing and dissociation in non-clinical populations.

Study	*n*	Sample and Setting	Method	Assessment tools: 1.Voice hearing 2.Dissociation	Key results	Quality assessment and validity issues
Campbell & Morrison (2007)	373	Convenience sample School-aged children, mean age 14.8 (SD=.70), female-to-male ratio 210:162 UK	Cross-sectional. Self-report measures. One-way analysis of variance and correlational analysis	1=LSHS-R 2=DES	Dissociative variables were significantly associated with voice hearing predisposition, as measured by the LSHS-R (r=.55, p=.01) and by ambiguous aural stimuli (r=.21, p=.01).	Confounding variables not controlled for. Adult DES scale used rather than adolescent version
Escher et al. (2002a-b, 2004)	80[a]	Opportunity sample School-aged children, mean age12.9 (SD=3.1), female-to-male ratio 43:37 The Netherlands	3-year longitudinal. Self-report measures and researcher-rated interviews. Cox maximum-likelihood proportional hazard models and likelihood ratio test analyses	1=MIK; BPRS 2=DES	Dissociation was one of several factors independently predicting voice continuation and need for psychiatric care (HR=.74: 95% CI, .57-.96, p=.02)	Sample heterogeneity due to large age range. Adult DES scale used rather than adolescent version

Glicksohn & Barrett (2003)	656	Convenience sample University students; age range 13-78 years (med=23), female-to-male ratio 420:195 Israel	Cross-sectional. Self-report measures. Factor analysis, t-tests and analysis of variance tests	1=BHQ; LSHS 2=DES; DES-T; MDPQ-AS	Significant associations between absorption and BHQ verbal hallucination item (r=.38, p<.001) and LSHS (r=.51, p<.001). Individuals with pathological dissociation (n=53) scored significantly higher on BHQ verbal hallucination item (t=-6.1, p<.001) and LSHS total (t=-6.4, p<.001). Shared variance of 25% between DES total scores, actual voice hearing, and predisposition toward voice hearing	Risk of selection bias due to voluntary sample. Lack of sensitivity in voice hearing measure
Kilcommons et al. (2008)	80	Convenience sample 40 sexual assault survivors, mean age 28.72 (SD=10.53), female-to-male ratio 35:5 40 non-sexually assaulted adults, mean age 22.03 (SD=7.92), female-to-male ratio 35:5 UK	Cross-sectional. Self-report measures. Analysis of covariance, correlational and multiple regression analyses	1=LSHS-R; PSYRATS-AH; MI 2=DES	Strong, positive associations between dissociation and LSHS-R (r =.65, p< .01) and PSYRATS-AH (r =.61, p= .01). Voice hearing significantly higher for traumatised group, of which 90% endorsed at least one item on LSHS-R auditory hallucination subscale and 46.2% experienced past and current hallucinations as rated by the PSYRATS-AH and MI	High number of correlational analyses increased chance of Type I errors. No power analysis. Unbalanced sample in terms of low number of voice hearers

Morrison & Petersen (2003)	64	Convenience sample Adults and university students; mean age 21 (SD=6.9); female-to-male ratio 56:8 UK	Cross-sectional. Self-report measures. Correlational, analysis of variance, and multiple regression analyses	1=LSHS-R; IVI 2=DES-II	Voice hearing predisposition significantly correlated with total DES-II scores (r=.71, p<.001) and its three subscales (all p's <.001). Dissociative variables accounted for more variance in voice hearing predisposition than positive beliefs about voices	Predominantly female sample. No power analysis.
Perona-Garcelán et al. (2012b)	318	Convenience sample University students; mean age 24.41 (SD=5.78); female-to-male ratio 251:67 Spain	Cross-sectional. Self-report measures. Analysis of covariance procedures and hierarchical regression analysis	1=LSHS-R 2=CDS; TAS	Individuals with high hallucination proneness (n=55) scored significantly higher on measures of dissociation and self-focused attention than those with medium or low proneness (all p's <.001). Both absorption and depersonalisation predicted hallucination proneness after controlling for emotional vulnerability (loss of cognitive confidence; positive beliefs about worry; cognitive self-consciousness; negative beliefs about uncontrollability and danger; need to control thoughts)	Predominantly female sample. Substance use and psychiatric history not formally evaluated.

| Yoshizumi et al. (2004) | 380 | Random sample

School children aged 11-12 (mean and SD not stated); female-to-male ratio 361:400

Japan | Cross-sectional. Self-report measures. Multivariate analysis of variance | 1=Authors' own design

2=A-DES: JV | Hallucination prevalence was 21.3% (9.2% voice hearing; 5.5% visual hallucinations; 6.6% combined voices and visions). Dissociation scores highest for those with combined hallucinations (42.5 ± 18.0) or visions alone (32.4 ± 23.0). Hearing self-related voices was associated with higher A-DES scores. Dissociation scores were affected more significantly by the presence of hallucinations than measures of depression/anxiety | Organic and state-dependent factors for voice hearing not assessed. Reliance on self-report measures. |

Note. **LSHS-R** = Revised Launay-Slade Hallucination Scale (Bentall & Slade, 1985); **DES** = Dissociative Experiences Scale (Bernstein & Putnam, 1986); **MIK** = Maastricht Voices Interview for Children (Romme & Escher, 2000); **BPRS** = Brief Psychiatric Rating Scale (Lukoff et al., 1986); **BHQ** = Barrett Hallucination Questionnaire (Barrett & Etheridge, 1992); **LSHS** = Launay-Slade Hallucination Scale (Launay & Slade, 1981); **DES-T** = Dissociative Experiences Scale-Taxon (Waller et al., 1996); **MDPQ-AS** = Multidimensional Personality Questionnaire-Absorption Scale (Tellegen, 1982); **PSYRATS-AH** = Psychotic Symptoms Rating Scale-Auditory Hallucination Subscale (Haddock et al., 1999); **MI**= Maastricht Voices Interview (Romme & Escher, 2000); **IVI** = Interpretation of Voices Inventory (Morrison, 2001); **DES-II** = Revised Dissociative Experiences Scale (Carlson & Putnam, 1993); **CDS** = Cambridge Depersonalisation Scale (Sierra & Berrios, 2000); **TAS** = Tellegen Absorption Scale (Tellegen & Atkinson, 1974); **A-DES** = Adolescent Dissociative Experiences Scale: Japanese version (Tanabe, 2002).

[a] At baseline all participants heard voices and half were in receipt of psychiatric care.

significant positive correlations between measures of hallucination-proneness, the verbal hallucination item on the Barrett Hallucination Questionnaire (Barrett & Etheridge, 1992), and both DES-II total scores and its three subscales. The hallucination measures were significantly higher in individuals who manifested pathological levels of dissociation, as assessed by the DES-T.

Two studies also assessed samples of schoolchildren. The first, Morrison and Campbell (2007) recruited 373 pupils and found that DES-II subscale scores were significantly associated with both measures of hallucinatory proneness/predisposition: the auditory hallucination subscale of the LSHS-R, and an ambiguous sounds task (a 'white noise' taped recording produced from the human voice, with the utterances spliced into one second extracts, randomly mixed, and played backwards). However, Yoshizumi et al. (2004) found slightly weaker links between voice hearing and dissociation than the other studies. A battery of clinical scales were administered to 380 school children, 21% of whom endorsed some form of hallucinatory experience (9.2% voice hearing alone; 5.5% visual hallucinations alone, 6.6% combined voices and visions). Mean dissociation scores were highest for those with combined hallucinations or visions alone, with dissociation scores affected more significantly by the presence of hallucinations than measures of depression or anxiety. However, participants with a single hallucination modality, particularly auditory, had lower self-reported dissociation or anxiety than those with combined hallucinations. In a sub-analysis, children who reported self-related voice hearing phenomena (interference, criticism, hearing one's thoughts aloud) scored higher on the dissociation measure than those with voice content somewhat, or not at all, related to self; although all three groups had higher mean dissociation scores than participants without any hallucinations.

Finally, Kilcommons et al. (2008) assessed measures of dissociation and voice hearing in adults with a history of sexual assault (n=40) and a comparison group with no assault history (n=40). Voice hearing was significantly higher in the traumatised group, with strong, positive correlations found between dissociation scores and both voice hearing and hallucinatory predisposition.

3.3.5.2 Longitudinal Studies

Escher et al. (2002a-b, 2004) examined the clinical course and outcome of voice hearing amongst 80 school-aged children over a three-year period. Half were in receipt of mental health care at the project's commencement, although by the end of the study 60% no longer heard voices. At baseline there were no significant difference in total DES-II scores between children who required psychiatric care and those who did not. The development of delusional ideation, as assessed by the Extended Brief Psychiatric Rating Scale (Lukoff, Neuchterlein & Ventura, 1986) did not influence whether or not children were still hearing voices at the end

of the study, and receiving psychiatric care likewise did not influence the probability of voice discontinuation. In contrast, dissociation emerged as one of several factors independently predicting voice persistence and need for psychiatric care. Other relevant factors included high levels of anxiety and depression, greater voice frequency, and a lack of clear temporal triggers for voices, although the possible interaction between dissociation and affective and voice-related variables was not assessed.

3.3.5.3 Critical Appraisal of Studies in Non-Clinical Populations

Several of the most recurrent limitations were those shared by both sets of studies assessing clinical groups: namely, a reliance on cross-sectional, self-report associations; and insufficient acknowledgement of bias and confounding (see also section 3.4.1). Sample size was generally larger than that assessed within the clinical literature, with four studies recruiting ≥300 participants. However, although Yoshizumi et al. employed a randomised design, the remaining authors relied on the type of convenience and opportunity sampling techniques that are particularly susceptible to bias. With the exception of Escher et al. (2002a-b, 2004) who used structured clinical interviews and case histories, another pervasive sampling limitation related to how well populations were characterised as 'healthy voice hearers.' For example, while relevant exclusion criteria were identified by Kilcommons et al. (receipt of DSM-IV psychotic disorder diagnosis) and Perona-Garcelán et al. (psychiatric treatment requiring psychopharmaceuticals), neither set of authors described how such factors were assessed. None of the other studies made reference to ascertaining participants' mental health status, meaning that the possibility of individuals with diagnosable psychiatric and/or neurological conditions contributing to the datasets cannot be discounted. Finally, several studies had a noticeable gender imbalance in their samples (e.g., Glicksohn & Barrett, 2003, female-to-male ratio 420:195; Kilcommons et al., 2008, 70:10; Morrison & Petersen, 2003, 56:8; Perona-Garcelán et al., 251:67). However, with the exception of Perona-Garcelán et al., none of the authors examined the potential influence of gender differences on key variables.

While the designs of the reviewed studies were appropriate for meeting their stated aims and objectives, the consistent use of cross-sectional, correlational methods limited the capacity for any causal inference (asides from Escher et al., 2002a-b, 2004, who employed a longitudinal design). However, although three studies did not adjust for potential confounders in the association between voice hearing and dissociation, this literature was stronger than the research amongst clinical groups in that greater attention was paid to controlling for other explanatory factors (e.g., Escher et al., 2002a-b, 2004, considered a range of clinical and demographic variables; Morrison & Petersen, 2003, adjusted for metacognitive styles and beliefs about voices; Perona-Garcelán et al., 2012b, controlled for measures of emotional vulnerability; and Yoshizumi et al., 2004, assessed the influence of anxiety and depression).

Statistical analyses were also generally sound, although a number of issues did remain that compromised the level of confidence in the findings. Most frequently this included a lack of power analysis or attempts to explain or justify the choice of sample size. Other authors did not apply suitable corrections for multiple testing (Glicksohn & Barrett, 2003; Kilcommons et al., 2008), whereas only two studies (Campbell & Morrison, 2007; Morrison & Petersen, 2003) reported on the distribution of their data and the steps to accommodate skewed or irregular distributions (e.g., logorhythmic transformations). Similarly, authors persistently neglected to report on how their analyses addressed missing data and/or outliers. Finally, the majority of studies did not employ comparison groups, although those that did risked a loss of statistical power through performing analyses on small and/or unbalanced sub-groups of voice hearers. For example, of Kilcommons et al.'s (2008) sample of 40 sexually traumatised adults, only 12 reported voice hearing.

Assessment of dissociation was conducted using instruments with proven reliability and validity, although two studies with school-aged children (Escher et al., 2002a-b, 2004; Campbell & Morrison, 2007) employed the adult version of the DES-II when the adolescent version (A-DES: Armstrong et al., 1997) would have been a more appropriate choice. Measurement of voice hearing was also conducted using standardised well-validated instruments across the reviewed studies, with three sets of authors (Glicksohn & Barrett, 2003; Kilcommons et al., 2008; Morrison & Petersen, 2003) additionally supplementing assessment of hallucination-proneness with measures of actual voice hearing. Notwithstanding this, a broad problem for the validity of several studies was a consistent failure to confirm whether somatic factors that may induce hallucinations (e.g., a history of seizures, substance use) had been screened for. Yoshizumi et al. (2004) were also the only authors to acknowledge the assessment of 'levels of awareness' during voice hearing, in terms of whether experience(s) may have been sleep-related. In addition, Perona-Garcelán et al. (2012b) only provided aggregated results from the LSHS-R (Bentall & Slade, 1985) in their data, making it unclear to what extent the results are specific to auditory hallucinatory experiences, as opposed to those in other modalities. In this respect, the type of design considerations that can enhance the quality and comprehensiveness of research with healthy voice hearers were generally not included in these studies: specifically, diagnostic interviews; measures of other subclinical symptoms that may influence voices (e.g. anxiety, depression, delusional ideation); and voices' affective characteristics (see Johns et al., 2014).

More generally, the perceived stigma of acknowledging psychotic-like experiences makes research amongst non-clinical groups vulnerable to unreliable reporting (Hanssen, Bijl, Vollebergh & van Os, 2003), meaning it behoves researchers to consider ways of encouraging participants to reliably disclose. For example, Campbell and Morrison (2007) utilised exam conditions for eliciting written responses from their school-aged sample, but acknowledged

that being surrounded by peers may have inhibited reporting. Although this was less of an issue for Escher et al. (2002a-b, 2004) who recruited a self-selecting sample already identifying as voice hearers, the issue was not addressed in the remaining studies. Taken together, these limitations may have adversely influenced assessment accuracy.

3.3.6 Associations between Voice Hearing and Dissociation

The Q-statistic test for interaction was not significant ($\chi^2 = 3.92$ $k=19$; p=.16), indicating that heterogeniety between studies did not exceed that which would be expected from chance alone. Nevertheless, in view of the variation of setting, methodology, and statistical analysis across the reviewed papers, a DerSimonian-Laird random-effects model was employed for summarsing effect size, as this does not assume functional equivalence across studies. A statistically significant association between voice hearing and dissociation was observed, with aggregated results indicating a moderate summary estimate of effect ($r = .47$; 95% CI = .44 – .50, p=.001: see Figure 3.3).

3.3.7 Inferring Causality

Although the methodological limitations documented above mean the findings must be treated with caution (see also section 3.4.1), the reviewed studies suggested a significant association between voice hearing and dissociation. In this respect, a secondary aim of this review was to establish whether an observed relationship could be considered a causal one (see Table 3.4). In terms of the Bradford Hill (1965) criteria for determining causal inference, several findings are apparent from the available literature.

Firstly, there was indication of a strong relationship between measures of voice hearing and dissociation, which is plausible and coherent in terms of logical compatibility with established theoretical/biological accounts of dissociation (see Chapters 1 and 2). However, it should be noted that with the exception of Escher et al. (2002a-b, 2004), who assessed hazard ratios, this relationship has only been measured in associational terms rather than more precise computations, like adjusted odds ratios or relative risk. Secondly, there are grounds for inferring consistency between (and in some cases within) studies in that this relationship is replicable in different clinical and non-clinical populations; in both children,

Study name		Correlation	Lower limit	Upper limit	Z-Value	p-Value
Psychosis	Dorahy et al. (2009)	0.823	0.723	0.889	9.032	0.000
	Kilcommons & Morrison (2005)	0.400	0.060	0.657	2.281	0.023
	Laddis & Dell (2012b)	0.590	0.425	0.717	5.946	0.000
	Perona-Garcelan et al. (2008)	0.670	0.514	0.783	6.536	0.000
	Perona-Garcelan et al. (2010)	0.631	0.386	0.793	4.333	0.000
	Perona-Garcelan et al. (2011a)	0.446	0.214	0.630	3.590	0.000
	Perona-Garcelan et al. (2011b)	0.674	0.565	0.760	8.998	0.000
	Perona-Garcelan et al. (2012a)	0.319	0.217	0.414	5.866	0.000
	Varese et al (2012b)	0.638	0.467	0.763	5.943	0.000
Non-psychosis	Altman et al. (1997)	0.540	0.266	0.733	3.573	0.000
	Anketell et al. (2010)	0.404	0.106	0.636	2.606	0.009
	Brewin et al. (2010)a	0.319	0.171	0.453	4.115	0.000
	Brewin et al. (2010)b	0.650	0.550	0.732	9.652	0.000
Non-patients	Campbell & Morrison (2007)	0.267	0.170	0.359	5.263	0.000
	Glicksohn & Barrett (2003)	0.520	0.462	0.574	14.728	0.000
	Kilcommons et al. (2008)c	0.650	0.502	0.761	6.803	0.000
	Kilcommons et al. (2008)d	0.610	0.451	0732	6.221	0.000
	Morrison & Petersen (2003)	0.710	0.562	0.814	6.929	0.000
	Perona-Garcelan et al. (2012b)	0.580	0.401	0.716	5.463	0.000
	Yoshizumi et al. (2004)	0.231	0.134	0.324	4.568	0.000
		0.472	0.433	0.500	27.508	0.000

[a] military population; [b] civilian population; [c] predisposition to voice hearing; [d] actual voice hearing.

Figure 3.3   Forest plot examining associations between dissociation and voice hearing for studies within the systematic review, organised according to population.

adolescents and adults; and is detectable using a variety of assessment tools, statistical methods, and control groups (although not using a variety of study designs). Thirdly, there were indications for a biological gradient in the association, in that some studies implied a dose-response relationship. For example, Dorahy et al. (2009) and Perona-Garcelán et al. (2010) found that increased measures of dissociation corresponded with greater voice hearing severity. Kilcommons et al. (2008) also report that voice hearing severity was correlated with dissociation, whereas Laddis and Dell (2012b) found that more pronounced and clinically complex voices were more prevalent in groups with higher dissociation scores. Studies that assessed remitted voice hearers likewise all found that these individuals exhibited lower levels of dissociation than those actively hearing voices (Perona-Garcelán et al., 2008, 2011a; Varese et al., 2012b); whereas higher hallucination proneness was associated with higher dissociation scores, compared to those with medium or low proneness in Perona-Garcelán et al.'s (2012b) non-clinical sample. However, the reviewed literature did not provide firm indications about possible threshold effects, including whether dissociation increases the risk of more disabling, disruptive voices, or voice hearing *per se*. Without sufficient data to categorise/pool regarding levels of dissociation and voice hearing severity, dose dependence cannot be determined.

An essential, decisive factor for establishing causality is that the putative exposure must precede the outcome of interest. The overwhelming use of cross-sectional, mostly correlational, designs in the reviewed literature precludes this assumption. However, on the basis of the evidence reviewed, this formula could be refined in terms of a temporal link between traumatic events, and dissociation/voice hearing; which may be more theoretically probable in terms of voice hearing being a dissociative experience in and of itself, rather than being preceded by dissociation. Nevertheless, while the claim that dissociation predicts voice hearing (and that trauma may often predict dissociation) has strong theoretical grounds, the temporal relationship between these variables could not be empirically established from the reviewed studies. Similarly the review found no experimental evidence (e.g., an appropriate clinical intervention; a prospective population-based study), to suggest that limiting exposure reduces the risk for, or ameliorates the severity of, the outcome. As noted previously the majority of studies did not consider relevant covariates in a systematic way, nor incorporated multiple hypotheses into their research designs, meaning that alternate, analogous explanations for the proposed association between dissociation and voice hearing cannot be discarded (see also section 3.4.1). Similarly, the specificity of the association is also unsubstantiated, although there is some suggestion that associations between voice hearing and dissociation can be distinguished from dissociation and other positive psychotic symptoms, such as delusions (Altman et al., 1997; Kilcommons & Morrison, 2005; Perona-Garcelán et al., 2010, 2011a-b, 2012a). In this respect, it should also be noted that many

Table 3.4   Evaluation of causal criteria in studies measuring associations between voice hearing and dissociation.

	Study	Bradford Hill Criteria for Causation								
		Strength	Temporality	Gradient	Consistency	Plausibility	Coherence	Specificity	Analogy	Experiment
Psychosis groups	Dorahy et al. (2009)	X		X	X	X	X			
	Kilcommons & Morrison (2005)	X		X		X	X			
	Laddis & Dell (2012b)	X		X	X	X	X			
	Perona-Garcelán et al. (2008)	X		X	X	X	X			
	Perona-Garcelán et al. (2010)	X		X		X	X	Partial		
	Perona-Garcelán et al. (2011a)	X				X	X	Partial		
	Perona-Garcelán et al. (2011b)	X			X	X	X	Partial		
	Perona-Garcelán et al. (2012a)	X				X	X			
	Varese et al. (2012b)	X			X	X	X			
Non-psychotic groups	Altman et al. (1997)	X				X	X	Partial		
	Anketell et al. (2010)	X				X	X			
	Brewin & Patel (2010)	X			X	X	X			
Non-patient groups	Escher et al. (2002a-b, 2004)	X				X	X			
	Glicksohn & Barrett (2003)	X				X	X			
	Kilcommons et al. (2008)	X		X		X	X			
	Morrison & Petersen (2003)	X				X	X			
	Perona-Garcelán et al. (2012b)	X				X	X			
	Yoshizumi et al. (2004)	X				X	X			

causal agents do not exert a specific impact (e.g., tobacco use is linked with multiple carcinogenic effects). Similarly, biological variables hypothesised to influence psychosis are also broadly non-specific: for example, birth complications have been linked with autistic disorders, other developmental disabilities, and schizophrenia (Brašić & Holland, 2007), whereas many of the genes linked with complex mental health problems are not specific to affective or non-affective psychoses (Purcell et al., 2009).

3.4   Discussion

The aim of this review was to systematically examine evidence for a significant association between dissociation and voice hearing, taking into consideration different clinical and non-clinical groups, and determine to what extent an observed association could be considered a causal one. Firstly, moderate to large associations were detected between measures of dissociation and voice hearing in psychiatric service-users with psychotic and non-psychotic conditions, as well as healthy voice hearers with no history of clinical contact. Furthermore, measures of dissociation were consistently higher in both voice hearers and hallucination-prone individuals compared to control/comparison groups with no history of voice hearing and/or low hallucination-proneness. These findings are accordant with the claims of narrative review studies (e.g., Longden et al., 2012a; Moskowitz & Corstens, 2007), and further develop such claims by quantifying effect sizes between dissociation and voice hearing. However, the literature's variable quality means that it is not yet possible to make any causal inferences about this relationship. An additional finding is that while the body of literature meeting criteria for a systematic review was small (19 studies in 16 years), interest in the area is expanding (nearly half the studies were published in the past three years).

Available evidence also suggests that while measures of dissociation were significantly associated with voice hearing presence and/or severity in patients with psychosis, a similar specific association was not demonstrated for delusions, another first-rank symptom of schizophrenia. In patients with non-psychotic mental health conditions, voice hearing endorsement was also associated with significantly higher dissociation scores compared to non-voice hearers, and consistent associations between dissociative variables and actual voice hearing, or hallucinatory pre-disposition/proneness were similarly apparent in non-patient groups. Furthermore, dissociation was one of several factors independently predicting voice persistence and subsequent need for psychiatric care in children.

There was also some indication of a differential impact of dissociative variables, with depersonalisation most pronounced in the clinical groups and absorption in the non-patient samples. Given that depersonalisation is characterised as a form of mental detachment, one possibility is that it facilitates the likelihood of voice hearers erroneously attributing intrusive mental events to external sources. This is compatible with cognitive models of psychosis

wherein source monitoring defects, possibly in conjunction with stress-induced metacognitive distortions and cognitive dissonance, impede the ability to gauge the origins of self-generated mental events. Differences within different clinical samples were also apparent. For example, Dorahy et al. (2009) found voice hearing to be more pervasive and complex in the context of DID compared to schizophrenia, although measures of pathological dissociation predicted voice severity (in conjunction with childhood maltreatment) across groups. Laddis and Dell (2012b) reported broadly similar results, although it was notable that measures of voice hearing were the best predictor of variance in dissociation scores for schizophrenia patients (92%), which in turn was higher than the best predictor for DID patients (81%). These authors additionally draw attention to the large discrepancy in associations between voices and delusions in schizophrenia compared to DID, arguing that this may be suggestive of different underlying mechanisms. One explanation of these findings is that voice hearing is phenomenologically similar between patients diagnosed with psychosis and dissociative disorders, yet aetiologically distinct, which in turn raises queries around the discriminative capacities of instruments currently used to assess dissociation (Laddis & Dell, 2012b).

Another possibility is that when voices and unusual beliefs co-occur, the latter can be seen as an attempt to interpret and account for the presence of decontextualised, dissociated sensory intrusions, and as such are 'secondary delusions' (e.g., Moskowitz et al., 2009). The contention that psychosis risk is amplified when hallucinations are complicated by delusional elaboration has been supported by Krabbendam et al. (2004) in a review of 4,673 individuals, and is consonant with models of psychosis that emphasise the contributing role of secondary appraisals and beliefs (see also Escher et al., 2002b; Krabbendam et al., 2004; Maher, 2006). Furthermore, evidence from a prospective ten-year study suggests that this process frequently occurs in association with environmental hazards and subsequent affective dysregulation (Smeets et al., 2012), which in turn could feasibly influence the development of defective interpersonal schemas. If this were the case, it may be that the voice hearing in the context of schizophrenia can be understood as dissociated representations which, in a context of negative meta-cognitive beliefs and/or psychosocial stressors, lead to cognitive misattributions about the source of the voices (delusions).

The broad picture that emerges from this literature is that voice hearing, including that in the context of psychosis, is associated with dissociation. The relationship appears strong, consistent, plausible, coherent, and with some indication of a biological gradient. However, while these findings are consistent with a causal relationship, they are not sufficiently substantial to allow definite conclusions. The methodological shortcomings of existing literature means more research is required in order to refine understandings of dissociation's aetiological role in voice hearing onset, maintenance, and manifestation. In this respect, Swaen and van Amelsvoort's (2009) weight of evidence approach to the Bradford Hill criteria

argues that the strength and consistency of an association, plus experimental evidence, are the three factors with greatest impact for probability estimates of a causal association. While the review found support for two of these three conditions (strength and consistency), the disparateness and methodological limitations of available studies render causal assumptions suggestive rather than dispositive at the present time.

3.4.1 Limitations in the Reviewed Studies

Of the studies reviewed, several methodological limitations were apparent. As noted previously, the reliance on cross-sectional, correlational design limited the capacity for causal inference. Nearly all employed sampling procedures that are particularly vulnerable to bias, namely convenience and opportunity selections. Other sampling limitations included a lack of specificity about the populations being assessed, with virtually all studies failing to provide socio-economic data for their participants. In contrast, sample size was adequate in many cases: for example, of the nine studies comprising patients with schizophrenia-spectrum diagnoses, six had a sample of 60 or above (range 63-124), all of the non-psychotic clinical samples had 40 participants or more (range 40-158) and all seven non-clinical samples were 64 or more (range 64-380), of which four were 318 or above. However, the failure of nearly all authors to provide power calculations means concerns around validity and reliability of the findings cannot be discounted. In some cases, this problem was further compounded by conducting sub-group analyses on small and/or numerically unbalanced groups of voice hearers (e.g., Altman et al., 1997; Brewin & Patel, 2010; Kilcommons et al., 2008; Perona-Garcelán et al., 2010).

The possibility of measurement artefacts was another limitation insufficiently acknowledged within the reviewed studies. Specifically, this relates to independence of measures, and to what extent observed associations were the result of covariance. Some authors did address this: for example, Altman et al. (1997), Anketell et al. (2010), and Perona-Garcelán et al. (2012a) removed DES-II item 27 (which concerns voice hearing) from their analysis in order to avoid overlap with hallucination scores from different measures, whereas Dorahy et al. (2009) and Laddis and Dell (2012b) employed structured clinical interviews to screen for, and discriminate between, psychotic and dissociative phenomena. This emphasises the need for research instruments that assess dissociation, whilst controlling for possible contamination by other items that measure psychotic symptoms. An additional difficulty here is that clinical manifestations of dissociation and psychosis may be highly similar (e.g., many of Schneider's 'first-rank symptoms' of schizophrenia are prevalent in DID: Dell, 2006b), whereas other authors have suggested that voice hearing, including in the context of psychosis, may be dissociative in and of itself (e.g., Moskowitz & Corstens, 2007; Longden et al., 2012a; Ross, 2004). As observed by Laddis and Dell (2012b) current measures of

dissociation only reflect phenomenology, not aetiology or underlying psychological processes, and thus may "tap a wide variety of alterations of consciousness, only some of which are produced by a dissociative mechanism" (p.411). This problem becomes amplified when other relevant factors are not controlled for.

Indeed, in this respect, a further limitation in the reviewed studies was neglecting to adjust results for confounding variables that may be independently associated with both voice hearing and dissociation. This was not the case for all papers. For example, Altman et al. (1997) found dissociation had the strongest independent association with voice hearing after controlling for schizotypal cognitions and affective disturbance; Morrison & Petersen (2003) reported significant associations between dissociation and voice hearing predisposition after controlling for metacognitive beliefs and positive interpretation of voices; Kilcommons and Morrison (2005) found that depersonalisation remained a significant predictor of hallucinations after controlling for posttraumatic cognitions and trauma exposure; Yoshizumi et al. (2004) found dissociation scores were affected more significantly by the presence of hallucinations than measures of depression or anxiety; and Perona-Garcelán et al. (2012b) report that dissociation predicts hallucination proneness when controlling for metacognitive variables (loss of cognitive confidence; positive beliefs about worry; cognitive self-consciousness; negative beliefs about uncontrollability and danger; need to control thoughts).

Nevertheless, there was a consistent lack of attention to potential covariates and confounders, which necessarily restricts internal validity. For example, schizotypal processes encompass a continuum of experience ranging from subclinical dissociative-like states to the more extreme pathology considered typical of psychosis, and have shown to be an elevated trait in those hearing voices (Sommer et al., 2010), as well as highly inter-correlated with dissociation (Merckelbach, Rassin & Muris, 2000). In this respect, Sommer et al. (2010) have found that measures of schizotypy predicted voice hearing, whereas trauma exposure (a composite measure of five types of childhood abuse) did not, and construed their findings as suggestive of the mediating role of schizotypy between trauma and voice hearing. Although confirmed by Altman et al. (1997), this was with a small sample of non-psychotic voice hearers (n=12), and it is important to establish whether dissociation is associated with voice hearing independently of the concomitant variance linked with comorbid schizotypy.

Similarly, affective variables like anxiety and depression can show considerable overlap with depersonalisation (Sierra, 2009), and as such may bias the perceived association between dissociation and voice hearing. Although, as discussed previously, Perona-Garcelán et al. (2012b) and Yoshizumi et al. (2004) did consider the influence of affective variables on dissociation scores, their respective samples comprised non-patient groups of university students and school children. As noted by McCarthy-Jones (2011), there are inherent difficulties in generalising these studies into clinical populations, owing to the

phenomenological differences and potentially different causal mechanisms for those with more distressing, complex and/or persistent voice hearing experiences (see also Johns et al., 2014). In this respect, without paying proper attention to affective processes like anxiety, depression, and stress, research becomes limited in the ability to discriminate between psychological processes specific to voice hearing, and those that may arise in the more general context of psychosis. Similarly the possibility of distal/proximal interactions, or additive causal effects, between voice hearing, dissociation, and environmental risk factors is unclear given that few studies corrected for them, or only considered a limited number as moderators. Such concerns are important, as there are numerous examples in the literature of expected associations with voice hearing becoming non-significant after controlling for appropriate confounders (e.g., associations between hallucinations and insecure attachment when controlling for paranoia: Berry et al., 2006; voice hearing and CSA when controlling for depression: Mundy, Robertson, Robertson & Greenblatt, 1990; hallucination-proneness and metacognitive beliefs when controlling for paranoia and cognitive intrusions: Varese et al., 2011). Such examples reiterate the need for researchers to be mindful of possible covariation between different symptoms and psychological mechanisms. In this respect, Varese et al. (2011) have found that dispositional mindfulness, a dissociation-like process, predicted hallucination proneness in 67 non-clinical participants after controlling for paranoid ideation, intrusive thoughts, and metacognitive beliefs, and it would be desirable to replicate these promising results in a clinical group using validated measures of dissociation.

3.4.2   Limitations with the Review

There were also several limitations within the review itself. The emphasis on the relationship between dissociation and voice hearing meant that while relevant variables, such as trauma exposure, were considered they were not examined systematically. Furthermore, although dissociation is a common psychological sequela of trauma, dissociative states can also be experienced without precursing adversity, and in this respect putative developmental pathways/mediators in the association between voice hearing and dissociation, such as attachment relationships (see Longden et al., 2012a) were also not explored. However, the scarcity of available data would necessarily render any conclusions around the latter as speculative.

Unintentional bias may have been created as a function of search limitations: so-called 'grey literature,' such as pre-prints and working papers, were not identified, and the exclusion of non-English language journals may have created language bias (CRD, 2009). Furthermore, the nature of the data meant it was not possible to test for publication bias statistically (e.g., rank correlation tests: Begg & Mazumdar, 1994), only graphically using the somewhat unreliable funnel plot method. In this respect the review's conclusions were limited

more generally by the quality and availability of literature in this area: papers were included that lacked methodological precision, and data heterogeneity (in terms of assessments, outcomes of interest, and methodological quality) complicated interpretation of the findings. In this respect statistical heterogeneity, as well as the small number of studies, also precluded weighting and pooling data as part of a more detailed meta-analytical synthesis (Riley, Higgins & Deeks, 2011).

3.4.3   Conclusions

Variations in method and quality within the literature means understanding the nature of the link between voice hearing and dissociation can only be seen as an emergent evidence base, with no confirmation of a causal relationship at the present time. Given that no review to date has systematically assessed the relationship between voice hearing and dissociation, it is hoped that the review's comprehensiveness permits readers to form their own evaluations of the accuracy and application of the current research. Furthermore, it permits a detailed consideration on an expanding body of literature, wherein themes and trends can be identified and suggestions for future work articulated. Specifically this review highlights the need for a 'new generation' of rigorous, well-designed and well-controlled studies that can facilitate reliable and valid conclusions for advancing this area, particularly longitudinal designs that may allow for causal relationships to be better established. Large-scale research which recruits precisely selected populations and robust comparison groups, seeks to minimise bias and confounding, and incorporates standardised measures of voice hearing and dissociation would be welcomed.

Chapter 4

Study 2: Systematic Literature Review for Evidence of a Causal Association between Childhood Sexual Abuse and Voice Hearing

The purpose of this chapter is to present a systematic review of research investigating the associations between the experiences of voice hearing and childhood sexual abuse (CSA), as defined in Chapter 2. As discussed in Chapter 1, the fact that CSA has been hypothesised as a specific predictor for voice hearing (including in the context of psychotic disorders) meant that evaluating the current state and quality of knowledge in this area was an important consideration for informing the empirical work within the thesis.

4.1   Aims of the Review

Two explicit aims were formulated: (1) to establish evidence for an association between the experience of voice hearing and the experience of CSA in different clinical and non-clinical groups; and (2) to determine to what extent an observed association represents a causal relationship. Similar to the rationale outlined for dissociation in Chapter 3, empirically demonstrating an association between voice hearing and CSA is an important endeavour (even in an absence of discernible causal associations), in terms of establishing whether there is a heightened likelihood of CSA survivors experiencing voice hearing, and the attendant clinical and conceptual inferences of such a finding.

4.2   Method

4.2.1 Search Procedure

Search, extraction, and synthesis processes were informed by guidelines prescribed by the Centre for Reviews and Dissemination (CRD: 2009). Relevant papers were searched for using the electronic databases BNI (1985 to August 2013), CINAHL (1982 to August 2013), HMIC (1979 to August 2013), MEDLINE (1950 to August 2013), and PsycINFO (1967 to August 2013). All databases were searched using the OVID interface and employed the following search terms: (verbal hallucination* OR auditory hallucination* OR voices OR voice hearing OR psychotic symptoms OR positive symptoms of schizophrenia OR Schneiderian OR psychosis) AND (child* abuse OR sexual abuse OR molestation OR rape OR sexual assault OR maltreatment OR trauma). References and citing articles from selected papers were

checked manually in order to locate additional studies. In order to identify any relevant, newly-published articles not yet indexed in electronic databases, a hand-search of key journals[26] published two months previously was also performed (CRD, 2009).

4.2.2   Inclusion Criteria

Studies were included for review if they were published in English-language peer-reviewed journals and employed quantitative methods to report on associations between voice hearing and CSA in children, adolescents, or adults.

1) Studies pertaining to 'auditory hallucinations' without specifying voice hearing were included (for rationale, see Chapter 3 section 3.2.2).

2) Both clinical and non-patient[27] samples were incorporated in the search. However, these findings were analysed independently because of the potential phenomenological differences in voice hearing between these groups (Johns et al., 2014), and because the criteria used to ascertain voice hearing presence may sometimes be less precise in non-patient samples (McCarthy-Jones, 2011).

3) Studies were retained irrespective of methodological quality and rigour (for rationale, see Chapter 3 section 3.2.2).

4.2.3   Exclusion Criteria

Studies were omitted from the review according to the following conditions:

1) Case studies and case reviews (e.g., Romme et al, 2009), conference abstracts (e.g., Schäfer et al., 2008), or analyses of voice content in relation to CSA (e.g., Reiff, Castille, Muenzenmaier & Link, 2012, Thompson et al., 2010).

2) Studies were not included that contained mixed samples of survivors of child- and/or adulthood sexual trauma, without providing specific findings for CSA (e.g., Morrison & Petersen, 2003).

3) Studies were excluded that reported on CSA prevalence in relation to positive psychotic symptoms (e.g., Bebbington et al., 2011), or Schneiderian symptoms of schizophrenia (e.g., Ross & Keyes, 2004) or hallucinations (e.g., Whitfield, Dube,

---

[26] *British Journal of Psychiatry*; *Journal of Nervous and Mental Disease; Psychiatry Research; Psychological Medicine; Schizophrenia Bulletin.* Determined by analysing the results of database searches to identify which journals contained the largest number of relevant publications.

[27] Sometimes referred to as 'healthy voice hearers' (e.g., Andrew et al., 2008; Honig et al., 1998; Sommer et al., 2010), and generally defined as individuals who regularly hear voices, are free of neurological disorders, and have no current or previous history of mental health service use (Moritz & Larøi, 2008).

Felitti & Anda, 2005) without reporting sub-analyses for voice hearing/auditory hallucinations. Studies were likewise excluded if they assessed voice hearing in relation to childhood trauma without reporting specific findings for CSA (e.g., Dorahy et al., 2009). As such, studies were also excluded that analysed the occurrence of general childhood trauma in relation to general hallucinations (e.g., Janssen et al., 2004).

4) Studies were excluded if they did not employ standardised instruments for assessing voice hearing presence and/or clearly defined, operational criteria for identifying CSA.

4.2.4 Inferring Causality

In order to determine possible associations between voice hearing (health outcome) and CSA (putative causal agent), all studies were assessed according to the Bradford Hill (1965) criteria on causal inference (see Chapter 3, section 3.2.4).

4.2.5 Quality Assessment

Evaluations of data quality were guided using the same GATE checklist criteria (Jackson et al., 2006) as the first review (see Chapter 3, section 3.2.5). An abridged version of the quality assessment is presented in Tables 4.1 and 4.2. For the template GATE checklist, please see Appendix A.

4.2.6 Analysis Strategy

After identifying relevant studies, articles were categorised into those concerning clinical and non-clinical populations and analysed separately. When studies included both patient and non-patient voice hearers (Andrew et al., 2008; Daalman et al., 2012; Goldstone, Farhall & Ong, 2012; Honig et al., 1998), samples were divided according to clinical status and the same study reported on in both sections 4.3.3 and 4.3.4, and Tables 4.1–4.4. However, unlike the previous review, clinical groups were not classified according to psychotic and non-psychotic conditions owing to the inclusion of studies wherein diagnoses were either not identified (e.g., Andrew et al., 2008), or in which samples comprised mixed groups without sub-analyses for different diagnoses (e.g., Offen et al., 2003; Read & Argyle, 1999; Read et al., 2003).

Data extraction was synthesised into a qualitative, descriptive format organised on the basis of: (1) study sample (number of participants, age and gender, clinical features, number and characteristics of controls); (2) study setting and characteristics (design, assessment tools, parameters of methodological quality and statistical testing, country in which research was conducted, any disclosed conflict of interest); and (3) relevant outcomes (rates of CSA

amongst voice hearers and control groups, rates of voice hearing amongst CSA survivors and control groups, effect sizes, relevant causal criteria). For a sample data extraction form, please see Appendix B1.

A 'sufficient' level of comparability is a prerequisite if the results of data pooling are to be interpreted in a meaningful way (CRD, 2009; Liberati et al., 2009). This includes aggregating data estimates in a manner that is statistically valid, but necessarily extends to the similarity and differences of source populations themselves (Verma, 2002; Verma, Gagliardi & Ferretti, 2009). As such, a decision was taken not to combine data for meta-analytical synthesis, owing to the substantial heterogeneity in both the clinical (e.g., extensive variation in psychotic and non-psychotic diagnoses, combinations of inpatients and outpatients, poorly-defined control groups, different assessments of CSA) and non-clinical populations (e.g., assorted classifications of CSA and voice hearing frequency/severity, diverse sampling procedures).

4.3   Results

4.3.1 Search Results

Twenty two articles met inclusion criteria for the review, the majority of which were cross-sectional and observational investigations with small to moderate sample sizes. Papers were most commonly excluded on the basis of having no criteria and/or outcome of interest (e.g., reporting on positive symptoms of psychosis or childhood trauma *per se*), or for the use of non-quantitative methods (e.g., case studies and case reviews, and discussions of voice content in relation to CSA and other adversities). The data extraction process for the review is depicted in Figure 4.1.

4.3.2 Publication Bias

Preliminary inspection of the selected literature indicated statistical heterogeneity, a number of studies with low statistical power, and a large number of studies with similar sample sizes. Such factors prohibit the capacity to obtain meaningful results using the funnel plot method (CRD, 2009), and as such this procedure was not performed.
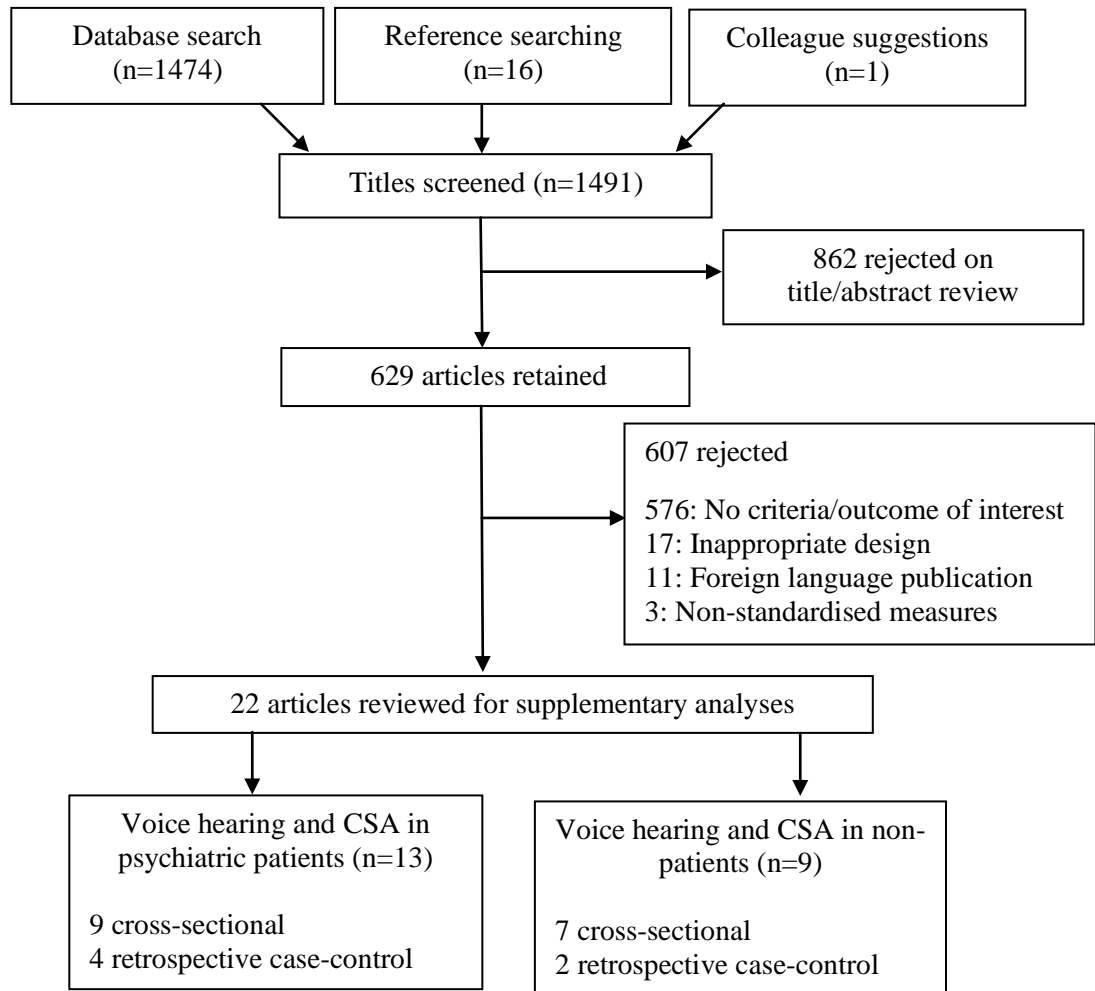
Figure 4.1   Flowchart depicting the data extraction process for the systematic review.

4.3.3   Voice Hearing and CSA in Clinical Populations

Of the studies meeting inclusion criteria for the review, 13 examined associations between voice hearing and CSA in patient groups (see Table 4.1). In summary, these studies primarily assessed participants diagnosed with schizophrenia spectrum disorders, although non-psychotic conditions such as PTSD (e.g., Anketell et al., 2010), depression (e.g., Read et al., 2003), dissociative disorder (e.g., Honig et al., 1998), and bipolar disorder (e.g., Hammersley et al., 2003) were also included. Eight of these employed cross-sectional methods and a further four utilised retrospective case-control designs. A range of assessment tools were evident, principally self-report measures, although structured clinical interviews were employed in five studies to determine voice hearing presence and severity, and three studies relied on medical note auditing to assess both voice hearing and CSA history.

Table 4.1   Descriptive summary of studies assessing voice hearing and CSA in patient populations.

Study	*N*	Sample and Setting	Method	Assessment tools: 1.Voice hearing 2.CSA	Key results	Quality assessment and validity issues
Andrew et al. (2008)	22	Convenience sample Adult voice hearing patients, diagnosis unspecified, mean age 39.55 (SD=12.3), female to male ratio 9:13. CSA reported by 11 UK	Cross-sectional between-groups comparison. Self-report measures. Linear multiple regression analysis	1=PSYRATS-AH; BAVQ-R 2=PDS	All participants reported voice hearing, of which 50% (n=11) also reported CSA	Small non-random sample. Reliance on self-report measures
Anketell et al. (2010)	40	Convenience sample 20 voice hearing patients with chronic PTSD, mean age 46.2 (SD=12.1), female to male ratio 19:1. CSA reported by 3 20 non-voice hearing patients with chronic PTSD, mean age 44.2 (SD=12.9), female to male ratio 7:14. CSA reported by 4 Northern Ireland	Retrospective case-control. Self-report measures and clinical interview. Chi–square analysis and multivariate analysis of variance	1=PANSS 2=PDS	No significant differences in CSA prevalence between voice hearers and non-voice hearers	Small convenience sample, predominantly male. No power analysis.

| Daalman et al. (2012) | 224 | Opportunity sample

100 patients with psychotic disorder reporting voice hearing, female to male ratio 66:44, mean age 38.02 (SD=11.49). CSA reported by 32

124 healthy controls without voice hearing, female to male ratio 84:40, mean age 43.06 (SD=14.39). CSA reported by 12

The Netherlands | Retrospective case-control. Self-report measures. Chi-square tests and stepwise multinomial logistic regression analysis | 1=PSYRATS-AH

2= CTQ-SF | CSA significantly higher in the voice hearing group (U=4816, z=4.171, p<0.001) and was a significant predictor of voice hearing presence (OR=3.57, Wald = 9.837, p= .002) | Reliance on self-report measures. Abuse age relative to voice onset not assessed. Case and control groups not drawn from comparable population |
| Goldstone et al. (2012) | 100 | Convenience sample

Voice hearing patients diagnosed with psychotic disorders, age range 18-46 years, female to male ratio 44:56. CSA reported by 25

Australia | Cross-sectional between-groups comparison. Self-report measures. Pearson correlations and path modelling | 1=LSHS-R

2=ETI-SR | CSA was significantly associated with voice hearing (r=.25, p=.05) and was the best predictor of vulnerability to hallucinations, explaining 24% of the variance in LSHS-R scores | Other psychotic symptoms not controlled for |

Hainsworth et al. (2011)	118	Pseudo-random sample Adolescent inpatients with (90%) and without (10%) voice hearing, primarily diagnosed with early onset psychosis and PTSD. Mean age 13.70 (SD=2.60), female to male ratio 43:17. CSA prevalence not specified Reference group of adolescent inpatients with no trauma history. Age and gender not stated Australia	Cross-sectional between-groups comparison. Audit of medical case files. Chi-square tests and logistic regression	1=Medical records 2=Medical records	Individuals with a history of CSA were significantly more likely to experience hallucinations than those with no CSA history ($\chi 2$ =8.70, p=.05)	Case files may underestimate abuse disclosure compared to patient interview
Hammersley et al. (2003)	96	Convenience sample Patients with (31%) and without (69%) voice hearing diagnosed with bipolar disorder, mean age 40.5 (SD=10.4), female to male ratio 64:32. CSA reported by 11 UK	Cross-sectional. Self-report measures and structured clinical interview. Chi-square analysis	1=SCID 2=CMHSR	Significant association found between CSA and voice hearing (χ^2(1)=14.66, p=.001)	Possibility of bias in reporting of CSA. Small convenience sample. No confounding factors controlled for

| Honig et al. (1998) | 33 | Convenience sample

18 voice hearing patients diagnosed with SZ, mean age 37.00 (SD=11.0), female to male ratio 11:7. CSA reported by 3

15 voice hearing patients diagnosed with dissociative disorder, *M* age 40.00 (SD=8.0), female to male ratio 14:1. CSA reported by 8

The Netherlands | Cross-sectional between-groups comparison. Semi-structured clinical interview. Chi-square tests with Pearson's continuity correction | 1=MI

2=MI | All participants reported voice hearing, of which 33% (n=11) also reported CSA | Small convenience samples. Risk of recall bias in retrospective reporting of CSA |
| Offen et al. (2003) | 26[a] | Convenience sample

Psychiatric patients reporting voice hearing, mean age 34 (SD=not stated), female to male ratio 7:19. CSA reported by 10

UK | Cross-sectional. Self-report measures. Mann-Whitney *U*-test and Spearman's correlational coefficient analysis | 1=BAVQ

2=AQ | CSA was reported by 38% (n=10) of participants. Perceptions of voice malevolence were higher in the abused group at a level of borderline significance (z=1.63, p=.52) | Small, unbalanced sample. Limited measure of CSA |

| Read & Argyle (1999) | 22[b] | Sample based on consecutive hospital admissions

Psychiatric patients reporting positive psychotic symptoms and childhood abuse, mean age 35.5 (SD=8.6), female to male ratio 12:10. CSA reported by 15

New Zealand | Cross-sectional. Examination of hospital records. Phi coefficient analyses | 1=Medical records

2=Medical records | Of the 17 participants with a history of non-incestuous CSA, 53% (n=9) experienced voice hearing. Of the 7 with a history of incest, 86% (n=6) experienced voice hearing. The difference in frequency was significant (phi=.828, p<.01) | Small convenience sample. Risk of Type 1 errors not controlled for. Case files may underestimate abuse disclosure compared to patient interview |
| Read et al. (2003) | 200[c] | Sample based on consecutive hospital admissions

Psychiatric patients with positive psychotic symptoms, mean age 36.6 (SD=not stated), female to male ratio 86:114. CSA reported by 40

New Zealand | Cross-sectional. Examination of hospital records. Chi-square, t-test and stepwise linear regression analysis | 1=Medical records

2=Medical records | Of participants with a history of CSA, 53% (n=21) reported voice hearing. Individuals with a CSA history were significantly more likely to experience voice hearing ($\chi^2 = 52.5$, p=.0005), including voices commenting ($\chi2 =27.5$, p=.0005) and command hallucinations ($\chi^2 =15.0$, p=.01) than the non-abused group | Large number of analyses increased the risk of Type 1 errors. Case files may underestimate abuse disclosure compared to patient interview |

Sheffield et al. (2013b)	195	Convenience sample 114 patients with psychotic disorders, mean age 37.3 (SD=12.59), female to male ratio 56:58. CSA prevalence not specified 81 non-clinical controls, mean age 34.0 (SD=11.81), female to male ratio 40:41 United States	Retrospective case control. MANOVA, ANOVA and ANCOVA analysis	1=SCID 2=CTQ	Patients reported significantly more CSA than controls ($t = 6.3$, p=.001). After controlling for depression, voice hearing patients reported significantly more CSA than non-voice hearers ($F(1,110) = 4.5$, p= .04). Higher rates of voice hearing were not reported for emotional and physical abuse in an absence of CSA ($F(2,46) = .22$, p= .82). Non-auditory hallucinations (F's <.40, p's>.53) and delusions (F's <.97, p's>.33) were not associated with CSA	Unbalanced sample in terms of unequal numbers of voice hearers (n=87) and non-voice hearers (n=27)
Üçok & Bikmaz (2007)	57	Convenience sample 17 patients with first-episode psychosis reporting CSA, age and gender not stated 40 patients with first-episode psychosis and no CSA history, age and gender not stated Turkey	Cross-sectional between groups comparison. Self-report measures and structured clinical interview. Mann-Whitney U-test, chi-square test, and Spearman's correlational analysis	1=SAPS 2=CTQ	No significant difference in levels of voice hearing between participants with and without a history of CSA	Confounding variables not controlled for. Skewed data distribution

| Varese et al. (2012b) | 65 | Convenience sample

15 voice hearing patients [d], mean age 45.6 (SD=12.2), female to male ratio 9:6. CSA prevalence not specified

14 remitted voice hearing patients, [e] mean age 39.4 (SD=13.3), female to male ratio 7:7. CSA prevalence not specified

16 non-voice hearing patients [f], mean age 48.3 (SD=12.2), female to male ratio 5:11. CSA prevalence not specified

20 non-clinical controls, mean age 39.5 (SD=14.6), female to male ratio 9:11. CSA prevalence not specified

UK | Retrospective case control. Self-report measures and structured clinical interview. Analysis of variance and chi-square tests | 1=PANSS; LSHS-R

2= CATS | Compared to non-clinical and non-hallucinating clinical controls, hallucinating patients reported significantly higher rates of CSA ($F(3,60)=7.48$, p=.001). A significant association was found between CSA and LSHS-R scores in the patient sample ($r=0.37$, p=.05) and aggregate sample ($r=0.52$, p=.001). The total effect of CSA on hallucination proneness (mediated by dissociation) was higher than other types of childhood trauma (1.33, CI=0.92-1.77) | Risk of selection bias in convenience sample. Possible recall bias for reports of childhood trauma |

Note. **PSYRATS-AH** = Psychotic Symptoms Rating Scale-Auditory Hallucination Subscale (Haddock et al., 1999); **BAVQ-R** = Revised Beliefs About Voices Questionnaire (Chadwick et al., 2000); **PANSS** = The Positive and Negative Syndrome Scale for Schizophrenia (Kay et al., 1987); **CTQ-SF** = Childhood

Trauma Questionnaire – Short Version (Bernstein et al., 2003); **PDS** = Posttraumatic Stress Diagnostic Scale (Foa, 1995); **LSHS-R** = Revised Launay-Slade Hallucination Scale (Bentall & Slade, 1985); **SCID** = Structured Clinical Interview for DSM-IV (First et al., 1996); **CMHSR** = Child Maltreatment History Self-Report (Badgley et al., 1984); **ETI-SR =** Early Trauma Inventory – Self-Report (Bremner et al., 2007); **SZ** = schizophrenia; **MI**= Maastricht Voices Interview (Romme & Escher, 2000); **AQ** = Author's questionnaire (Burton, 1991); **CTQ** = Childhood Trauma Questionnaire (Bernstein & Fink, 1998); **SAPS** = Scale for the Assessment of Positive Symptoms (Andreasen, 1984); **CATS** = Child Abuse and Trauma Scale (Sanders & Becker-Launsen, 1995).

[a] Schizophrenia (n=21), psychosis (n=1), manic-depression (n=1), psychotic depression (n=1), schizoid personality disorder (n=1), no formal diagnosis (n=1). [b] Major depressive disorder (n=8), schizophrenia (n=4), bipolar affective disorder (n=4), dual diagnoses (n=6). [c] Depression (n=85), schizophrenia (n=28), substance abuse (n=20), bipolar disorder (n=15), personality disorder (n=10), anxiety disorder (n=9), adjustment disorder (n=7), PTSD (n=7), psychotic episode (n=5), schizoaffective disorder (n=5), psychotic disorder NOS 9N=4). [d] Schizophrenia (n=13), schizoaffective disorder (n=2). [e] Schizophrenia (n=10), schizoaffective disorder (n=4). [f] Schizophrenia (n=11), schizoaffective disorder (n=5), delusional disorder (n=1).

Amongst other findings, nine studies described CSA prevalence in patients who heard voices, and five reported voice hearing prevalence in those with a history of CSA (four papers provided aggregated scores from trauma questionnaires without specifying CSA prevalence relative to voice hearing: Hainsworth et al., 2011; Sheffield, Williams, Blackford & Heckers, 2013b; Üçok & Bikmaz, 2007; Varese et al., 2012b). On the basis of weighted means, rates of CSA amongst patient voice hearers were 32.2%, whereas voice hearing prevalence amongst patients with a history of CSA was 69.6%. In comparison, CSA was also reported by 21.7% patients who did not hear voices, and 59.86% of voice hearers did not report exposure to CSA (see Table 4.2).

Table 4.2   Prevalence of CSA and voice hearing in patient groups.

Study	% of voice hearers reporting CSA	% of non-voice hearers reporting CSA	% of CSA survivors reporting voice hearing	% of non-CSA survivors reporting voice hearing
Andrew et al. (2008)	50% (11/22)	--	100% (11/11)	50% (11/22)
Anketell et al. (2010)	15% (3/20)	20% (4/20)	43% (3/7)	85% (17/20)
Daalman et al. (2012)	32% (32/100)	9% (12/124)	73% (32/44)	68% (68/100)
Goldstone et al. (2012)	25% (25/100)	--	--	75% (75/100)
Hammersley et al. (2003)	37% (11/30)	26% (4/15)	73% (11/15)	24% (19/81)
Honig et al. (1998)	33% (11/33)	--	100% (11/11)	67% (22/33)
Offen et al. (2003)	38% (10/26)	--	100% (10/10)	62% (16/26)
Read & Argyle (1999)	--	47% (8/17)	53% (9/17)	--
Read et al. (2003)	39% (21/54)	47% (19/40)	53% (21/40)	61% (33/54)
Weighted mean	**32.2% (124/385)**	**21.7% (47/216)**	**69.6% (108/155)**	**59.9% (261/436)**

4.3.3.1 Cross-Sectional Studies

Although other types of childhood trauma were assessed, CSA prevalence was conspicuous in the majority of studies. For example, Hammersley et al. (2003) reported stronger associations between voice hearing and CSA than other types of childhood abuse, whereas Read et al. (2003) found that a combination of CSA and physical abuse were the most commonly reported forms of maltreatment amongst voice hearers, followed by CSA only. Goldstone et al. (2012) also identified CSA as the "best enduring predictor" (p.1367) of hallucination emergence amongst 100 psychiatric patients when modeled alongside other early/acquired

vulnerabilities (hereditary, cannabis use, other types of abuse). In turn, Andrew et al. (2008) found that CSA was the only childhood trauma variable whose prevalence distinguished between 22 patient and 21 non-patient voice hearers, in terms of being significantly higher in the clinical group.

In addition to CSA prevalence amongst voice hearers, three studies found that voice hearing was more common in CSA survivors than comparison groups with no CSA history (Hainsworth et al., 2011; Hammersley et al., 2003; Read et al., 2003). Higher rates of Schneiderian-type voices (those that comment or converse) were also observed in CSA survivors by both Hammersley et al. (2003), and Read et al. (2003). Two studies further indicated that CSA may have stronger associations with voice hearing than other psychotic symptoms. The first, Read and Argyle (1999), noted that incest survivors were more likely to report hallucinations (6/7: 86%) than delusions (2/7: 29%) or thought disorder (3/7: 43%), whereas Hainsworth et al. (2011) found that amongst 118 patients with first-episode psychosis, those with a CSA history were significantly more likely to report hallucinations than other first-rank schizophrenia symptoms, like delusions.

Nevertheless, associations between CSA and voice hearing were not replicated in all studies. For example, Honig et al.'s (1998) participants, who were diagnosed with dissociative disorder (n=15) or schizophrenia (n=18) reported much greater exposure to neglect (76%: 25/33) and physical abuse (64%: 21/33) than CSA (33%: 11/33). Üçok and Bikmaz (2007) similarly found that, contrary to their hypothesis, neither commenting voices or auditory hallucination *per se* were more prevalent in participants with a CSA history (n=17) compared to those without (n=40). The authors propose that this null finding might be owing to their small sample, although this may not be an adequate explanation given that the study was sufficiently powered to detect associations between voice hearing and emotional abuse.

4.3.3.2   Case-Control Studies

The remaining four studies reported on differences in CSA exposure between groups of voice hearers and non-voice hearers. Daalman et al.'s (2012) sample of 100 psychosis patients was significantly more likely to report CSA than 124 healthy controls, although the likelihood of voice hearers reporting emotional abuse was higher. CSA and emotional abuse were further identified as the best predictors of group membership (voice hearer/non-voice hearer) using five types of childhood trauma as independent variables (CSA, physical abuse and neglect, emotional abuse and neglect). Similarly, while Varese et al.'s (2012b) sample of voice hearing patients (n=15) did not differ from clinical controls in the prevalence of physical abuse, neglect, or emotional abuse, they were significantly more likely to report experience of CSA than either patients with remitted hallucinations (n= 14) or psychosis patients with no history of voice hearing (n=16). Furthermore, the impact of CSA on hallucination-proneness

(mediated by dissociation) was higher than for other types of childhood trauma (total effect 1.33, CI=0.92-1.77).

Sheffield et al. (2013b) also found evidence for a specific effect of CSA on voice hearing when comparing 118 psychosis patients with 81 healthy controls. Patients reported significantly higher rates of CSA than the non-clinical sample, whereas voice hearing patients reported more CSA than non-voice hearers (which remained significant after controlling for depression). Physical and emotional abuse, in an absence of CSA, did not lead to higher rates of voice hearing. In turn, no sub-type of non-auditory hallucination or delusion was associated with CSA. However, Anketell et al. (2010) did not find any significant differences in reported rates of CSA between PTSD patients who heard voices (n=20) compared to those who did not (n=20). This study was additionally notable in that CSA amongst voice hearers (15%: 3/20) was markedly lower than in the other identified studies, although the prevalence of voice hearing in the CSA survivors was more comparable (43%: 3/7).

4.3.3.3 Critical Appraisal of Studies in Clinical Populations

A consistent weakness across studies concerned sampling methods, with few attempts made to account for recruitment strategies. In this respect, the majority of studies relied on non-random convenience samples, which potentially compromises external validity through systematic selection bias (e.g., Goldstone et al., 2012, only engaged patients in a 'maintenance,' 'relapse prevention' or 'functional gain' stage of mental healthcare; Honig et al., 1998, recruited participants with 'treatment-resistant' voices; Hammersley et al., 2003, sampled those considered suitable for a Cognitive Behavioural Therapy [CBT] trial; whereas Offen et al., 2003, only enlisted patients able to discuss their experiences 'without distress'). No studies provided details on what percentage of selected individuals agreed to participate, or precise details on how recruitment was organised. This makes it difficult to gauge whether study participants may have systematically differed from non-responders, and similarly does not permit assessment as to the possibility of spurious association between exposure and outcome as a function of clinical contact (so-called 'Berkson's bias': see Bhopal, 2004). Furthermore, while some authors conducted careful screening criteria to define their clinical groups (e.g., Daalman et al., 2012; Honig et al., 1998; Sheffield et al., 2013b; Varese et al., 2012b), this was not the case in all studies. For example, Anketell et al. (2010) did not assess the latent presence of psychosis in their sample of PTSD patients, even though such conditions would be associated with elevated rates of voice hearing.

Additional sampling limitations were apparent in the choice of control groups, which in some studies were not drawn from comparable populations to case participants. For example Daalman et al. (2012), assessed outpatients from a psychosis clinic in reference to two healthy community control groups recruited from the *Explore Your Mind* website,

whereas Varese et al. (2012b) compared patients with schizophrenia spectrum disorders with adults with no history of mental health problems. Although it is valuable to assess participants with and without an outcome of interest, reliability is strengthened when samples share as many other features as possible. While this may have been the case in the reviewed studies, sufficient information was not provided to confirm it (e.g., there was a pervasive lack of data regarding participants' ethnic or socio-economic backgrounds). In some instances, exclusion criteria also differed between case and control groups. For example, Daalman et al. (2012) screened for illicit substance use in psychotic patients via a psychiatrist-administered interview, but with urine samples and telephone interviews for non-psychotic voice hearers and healthy controls.

In terms of internal validity, potential sources of bias were unacknowledged in the majority of studies, and few explicit attempts made to remove or minimise them. For example, while some studies controlled for a family history of mental illness (Goldstone et al., 2012), other types of childhood trauma (Daalman et al., 2012 ; Goldstone et al., 2012; Varese et al., 2012b), substance use (Goldstone et al., 2012), and depression (Sheffield et al., 2013b), the remaining studies did not adjust results for possible covariates. Goldstone et al. (2012) was also the only study to acknowledge and rationalise their limited choice of predictor variables, and in this respect a failure to report other explanatory factors was a major and persistent limitation in the reviewed studies (for further discussion, see section 4.4.1).

In general the choice of statistical tests was appropriate, with suitable corrections applied when necessary (e.g., the Bonferroni test to account for multiple comparisons; applying more stringent alpha levels to control for Type 1 errors). However, there was a recurring lack of power calculations to justify sample size, which in some cases was compounded by the potential adverse impact of unbalanced groups on statistical power (e.g., 87 voice hearers and 27 non-voice hearers in Sheffield et al., 2013b; 30 voice hearers and 66 non-voice hearers in Hammersley et al., 2003). A further weakness was the tendency to model different forms of childhood trauma as independent variables, despite evidence that neglect and sexual, emotional, and physical maltreatment tend to be inter-related (Dong et al., 2004).

Consistent strengths in the reviewed studies were the provision of clear theoretical context and rationales for the investigations, including precise objectives and pre-specified hypotheses. With the exception of Andrew et al. (2008), Goldstone et al. (2012), and Read and Argyle (1999), who did not provide clear diagnostic information, all studies characterised their samples using formal clinical criteria, including DSM-IV (Anketell et al., 2010; Hammersley et al., 2003; Honig et al., 1998; Offen et al., 2003; Read et al., 2003; Sheffield et al., 2013b; Üçok & Bikmaz, 2007), DSM-IV-TR (Daalman et al., 2012; Varese et al., 2012b), and IDC-10 (Hainsworth et al., 2011). The use of valid, reliable assessment tools was also evident, with classification of key variables appearing accurate and well-defined. The

presence and severity of voice hearing was frequently assessed using The Positive and Negative Syndrome Scale for Schizophrenia (Kay et al., 1987), The Psychotic Symptom Rating Scale: Auditory Hallucinations Subscale (Haddock et al., 1999), The Revised Beliefs About Voices Questionnaire (Chadwick, Lees & Birchwood, 2000), and the revised Launay-Slade Hallucination Scale (Launay & Slade, 1981; Morrison et al, 2000), all instruments that have demonstrated robust psychometric properties (see Chapter 5, section 5.3.1.1). CSA exposure was assessed with a wide variety of self-report trauma inventories, mostly screening tools with proven reliability and validity such as the Childhood Trauma Questionnaire (Bernstein & Fink, 1998), Child Abuse and Trauma Scale (Sanders & Becker-Launsen, 1995), and Early Trauma Inventory (Bremner, Bolus & Mayer, 2007). Although self-rated measures of childhood abuse are vulnerable to numerous biases, research indicates that retrospective reporting of trauma amongst groups with complex mental health problems have proven sufficiently valid and reliable to justify self-report strategies (see Chapter 5, section 5.2.3.2). The exception to this was four studies that derived data on CSA exposure from disclosures made to medical personnel, either via the auditing of medical records (Hainsworth et al., 2011; Read & Argyle, 2009; Read et al., 2003), or from disclosures made to therapists as part of broader clinical assessment (Hammersley et al., 2003). Although this method carries its own limitations (see section 4.4.1), the studies were still included within the review as the audits were conducted by qualified clinical personnel, employed operational definitions of relevant constructs and, in some instances used masking strategies during data collection (Hammersley et al., 2003), or attempted to corroborate information with family members or health/social care agencies (Hainsworth et al., 2011).

4.3.4   Voice Hearing and CSA in Non-Clinical Populations

Nine studies were identified that reported associations between voice hearing and CSA in non-patient groups (see Table 4.3). Seven were cross-sectional in design, with two studies also employing retrospective case-control methods. Both CSA and voice hearing were assessed with self-report measures in the majority of cases, although structured clinical interviews were employed in four studies to determine voice hearing presence and severity.

One paper (Sommer et al., 2010), did not provide usable prevalence data. On the basis of the remaining studies, the weighted mean for rates of CSA exposure amongst non-patient voice hearers was 28.2%, whereas 5.7% of CSA survivors heard voices. CSA exposure was estimated as 7.1% amongst non-voice hearers, and 71.7% of non-patient voice hearers had not experienced CSA (see Table 4.4).

An additional four studies (Freeman & Fowler, 2009; Goldstone et al., 2012; Shevlin, Dorahy & Adamson, 2007; Shevlin et al., 2010) were not directly comparable in that they assessed lifetime prevalence of voice hearing rather than individuals who heard regular

voices. These results were therefore assessed separately, and indicated that 11.6% of non-patient voice hearers reported a history of CSA, while 19.6% of CSA survivors experienced voice hearing. Of individuals who did not hear voices, 7.8% had experienced CSA whereas 78.8% of non-patient voice hearers did not report any CSA exposure (see Table 4.4).

Table 4.4   Prevalence of CSA and voice hearing in non-patient groups.

Study	% of voice hearers reporting CSA	% of non-voice hearers reporting CSA	% of CSA survivors reporting voice hearing	% of non-CSA survivors reporting voice hearing
Andrew et al. (2008)	14% (3/21)	--	100% (3/3)	86% (18/21)
Bentall et al. (2012)	--	1.9% (143/7200)[a] 8.8% (635/7201)[b] 10.5% (758/7194)[c]	8% (12/143)[a] 3% (16/635)[b] 2% (17/758)[c]	--
Daalman et al. (2012)	30% (38/127)	9% (12/124)	76% (38/50)	70% (89/127)
Honig et al. (1998)	33% (5/15)	--	100% (5/5)	67% (10/15)
Weighted mean	**28.2% (46/163)**	**7.1% (1548/21719)**	**5.7% (91/1594)**	**71.7% (117/163)**
Freeman & Fowler (2009)	--	47% (7/15)[d]	53% (8/15)[d]	13% (3/23)[d]
Goldstone et al. (2012)	10% (13/133)	--	--	90% (120/133)
Shevlin et al. (2007)	7% (36/489)	79% (138/175)[a] 84% (405/4800)[a]	21% (36/174)[a] 16% (80/485)[b]	--
Shevlin et al. (2010)	16% (80/487)	--	23% (28/120)[a] 22% (27/120)[b]	--
Weighted mean	**11.6% (129/1109)**	**7.8% (2086/26585)**	**19.6% (179/914)**	**78.8% (123/156)**

[a] rape; [b] molestation; [c] non-contact abuse; [d] data provided for rape only, not molestation.

4.3.4.1 Cross-Sectional Studies

Three studies were based on large epidemiological data-sets: The Adult Psychiatric Morbidity Survey (Bentall et al., 2012; n=7,353), The National Comorbidity Survey (Shevlin et al.,

2007; n=5,877), and The National Comorbidity Survey replication (Shevlin et al., 2010; n=2,353), which sampled non-institutionalised members of the general population. All three reported significant associations between CSA and voice hearing. Firstly, Bentall et al. (2012) found that all CSA variables (rape, molestation, sexual talk) significantly increased the likelihood of voice hearing after adjusting for measures of IQ and demographic confounds. Participants reporting childhood rape were 10 times more likely to have experienced voice hearing in the year prior to assessment, and rape remained a significant predictor of voices when comorbid paranoia and other types of adversity were entered into the analysis. In contrast, the association between paranoia and CSA were no longer significant after controlling for other variables. Similarly, Shevlin et al. (2007) also reported significant associations between auditory hallucinations and childhood molestation/rape after controlling for gender, age, depression, family history of depression, urbanicity, income, and substance use (although the association between rape and visual hallucinations was slightly higher than for auditory experiences). Finally, Shevlin et al. (2010) found that childhood rape significantly predicted voice hearing when controlling for the same confounders as Shevlin et al. (2007). In this respect, respondents who had been raped in childhood were 3.5 times more likely to report voice hearing than non-CSA survivors which, in contrast to Shevlin et al. (2007), was slightly higher than for visual hallucinations (3.3 times more likely). In addition, associations between voice hearing and childhood rape were stronger than voice hearing and physical abuse.

Freeman and Fowler's (2009) findings, derived from 200 members of the general public, were comparable to the larger studies in that voice hearing had the strongest association with CSA (molestation or rape) out of other types of childhood trauma. Individuals reporting CSA were also significantly more likely to hear voices than those without a CSA history. However, Goldstone et al. (2012) found that voice hearing was not significantly associated with CSA in their group of 133 non-patients, with emotional abuse the only significant predictor of voice hearing. Finally, two of the cross-sectional studies only provided prevalence rates of CSA amongst voice hearers, which in Honig et al.'s sample was 33% (5/15) and in Andrew et al.'s 14% (3/21). Honig et al. found that CSA was the least commonly self-reported children trauma, compared to emotional abuse (67%: 10/15) and physical abuse (47%: 7/15). However, whilst the occurrence of CSA was the same in both Honig et al.'s clinical and non-clinical (33%: 11/33) samples, Andrew et al. (2008) reported that CSA was significantly higher in their patient group, and was the only childhood trauma variable whose prevalence distinguished between patient and non-patient voice hearers.

Table 4.3   Descriptive summary of studies assessing voice hearing and CSA in non-patient populations.

Study	*n*	Sample and Setting	Method	Assessment tools: 1.Voice hearing 2.CSA	Key results	Quality assessment and validity issues
Andrew et al. (2008)	21	Referral sample Adults reporting voice hearing but with no past or current contact with psychiatric services, mean age 50.67 (SD=11.3), female to male ratio 15:6. CSA reported by 3 UK	Cross-sectional between-groups comparison. Self-report measures. Linear multiple regression analysis	1=PSYRATS-AH; BAVQ-R 2=PDS	All participants reported voice hearing, of which 14% (n=3) also reported CSA	Small, unrepresentative sample. Reliance on self-report measures
Bentall et al. (2012)	7353	Probability sample General population, National Comorbidity Survey, age 16+, gender not stated. Childhood rape reported by 143, molestation by 635, and non-contact CSA by 758 UK	Cross-sectional, epidemiological. Self-report measures and computer-assisted interviews. Logistic regression and bivariate associations	1=PSQ 2=APMS	Participants who were raped in childhood were 10 times more likely to report voice hearing in the year preceding assessment. After controlling for paranoia, demographic factors, and other traumas, voice hearing was significantly associated with childhood rape (OR=4.2, CI =1.1-15.4, p<.05). Molestation (OR=1.5, CI=0.4-5.3, p<.05), and 'sexual talk' (OR=1.8, CI=0.6-	Potential bias in retrospective reporting of CSA

					5.2) were not significant predictors of voice hearing after adjustment for confounding variables	
Daalman et al. (2012)	251	Opportunity sample 127 adults reporting voice hearing but with no mental health problems detectable at clinical interview, female to male ratio 86:41, mean age 42.41 (SD=12.63). CSA reported by 38 124 healthy non-voice hearing controls matched for gender, female to male ratio 84:40, mean age 43.06 (SD=14.39) The Netherlands	Retrospective case-control. Self-report measures. Chi-square tests and stepwise multinomial logistic regression analysis	1=PSYRATS-AH 2= CTQ-SF	CSA was significantly higher in the voice hearing group (U=6280, z= - 4.007, p=.001) and was a significant predictor of voice hearing presence (OR=2.51, Wald = 5.578, p= .018)	Reliance on self-report measures. Abuse age relative to voice onset not assessed. Limited comparability between groups

| Freeman & Fowler (2009) | 200 | Opportunity sample

Adults with no history of mental illness, mean age 37.5 (SD=13.3), female to male ratio 100:100. Prevalence of CSA in voice hearers not specified

UK | Cross-sectional. Self-report questionnaires. Chi-square tests, binary logistic regression | 1=CAPS

2=LSC | Voice hearing had the strongest association with CSA (molestation or rape) out of other types of childhood trauma (OR=8.05, CI=2.67-24.29, p=.001). Individuals reporting CSA were significantly more likely to hear voices than those without a CSA history ($\chi^2(1)$=17.72, p=.001) | Statistical correction not applied to control for Type 1 errors. Reliance on self-report measures |
| Goldstone et al. (2012) | 133 | Referral sample

Adults with no history of mental health service use, age range 18-46+, female to male ratio 79:54. CSA reported by 13

Australia | Cross-sectional between-groups comparison. Self-report measures. Pearson correlations and path modelling | 1=LSHS-R

2=ETI-SR | 10% of the sample (n=13) had experienced CSA, which was not associated with voice hearing (r=.02, ns) | Possible retrospective reporting bias for CSA |

Honig et al. (1998)	15	Convenience sample Adults reporting voice hearing but with no diagnosable mental disorder according to CIDI criteria, mean age 56 (SD=11), female to male ratio 11:4. CSA reported by 5 The Netherlands	Cross-sectional between-groups comparison. Semi-structured clinical interview. Chi-square tests with Pearson's continuity correction	1=MI 2=MI	All participants reported voice hearing, of which 33% (n=5) also reported CSA (molestation and/or rape)	Small convenience sample. Risk of recall bias in retrospective reporting of CSA
Shevlin et al. (2007)	5877[a]	Probability sample General population, National Comorbidity Survey, age range 15-54, gender not stated. Of participants with voice hearing, 36 reported childhood rape and 80 reported molestation United States	Cross-sectional, epidemiological. Structured interview. Logistic regression analyses	1=CIDI 2=CIDI	Of participants reporting voice hearing, 7% (36/489) had been raped under the age of 16, and 16% (80/487) had been molested. Of participants reporting childhood rape, 21% (36/174) heard voices, and of participants reporting molestation 16% (80/485) heard voices. Childhood rape (OR=1.75, CI=1.02–3.00, p=.03) and molestation (OR=1.02–3.00, CI=1.36–2.73, p=.001) were significant predictors of voice hearing	Lack of behavioural descriptors for CSA items. Lack of sensitivity in voice hearing measure

| Shevlin et al. (2010) | 2353 | Probability sample

General population, National Comorbidity Survey replication, mean age 44.35 (SD=17.27), female to male ratio 1365:988. CSA prevalence in voice hearers not specified

United States | Cross-sectional, epidemiological. Structured interview. Logistic regression analyses | 1=CIDI

2=CIDI | Participants reporting childhood rape were 3.5 times more likely to hear voices (OR=2.97, CI= 1.39–6.33, p=.05). Associations between voice hearing and childhood rape (χ^2=44.43, p=.01) were stronger than voice hearing and physical abuse (χ^2=37.26, p=.01), although molestation showed a stronger association with visual hallucinations (χ^2=21.15, p=.01) than voice hearing (χ^2=17.41, p=.01) | Possible under-reporting due to ambivalent wording for items assessing CSA |
| Sommer et al. (2010) | 163 | Opportunity sample

103 adults reporting voice hearing but with no discernible mental health disorder detected at clinical interview, mean age 44 (SD=13), gender not stated. CSA prevalence not specified

60 matched controls without voice hearing

The Netherlands | Retrospective case-control. Self-report measures and clinical interview. Independent sample t-tests and multivariate general linear models | 1=PSYRATS-AH; LSHS

2=CTQ | Compared to the control group, individuals who heard voices were significantly more likely to report CSA (F(3,153)9.60, p=.002). Schizotypy and a family history of hallucinatory experiences were better predictors of voice hearing than composite exposure to childhood trauma | Highly self-selected sample |

Note. **PSYRATS-AH** = Psychotic Symptoms Rating Scale-Auditory Hallucination Subscale (Haddock et al., 1999); **BAVQ-R** = Revised Beliefs About Voices Questionnaire (Chadwick et al., 2000); **PDS** = Posttraumatic Stress Diagnostic Scale (Foa, 1995); **PSQ** = Psychosis Screening Questionnaire (Bebbington & Nayani, 1995); **APMS** = Adult Psychiatric Morbidity Survey (McManus et al., 2009); **CTQ-SF** = Childhood Trauma Questionnaire – Short Version (Bernstein et al., 2003); **CAPS** = Cardiff Anomalous Perceptions Scale (Bell et al., 2006); **LSC** = Life Stressor Checklist (Wolfe & Kimerling, 1997); **LSHS-R** = Revised Launay-Slade Hallucination Scale (Bentall & Slade, 1985); **ETI-SR =** Early Trauma Inventory – Self-Report (Bremner et al., 2007); **CIDI** = Composite International Diagnostic Interview (Robins et al., 1988); **MI**= Maastricht Voices Interview (Romme & Escher, 2000); **LSHS** = Launay-Slade Hallucination Scale (Launay & Slade, 1981); **CTQ** = Childhood Trauma Questionnaire (Bernstein & Fink, 1998).

[a] Weighted average: individuals with no psychiatric history, but reporting voice hearing = 2827:3050.

4.3.4.2 Case-Control Studies

Two studies reported on differences in CSA exposure between groups of voice hearers and non-voice hearers. Compared to 124 controls with no psychiatric symptoms, Daalman et al.'s (2012) sample of 127 non-patient voice hearers were significantly more likely to have experienced CSA, although emotional neglect was a more commonly reported trauma. CSA was also a significant predictor of voice hearing presence amongst these individuals although at a lower magnitude than for the 100 patient voice hearers in the sample (see section 4.3.3.2). Sommer et al. (2010) likewise found that a group of 103 non-patient voice hearers were significantly more likely to report CSA than 60 non-clinical controls matched for age, gender, and level of education. However, similar to Daalman et al. (2012), the voice hearers scored higher on measures of exposure to emotional and physical abuse than CSA. Furthermore, trauma exposure (a composite measure of five types of childhood abuse) did not predict voice hearing, whereas a family history of voice hearing (at borderline significance: $p=.054$) and measures of schizotypy did.

4.3.4.3 Critical Appraisal of Studies in Non-Clinical Populations

Several of the most persistent methodological limitations in this literature were those shared by the studies assessing clinical groups: specifically, a reliance on cross-sectional, self-report associations; and insufficient acknowledgement of bias and confounding. Although three groups of authors employed large-scale probability samples (Bentall et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010), the remaining studies relied on sampling techniques that are particularly susceptible to bias; specifically, referral (Andrew et al., 2008; Goldstone et al., 2012), and convenience methods (Daalman et al., 2012; Freeman et al., 2009; Honig et al., 1998; Sommer et al., 2010). Other sampling limitations included a lack of specificity about the populations being assessed. For example, although Shevlin et al. (2007) and Shevlin et al. (2010) identified their respondents as a 'non-clinical community sample,' an unspecified proportion of Bentall et al.'s (2012) data may have come from individuals with a history of psychiatric service use. Similarly, while some studies screened for the presence of psychiatric disorders using clinical interviews (e.g., Daalman et al., 2012; Honig et al., 1998; Sommer et al., 2010), other authors did not formally assess possible mental health problems (e.g., Andrew et al., 2008; Freeman & Fowler, 2009), and in one case did not provide any details on how non-patient status was ascertained or confirmed amongst a sample of predominantly university students (Goldstone et al., 2012).

Similar to the investigations with clinical groups, all the studies were consistent in providing clear scientific contexts and rationales, precise objectives, and pre-specified hypotheses. Attention paid to issues of internal validity was also more clearly demonstrated in

this group of studies. For example, there was evidence of controlling for confounding clinical and demographic variables (Bentall et al., 2012; Goldstone et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010; Sommer et al., 2010), statistically correcting for multiple testing (e.g., Daalman et al., 2012; Sommer et al., 2010) and, where applicable, excluding variables with high multi-collinearity (e.g., Andrew et al., 2008; Sommer et al. 2010) and employing matched control groups (Sommer et al., 2010). However, as with the studies in clinical groups, the majority of papers did not adjust their results for possible covariates (see section 4.4.1). Furthermore, authors persistently failed to provide calculations for effect size or statistical power, and Goldstone et al. (2012) was the only study to address how their analysis dealt with missing data and outliers.

Although all studies used standardised instruments to assess voice hearing presence, varied definitions and criteria limited direct comparability between studies (see Table 4.5). The paper with the most stringent method was Sommer et al. (2010), who ascertained that voices were experienced at least once a month, had an aural quality distinct from thoughts, and were not substance-induced. In addition, Andrew et al. (2008), Daalman et al. (2012) and Honig et al. (1998) assessed participants' current and past voices on a range of detailed phenomenological criteria, whereas Bentall et al. (2012) specified voices 'saying quite a few words or sentences' which had to have occurred at least one year preceding assessment. In contrast, Freeman and Fowler (2009), Goldstone et al. (2012), Shevlin et al. (2007), and Shevlin et al. (2010) did not necessarily report on individuals with regular experiences of voice hearing, rather on lifetime incidence. In addition, Goldstone et al. (2012) and Shevlin et al. (2012) assessed auditory hallucinations *per se*, without specifying voice hearing (although given that these terms are used interchangeably to refer to the same phenomenon, and that most clinically significant hallucinations are verbal [Leudar & Thomas, 2000; Corstens & Longden, 2013; Nayani & David, 1996], it is unlikely that this would have significantly influenced the results). Finally, only Daalman et al. (2012), Shevlin et al. (2010), and Sommer et al. (2010) screened for substance-induced hallucinations, and only two studies confirmed that voices were experienced in a conscious state and not sleep-related (Shevlin et al., 2010) or the result of an organic condition (Andrew et al., 2008).

More generally, the perceived stigma of acknowledging psychotic-like experiences makes research amongst non-clinical groups vulnerable to unreliable reporting (Hanssen et al., 2003), meaning it behoves researchers to consider ways of encouraging participants to openly disclose their experiences. For example, Shevlin et al. (2010), prefaced their hallucinations item in a normalising way: "The next questions are about unusual things, like seeing visions or hearing voices. We believe that these things may be quite common..." In contrast, Andrew et al. (2008) emphasised "a non-judgemental and validating approach" (p.1411) to interviewing participants, such as incorporating the respondent's frame of reference for their

voices (e.g., spiritual experiences), whereas Honig et al.'s (1998) recruitment strategy targeted support groups that represented the interests of people who hear voices. However, with the exception of these three studies, the issue was generally not addressed. Taken together, these various limitations may have affected the reliability of voice hearing prevalence estimates.

The precision of CSA reporting also varied across the reviewed studies. Firstly, as with the assessments amongst clinical groups, all of the reviewed papers relied on retrospective, self-report strategies (although in most cases this was mitigated by using instruments with proven reliability and validity). However, definitions of CSA were not comprehensive in all cases: for example, the questions posed by Bentall et al. (2012), Freeman and Fowler (2009), Shevlin et al. (2007), and Shevlin et al. (2010) focussed on rape or molestation and therefore precluded non-contact abuse (e.g., voyeurism, being used to produce pornographic photographs, forced to watch adults engage in sexual activity; although Bentall et al. did enquire about 'sexual talk'). Similarly, the general use in the larger studies of single-item assessments (sometimes without specific behavioural descriptors) is likely to have produced underestimates of CSA prevalence (Stoltenborgh et al., 2011).

Table 4.5 The different ways that voice hearing was operationalised amongst studies assessing non-clinical groups.

Study	Definition	Voice hearing frequency	Exclusion criteria
Andrew et al. (2008)	Definition not stated Participants questioned on cognitive/emotional appraisals/responses to voices; voices' frequency, duration, volume, and location; severity/intensity of distress, controllability, negative content, beliefs about origin of voices, and disruption caused by the voices	52% (11/21) heard voices weekly; 48% (10/12) heard them daily	Organic conditions which may have voice hearing as a symptom
Bentall et al. (2012)	"Did you at any time hear voices saying quite a few words or sentences when there was no one around that might account for it?"	Within at least one year of assessment	None stated
Daalman et al. (2012)	Definition not stated Participants questioned on voices' frequency, duration, volume, and location; severity/intensity of distress, controllability, negative content, beliefs about origin of voices, and disruption caused by the voices	Within at least one month of assessment	Alcohol and drug abuse

Table 4.5 cont.

Freeman & Fowler (2009)	"Do you ever hear voices commenting on what you are thinking or doing?" "Do you ever hear voices saying words or sentences when there is no one around that might account for it?" "Have you ever heard two or more unexplained voices talking with each other?"	Lifetime history	None stated
Goldsto-ne et al. (2012)	"In the past I have had the experience of hearing a person's voice and then found that there was no-one there" "I have been troubled by hearing voices in my head"	Lifetime history	None stated
Honig et al. (1998)	Definition not stated Participants questioned on characteristics of voices (frequency, number, form, content, emotional quality, gender, age), circumstances related to voice onset, triggers, personal interpretation of the voices, and how voices have changed over time	Persistent voices within the past six months. 47% (7/15) heard voices daily	None stated
Shevlin et al. (2007)	"Have you ever had the experience of hearing things other people could not hear, such as noises or a voice?"	Lifetime history	None stated
Shevlin et al. (2010)	"The second [question is about]… hearing voices that other people could not hear. I don't mean having good hearing, but rather hearing things that other people said did not exist, like strange voices coming from inside your head talking to you or about you, or voices coming out of the air when there was no one around. Did you ever hear voices in this way?	Lifetime history	Substance-induced hallucinat-ions Hypnagogic hallucinat-ions
Sommer et al. (2010)	"In the past I have had the experience of hearing a person's voice and then found that there was no-one there" "I have been troubled by hearing voices in my head"	At least monthly	Alcohol or drug use in past three months Voices that are not clearly separate from thoughts

Table 4.5 cont.

	and/or do not have a 'hearing' quality

4.3.5 Inferring Causality

Although the methodological limitations documented above mean the findings must be treated with caution, the reviewed studies provided evidence that a significant association exists between voice hearing and CSA. Having established this, a secondary aim of the review was to evaluate indications that the relationship is a causal one (see Table 4.6). In terms of the Bradford Hill (1965) criteria for determining causal inference, several conclusions can be drawn from the current evidence. Firstly, there is indication of a strong association between measures of voice hearing and CSA. Although this was primarily assessed with correlations, five studies also provided more precise estimates in the form of adjusted ORs. Across clinical and non-clinical samples, all of these returned significant results ranging from 1.75–4.20 for rape, 1.02–1.50 for molestation, and 2.50–8.05 for CSA *per se*. There were additional grounds for inferring consistency between (and in some cases within) studies in that this relationship was replicated in different clinical and non-clinical populations, and with a variety of assessment tools, statistical methods, and control groups (although primarily using cross-sectional designs). This association is additionally plausible and coherent in that it is logically compatible with established theoretical understandings of the impact of childhood trauma (see also Chapters 1, 2, and 8).

The review also provided provisional grounds for inferring a graded relationship relationship between CSA severity and subsequent voice hearing. Firstly, the higher prevalence of CSA in patient voice hearers compared to non-patients could be seen as consistent with a dose-response effect given that patients, by definition, are likely to be more distressed than their non-clinical counterparts. In terms of a gradient in CSA severity, Bentall et al. (2012) found that childhood rape conferred a greater risk of voice hearing than molestation, which in turn had a more significant effect than non-contact CSA. Shevlin et al. (2007) and Shevlin et al. (2010) likewise reported an elevated risk for voice hearing in rape survivors compared to molestation alone, and Freeman and Fowler (2009) found that 'severe sexual abuse' had particularly strong associations with voice hearing (although did not specify how they defined their severity rating). Furthermore, Read et al. (2003), Shevlin et al. (2007), and Shevlin et al. (2010) all reported a dose-response effect in terms of cumulative trauma exposure and voice hearing; for example, Shevlin et al. (2010) found that individuals who had experienced three types of childhood abuse were 11 times more likely to hear voices than those who had not experienced any. In turn, Shevlin et al. (2007) provide provisional evidence

Table 4.6   Evaluation of causal criteria in studies measuring associations between voice hearing and CSA.

	Study	Bradford Hill Criteria for Causation								
		Strength	Temporality	Gradient	Consistency	Plausibility	Coherence	Specificity	Analogy	Experiment
Patient groups	Andrew et al. (2008)					X	X			
	Anketell et al.(2010)					X	X			
	Daalman et al. (2012)	X			X	X	X			
	Goldstone et al. (2012)	X				X	X		X	
	Hainsworth et al. (2011)	X				X	X	X		
	Hammersley et al. (2003)	X				X	X			
	Honig et al. (1998)					X	X			
	Offen et al. (2003)					X	X			
	Read & Argyle (1999)	X				X	X			
	Read et al. (2003)	X		Partial		X	X			
	Sheffield et al. (2013b)	X				X	X	X	Partial	
	Üçok & Bikmaz (2007)					X	X			
	Varese et al. (2012b)	X			X	X	X	X		
Non-patient groups	Andrew et al. (2008)					X	X			
	Bentall et al. (2012)	X		X		X	X	X	X	
	Daalman et al. (2012)	X			X	X	X			
	Freeman & Fowler (2009)	X				X	X		X	
	Goldstone et al. (2012)					X	X		X	
	Honig et al. (1998)					X	X			
	Shevlin et al. (2007)	X		X		X	X		X	
	Shevlin et al. (2010)	X	Partial	X		X	X		X	
	Sommer et al. (2010)	X				X	X			

that after adjusting for physical abuse, neglect, and assorted demographic and clinical variables, two types of CSA (molestation and rape) may be associated with an elevated risk of voice hearing and account for a unique amount of variance. However, despite suggestive evidence of an additive relationship, it is important to note that Shevlin et al.'s work was not designed to identity the specific risk conferred by CSA over other types of abuse. Furthermore, no studies provided information on whether the severity of CSA is associated with more clinically disruptive or distressing voice hearing experiences.

A pivotal factor for establishing causality is confirming that exposure precedes the outcome of interest. The extensive use of cross-sectional, mostly correlational, designs in the reviewed literature does not permit this assumption to be made. The only study to partly address this was Shevlin et al. (2010), who provided the mean age of onset for psychotic symptoms in their sample (25.16 years). Given that CSA was specified to have occurred prior to age 16, and 69.5% of respondents reported voice hearing and other experiences to have commenced after that age, it is reasonable to assume abuse may have preceded voice hearing in a majority of cases. However, in an absence of longitudinal designs, the temporal sequence between CSA and voice hearing remains to be empirically established.

This review likewise found no experimental evidence that limiting exposure reduces the risk for, or ameliorates the severity of, the outcome (for example, a prospective population-based study comparing voice hearing in adults whose CSA was disclosed, prevented, and/or who received supportive assistance; with a matched group who did not). Furthermore, alternate, analogous explanations for the association between CSA and voice hearing cannot be discarded, given that the majority of studies neglected to consider relevant covariates in a systematic way, or to incorporate multiple hypotheses into their research designs. In this respect, however, the literature on voice hearing and CSA was still superior to that for voice hearing and dissociation. For example, significant relationships were still reported when controlling for depression (e.g., Sheffield et al., 2013b; Shevlin et al., 2007; Shevlin et al., 2010), family history of mental illness (Goldstone et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010; Sommer et al., 2010), comorbid paranoia (Bentall et al., 2012), other types of childhood trauma (Bentall et al., 2012; Goldstone et al., 2012), and such demographic confounds as IQ, education level, ethnicity, social class (Bentall et al., 2012), age, sex (Bentall et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010), urbanicity, income (Shevlin et al., 2007; Shevlin et al., 2010), and substance use (Goldstone et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010). Nevertheless the majority of studies (73%) did not control or adjust their results for possible confounders. In turn, those that did tended to be assessments of non-clinical groups, which may have only limited applicability to psychiatric populations.

The specificity of the relationship was also not wholly substantiated. There was some evidence that associations between voice hearing and CSA were stronger than that between

CSA and other psychotic symptoms (e.g., Bentall et al., 2012; Hainsworth et al., 2011; Read & Argyle, 1999; Read et al., 2003; Sheffield et al., 2013b), and that CSA had more robust associations with voice hearing than other types of childhood trauma (e.g., Andrew et al., 2008; Goldstone et al., 2012; Freeman & Fowler, 2009; Hammersley et al., 2003; Read et al., 2003; Shevlin et al., 2010; Varese et al., 2012b). However, this was not the case in all studies. For example, some investigators found that clinical (Honig et al., 1998) and non-patient groups of voice hearers (Honig et al., 1998; Sommer et al., 2010) were more likely to report physical and emotional childhood abuse than CSA, whereas others identified emotional abuse as a stronger predictor than CSA in samples of patient (Daalman et al., 2012; Üçok & Bikmaz, 2007) and non-patient (Daalman et al., 2012; Goldstone et al., 2012) voice hearers. Shevlin et al. (2007) also reported that rape and molestation had stronger respective associations with visual and tactile hallucinations than voice hearing, whereas Goldstone et al. (2012) likewise found stronger associations between CSA and hallucinations *per se* than CSA and voice hearing. In contrast, other studies showed stronger links between CSA and voice hearing than hallucinations in other modalities (Read et al., 2003; Sheffield et al., 2013b; Shevlin et al., 2010). In this respect, however, it should also be noted that many causal agents do not exert a specific impact (e.g., tobacco use is linked with multiple carcinogenic effects). Similarly, biological variables hypothesised to influence psychosis are also broadly non-specific: for example, birth complications have been linked with autistic disorders, other developmental disabilities, and schizophrenia (Brašić & Holland, 2007), whereas many of the genes linked with complex mental health problems are not specific to affective or non-affective psychoses (Purcell et al., 2009).

4.4. Discussion

This review aimed to systematically evaluate evidence for associations between CSA and voice hearing in both clinical and non-clinical groups, including to what extent an observed relationship could be considered a causal one. Several findings were apparent. Firstly, a moderate to large association was identified between measures of CSA exposure and voice hearing in psychiatric service-users with both psychotic and non-psychotic conditions, as well as healthy voice hearers with no history of clinical contact. Secondly, there were repeated indications for higher rates of voice hearing in CSA survivors compared to comparison groups with no CSA history, and a greater prevalence of CSA in voice hearers compared to non-voice hearing controls. Thirdly, CSA broadly showed more consistent associations with voice hearing than other forms of childhood trauma, and voice hearing was more likely to be associated with CSA than other types of psychotic symptoms. However, while these findings are congruent with existing claims about the influence of trauma in the onset of psychosis generally (and voice hearing specifically), the variable quality of the evidence means that it is

not possible to make any definitive causal inferences about the relationship between CSA and voice hearing. A final finding is that while the body of literature meeting criteria for a systematic review was relatively small (22 studies in 15 years), interest in the area is expanding (nearly half the studies were published in the past three years). This may partly be attributable to the growing popularity of 'complaint-orientated' approaches to psychosis (e.g., Bentall, 2004, 2006; see also Chapter 1), which advocates independent examination of phenomena like voice hearing, rather than subsuming their study within the context of particular syndromes such as schizophrenia.

In addition to the significant effect reported across many individual studies, combined prevalence data suggested that 32.2% of patient voice hearers reported CSA compared to rates of 28.2% (assessment of recent/frequent voice hearing) and 11.6% (assessment of lifetime prevalence of voice hearing) in non-patients. For patient populations, 69.6% of CSA survivors reported voice hearing compared to 5.7% and 19.6% of non-patient voice hearers. In turn, 21.7% of patients who did not hear voices also reported CSA, compared to 7.1% and 7.8% of non-patients. Finally, 59.86% of patient voice hearers had not experienced CSA, which was lower than that for non-patient voice hearers (71.7% and 78.8% respectively). Specifically, of the studies examining whether voice hearing prevalence is higher in those with a history of CSA, compared to those without, eight out of nine confirmed this to be the case (Bentall et al., 2012; Freeman & Fowler, 2009; Hammersley et al., 2003; Hainsworth et al., 2011; Read et al., 2003; Shevlin et al., 2007; Shevlin et al., 2010; Varese et al., 2012b). Likewise, five of the six studies assessing if voice hearers were more likely to report CSA than non-voice hearers returned a significant result (Daalman et al., 2012; Hammersley et al., 2003; Read et al., 2003; Sheffield et al., 2013b; Sommer et al., 2010). In both instances, this association was particularly pronounced for Schneiderian-type voices, as well as for rape as opposed to non-penetrative abuse, and with some provisional indication of incestuous as opposed to non-incestuous CSA. However, the comparatively low prevalence rates of CSA in different clinical and non-clinical groups (see Table 4.2 and 4.4) suggests that the probability of developing voice hearing in response to CSA may be more a case of relative (rather than absolute) risk. That is, while CSA survivors may be more likely to hear voices than individuals with no CSA history, and CSA is a strong predictor of voice hearing (e.g., Bentall et al., 2012; Daalman et al., 2012; Freeman & Fowler, 2009; Goldstone et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010) the absolute risk of hearing voices in the aftermath of CSA is not confirmed.

The current results are consistent with existing reviews into CSA and voice hearing (McCarthy-Jones, 2011), as well as CSA and psychosis (e.g., Bebbington et al., 2011; Read et al., 2005; Varese et al., 2012a), and complement those conclusions by explicitly evaluating the association against detailed causal criteria. In this respect, the evidence that emerges from

the review is suggestive of a direct, or indirect, causal relationship between voices and CSA. In this respect, the literature does not permit conclusions on whether CSA is a necessary and/or sufficient cause, although this lack of causal clarity is common in both mental and physical illness; for example, tobacco smoking is neither necessary nor sufficient for lung cancer, and might be better conceptualised as a contributory causal factor (Riegelman, 1979).[28] Nevertheless, the association generally appears to be strong, consistent, plausible, coherent, and with some indication of specificity and a dose-response gradient. Fundamentally, however, the reviewed literature encapsulates the concern raised by Ward (2009), in that "one of the most important problems in the social and health sciences concerns making justified causal inferences using non-experimental, observational data" (p.1). As such, the disparateness and methodological shortcomings of available studies (including, but not limited to, a failure to control for confounding variables, and no clearly defined temporal sequences) render causal assumptions suggestive rather than dispositive at the present time.

4.4.1 Limitations in the Reviewed Studies

There was evidence of many shared methodological limitations within the reviewed literature. As discussed in section 4.3.7, the reliance on cross-sectional, correlational designs compromise assumptions of causality – augmented by the failure of all studies to ascertain whether CSA exposure preceded voice hearing onset. In this respect, Daly (2011) emphasises the need for studies seeking to establish links between childhood trauma and adulthood psychosis to correct for the presence of delusional or hallucinatory experiences pre-exposure. The rationale for this is the possibility of 'reverse causation,' in that children already displaying distressing or overwhelming symptoms prior to abuse may be more vulnerable for subsequent victimisation (Bendall et al., 2008). Alternatively, some authors have speculated whether pre-clinical hallucinatory or paranoid experiences stem from abuse, then mediate the link between trauma and adulthood psychosis (e.g., Matheson et al., 2013; Sommer et al., 2010). Other issues around temporal sequence not addressed in this literature included assessing the proportion of individuals whose voice hearing commenced immediately after CSA experiences, compared to those whose voices begin after a proximal 'triggering' stressor in adulthood (e.g., Corstens & Longden, 2013; Romme et al., 2009); and the influence that age of CSA exposure may have on clinical outcomes. Given the growing literature on the age-dependent neurological effects of childhood trauma (e.g., Glaser, 2000; Perry & Pollard, 1998; Teicher et al., 2003), the latter point is particularly relevant, as it suggests assumptions

---

[28] In terms of psychosis more generally, Bentall and Varese (2012) further note that stipulating psychosocial causes must be necessary or sufficient is too narrow, and that this criteria would, by extension, not only exclude smoking as a cause of lung cancer, but also several biogenetic factors that are hypothesised to be causal factors in schizophrenia (e.g., cannabis use and obstetric birth complications).

of a uniform impact of CSA across different developmental stages are unjustified. Available evidence for the impact of trauma on the developing brain has shown that such experiences may induce structural changes, as well as neurotransmitter and hormonal abnormalities, that could predispose for voice hearing (e.g., Read et al., 2014; Aas et al., 2012; Hoy et al., 2012; Sheffield et al., 2013a), and it is important to assess how quantifiable aspects of CSA, including (but not limited to), age of onset, duration, type, relationship of perpetrator to victim, and blaming/punishing responses to disclosure may influence outcomes. In this respect, McCarthy-Jones (2011) suggests that Cicchetti and Rogosch's (1996) concept of 'unifinality' may be of benefit, in that investigators should consider how a certain outcome (e.g., voice hearing) is reached via various developmental trajectories, and what common elements across different experiences might be associated with the outcome. In this formulation exposure to CSA (or other types of abuse) might be considered less prominent in determining voice hearing onset than the type of factors listed above (e.g., age, response to disclosure, attributions made by the victim, etc.).

Sampling concerns across the studies included a pervasive use of convenience selections, including specific sub-populations (e.g., those with medication-resistant symptoms; those eligible for therapy), which may compromise the reliability and/or validity of the findings. However, it should also be noted that studies with the most robust methods, such as consecutive admission sampling (e.g., Read & Argyle, 1999; Read et al., 2003), random hospital database searches (Hainsworth et al., 2011), and probability sampling in the general population (e.g., Bentall et al., 2012; Shevlin et al., 2007; Shevlin et al., 2010) reported results that were broadly similar to the other papers in terms of significant associations between voice hearing and CSA. Sample size was adequate in many cases: of the 13 studies comprising patient populations, six had a sample of 96 or above (range 96-224), and seven of the nine non-clinical samples had 133 participants or more (range 133-7,353), of which three were $\geq$ 2,353. However, the failure of nearly all authors to provide power calculations meant the sensitivity of the findings was undetermined (and in this respect it should also be noted that this literature was characterised by a majority of studies with small samples).

An additional sampling limitation was the choice of control participants, which was a latent source of bias in several of the reviewed studies. Control groups should be drawn from a comparable population to case participants, sharing as many features as possible except for the specifics of 'case-ness' (Bhopal, 2004). By definition, the use of 'healthy controls' and 'healthy voice hearers' in the case-control studies were not a representative estimate of exposure prevalence in the clinical group. Furthermore, the selection of case participants may have been vulnerable to distorted results because of an overreliance on prevalence cases. In the latter design, patients with chronic mental health problems are likely to be over-

represented as, by definition, those with short illness duration leave the prevalence pool due to recovery or mortality. Given the identified links between psychosis *per se* and CSA exposure (e.g., Bebbington et al., 2011; Read et al., 2005; Varese et al., 2012a), and associations between CSA and psychiatric chronicity (Mullen et al., 1993), it might be expected that CSA survivors will be more prevalent amongst long-term clinical samples than those with diagnosed psychotic disorders and no CSA history. Because CSA is a type of exposure associated with recovery outcomes (poorer: Fleming, Mullen, Sibthorpe & Bammer, 1999) and mortality (potentially higher, e.g., suicide: Hainsworth et al., 2011), recruitment should ideally prioritise incident cases, such as those individuals who are newly diagnosed and/or have recently begun hearing voices (Bhopal, 2004).

A further limitation across studies was the comprehensiveness of CSA assessment. Only three studies distinguished between different types (e.g., rape, molestation, non-contact abuse), and none incorporated measures for variables like duration, frequency, age of onset, response to disclosure, number of perpetrators, or the relationship between perpetrator and victim (e.g., a parent); despite the relevance of these factors on mental health outcomes (e.g., Bulik et al., 2001; Kendler et al., 2000; Watson & Halford, 2010). Measurement was also highly heterogeneous (e.g., spontaneous disclosure to clinicians, interviews, auditing of medical records, self-report questionnaires), which most likely created variable accuracy in prevalence rates. In particular, data derived from medical records (i.e., based on reports made to clinicians) could represent under-estimates of CSA exposure, in that patients may be more likely to disclose abuse to researchers than medical personnel (Rose, Peabody & Stratigeaset, 1991; Wurr & Partridge, 1996). However, given the reluctance of many adult survivors to divulge their experiences, it is likely that most of the studies represent under- rather than over-estimates (Fergusson, Horwood & Woodward, 2000). While fallacious over-reporting may also be an issue, such 'false positives' are generally believed to be a less serious threat to validity than the likelihood of nondisclosure (Freyd et al., 2005; Longden, 2012; Stoltenborgh et al., 2011), although this is obviously not an assertion that is easy to demonstrate empirically.

In terms of internal validity, a further design limitation was the failure of most studies to control for variables that are associated with both voice hearing and CSA. McCarthy-Jones (2011) cites bullying, childhood physical abuse, and affective disturbance (e.g., anxiety and depression) as examples of possible confounders in this relationship, yet few studies controlled for such factors. Emotional abuse in childhood may be an important variable in this respect, as several studies found this to be a more frequently-reported trauma in voice hearers than CSA (e.g., Honig et al., 1998; Sommer et al., 2010), and in some cases a superior predictor of voice hearing than CSA in clinical (Daalman et al. 2012; Üçok & Bikmaz, 2007) and non-clinical (e.g., Daalman et al. 2012; Goldstone et al., 2012) samples. The importance

of adjusting for residual confounding was highlighted by Sommer et al. (2010), who found that a family history of voice hearing (at borderline significance) and measures of schizotypy predicted voice hearing, whereas trauma exposure (a composite measure of five types of childhood abuse) did not. While it should be noted that Bentall et al. (2012) found childhood rape predicted voice hearing when controlling for comorbid paranoia, this was from a general population sample that may only have limited generalisibility to patient groups.

Without more substantial evidence, it is not yet possible to state whether CSA is a direct cause of voice hearing, an indirect cause (e.g., Sommer et al., 2010), or whether it is of less causal relevance than factors like emotional abuse (e.g., Daalman et al., 2012; Goldstone et al., 2012; Üçok & Bikmaz, 2007). Similarly the possibility of distal/proximal interactions, or additive causal effects, between CSA and other environmental risk factors is unclear given that few studies corrected for them, or only considered a limited number as moderators. As discussed previously, some studies found significant associations between CSA and voice hearing when controlling for demographic and clinical confounds, but in the majority of cases this was for non-clinical samples. As noted by McCarthy-Jones (2011), there are inherent difficulties in generalising these studies into clinical populations, owing to the phenomenological differences and potentially different causal mechanisms for those with more distressing, complex and/or persistent voices. For example, Goldstone et al. (2012) found that CSA was the best predictor of voice hearing amongst patients, but that emotional abuse replaced it as the only significant predictor in the non-patient model. However, given that the latter group were university undergraduates, it is likely that the majority heard the type of brief, intermittent voices that are typical of student samples (e.g., Barrett & Etheridge, 1992; Posey & Losch, 1983). This suggests the possibility that more complex, protracted voices may have different environmental adversities in their aetiology compared to brief, infrequent voices. In this respect, the non-clinical sample of Daalman et al. (2012), who heard regular voices (daily for minutes at a time) reported much higher rates of CSA than Goldstone et al's participants. If, as suggested by several authors (e.g., Dodgson & Gordon, 2009; Jones, 2010; McCarthy-Jones, 2012; McCarthy-Jones et al., 2014) discrete sub-types of voice hearing exist, then it may be that CSA shows stronger associations with more complex, persistent voices rather than brief and intermittent ones.

4.4.2   Limitations with the Review

Finally, there were a number of limitations within the review itself. Unintentional bias may have been created as a function of search limitations: so-called 'grey literature,' such as pre-prints and working papers, were not identified, and the exclusion of non-English language journals created language bias (CRD, 2009). In addition, the nature of the data meant it was

not possible to either test for publication bias statistically (e.g., rank correlation tests: Begg & Mazumdar, 1994), or even graphically using the funnel plot method.

Studies were also included that assessed auditory hallucinations without specifying whether or not these were verbal (e.g., Shevlin et al., 2007), and the review was similarly limited by its reliance on retrospective, self-report measures of childhood adversity. However, the large majority of studies used standardised instruments, which is likely to improve the reliability of trauma self-reporting amongst mental health service-users (Goodman et al., 1999; Meyer et al.,1996). Furthermore, evidence from patient samples has shown that the reliability and validity of self-reported childhood abuse, including CSA, tend to be stable over time, are unaffected by the severity of psychotic or depressive symptoms, and are concordant with other sources of information (Fisher et al., 2011). Similarly, while reporting practices of childhood abuse are subject to bias and inconsistency in the general population, a systematic review of studies that quantified the validity of retrospective recall has concluded that "bias is not sufficiently great to invalidate retrospective case-control studies of major adversities" (Hardt & Rutter, 2004, p.240).

The review's conclusions were limited more generally by the quality and availability of literature in this area: papers were included that lacked methodological precision, and data heterogeneity (in terms of assessments, outcomes of interest, and methodological quality) complicated interpretation of the findings. In turn, the considerable heterogeneity precluded weighting and pooling data as part of a formal meta-analytical synthesis.

4.4.2   Conclusions

The studies included in this review are suggestive of a significant association between voice hearing and CSA, and are strengthened by plausible theoretical and clinical accounts of the mechanisms through which trauma and voice hearing may be related (see Chapter 1 and 2). However, the findings are not sufficiently substantial to allow definite conclusions about the causal role of CSA, with even the best-designed studies not completing the Bradford Hill causal chain. The methodological shortcomings of the current research means more rigorous studies are needed in order to refine understandings of CSA's aetiological role in voice hearing onset, maintenance, and manifestation. It is hoped that the review's comprehensiveness permits readers to form their own evaluations of the accuracy and application of the current research, as well as permitting detailed consideration on an expanding body of literature, wherein themes and trends can be identified and suggestions for future work articulated. Specifically, while longitudinal designs are better placed to address causality issues, and minimise or remove retrospective reporting biases, cross-sectional studies can still be a complementary strategy in terms of identifying the type of subtle mechanisms that may be obscured in the statistical 'noise' of large samples (e.g., how

different CSA characteristics may relate to different elements of voice hearing). However, the value of the latter will be considerably enhanced by robust sampling methods, careful assessment of key variables, and paying proper attention to confounders.

Chapter 5

Experimental Design and Method

The following chapter addresses the methodological strategies employed in both empirical studies. In the first section, design issues for answering the questions outlined in Chapter 1 are discussed. This includes locating the project within the tradition of epidemiological research, an analysis of available options for study design, and considerations of the difficulties posed in collecting accurate observational data, including the steps taken to amend or minimise these. After rationalising choices for experimental methods, the second section will explain and outline these strategies and procedures more specifically.

5.1 Epidemiological Research

In its most basic definition, epidemiology can be understood as the study of health and disease in defined populations, wherein observation, description, analysis, and acuity are combined to generate knowledge for both scientific advancement and the benefit of public health initiatives (e.g., Saracci, 2010). By extension, this includes the study of distributions and determinants of health-related events, characteristics, and states, their causes and influences, and the application of this study to promoting health and controlling disease (e.g., WHO, 2012). As discussed below, epidemiologists have a range of different strategies at their disposal. However, regardless of particularities, all investigations are rooted in the common principles of understanding the causes, control, and distribution of health outcomes. In this respect the thesis fits within a framework of descriptive epidemiological study, in that data were gathered regarding the occurrence and characteristics of voice hearing in terms of time, places, and persons; and aetiological, in that it investigates putative causal factors in voice hearing development.

5.1.2 Causation

Where feasible, epidemiological studies elucidate unbiased associations between exposures (e.g., victimisation adversity) and outcomes (e.g., voice hearing), with identification of *causal* relationships between such factors one of the discipline's fundamental goals. Nevertheless, it is recognised that inference, hypothesis testing, and theory generation are sometimes more appropriate ambitions, 'correlation does not imply causation' being a common proviso amongst epidemiologists (Glymour, 2006). Most health outcomes are influenced by an

intricate array of component causes, and assertions about how and why a particular relationship is deemed a causal one should therefore be made with due prudence and caution.

In this respect, design and subsequent statistical analysis for the thesis were guided by the perspectives on causal inference specified by medical statistician Sir Austin Bradford Hill (1965). The so-called 'Bradford Hill criteria' are widely employed in epidemiological research as a means of establishing the necessary, minimal conditions for causation by ascertaining the strength of association between a health outcome and its putative causative agent (see Table 5.1). Although these factors cannot, in themselves, provide indisputable evidence for or against assumptions of causality (Phillips & Goodman, 2004), they do offer an excellent source of guidance for a critical methodological approach (Doll, 1991).

As a research tradition, epidemiology was deemed an appropriate framework within which to locate and structure the present study. Primarily, this was a project concerned with exploring putative determinants of a health outcome (voice hearing) and to better understand the hypothesised association between this outcome and different exposures (life adversity), as well as known associations between voice hearing and other health events (dissociation, psychological distress). These aims correspond to a central concern in epidemiology: to identify possible risk factors for adverse health outcomes and subsequently, possible targets for intervention (Bhopal, 2004). The following section will discuss how epidemiological research methods were similarly well-suited to address these areas of enquiry.

5.1.3   Epidemiological Methods: Observational *vs*. Experimental

A central division in epidemiological research is between designs that are observational, compared to those which are experimentally orientated. The first, also known as natural experiments, draw inferences about the possible impact of a treatment or exposure on participants who have been allocated to different groups in an uncontrolled way (i.e., assigned 'by nature' rather than a research team). In contrast, experimental designs assign individuals to conditions in a way that is within the investigator's control, usually before any treatment commences. A further distinction can be seen in terms of whether a project is concerned with distribution of a particular health outcome (in which case descriptive and surveillance studies may be most appropriate) or whether the researcher is concerned with health determinants, whereby analytical studies are a more suitable strategy.

Table 5.1   Operationalising the Bradford Hill Criteria within the thesis.

	Criterion	Design Consideration
Strength	Is there a significant association between data values?	Incorporating inferential measures of effect size that describe the strength of association and confidence of estimate between odds and exposure (Odds Ratio: OR).
Biological plausibility	Is the relationship between putative cause and outcome consistent with existing knowledge?	Examined and addressed within systematic literature reviews (Chapters 3 and 4) and discussion (Chapter 8).
Biological gradient	Is there a 'dose-response' effect (changes in differing levels of exposure)?	Are different levels/types of adversity exposure associated with (1) heightened levels of dissociation and (2) more disruptive and distressing voice hearing?
Temporality	Does the exposure precede the outcome?	Assessing age of voice hearing onset relative to timing and nature of adverse life events.
Consistency	Is the association consistent when replicated in different settings/populations, or using different methods?	Examined and addressed within systematic literature reviews (Chapters 3 and 4)
Specificity	Does a single putative cause produce a specific effect?	The predictive power of adverse events to determine voice hearing and other dissociative experiences is explored within the context of existing literature (Chapters 1-4 and 8).
Coherence	Is the association compatible with existing theory and knowledge?	Examined within systematic literature reviews (Chapters 3 and 4).
Analogy	Can alternative hypotheses be considered?	Assessing whether an observed association between voice hearing, adversity, and dissociation remains constant when controlling for other variables. Also considered within the context of existing literature (Chapters 1-4 and 8).
Experiment	Could the outcome be altered or alleviated by appropriate interventions and/or experimental regimens?	Examined and addressed within the context of existing literature (Chapters 1-4 and 8). Ideally this would also be addressed through a trial or intervention study, which is beyond the scope of the present research.

Uncontrolled, observational research is a common method in epidemiology (Glasziou, Vandenbroucke & Chalmers, 2004), and was elected in the present empirical work for a variety of reasons. Foremost was the unsuitability of an experimental design for answering the research question, given that the studies were not exploring the impact of a treatment or intervention, but were concerned with investigating putative causes of voice hearing and examining hypothesised associations (voice hearing and adversity exposure, particularly CSA) and hypothesised relationships (voice hearing and dissociation). Furthermore the outcome in this project (voice hearing) was already established within the sample, meaning assignment was determined by symptom presence, not random allocation.

It is customary in evidence-based medicine to refer to 'a hierarchy of research designs,' wherein randomised control trials [RCTs] are generally accorded superior status in terms of their refinement and precision. Observational work is generally classified as a lower quality, using internal validity (i.e., the accuracy of the findings) as the principle for hierarchal grading. Descriptive observational studies, such as case reports, are accorded the lowest level; whereas analytic observational designs, such as case-control research, have an intermediate grading (Preventive Services Task Force, 1996). These assumptions have been contested; for example, meta-analyses by Demissie, Mills, and Rhoads (1998), Concato, Shah, and Horwitz (2000), and Benson and Hartz (2000) report that well-designed cohort and/or case-control studies do not systematically overestimate treatment effects compared to RCTs on the same clinical topic, and other authors have likewise discussed the merits of non-experimental research in epidemiology (e.g., Concato, 2004; McKee et al., 1999; Silverman, 2009). Nevertheless, it is important to acknowledge the difficulties in conducting an observational study that acceptably minimises confounding variables (those independently associated with both predictor and outcome), as well as hidden and overt sources of bias (consistent errors between observed and genuine values), in order to derive meaningful inferences. In response to this, and in recognition of the valuable role of observational research, the STROBE initiative (Strengthening the Reporting of Observational Studies in Epidemiology) was devised, which delineates clear criteria for enhancing the clarity, completeness, and generalisability of such studies (von Elm et al., 2007). These considerations, replicated in Table 5.2, were used to inform the design and reporting of the present research.

5.2   Methodological Strategy

Of the principle observational study designs, a retrospective case-control design was selected for Study 3, with a cross-sectional between-groups design designated for Study 4. In its most basic definition, case-control research can be understood as comparing two groups of individuals: those experiencing the condition of interest (the cases) and a group in which the condition is absent (the controls), who are drawn from the same population. Clinical,

Table 5.2   The STOBE statement: A list of recommendations for optimal reporting of observational studies (adapted for relevance to the thesis).

Item	Recommendation
Title and abstract	(a) Indicates study design with a commonly-used term (b) Provides an informative, balanced summary of what was done and what was found
Introduction Background/ rationale	Explains the scientific background and rationale for the investigation being reported
Objectives	States specific objectives, including any pre-specified hypotheses
Methods Study design	Presents key elements of design early in paper
Setting	Describes setting, locations and relevant dates, including periods of recruitment, exposure, follow-up and data collection
Participants	*Case-control study* – Gives eligibility criteria, the sources/methods of case ascertainment and control selection, and rationale for the choices of cases and controls. For matched studies, give matching criteria and number of controls per case *Cross-sectional study* – Give the eligibility criteria, and the sources and methods of selection of participants
Variables	Clearly define all outcomes, exposures, predictors, potential confounders and effect modifiers. Give diagnostic criteria, if applicable
Data sources/ Measurement[a]	For each variable of interest, give sources of data and details of measurement. Describe comparability of assessment methods if there is more than one group
Bias	Describe any efforts to address potential sources of bias
Study size	Explain how the study size was arrived at
Quantitative variables	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical Methods	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) *Case-control study* – Explain matching of cases and controls *Cross-sectional study* – Describe analytical methods taking account of sampling strategy

Table 5.2 cont.

	(e) Describe any sensitivity analysis

Results

Participants [a]	(a) Report the number of individuals at each stage of the study
	(b) Give reasons for non-participation at each stage
	(c) Consider use of a flow-diagram
Descriptive data [a]	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information of exposures and confounders
	(b) Indicate the number of participants with missing data for each variable of interest
Outcome data [a]	*Case-control study* – Report numbers in each exposure category, or summary measures of exposure
	Cross-sectional study – Report numbers of outcome events or summary measures

Main results	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g. 95% CI). Make clear which confounders were adjusted for and why they were included
	(b) Report category boundaries when continuous variables were categorised
	(c) If relevant, translate estimates of relative risk into absolute risk for a meaningful time period
Other analyses	Report other analyses– e.g. subgroups/interactions/sensitivity analyses

Discussion

Key results	Summarise key results with reference to study objectives
Limitations	Discuss limitations, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of potential bias
Interpretation	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalisability	Discuss the generalisability (external validity) of the study results

Other information

Funding	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the resent article is based

psychosocial, and lifestyle histories are then examined for each group to ascertain relevant features associated with the condition. Unlike cohort studies, which follow individuals from exposure to outcome, case-control studies track backwards from a documented outcome to putative exposure. This design cannot therefore be used to calculate absolute risk, although it does permit estimates of an odds ratio, which approximates to relative risk. In contrast, cross-sectional research provides a 'snapshot' of the experiences of a particular group at a certain point in time. They are primarily used for determining case prevalence, and are the simplest form of observational study in that exposures and outcomes are assessed simultaneously.

The choice of case-control methods for Study 3 was made on the grounds that they are analytic in application, and therefore permit superior rigour to the more descriptive case report or case series. The latter are often characterised as a useful interface between epidemiology and clinical practice in that they can be employed for audit, education, refining case definitions, hypothesis generation, and the stimulation of auxiliary investigation (Gordis, 2009; Grimes & Schultz, 2002; Vandenbroucke, 2001). However, given that they cannot be used to generalise inferences to a wider population, these methods were rejected as a feasible option for answering the current research questions. In turn, whilst the case-control design is more robust than case reports or case series, it was more feasible than a cohort study (i.e., quicker and cheaper; no follow-up is required; and more efficient in respect of a higher percentage of cases within each study, and therefore more available resources for assessing them). Well-designed cohort studies are regarded as the most reliable source of data in observational epidemiology in that they minimise recall error, eliminate exposure bias, demonstrate a clear temporal sequence between exposure and outcome, permit identification of absolute risk for contracting an outcome, and help distinguish latent causal associations (although identifying true causality usually requires experimental confirmation: Mann, 2003). However, despite these advantages, the considerable resources required to accomplish such an investigation meant its use was not tenable for the thesis.

Conversely, case-control methods are a cost-effective design for psychiatric outcomes, like psychosis, which are relatively rare (Lee et al., 2007). Although the number of outcomes that can be considered are restricted in this design, the comparatively small samples required bring flexibility through permitting assessment of a large number of aetiologic factors (Mann, 2003). In addition, case-control designs facilitate investigation of experiences with long induction periods (like voice hearing, which most commonly manifests in late adolescence). Furthermore, it fitted the aims of the research in that the design can determine the relative importance of a predictor (i.e., adversity exposure, including CSA) in relation to the presence or absence of a condition (i.e., voice hearing and other dissociative symptoms).

In Study 3, the cases were prevalence rather than incidence (i.e., a measure of the total number of cases in a population, rather than the rate of occurrence of new cases). Although

incident data is generally preferable for case-control studies to reduce bias (Bhopal, 2004), this was partly ameliorated by recruiting newly-diagnosed patients, who in turn were experiencing psychosis for the first time. Control participants represented members of the unaffected population (i.e., non-voice hearers) but also functioned to represent the level of exposure (adverse life events) within the same population from which the cases were identified (i.e., patients experiencing first-episode psychosis).

One of the most celebrated examples of the case-control design is the work of Richard Doll, who used it to great effect in demonstrating links between lung cancer and tobacco smoking (e.g., Doll, 1956). Such triumphs are not, however, inevitably associated with case-control studies, and the method has been critiqued for its vulnerability to confounding and bias (particularly in sampling, observation, and recall: e.g., Bhopal, 2004; Hassan, 2005; Mann, 2003). They are further limited in that they can only assess a single outcome variable (the presence or absence of the condition of interest). A more detailed discussion of these issues – and attempts to minimise or eliminate them – is presented in section 5.2.1.

Case-control methodology was not possible for the second empirical study, with both groups already having voice hearing in common. Instead, the comparison group was comprised of individuals who did not report the relevant exposure (CSA) in order to compare outcomes of interest (voice hearing characteristics and levels of dissociation) with participants from the same clinical population. In this respect, a between-groups design was advantageous in that it is quick and cheap to conduct and permits simultaneous examination of multiple variables, wherein the reference group provide grounds for inferring whether deviations in dissociation and voice hearing scores may be a result of CSA exposure. Given the exploratory nature of Study 4, the use of a cross-sectional design was additionally beneficial because of the flexibility it permits for assessing several factors and, in turn, generating new hypotheses. One main limitation with this method is distinguishing a causal relationship from mere association, as cross-sectional surveys do not provide explanations for their findings, nor establish a true temporal sequence (Mann, 2003). As such, any inferred causation must be investigated with more definitive studies and rigorous analytic methods. Furthermore, as with the case-control design, cross-sectional surveys present a series of challenges in terms of bias and confounding. These considerations are addressed more thoroughly in section 5.2.1.

In both studies, groups serving as the control (non-voice hearers) and comparison (voice hearers without CSA exposure) were contemporaneous, in that they were receiving clinical intervention at the same time as the case (voice hearers) and reference (voice hearers reporting CSA) groups, and were assessed simultaneously. In both studies, selection was pseudo-random rather than individually matched to members of the comparison group. Although precise matching can be desirable for more efficient control of confounding variables, it was not feasible for either study in that the process generally proves expensive,

intricate, and time-consuming. Indeed, in this respect matching may have hindered the project's efficiency by expending effort on matching cases and controls rather than collecting data on a larger number of unmatched participants. An additional consideration was that matching only enhances accuracy if matching variables are associated with both the condition (i.e., voice hearing and other dissociative experience) and the exposure (i.e., adversity exposure, including CSA). This was not applicable for several possible matching variables: for example, gender is associated with CSA but not voice hearing or dissociation, whereas age is not associated with either. Potential confounds were instead addressed in the analysis phase using multivariate statistical methods, a practice which (given some of the difficulties with matching cases and controls), has largely replaced matching within epidemiology (Lee et al., 2007). In both studies, the assessment of participant experiences of voice hearing and dissociation was cross-sectional and information on CSA and other types of life adversity was retrospective.

5.2.1 Reducing Bias and Confounding

Given the use of cross-sectional assessment, appreciating sources of systematic error in measurement (bias) and interpretation (confounding) was critical to maximise the validity of the findings and avoid distorted or misrepresented results (Choi & Noseworthy, 1992). The main areas of concern in the present project were recall, interviewer, and referral bias (see Table 5.3); an issue of especial relevance to the current research area given that some of the literature concerning associations between voice hearing and life adversity is characterised by poorly controlled experimental designs (see Chapter 3 and 4). A critical review of 408 articles (Lee et al., 2007), has similarly reported pervasive inadequacies in reporting and/or responding to possible sources of bias and confounding in psychiatric case-control studies. Table 5.3 therefore provides an overview of latent causes of bias at different stages of the design and implementation of the research, as well as proposed remedial strategies to minimise or prevent them.

Table 5.3   Sources of bias and remedial strategies within the current research.

Stage	Category	Type	Impact	Remedial Strategies
Study design	Selection bias	Referral bias	Individuals recommended for a study may systematically differ to those who are not referred	Participants meeting inclusion criteria identified, then anonymised and selected randomly
		Non-respondent bias	Individuals who volunteer may systematically differ from those who do not respond	Repeated contacts used to obtain response rates of at least 80% Available data from healthcare staff compared to responders to see if significant differences exist Compare response rates between different experimental groups
		Admission rate bias	Spurious association between exposure and outcome as a function of clinical contact	Admission records examined to ascertain whether individuals with histories of childhood abuse/adversities are being refused service contact
		Detection bias	Systematic differences between comparison groups in the way outcomes are ascertained, diagnosed, or verified	All participants have verified diagnoses of schizophrenia spectrum disorders Participants in assessment stage of the psychosis service were not recruited (i.e., those with diagnostic uncertainty)
Data collection	Information bias	Interviewer bias	Systematic differences in the soliciting, recording, or interpreting of information	Standardised protocol Same interviewer for all participants

Table 5.3 cont.

		Recall bias	Past exposures are remembered and reported inaccurately	Standardised data collection between groups (e.g., same way, similar timing) Verifying data using reference criterion (e.g., healthcare staff) Assessing exposure with well-structured, validated tools and asking detailed questions about exposure (e.g., number, duration) Blinding participants to study hypothesis
		Insensitive measure bias	Instruments are insufficiently sensitive to detect differences between variables	Using reliable, validated instruments Counterbalancing measure administration
		Diagnostic suspicion bias	Prior exposure to putative causes may influence intensity and outcome of diagnostic process	All participants have verified diagnoses Voice hearing presence independently classified by clinical team using standardised measures
		Exposure suspicion bias	Knowledge of illness status may influence the intensity and outcome of search for exposure to putative cause	The same questions about exposure will be used for all groups
Data analysis	Confounding		Variables are associated with the exposure of interest, plus the outcome of interest, independently of exposure	Ensuring sufficient statistical power Potential confounds accounted for and results adjusted Two analyses carried out and compared: controlled (adjusted estimate) and uncontrolled (crude estimate). If both are similar

Table 5.3 cont.

then the latter is
unbiased and will
be adopted based on
power
considerations. If
dissimilar, the
former is the only
unbiased estimate,
and will be used.

5.2.2 Sample Size

An important consideration in determining a sampling unit is calculating the necessary number to detect statistical effects (Bowling, 1999). This is encapsulated by the concept of 'sufficient statistical power;' the probability of detecting a true difference between groups and avoiding erroneous rejection or acceptance of a null hypothesis. For a given test, this is contingent on variations within a population, the sample size, and the level of significance selected by investigators (Altman, 1991).

Decisions for calculating sample size in both studies were based on Bland's (1995) standard recommendations for medical statistics. This included an examination of existing effect sizes (i.e., the likely differences between groups) outlined in Chapters 3 and 4 for research around voice hearing, dissociation, and CSA. On the basis of this literature, power analysis indicated that two groups of 31 participants for Study 3, and two groups of 23 in Study 4, would yield .80 statistical power to detect an effect size of .80, with a Type 1 error rate of .05 (two-tailed). However, given the imprecisions of calculating effect size based on the assumptions of previous literature (Howell, 1999), as well as specific limitations of the literature in this domain (see Chapters 3 and 4), additional consideration was given to other strategies for increasing statistical power. This included paying particular attention to the reliability of assessment tools (see section 5.4), as precise measurement can be a means of augmenting power (Howell, 1999). Equal sample sizes were additionally used across both studies, as equivalent observations may favourably affect power in a two-sample testing scenario (Altman, 1991).

5.2.3 Assessment Methods

Given the emphasis in both studies on subjective psychological measures, raw data were entirely derived from a series of self-report questionnaires (although where possible this was corroborated by objective clinical reports: see section 5.2.1 and 5.4). The following section discusses the use of these instruments within the thesis, including considerations of their benefits and disadvantages.

5.2.3.1 Self-Report Measures

Self-report measures are those in which participants select responses to pre-set questions without any researcher intervention, and are a popular means of eliciting respondent attitudes, beliefs, and experiences in both observational and experimental studies (Langdridge & Hagger-Johnson, 2009). The present research used solely self-report measures in the form of rated inventories and structured questionnaires. For a discussion of specific instruments, please see the section 5.3.

5.2.3.2 Self-reports of childhood trauma

An issue of particular relevance in the current research was the self-reporting of adverse life events, particularly childhood maltreatment. Precise associations between psychiatric outcomes and life stress are generally hard to clarify, mainly because of the methodological hindrances in using retrospective, adulthood accounts of childhood distress (Bendall, Jackson, Hulbert & McGorry 2008). Specifically, the process may be vulnerable to contamination from factors like traumatic (Freyd, 1994) and infantile amnesia (Feldman-Summers & Pope, 1994), the need to 'rationalise' mental health problems (Schacter, 2001), source confusion (Geraerts & McNally, 2008), and depressive re-interpretive biases (Lewinsohn & Rosenbaum, 1987). When participants are experiencing psychosis or acute dissociation, the difficulty may be compounded by processes like delusional ideation (Young, Read, Barker-Collo & Harrison, 2001), cognitive impairment (Driesen et al., 2008), and impaired reality-testing (Lysaker et al., 2005a). In this respect, prospective and longitudinal designs are more robust in terms of eliminating or reducing retrospective reporting bias. However, such a design was not feasible within the resources and timescale of the thesis.

Notwithstanding these concerns, retrospective accounts of adversity amongst groups with complex mental health problems have proven sufficiently reliable to justify the use of self-report measures. For example, high rates of consistency and test-retest reliability have been established in self-reports of violent child- and adulthood victimisation amongst 50 adults diagnosed with schizophrenia or bipolar disorder (Goodman et al., 1999), and high concurrent validity and test-retest reliability has been found in retrospective accounts of physical and/or sexual childhood maltreatment amongst 70 women with 'serious and enduring mental illness' (Meyer, Muenzenmaier, Cancienne & Struening, 1996; see also Darves-Bornoz, Lemperiere, Degiovanni & Gaillard, 1995). A more recent study by Fisher et al. (2011) evaluating the reliability of self-rated childhood abuse amongst 84 patients with schizophrenia spectrum disorders likewise found good convergent validity between the Childhood Experience of Care and Abuse Questionnaire (CECA-Q: Bernstein & Fink, 1998) and clinical case notes, high concurrent validity between the CECA-Q and the Parental

Bonding Instrument (Parker, Tupling & Brown, 1979), and good test-retest reliability over a seven-year period. In addition, the likelihood of reporting abuse was uninfluenced by levels of affective disturbance or psychotic symptomatology. In this respect, analogue laboratory studies by Bremner, Shobe, and Kihlstrom (2000) and Geraerts et al. (2005) found no associations between measures of dissociation and false recall or recollection in patients with a history of CSA compared to non-abused and/or non-dissociative controls.

In addition, self-report biases for childhood abuse may also be reduced by employing clear response formats with non-interpretative, behaviourally specific items (Goodman, Batterman-Faunce, Schaaf & Kenney, 2002); asking multiple questions about exposures (Stoltenborgh, van IJzendoorn, Euser & Bakermans-Kranenburg, 2011); and, if possible, presenting more sensitive questions at the end of interview protocols (Wyatt, 1992). For further details on how these considerations were applied within the thesis, please see the discussion on assessment tool selection in section 5.3.

A final measure for minimising recall bias was the nature of the sample itself. Firstly, all participants were experiencing a psychotic episode for the first time, and self-reporting of personal histories is generally more accurate in recently diagnosed participants than in more chronic prevalence cases (Bhopal, 2004). Secondly, the participants were all young adults who were chronologically closer to adverse childhood events than, for example, a middle-aged sample recalling experiences that may have occurred several decades previously.

5.2.3.3 Advantages and disadvantages of self-report measures

There are several benefits of self-report methods. They are quick, cheap and simple to administer, which is advantageous for studies with limited resources. They are also capable of eliciting data that may not be available via objective or observational means. In the present research, this included questions about life events and phenomenological aspects of voice hearing. A further advantage was the capacity to collect a large volume of unambiguous, pre-coded responses that could be quickly and simply counted and analysed. In this respect, scales in the present research were also on an interval level of measurement, wherein the equidistant points between items make the resultant data amenable to parametric analysis, as well as multivariate and statistical modelling techniques. In addition, all measures contained standardised question protocols which could be administered in a predetermined way. Participants therefore received the same questions in the same order, which enhances reliability by holding the impact of context effects (reasonably) constant across respondents. In the current project, answers for many questions were fixed (e.g., 'yes' or 'no') or otherwise close-ended in terms of eliciting a limited responses range (e.g., "how old were you when that happened?"). This is a beneficial strategy for reducing administration time, but also permits aggregated comparison between different groups. The interviews selected in the current study

were additionally suitable for quantitative enquiry in that responses could be easily numericised.

The technique's main limitation is potential problems with validity, in that resultant data can be biased and idiographic (e.g., for clinical scales, patients may exaggerate or under-report complaints). This does not mean that such information is inevitably invalid, only that it cannot be depended upon in all cases (Ericsson & Simon, 1993). Using reliable assessment tools that have been validated in large samples is one way of minimising potential bias, as is employing standardised protocols for data collection, blinding participants to study hypotheses, and verifying data using reference criterion such as clinical records (Langdridge & Hagger-Johnson, 2009). Potential limitations of the data should also be considered during analysis and interpretation, with study conclusions discussed in light of recognised shortcomings. For additional discussion of how these issues were addressed in the thesis, please see Table 5.3, and sections 5.3.1 and 5.6.

5.3   Method

5.3.1   Assessment Tools

In the following section the measurement instruments used in both empirical studies are discussed, including an account of their psychometric properties, and the rationale for electing to use them.[29]

5.3.1.1   Voice Hearing

The construct of voice hearing, as outlined in Chapter 2, was assessed using the following three measures.

5.3.1.1.1 *Positive and Negative Syndrome Scale (PANSS) for Schizophrenia* (Kay et al., 1987)

The objective presence of voice hearing in Studies 3 and 4 (and ascertaining non-voice hearing controls for Study 3) was assessed using the hallucinatory behaviour item from the PANSS, a clinical scale commonly used for gauging psychotic symptomatology in both first-episode and more chronic populations. The PANSS is based on two previously established rating scales (The Brief Psychiatric Rating Scale: Overall & Gorham, 1962; and The Psychopathology Rating Schedule: Singh & Kay, 1975) and is designed to assess positive symptoms (an excess or distortion of normal functions: e.g., grandiosity, hallucinations, delusions) and/or negative symptoms (a diminution of functioning: e.g., apathy and emotional

---

[29] For copyright reasons, the assessment tools are not reproduced in the thesis.

withdrawal). It also includes a general psychopathology scale, which assesses a range of features such as motor retardation, poor impulse control, and disorientation. In total the PANSS comprises 30 items, which are administered as a semi-structured interview of around 45 minutes (Kay et al., 1987).

Because of the need to ascertain voice hearing presence rather than general psychopathology, as well as constraints on time and resources, only the interview subscale for measuring auditory hallucinations was employed in the thesis. This is a strategy that has been employed in other research, where it not uncommon to only report on sections of the PANSS with specific relevance to the research question as opposed to the entire assessment (e.g., Ensum & Morrison, 2003; Perona-Garcelán et al., 2008; Steel et al., 2007). 'Hallucinatory behavior' is one of seven PANSS items for assessing positive symptoms and comprises the query: "*Sometimes people tell me they can hear noises or voices inside their head that others can't hear, what about you?*" plus a series of supplementary prompts depending on respondents' answers (e.g., *"Can you recognise whose voices these are?"; "Do the voices interrupt your thinking or activities?"*). The composite response is clinician-rated on a seven-point ordinal scale (1 = absent; 7 = extreme). Primarily this is determined as part of the clinical interview, although is also informed by reports from family members and other mental health workers (Kay et al., 1987). For the current studies, the minimum inclusion criterion for qualifying as a voice hearer was Level 4 (Moderate). Selecting this cut-off meant that participants without clearly-formed voice hearing experiences, or those reporting 'vague abnormal perceptions' were not included (Level 3: Mild), but was not so restrictive as to limit respondents to only those with delusional explanations for their voices, or who experienced chronic disruption because of them (Level 5: Moderate Severe).

The PANSS is one of the most widely-used assessment strategies for psychosis patients (Bell et al., 2010), not least because it is relatively quick to administer, is drug sensitive, and is suitable for both typological and dimensional assessment (Kay et al., 1987). It has also been consistently shown to be psychometrically robust. The initial standardisation of the PANSS involved 101 patients with a stable diagnosis of schizophrenia (31 females: 70 males; mean age 36.81 years) who were assessed by research psychiatrists rigorously trained in PANSS use and administration (Kay et al., 1987). All scales were normally distributed, with adequate construct validity between the positive and negative scales (r= .27, p< .01). It further demonstrated good criterion-related validity, with composite PANSS scores uninfluenced by extraneous variables such as illness chronicity, ethnicity, or standardised measures of verbal intelligence, depressive symptoms, temporal attention, or perceptual-motor development (Kay et al., 1987). Its discriminant and convergent validity was likewise supported through correlations with a series of antecedent clinical, psychometric, and historical assessments in 101 patients diagnosed with chronic schizophrenia (Kay, Opler &

Fiszbein, 1986). A later analysis using 200 outpatients (Opler et al., 1994), revealed excellent internal reliability, with respective α coefficients for the positive, negative, and general psychopathology scales of .80, .82 and .82.

Kay et al.'s (1987) original analysis has since been replicated by Peralta and Cuesta (1994) using a sample of 100 patients with stable diagnoses of DSM-III criteria schizophrenia. These authors also reported PANSS scores to be normally distributed, with high concurrent validity in relation to Andreasen's (1984) Scale for the Assessment of Positive Symptoms (SAPS) and Scale for the Assessment of Negative Symptoms ($r = .70$ and $r = .81$, respectively); and moderate internal consistency across the positive, negative, and general psychopathology scales (α = .62, .92 and .55, p< .001). In addition, inter-rater reliability for the hallucinatory behaviour item was reported as .82 amongst a subsample of 27 patients.

As discussed in Chapter 2, voice hearing occurs on a continuum of severity, can be conflated with intrusive thoughts, and be induced by organic or state-dependent factors. As such it was desirable to have a reliable, standardised measure of voice hearing presence in the current studies. In addition to the qualities previously described, the choice of the PANSS was guided by the fact that it is the instrument already favoured by the Bradford and Airedale Early Intervention in Psychosis (EIP) Service where the studies were conducted (and is indeed a predominant tool for evaluating the development and impact of EIP strategies more generally: Aspire, 2005; Bird et al., 2010; Turner, 2002). Service-users within Bradford EIP are generally assessed using the PANSS, administered by clinicians who have been trained to a standardised level of reliability. Most data regarding PANSS voice hearing scores were thus obtained from consultation with healthcare professionals either from existing clinical records and/or on the basis of their current knowledge of the client. If PANSS status was uncertain then it was assessed by the researcher, who was familiar with PANSS administration due to previous employment in the NHS.

Notwithstanding the merits of the PANSS, one limitation is that it is a broad inventory that does not permit detailed exploration of how participants interpret, experience, and appraise their voices. In view of the research aims, additional measures were therefore selected that could provide data about more phenomenological aspects of voice hearing.

5.3.1.1.2 *The Psychotic Symptom Rating Scale: Auditory Hallucinations Subscale (PSYRATS-AH; Haddock et al., 1999)*

The PSYRATS-AH was the first of two scales selected to assess more subjective, secondary voice hearing characteristics (see Chapter 2), in order to ascertain possible differences between those with and without a history of CSA in Study 4. The PSYRATS-AH is a multi-dimensional, structured interview designed to measure voice hearing experiences across 11 general domains: frequency, duration, controllability, acoustic volume, location, disruption,

severity and intensity of distress, amount and degree of negative content, and beliefs about voice origin. Responses are made on a five-point ordinal scale according to particular anchor points (e.g., no problem, minimal or occasional, minor to moderate, major, maximum severity). It can be administered in approximately 15 minutes (Ratcliff, Farhall & Shawyer, 2011) and forms the complement to the PSYRATS-DS, which uses a similar format to assess the presence and impact of delusional ideation.

The psychometric properties of both PSYRATS scales were first determined by Haddock et al. (1999) in a sample of 71 patients (23 female: 48 male; mean age 36.6 years), with primary diagnoses of schizophrenia (n=52) and schizoaffective disorder (n=19). Of these, 42 experienced both hallucinations and delusions, 14 had hallucinations only, and 15 had delusions without hallucinations. Convergent validity for the PSYRATS-AH was adequate, with total scores modestly correlated ($r = .33$) with the hallucinations item of the Psychiatric Assessment Scale (KGV: Krawiecka, Goldberg & Vaughan, 1977). Inter-rater reliability, based on six clinicians each rating the same six patient interviews, were uniformly high, with nine of the 11 items producing unbiased reliability estimates (intra-class correlations) in excess of .90. Inter-item relationships in the PSYRATS-AH yielded a three-factor structure of emotional characteristics, physical characteristics, and cognitive interpretations, the latter of which was moderately correlated with the KGV hallucinations score ($r = .39$; p<.005). Kronmüller et al. (2011), who evaluated the scale's psychometric properties amongst 200 patients with schizophrenia spectrum disorders, likewise found excellent inter-rater reliability (intra-class correlations of .94 to .99), and good internal consistency (Cronbach's α scores of .75). Additional assessment by Steel et al. (2007) has reported modest convergent validity between the PSYRATS-AH and the PANSS ($r = .47$), the SAPS, ($r = .27$), and the Beck Depression Inventory-II (Beck, Steer & Brown, 1996) total score ($r = .46$).

In addition to more chronic populations, the psychometric properties of the PSYRATS-AH have also been assessed in patients with first-episode psychosis (Drake, Haddock, Tarrier, Bentall & Lewis, 2007). In a sample of 257 patients, the scale demonstrated good concurrent validity with the PANSS hallucination item ($r = . 81$), excellent inter-rater reliability ($r = .99$), high test-retest reliability over one week ($r = .70$), and adequate internal consistency, with each item correlating between .63 and .76 with the total minus that item (Kendall's tau-b). An exception was the "control over hallucinations" item (Kendall's tau-b .16), although the possible reasons for this were not explored by the authors. Sensitivity to change over six weeks, determined via associated changes in the PANSS hallucination item, was also good ($r = .88$). Drake et al. additionally evidenced a similar three-factor structure to Haddock et al.; although Steel et al. (2007) have reported a four-factor solution, implying that the structure is either unstable, or varies across populations.

The PSYRATS-AH is quick and easy to administer yet provides substantially more detail than unidimensional inventories like the PANSS, which were important considerations when selecting it. The broad multidimensional nature means that it is well-placed to assess the phenomenological aspects of voice hearing using clear, operational criteria that are secondary to the mere presence or absence of voices (see Chapter 2). In this respect, it was chosen in preference to the alternative multidimensional structured interview for voice hearing, the Auditory Hallucinations Rating Scale (AHRS; Hoffman et al., 2003), which was devised to evaluate the efficacy of transcranial magnetic stimulation therapy for psychotic patients. As such, the AHRS does not include some of the more psychological dimensions incorporated within the PSYRATS-AH (including beliefs around voice origin and degree and extent of negative content). The PSYRATS-AH was also preferable to the two existing multidimensional self-report questionnaires, the Hamilton Program for Schizophrenia Voices Questionnaire (HPSVQ: van Lieshout & Goldberg, 2007) and the Characteristics of Auditory Hallucinations Questionnaire (CAHQ: Buccheri et al., 2004), given that the psychometric properties of these measures have yet to be established beyond an initial report of 20 participants for the HPSVQ (van Lieshout & Goldberg, 2007) and a similarly limited assessment of the CAHQ (Buccheri et al., 2004).

Whilst conceding the advantages of the PSYRATS-AH it is important to acknowledge its limitations. Some of the subscales lack sensitivity; for example, in the 'beliefs about voice origin' item, a conviction in externality ranging from 51% to 99% results in the same score. In addition, its modest convergent validity may well be influenced by its multidimensional nature, which limits its correlations with other, more unidimensional scales. In this respect, Steel et al. (2007) have observed that less subjective items, such as frequency, demonstrated larger associations with items from the PANSS ($r = .57$) and SAPS ($r = .68$). It also combines factors that are likely to be fairly constant, such as voice volume, with those which are more variable, such as distress. Ratcliff et al. (2011) similarly note that the scale's main strength – its multidimensional nature – is also the source of its main complications. In response to these limitations, measures of either individual items, or combined scores for the different factors, were used in the current analysis rather than a single aggregated score for the whole PSYRATS-AH. In this respect, in Haddock et al.'s original model the item for voice location was almost equally loaded on both the physical (0.476) and cognitive (0.477) factor. Given that subsequent research has found stronger loadings for voice location and cognitive interpretations (e.g., Favrod et al., 2012, Kronmüller et al., 2011; Steel et al., 2007) this format was also used in the current analysis.

5.3.1.1.3 *The Revised Beliefs about Voices Questionnaire* **(BAVQ-R; Chadwick et al., 2000)**

In addition to voice characteristics, participant attributions about their voices were assessed using the BAVQ-R to assess differences between those with and without a history of CSA. This is a 35-item self-report measure based on the premise that the behavioural response and emotional impact of voices are strongly influenced by beliefs that are attributed by the hearer. Three six-item subscales relate to perceptions of malevolence (e.g., *"My voice is evil"*), benevolence (e.g., *"My voice wants to help me"*), and omnipotence (e.g., *"My voice is very powerful"*). Two additional subscales determine resistance to voices in terms of behaviour (four items: e.g., *"I try and stop [my voice]"*) and emotion (five items: e.g., *"My voice makes me feel anxious"*) and engagement with voices in terms of behaviour (four items: e.g., *"I seek the advice of my voice"*) and emotion (four items: e.g., *"My voice makes me feel calm"*). In order to improve the sensitivity of the original BAVQ (Chadwick & Birchwood, 1995), which featured a dichotomous yes/no response format, the BAVQ-R is rated on a four-point ordinal scale assessing the extent to which respondents concur with each statement (disagree; unsure; agree slightly; agree strongly). The measure of omnipotence was also enhanced by adding five questions to the BAVQ's initial, single item. The revised scale takes approximately 15 minutes to administer (Ratcliff et al., 2011) and is deemed acceptable and easy to complete by participants (Chadwick et al., 2000).

The initial BAVQ-R validation study was conducted with 73 participants (32 female: 41 male; mean age 40 years) with diagnoses of schizophrenia, schizoaffective disorder, and psychotic depression, all of whom had heard voices for at least two years (Chadwick et al., 2000). Internal consistency for all the subscales was high, with Cronbach's α scores of between .84 and .88 (with the exception of omnipotence; α = .74). Construct validity was also high, with strong negative associations between all the subscales except those predicted by the cognitive model of voice hearing: specifically, strong positive associations between resistance and malevolence scores ($r = .68$, p <.01) and engagement and benevolence subscales ($r = .80$, p<.01). Omnipotence was positively associated with resistance ($r = 0.50$, p<.01) and malevolence ($r = 0.70$, p<.01), and negatively correlated with engagement ($r = -.26$, p<.01). Analysis for a subgroup of 58 participants indicated that malevolence, omnipotence, and resistance were all associated with depression ($r = .44$, p< .01) and anxiety ($r = .30$, p<.01); with engagement negatively associated with depression ($r = - .42$, p<.01) and anxiety ($r = -.36$ p<.01), as measured with the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983). More recent investigations have provided additional evidence for the BAVQ-R's construct validity. For example, measures of malevolence and omnipotence are associated with emotional distress, threat perception, and use of safety-seeking behaviours in patients with psychosis (Hacker, Birchwood, Tudway, Meaden & Amphlett, 2008); omnipotence scores are related to compliance with voice commands (Shawyer et al., 2008); and measures

of omnipotence, malevolence, and resistance are all correlated with depression, hopelessness, and suicidal ideation (Simms, McCormack, Anderson & Mulholland, 2007).

Given that individuals who have endured adverse life events, including CSA, may be more likely to experience malicious, persecutory voices, and be more likely to experience their voices as hostile (e.g., Andrew et al., 2008; Read et al., 2003; Romme et al., 2009), participant interpretations of voice power and 'purpose' were relevant concerns in the present research. There are currently three other available scales for assessing individual beliefs about voices, of which the BAVQ-R was selected in preference. The first of these alternatives, the Voice and You Scale (Hayward et al., 2008) is a 29-item measure that applies the principles of relating theory (Birtchnell, 2002) to determine the interpersonal dynamics between hearer and voice. However the construct validity of this measure is not fully established and distinctions between the four subscales (hearer dependence, hearer distance, voice intrusiveness, and voice dominance) from each other, and from beliefs about voices, are not clearly defined (Ratcliff et al., 2011). The second available scale, the Interpretation of Voices Inventory (Morrison, 2001), was also considered unsuitable in that it was principally devised for use with non-patient groups. The final scale, the Voice Power Differential (VPD: Birchwood, Meaden, Trower, Gilbert & Plaistow, 2000) uses six items to assess perceived power discrepancies between oneself and one's voices. It was similarly considered inappropriate for the current research, in that its validity has not been formally established (Ratcliff et al., 2011) and it assesses a much narrower range of variables than the BAVQ-R.

Despite these benefits, a disadvantage of the BAVQ-R is that while Chadwick and Birchwood (1995) conducted principal components analysis on the original BAVQ, neither factor structure (or test-retest reliability) have been investigated for the revised scale. In addition, the scale does not address voice form or content, and is only concerned with factors that may influence the maintenance, rather than the origins, of the experience (Chadwick et al. 2000). Although the latter was a relevant issue in the present research, the only available instrument for exploring links between voice content and life events (the Maastricht Interview for Voice Hearers: Romme & Escher, 2000) was not suitable in that it is a qualitative measure which can take several hours to administer.

5.3.1.2   Dissociation

The construct of dissociation, as outlined in Chapter 2, was assessed using the following measures.

5.3.1.2.1 *The Revised Dissociative Experiences Scale* **(DES-II; Carlson & Putnam, 1993)**

Comparison of dissociative symptoms across all groups of participants was conducted using the DES-II, a 28-item self-report inventory designed to measure dissociative phenomena in both clinical and non-clinical samples. The measure is comprised of three subscales: six items for depersonalisation and derealisation (e.g., not recognising oneself in a mirror; feeling that other people, objects, and the world around are not real), nine items for absorption and imaginal involvement (e.g., becoming engrossed in a fantasy or daydream), and seven items for dissociative amnesia (e.g., having no memory for important events in one's life, such as a wedding or graduation). Respondents are reminded that their answers should not include occasions when under the influence of substances, and are then asked to indicate the percentage of times they experience each item on an 11-point ordinal scale ranging from 0 to 100% in 10% increments. Total scores are the mean of the 28 items, with scores of ≥30 commonly used in clinical and/or research contexts to identify individuals at heightened risk for dissociative disorders, and those of ≤10 to distinguish those at low risk (Ross, 1997). In addition to a total score, mean scores for each of the subscales can also be calculated. The DES-II constitutes a revised version of the original DES (Bernstein & Putnam, 1986), and incorporates the same questions but with a new response format (the original version used a visual analogue scale, anchored at 0% on the left and 100% on the right). In general, the DES-II takes around 10 minutes to administer and five minutes to score (Ross, 1997).

DES scale items were originally developed using clinical data, amnesia scales, interviews, and consultations with experts in the field of dissociative disorders (Bernstein & Putnam, 1986). Pilot testing was conducted on 31 healthy college students (aged 18 to 22 years), 34 non-patient adults (age not stated) and a group of adult patients (age not stated) with assorted diagnoses: agoraphobia (n=29) and other anxiety disorders and/or phobias (n=24), schizophrenia (n=20), PTSD (n=10), alcoholism (n=14), and DID (n=20). Reliability testing indicated test-retest coefficients of .84 (p<.001), based on intervals of four to eight weeks for 26 members of the non-clinical group, suggesting scores were temporally stable and similar in absolute value across testings. Split-half reliability coefficients ranged from .71 (p<.0007) for the non-clinical adults to .96 (p<.0001) for the phobic-anxiety patients, with a median correlation coefficient of .87, indicating good internal reliability. Evidence for criterion-referenced concurrent validity was attained using a Kruskal-Wallis test to compare scores across the nine groups. A χ^2 value of 93.57 (n=192, $df = 7$) was obtained, with pairwise comparisons of group scores indicating that items differentiated between the groups in a similar way. Construct validity was analysed using Spearman rank-order correlations between items and item-corrected DES scores, resulting in a median coefficient of .64 (p<.0001). A subsequent Kendall coefficient of concordance ($r = .70$, p<.0001, $df = 7,189$) indicated high agreement between items in terms of differentiating between the various clinical populations.

Finally, assessment of discriminant validity was conducted to confirm that scores were not accountable in terms of extraneous variables like age, gender, or socioeconomic status.

Of all the available instruments for assessing dissociation, the DES is notable in having undergone extensive replication studies by independent investigators and, in this respect, has consistently demonstrated robust psychometric properties (Ross, 1997). For example, Frischholz, Braun, Sachs, and Hopkins (1990) administered the scale to 259 college students and two groups of patients with diagnoses of dissociative disorders (DID: n=33; DDNOS: n=29), with the express purpose of replicating and validating Bernstein and Putnam's (1986) original data. Test re-test reliability over a one-month interval was excellent (coefficient of relative agreement = .96; coefficient of absolute agreement =. 93) and inter-rater reliability for scoring procedure was similarly high (coefficient of relative agreement =. 99; coefficient of absolute agreement = .96). Internal consistency was calculated at .95 for the combined total sample, with respective alphas of .94 for the DDNOS patients, .94 for the DID patients, and .93 for the non-clinical group. In addition, the DES successfully discriminated between DID patients and the DDNOS group. Similarly, the DES's discriminant validity (i.e., as a measure of dissociative psychopathology relative to comparison groups) has been independently confirmed using samples of DID patients and medical students (Ross, Norton & Anderson, 1988), and DID patients, DDNOS patients, and psychology undergraduates (Ensink & van Otterloo, 1989). Similar results have persisted in subsequent research. For example, a meta-analytic validation of the DES (van IJzendoorn & Schuengel, 1996) assessed 135 studies from peer-reviewed journals and concluded that the scale demonstrated excellent convergent validity with other dissociation interview schedules and questionnaires (combined effect size: d=1.82; n=5,916), and powerful predictive validity in terms of DID (combined effect size: d=1.05; n=l, 705), and experiences of trauma (combined effect size: d=.75; n=1,099) and abuse (combined effect size: d=.52; n=2,108).

According to Schäfer et al. (2012), the DES-II is "the most widely used instrument for dissociative symptoms in clinical samples" (p.366), a premise accountable in terms of its strong psychometric properties coupled with ease of administration. In this respect, the popularity of the DES-II helped increase comparability between the thesis findings and existing research literature. It was additionally deemed suitable in that items are framed in a normative, non-stigmatising way (Ross, 1997), an element of particular value given that participants were young adults experiencing their first contact with psychiatric services. The DES-II was additionally appropriate for this population in that it has been extensively and successfully applied with psychosis patients (e.g., Kilcommons & Morrison, 2005; Şar et al., 2010; Schäfer et al., 2012; Vogel et al., 2009).

Nevertheless, there are also several limitations with the DES-II. Although it is recommended for use in a wide range of psychiatric populations (and, in effect, is a measure

of cognitive disorganisation), there is evidence that its validity may be adversely impacted by impaired cognitive functioning and/or intellectual ability (e.g., Dunn, Paolo, Ryan & van Fleet, 1993), and that the majority of items require a reasonable level of reading fluency (Paolo, Ryan, Dunn & van Fleet et al., 1993). In an attempt to mitigate this, participants were advised to ask for assistance and clarification if they struggled to interpret questions, both verbal and written instructions were provided on how to complete the scale, and an inability to read English was an exclusion criterion during recruitment. Its content is also somewhat restrictive, in that it has no items to measure the more physical elements of dissociative experience (e.g., somatisation and conversion), and limits assessment of derealisation and depersonalisation into a single subscale rather than two separate ones. In this respect, it is important to acknowledge that the DES-II is a screening rather than a diagnostic tool (i.e., it assesses elevated levels of dissociation rather than specific clinical disorders), and augmenting its application with comprehensive diagnostic interviews is a preferred strategy for minimising measurement artifacts (Schäfer et al., 2012). However, due to limited resources, this was not feasible in the current research.

5.3.1.2.2 *The Dissociative Experiences Scale-Taxon* (**DES-T; Waller, Putnam & Carlson, 1996**)

Pathological levels of dissociation across the sample were assessed using the DES-T, an eight-item self-report subscale of the DES-II. The DES-T represents questions drawn from taxometric analysis of clinical and non-clinical samples, which differentiate individuals with pathological dissociation from those showing normal trait-like variation in dissociative experience (see Chapter 2). The response format is retained from the DES-II, in terms of an 11-point ordinal scale and total score is the mean of the eight items; thus ranging between 0 and 100.

The DES-T is based on the premise that more extreme, pathological levels of dissociation are typological (as opposed to dimensional and continuous), and can be distinguished through elevated scores on particular DES-II items (see Table 5.4). Taxon-positive individuals may be more likely to be experiencing clinically significant levels of dissociation (Waller et al., 1996), with taxon membership believed to be indicative of dissociative divisions in the personality. The DES-T was developed using pooled DES-II data from a mixed sample of 1,574 (415 healthy controls and patients with assorted psychiatric diagnoses, including schizophrenia, PTSD, DID, anxiety, and eating disorders), who were screened for potential taxon indicators and analysed using mathematical taxometric procedures such as MAMBAC (Meehl & Yonce, 1994) and MAXSLOPE (Grove & Meehl, 1993). Waller et al.'s (1996) typological model has subsequently been replicated by Waller

and Ross (1997) using data from 1,055 individuals originally collected for an epidemiological study on dissociation prevalence (Ross, Joshi & Currie, 1990).

Table 5.4   Items of the Dissociative Experiences Scale-Taxon.

DES-T item	DES-II item	Abbreviated DES-T items
1.	3.	Finding oneself in a place and having no idea how one got there
2.	5.	Finding belongings that one does not remember buying
3.	7.	See oneself as if looking at another person
4.	8.	Not recognising friends or family members
5.	12.	Feeling that other people/objects/the world are not real
6.	13.	Feeling that one's body is not one's own
7.	22.	Feeling as though one were two different people
8.	27.	Hearing voices commanding or commenting

More recently, Spitzer et al. (2006) reported associations between taxon membership and greater psychopathological distress in a mixed sample of 1,759 clinical and non-clinical participants, whereas Maaranen et al. (2005) found strong and significant associations between DES-T scores and measures of alexithymia, depression, alcohol use, and suicidal ideation in 2,001 members of the general population. Similar findings on smaller samples have also been reported. For example, in a study by Modestin and Erni (2004), seven of ten dissociative disorder patients had a higher DES-T than DES-II score, whereas Irwin (1999) found a history of childhood trauma positively predicted DES-T scores in a group of 100 non-patients. In a sample of 100 patients, Simeon, Knutelska, Nelson, Guralnik, and Schmeidler, (2003) found that a taxon cut-off score of 13 provided an 81% sensitivity in detecting the presence of depersonalisation disorder, and Waller et al. (2001) report that the DES-T has superior clinical utility to the DES-II as a categorical discriminator of dissociative psychopathology in 170 women with eating disorders and 203 non-clinical controls.

The DES-T has also been applied in studies examining dissociation in psychosis patients. For example, Schäfer et al. (2012) have demonstrated good internal consistency between scores for the DES-T and DES-II subscales (amnesia, Cronbach α = .83; absorption, α = .87; depersonalisation/derealisation, α = .77; DES-T, α = .80) in a sample of 145 patients with schizophrenia spectrum disorders, whereas Dorahy et al. (2009) reported significant incremental increases in measures of childhood adversity and DES-T scores in patients diagnosed with schizophrenia and no history of childhood maltreatment (n=18), schizophrenia patients with a history of childhood maltreatment (n=16), and patients diagnosed with DID (n=29). The study was primarily concerned with the quality and characteristics of voice hearing, and five criterion variables were significantly predicted by DES-T scores (voices

reiterating past memories; controlling voices; hearing more than two voices; commanding voices; voice content relating to influential persons in one's life). Values for the exponential of the beta weight ranged between 1.033 and 1.045, inferring that for each increased point on the DES-T, the odds of fulfilling a criterion variable increased from 3.3% to 4.5%. Based on mean DES-T scores for the three groups, Dorahy et al. estimated an average 1.96 to 2.49 increase in odds of an individual from the schizophrenia with maltreatment group belonging to the criterion variable category compared with a patient with psychosis and no history of maltreatment, and an average increase in odds from 2.09 to 2.70 of a DID patient belonging to the criterion variable categories compared to patients with psychosis and a history of abuse.

Like the DES-II, the DES-T was appropriate for the current research in that it is quick to score, requires no specialist training to administer, has established good psychometric properties, and permits immediate comparability with existing literature examining dissociation and voice hearing (e.g., Anketell et al., 2010; Brewin & Patel, 2010; Dorahy et al., 2009). However, it is important to note that not all authors in the dissociation field agree about the conceptual value of the taxon, arguing that pathological dissociation should not be seen as a dichotomous measure (e.g., Merritt & You, 2008), that its empirical determination is problematic (e.g., Spitzer et al., 2006), and that artificially dichotomising a continuous measure, like dissociation, adversely effects validity and reliability (e.g., Watson, 2003). However, the DES-T was felt to be an appropriate tool for the present research in that it was not being applied as a diagnostic measure, rather in determining elevated rates of dissociative experience.

5.3.1.3   Adverse Life Events

The construct of adversity exposure, as outlined in Chapter 2, was assessed using the measures described below. For additional discussion of the methodological challenges associated with life events research, and how these were addressed in the thesis, please see section 5.2.1, section 5.2.3.6, and Table 5.3.

5.3.1.3.1 *Life Stressor Checklist – Revised* (**LSC-R; Wolfe, Kimerling, Brown, Chrestman & Levin, 1996**)

Comparisons between the type and extent of adverse experiences reported by participants was measured using the LSC-R, a 30-item inventory for assessing stressful and/or traumatic life events of both high and low magnitude. For each endorsed event, respondents are asked to indicate: (1) their age when the event began and ended; (2) beliefs about risk of death or serious harm to themselves and/or another; and (3) feelings of fear, helplessness, or horror associated with the event (i.e., DSM-IV Criterion A for PTSD). The impact of the event(s) on one's life in the past year is also rated on a five-point Likert scale (1 = not at all; 5 =

extremely). Respondents are further asked to identify the three events that currently have the greatest impact on them. The scale therefore yields a dichotomous present/absent score for a range of behaviourally specific adult and developmental stressors, with an additional, continuous rating of distress at the time of the event and current impact. In total the scale takes between 15 and 30 minutes to administer (Wolfe et al., 1996).

Two minor modifications were made to the LSC-R for the present research. In order to establish a temporal sequence between exposure and outcome, the participants who heard voices were asked whether endorsed events preceded voice onset, and if so by how long. For control participants, who did not hear voices, onset was defined as the beginning of psychotic illness. To increase accuracy, the probes for age of exposure and age of onset were anchored according to developmental periods and/or other life events (e.g., had the person started secondary school). Secondly, a question was added that would specifically address peer victimisation, as this has repeatedly been associated with voice hearing, as well as psychosis more generally (e.g., Kelleher et al., 2008; Mackie, Castellanos-Ryan & Conrod, 2011; Schreier et al., 2009). This item ("Have you ever been bullied by peers, such as other students at school? For example, kicked, hit, pushed or shoved, excluded on purpose, or called mean names?") assessed both overt and relational bullying and was derived from the revised Olweus Bully/Victim Questionnaire (Olweus, 1996), a measure which is widely employed in the bullying literature (Campbell & Morrison, 2007) and has established concurrent validity for self-reported bullying (Olweus, 1991, 1994) and construct validity for victimisation (Bendixen & Olweus, 1999).

The original authors of the LSC and LSC-R have addressed its content validity (Wolfe & Kimerling, 1997). However, as with many other life event scales, conventional, statistical validity data are hard to acquire due to the considerable difficulties in validating self-reported trauma (i.e., how accurately the person's account corresponds to what researchers intend to measure: Raphael, Cloitre & Dohrenwand, 1991; see also Chapter 2). Nevertheless, the literature does contain some accounts of the measure's psychometric properties. For example, McHugo et al. (2005) used an adapted version of the LSC-R to assess lifetime trauma exposure as part of the Women, Co-Occurring Disorders, and Violence Study (WCDVS). The principal alterations between the standard LSC-R and its WCDVS version included additional items (e.g., homelessness, unwanted sex for money or goods), and omitting the probe for subjective emotional responses to the event. This modified version was administered to 2,729 women, a subset of whom were recruited as a test-retest sample (n=186). Over seven days, items showed a percent absolute agreement that was seldom lower than 90% and an average Kappa of .70, indicating an acceptable level of reliability. Distributions of the three lifetime summary variables (lifetime exposure to stressful events, lifetime frequency of interpersonal abuse, frequency of childhood abuse) indicated good

variability, means centred within the range, and good test-retest reliability in terms of intraclass correlation coefficients (.86, .88 and .86, respectively). The scales for current exposure (interpersonal abuse within the past six months, other stressors within the past six months) were lower, although still adequate (.77 for both categories). Test-restest reliability Kappas for McHugo et al.'s four indicator variables, were moderate to high (.76 for childhood sexual abuse; .67 for childhood physical abuse; .69 for adulthood sexual abuse; .51 for adulthood physical abuse).

The inter-rater reliability of the LSC-R has also been reviewed using a subset (20%) from a sample of 67 participants being assessed for the impact of traumatic stressors and PTSD symptoms on the clinical course of the HIV virus (Kimerling et al., 1999a). Reliability was defined as the percentage concordance between two interviewers for all items and their impact, in which total scores should not vary by more than one. After dividing the number of cases in which raters were in agreement by the total numbers of cases for which reliability was calculated, a figure of 100% agreement was derived (although, unlike Kappa coefficients, this simple concordance approach does not take account of chance agreement). The LSC-R has also demonstrated good criterion-related validity for PTSD in diverse populations (i.e., scores are demonstrably related to clinical outcomes), including civilian survivors of air raid strikes (Gavrilovic, Lecic-Tosevski, Knezevic & Priebe, 2002), patients with co-morbid PTSD and substance use (Brown, Stout & Mueller, 1996), and war veterans (Kimerling, Clum & Wolfe, 2000). Further evidence of predictive validity has been provided by Freeman and Fowler (2009), who used the scale to determine associations between trauma exposure and psychosis-like experiences in a sample of 200 members of the UK general public. As predicted, LSC-R scores were significantly associated with higher levels of depression, anxiety, negative ideas about the self, hallucinations, and persecutory ideation. Positive associations between LSC-R scores and symptoms of depression (e.g., Kimerling, Armistead & Forehand, 1999b) and PTSD (e.g., Kimerling et al., 2000) have also been found by other authors.

The LSC-R is responded to favourably by participants, providing comprehensive and adequate data for research purposes whilst still preserving a clinically sensitive approach that is well tolerated by respondents (McHugo et al., 2005). Its semi-structured format, with additional probes for flexibility and clarification, adhere to recommendations for enhancing sensitivity in life events research whilst maintaining reliability (Paykel, 1983). Furthermore, it assesses a broad and subjective range of "low magnitude" stressors in addition to more overt forms of trauma. As discussed in Chapter 2, such inclusiveness allows consideration of individual variations in stress vulnerability, the impact of cumulative stressors, and the complex, multi-faceted nature of what constitutes traumatic stress (beyond that of diagnosable PTSD). Finally, the LSC-R permits a demarcation between interpersonal victimisation and more impersonal events (Freeman & Fowler, 2009) a distinction which was of interest to the

current research questions (see Chapter 2). As such, the LSC-R was selected as a suitable instrument.

5.3.1.3.2 *The Early Sexual Experiences Checklist* (ESEC; Miller, Johnson & Johnson, 1992)

Exposure to CSA amongst voice hearing participants was assessed using the ESEC, a ten-item checklist measuring unwanted coital and non-coital events prior to the age of 16. For endorsed items, which are responded to on a yes/no basis, respondents are asked to indicate their age at the time of the event, the age and identity of the perpetrator, the frequency and duration of the abuse, and the presence and type of any coercion. Impact on life and level of distress are rated on a seven-point Likert scale (1 = not at all; 7 = extremely).

The ESEC has demonstrated good test-retest reliability (r = .92) over a one-month period (Miller & Johnson, 1998), and has been responded to favourably by participants (of 107 feedback comments on three questionnaires, including the ESEC, 96% were positive: Watson & Halford, 2010). For the purposes of the second empirical study, ESEC items were classified into three subgroups: penetrative abuse (e.g., oral, vaginal, or anal penetration), non-penetrative abuse (e.g., sexual touching), and non-contact abuse (e.g., voyeurism, exposure to pornography, being photographed naked). In addition, respondents were asked whether they had disclosed the event at the time, and if so to rate their perceived supportiveness of the response on a four-point scale (1 = did not disclose, 2 = not at all supportive; 3 = moderately supportive, 4 = extremely supportive). As with the LSC-R, participants were also asked to indicate the chronological distance between the event(s) and voice onset.

The ESEC was developed with a sample of 345 college students (183 female: 162 males; mean age 21 years) as part of a study assessing the prevalence of unwanted sexual experiences amongst young adults (Miller et al., 1992). Results indicated that, in terms of physical invasiveness, the more severe instances of abuse (i.e., oral, vaginal, or anal penetration) had been experienced by 19% of both females and males, and abuses of lower relative severity (e.g., the exhibition of, or touching of, sexual organs) had been experienced by 30% of female and 19% of male participants. The conceptual validity of this distinction (i.e., penetrative abuse as more severe) was checked against a panel of 135 independent individuals, with multivariate analysis of variance procedures used to ascertain that both males and female raters endorsed the accuracy of the division (Miller et al., 1992). A survey using the ESEC amongst 1,335 women from the general population (aged 18 to 41 years) has also used latent class analysis to confirm that these categories are distinguishable in terms of emotional impact (Watson & Halford, 2010).

Part of Miller et al.'s (1992) rationale was to devise a scale that avoided many of the conceptual problems pervading CSA research through provision of a clear, non-restrictive

response format that invites respondents to report unwanted sexual experiences without nominating whether the event constituted abuse. Prevalence estimates of CSA tend to be highly variable (from 0.1% to 71% according to one review: Stoltenborghet al., 2011), an inconsistency most often attributable to either the assessment methods employed, or the manner in which abuse is defined (Pereda, Guilera, Forns & Gómez-Benito, 2009). A common manifestation of this difficulty is failing to provide a clear, operationalised definition(s) of CSA, thus requiring problematic distinctions on the part of respondents. For example, asking participants *"Have you been sexually abused?"* (e.g., Diaz, Simantov & Rickert, 2002) may result in misleading estimates, in that sexually victimised individuals are not always able to readily identify their experiences as abuse (Hammersley, Read & Bullimore, 2005), possibly as a result of perpetrator 'grooming.' Obscure and ambiguous definitions, such as *"sexual advances"* (e.g., Russell, 1983), or *"kissing and hugging in a sexual way"* (e.g., Kilpatrick, 1986) can similarly compromise reliability and validity, in that perceptions of what constitutes a sexualised encounter is likely to differ considerably between different individuals.

In contrast the ESEC meets criteria for an optimal, operationalised measure of CSA (Stoltenborgh et al., 2011), in that it employs multiple, non-interpretative, and behaviourally specific questions (e.g., *"Did someone tell you to engage in sexual activity so that he or she could watch?"*) in preference to single-item, label queries (e.g., *"did you ever experience sexual abuse as a child"*). Consequently, its format eliminates a common bias within self-report research in that participants are not required to subjectively interpret and define the global concept of 'sexual abuse' (Finkelhor & Hotaling, 1984). In this respect, the ESEC uses the terminology 'unwanted sexual experiences,' asking respondents to acknowledge an aversive occurrence without requiring them to define it as maltreatment. Goodman et al. (2002) likewise argue that the reliability of retrospective CSA accounts is considerably enhanced through the use of behaviourally specific questions, as well as employing formats that minimise bias through avoiding suggestion, repeated questioning, or presenting misleading information. The ESEC's checklist similarly complies with this proposal.

Also consistent with Stoltenborgh et al.'s recommendations (which were derived in response to an analysis of 217 research papers on CSA prevalence), ESEC items are based on broad specifications of what constitutes CSA (e.g., incorporating non-contact activity like voyeurism and indecent exposure, not specifying the use of physical force, and not restricted to intra-familial abuse), as defined by international organisations like the WHO (1999). In addition, the checklist incorporates a clear cut-off point in terms of age (16 years), thus delineating childhood in terms of not having reached a legal majority (WHO, 1999). Finally, an additional benefit of the ESEC for the current research is that it was designed as an

accessible procedure that does not require specialist expertise to administer (Miller et al., 1992).

5.3.1.4 Contextual Variables

A number of contextual variables were additionally assessed in both empirical studies, primarily as means of addressing possible confounders and/or effect modifiers in the association between voice hearing, dissociation and adverse events. These were affective disturbance and demographic characteristics, and were measured using the following instruments.

5.3.1.4.1 *The Depression Anxiety Stress Scales – short version* **(DASS-21: Lovibond & Lovibond, 1995)**

The DASS-21 is a 21-item self-report screening tool for assessing symptoms of emotional distress and disturbance. It forms the short version of the full-length DASS and is considered superior for research purposes in that it retains the latter's reliability combined with a briefer administration time (Psychology Foundation of Australia, 2011). The DASS-21 has three seven-item subscales for measuring depression, anxiety, and stress, each of which are scored on a four-point Likert scale (0 = does not apply; 3 = applies very much). To allow comparison with normative data from the full-length DASS, scores from the three subscales are summated and multiplied by two, yielding a score from 0 to 126, higher scores being suggestive of greater emotional distress. In total the scale takes around five minutes to administer.

One of the goals during initial DASS and DASS-21 development was obtaining rigorous standards of psychometric sufficiency (Lovibond & Lovibond, 1995). The scales were established using responses from a comparison set of 504 undergraduate students, then normed on a socially and occupationally diverse sample of 2,914 adults from the general population (1,870 females: 1,044 males; aged from 17 to 69 years). In the normative sample, reliability scores for the subscales were high (Cronbach's α scores of .91, .84 and .90, respectively). Scores were also assessed for validity against a broad range of clinical groups, including psychiatric patients (e.g., anxiety disorders, mood disorders) and somatic illnesses (e.g., myocardial infarction, menopausal disorders). The DASS-21's construct validity has subsequently been assessed in a large, broadly generalisable sample in the UK general population (n=1,794) using cross-sectional, correlational, and confirmatory factor analysis (Henry & Crawford, 2005) and was found to adequately distinguish between the constructs it is meant to represent: depression (low positive affect), anxiety (physiological hyperarousal), and stress (negative affectivity), as well as a more general dimension of 'psychological distress.' Cronbach's α scores were calculated as .88 for depression, .82 for anxiety, .90 for

stress, and .93 for the total scale, which was deemed satisfactory by Henry and Crawford given that the test is designed to "provide brief measures of broad constructs" (p.236). These findings have been replicated by other researchers. For example, good internal consistency, excellent convergent validity, and good discriminant validity have been reported for the DASS-21 amongst a sample of 222 elderly primary care patients (Gloster et al., 2008), and internal consistency and concurrent validity of between good to excellent ranges amongst a mixed sample of 49 non-clinical volunteers and 258 patients with diagnoses of mood or anxiety disorders (Antony et al., 1998).

According to the Psychology Foundation of Australia (2011), the DASS-21 is similar to other symptom-based measures in that its factor structure is extremely unlikely to vary between different groups. In this respect, the most substantive issue is whether participants have the capacity to comprehend and respond to the items in an unbiased way and, in effect, should be assumed to be valid in a certain group unless there are very particular reasons for believing otherwise (e.g., low literacy). The DASS and DASS-21 have been used in various special populations, including individuals with dementia, traumatic brain injury, and problems with substance use. In this respect, the DASS-21 is also one of the few scales of its kind (i.e., a brief, self-report scale for negative affect) to be validated with samples of psychotic patients. For example, Ng et al. (2007) assessed its validity as a clinical outcome measure amongst 786 psychiatric admissions at a private in-patient facility. Patients (n=388; 239 female: 149 male; mean age 52 years) presented with assorted clinical need, including affective psychosis, functional psychosis, depressive disorders, and alcohol use. Over a 24-month period, the DASS-21 showed good concordance with the Mental Health Questionnaire (Wyatt & Livson, 1994), the Clinical Global Impressions Scale (Guy, 1976), and the Health of the Nation Outcome Scales (Wing, Curtis & Beevor, 1996), and strong convergent validity in terms of patient self-rated scores and clinician-rated measures. High internal consistency, moderate to high test-retest reliability, and good convergent validity have also been reported for the DASS-21 amongst a sample of 33 patients with a diagnosis of schizophrenia (Huppert, Smith & Apfeldorf, 2002).

In order to control for emotional distress as a possible effect modifier in the association between adverse life events, dissociation, and voice hearing, negative affect was measured for all groups in both studies. Given that the DASS-21 is easily and briefly administered, simple to score, and has consistently demonstrated strong psychometric properties, it was selected as an appropriate instrument for this purpose.

5.3.1.4.2   Participant Characteristics

In order to establish the level of similarity between groups in Studies 3 and 4, a brief questionnaire was administered that assessed standard demographic variables, basic clinical

information, and potential effect modifiers for the association between adverse life events and psychosis.

The domains covered for the demographic category were the following: age and gender, ethnicity, living arrangements, marital status, and years of education post age-16. The following clinical information was also requested: illness duration, psychiatric diagnosis, prescription medication, experience of non-auditory hallucinations,[30] age of voice onset, and number of voices. Potential effect modifiers for the association between adverse life events and psychosis were also assessed and selected *a priori* on the basis of previous literature (e.g., Bebbington et al., 2004; Cougnard et al., 2007; Janssen et al., 2004). These comprised: whether participants and both parents were born in the UK, history of psychosis in first degree relatives, and substance use.

Questionnaire format followed standard guidelines for optimal survey construction (Frary 1996): for example, using comprehensible and clear wording, beginning with general factual questions (e.g., age) before moving towards more specific ones (e.g., psychiatric diagnosis), ensuring a logical flow of questions, and leaving more sensitive questions (e.g., voice hearing characteristics) to the end of the questionnaire.

5.3.2   Research Setting

Recruitment for both studies took place at the Bradford and Airedale EIP team, a mental health service providing a three-year programme of support and assistance for young people experiencing a first-episode of psychotic illness. Bradford is a large metropolitan borough in the north of England with a population of 522,452 as of 2011 (City of Bradford Metropolitan District Council, 2012), and is characterised by a number of social problems including de-industrialisation, poverty, and civic unrest. In the national Index of Urban Deprivation, the district is listed as one of 20 local authorities with the highest levels of deprivation in the UK (Department for Communities and Local Government, 2011). Participants were recruited from across four main geographical sectors (the inner city, north Bradford, south and west Bradford, and Airedale) and as such came from a diverse range of socioeconomic and ethnic backgrounds (Bradford District Index of Multiple Deprivation, 2011). The choice of research setting was influenced by the fact that (1) it provided access to a clinical population with well-characterised non-affective psychosis, and (2) the investigator had previously been employed with the service, which facilitated enhanced access and collaboration with healthcare staff.

---

[30] Although part of the general assessment of clinical variables, this item was also revisited separately in order to confirm that participants were describing genuine hallucinatory experiences (see Chapter 2, section 2.1.1). In addition to check-box responses, open-ended prompts were therefore also used for clarifying information (based on the brief self-report format employed by the National Comorbidity Survey Replication: Shevlin et al., 2010).

5.3.3 Participants

The population in both empirical studies were a pseudo-random sample of EIP patients. All participants fulfilled the service's referral criteria in that they were aged between 14 and 35 and had received diagnoses of first-episode schizophrenia spectrum disorders, independently determined by a minimum of two clinicians using DSM-IV-TR criteria (APA, 2000: specifically, hallucinations and/or delusions in conjunction with high emotional distress, impaired functioning, and/or cognitive disorganisation).

In attempts to minimise detection bias (i.e., systematic differences in the way outcomes are ascertained or verified), participants in the service's assessment stage were excluded from recruitment. This was in response to a customary practice in EIP teams, wherein new referrals and/or cases of diagnostic uncertainty are cared for in a specialised assessment branch for up to six months before being discharged to a more suitable service, or referred for a three-year EIP care package.[31] An additional exclusion criterion was an inability to comprehend spoken and written English, as validated versions of the assessment tools were not available in other languages. Hospital inpatients and/or those experiencing acute distress were not automatically excluded, but additional caution was exercised in ascertaining with EIP workers whether participation could have an adverse impact on these clients' mental health. Participants with a history of recreational alcohol or substance use were also not routinely excluded, although extra care was likewise taken to ascertain with both participants and healthcare staff that these individuals (1) heard voices independently of their substance use and (2) a history of voice hearing was present prior to substance use. However, patients with dual diagnosis (i.e, substance-induced psychosis, or psychosis with severe comorbid substance use) were not recruited, owing to the difficulty in establishing whether voices were chemically induced in such cases (see Chapter 2). Finally, participants were not eligible for inclusion if they had an organic medical condition for which voice hearing may be a symptom; or if they had ever received a dissociative disorder diagnosis. Across the participant pool, two individuals were excluded because of organic medical conditions (temporal lobe epilepsy and Huntington's disease), one due to a previous diagnosis of DDNOS, three due to an inability to speak and/or read English, one because voice hearing only occurred in conjunction with substance use, four whose voice hearing severity was equivalent to a PANSS score of ≤ 3, and three who were in the assessment branch of EIP (i.e., psychotic illness was not yet confirmed) and who had been referred to the research in error.

For the first empirical study (a retrospective case-control design) and the second (a cross-sectional between-groups design), four discrete groups were formed:

---

[31] An exception was made in cases where participants had been referred for a three-year service, but were still being cared for by staff in the assessment branch while waiting for a care-coordinator to become available.

Group 1; Study 3: Psychotic patients currently experiencing voice hearing. This sample acted as cases for the first research question and comprised 31 individuals. To be classified as voice hearers, participants had to experience voices persistently (i.e., both when acutely unwell and when stabilised), to meet a level of ≥ 4 on the hallucinatory behaviour subscale of the PANSS, and to have experienced voice hearing within three weeks prior to data collection.

Group 2; Study 3: Psychotic patients who have never experienced voice hearing. This sample acted as controls for the first research question and also comprised 31 individuals who experienced paranoia and/or delusional beliefs in an absence of voice hearing. Participants were only eligible for inclusion in this group if they corresponded with a score of 1 (absence of hallucinations) on the hallucinatory behaviour subscale of the PANSS at the time of data collection, and had no lifetime history of hearing voices.

Group 3; Study 4: Voice hearing patients with a history of childhood sexual abuse (CSA). This sample comprised of 23 individuals and acted as a reference group for the second research question. Of this group, 14 participants (61%) were derived from Group 1. The distinction between Group 3 and 4 was based on self-reports of CSA (please see section 5.4.3.1 and 5.4.3.2 for further details on how this was assessed), and classification of voice hearing status was the same as applied to Group 1.

Group 4; Study 4: Voice hearing patients with no history of CSA. This sample acted as comparisons for the second research question, and also comprised 23 participants of whom 17 (74%) came from Group 1. Classification of voice hearing status was the same as applied to Groups 1 and 3, and assessment of CSA exposure was the same as Group 3.

To estimate non-response bias, respondent rates between the groups were compared and indicated rates of 88% for Group 1 and 82% for Group 2 (Study 3) and 79% for Group 3 and 84% for Group 4 (Study 4). The main detectable difference between responders and non-responders across groups was that females of south Asian ethnicity were more likely to decline to take part. Clients who were approached but were too distressed to participate numbered five for Group 1 (also excluded from Groups 3 and 4), and seven for Group 2. One participant from Group 1 (also included in Group 4), and two participants from Group 2 withdrew from the study during data collection. However, no participants retrospectively asked for their data to be removed.

5.4 Ethical Considerations

The main ethical concern in both studies was exposing participants to interview protocols that alluded to sensitive material. Every endeavour was therefore made to design studies that were as principled and ethically rigorous as possible, and which could maximise benefit whilst minimising distress or harm. In addition to seeking ethical approval from the NHS National

Research Ethics Service, clinicians within the EIP service were consulted throughout the duration of the research in order to lessen the likelihood of impinging on established therapeutic practice or protocols. Individuals from the UK Hearing Voices Network and the National Paranoia Network were also asked for their expertise and feedback in terms of designing research that would be acceptable to mental health service-users.

5.4.1   Management of Ethical Issues

The ethics application addressed various practical and ethical issues present in the research, most particularly the concerns discussed below.

5.4.1.1 Consent

All participants approached as potential research candidates were provided with an information sheet (see Appendix C1) that contained sufficient details about the research to permit an informed choice about taking part. This incorporated standard issues detailed by the British Psychological Society (BPS: 2010) on research with human participants, including the right to withdraw, potential risk, protection of anonymity, and details of how data would be used. Ethical concerns more specific to the protocol were also expounded, particularly in terms of informing participants that consenting or declining to take part in the research, or any subsequent disclosures or responses, would in no way influence their mental healthcare. Participants were given on-going opportunities to ask any desired questions about the research and were encouraged to discuss their potential participation with a worker, friend, and/or family member prior to signing the consent form (see Appendix C2).

5.4.1.2 Safety

In the event of interviewing participants in their own homes and/or non-NHS sites, recourse to staff security protocols were made available to ensure researcher safety. Because the thesis was partly concerned with victimisation and maltreatment experiences, NHS safeguarding procedures were put in place in the event that participants (or children and/or vulnerable adults associated with them) were found to be at risk of harm. Participants were made aware prior to interviewing that information of this nature would be disclosed to their care coordinator, specifically for incidents where there would be a higher moral imperative than preserving confidentiality. In this respect, supervision and debriefing was made permanently available from a consultant clinical psychologist within the EIP service (for clinical enquiries) and a senior social worker (for safeguarding concerns). For the risk escalation protocol employed during data collection, please see Appendix C3.

5.4.1.3 Safeguarding Data

In order to maximise skills and awareness in data protection, an NHS course on information governance and safeguarding was completed (September, 2010). Considerations included the following: (1) participants were identified using an anonymised coding scheme and no completed or archived assessment materials contained any personally identifiable information; (2) contact details for participants were encrypted and stored on a hidden folder on a secure, password-protected NHS computer; (3) only numerical (or otherwise anonymous) data were stored on removable media or transmitted electronically; (4) archived assessment materials were stored in a locked filing cabinet in the postgraduate office within the Institute of Psychological Sciences at the University of Leeds; (5) data that were no longer required were disposed of in a timely, secure and environmentally-responsible fashion (specifically, written material was shredded and recycled). If requested by participants, workers were provided with completed copies of the assessment tools in order to inform clinical care. However, data was not shared in any form without explicit permission from participants.

5.4.1.4 Risk of Harm

In addition to working on mental health crisis telephone lines and delivering training in association with the UK Hearing Voices Network and Intervoice: The International Network for Training, Education and Research into Hearing Voices, the investigator had four years clinical experience with this particular client group in the capacity of both a healthcare support worker and assistant psychologist, and as such was competent in responding sensitively and appropriately to discussions about voice hearing or distressed disclosures of painful life events. Participants were also offered support after the interviews were completed, including the provision of coping and recovery literature on voice hearing, unusual beliefs, CSA and/or other types of life adversity (as applicable) and details of relevant agencies that could provide confidential support if desired (see Appendix C4). Care coordinators from the EIP service were made aware of a particular client's involvement to ensure participants had the opportunity to discuss any issues that may have arisen as a result of taking part in the research (see Appendix C5). Participant GPs also received written notification that their patients had taken part (see Appendix C6).

5.4.2   Ethical Approval

The research was granted ethical approval by the NHS National Research Ethics Service (Yorkshire and the Humber Research Ethics Committee: Leeds East) on 09 March 2012 for a period of 24 months. Subsequent management permission (Research and Development

approval) was obtained from Bradford District Care Trust in accordance with NHS research governance guidelines on 18 May 2012. An amendment to the protocol (providing participants with £5 gift vouchers) was submitted to the Research Ethics Committee on 10 July 2012 and accepted on 12 July 2012.

5.5   Procedure

The project was initially discussed with a small group of peer-support workers from the UK Hearing Voices Network and the National Paranoia Network (n=6) in order to ascertain the acceptability of the measures, the appropriateness of the research aims and rationale, and to derive a more precise estimate of how long measure administration might take. The response from these individuals was favourable, although it was suggested that some of the language in the participant information sheet be changed to more inclusive terms (specifically, 'delusions' was altered to 'unusual beliefs'). It was also recommended that questions about painful life events be left until the end of the interview schedule to minimise the chance of overwhelming or unsettling participants. In addition, advice was provided about framing the participant information sheet in a way that, despite the research's focus on voice hearing, would emphasise to the non-voice hearing participants that their perspectives were also relevant and valued. These recommendations were incorporated into the protocol prior to submitting it for ethics approval.

Before starting the recruitment process, an estimation of possible admission rate bias was also performed (i.e., spurious associations between exposure [adverse life events] and outcome [dissociation and voice hearing] as a function of clinical contact). This involved examination of 22 randomly selected, anonymised admission records (via an EIP healthcare worker) to verify that individuals with ostensible histories of childhood maltreatment were not being systematically referred to specialist trauma-based services. This process confirmed that the primary cause for re-referral was (1) if the presence of psychotic illness was in doubt, (2) if the person had experienced previous episodes of psychosis, or (3) fell outside the service's age limit, thus suggesting that diagnostic practice was not an overt source of bias.

Sampling for both studies was based on referrals from healthcare professionals in the EIP service, who nominated participants on the basis of their eligibility (see section 5.2) and clinical presentation (e.g., voice hearers or non-voice hearers; experience of CSA or not). In an attempt to minimise referral bias, members of the healthcare team across the four EIP sectors were initially approached individually and/or during weekly team meetings and requested to identify any clients who met these broad criteria. An anonymised list of individuals was subsequently complied by the researcher using NHS numbers and/or

alphabetical codes,[32] and were then randomly selected and approached for recruitment via a member of EIP staff. To maximise response rates, participants were offered a small incentive to take part (£5 gift vouchers), presented with a clear covering letter and information sheet which emphasised confidentiality and the right to withdraw, and were contacted with polite reminders about the research via their EIP workers. Participants additionally received verbal and written information about the project, although were not informed about specific hypotheses. This process was repeated until written consent had been obtained from the necessary number of respondents for all four groups. Data collection begun in July 2012 and was completed by April 2013 for Study 3, and May 2013 for Study 4.

Unless participants requested otherwise, all data were collected during a single meeting. For non-voice hearers, these sessions lasted from between 20 to 45 minutes, depending on the amount of detail provided by individual respondents. Data collection for participants who heard voices lasted between 30 to 75 minutes due to the additional measures. All participants completed the DES-II, the LSC-R, the DASS-21, and a questionnaire on contextual variables. Participants who heard voices additionally completed the BAVQ-R, the PSYRATS-AH, and the ESEC. In most cases PANSS data on voice hearing were obtained separately from healthcare workers, but was otherwise collected during the interview if not already available.

With the exception of pre-existing PANSS data, all assessment was undertaken by the same researcher using a consistent format and identical instructions for all participants across both studies. Masked assessment did not take place, in that the participant's status as voice hearer or non-voice hearer was known in advance. The administration of assessment measures was counterbalanced within each group, with the exception of the LSC-R and/or ESEC, which were asked towards the end of the meeting in order to permit time for developing interviewer-participant rapport. In addition to reducing participant discomfort, this strategy is also suggested as a way of enhancing reliability in life events research in that participants may be more willing to disclose adverse experiences (Wyatt, 1992). This also corresponded with advice provided by individuals in the pilot study.

After completing the measures, participants were debriefed and assessed for any imminent signs of distress or risk. Participants and their care coordinators also received a resource list containing details of coping and recovery literature, and details of relevant agencies that could provide confidential support if desired. Ultimately, however, the questions were well-received, and although three participants requested to withdraw during data collection (citing an inability to concentrate), no one became distressed during the course of the interviews.

---

[32] A common practice in the EIP service for conveniently generating codes is a combination of letters from service-users' first and surnames.

5.6   Analysis Strategy

In both studies, the majority of analyses were concerned with group differences between key variables. In both studies, unless otherwise stated, statistical significance levels were two-tailed. Because of the large number of multiple comparisons, alpha was reduced to a more stringent level of .01 in both studies. This was selected as the simplest, most robust method for minimising the probability of Type 1 errors when using numerous tests across different samples and sub-samples (Howell, 1999). Missing values were coded as .99 for all variables. All analyses were conducted using SPSS Statistics Data Editor v.20 software for Windows (SPSS Institute, Chicago, Illinois).

In order to address the first research question, similarities between case and control participants on measures of dissociation, affective disturbance, adverse life events, and general clinical and demographic characteristics were assessed using Mann-Whitney U-tests and independent t-tests. Associations between measures of dissociation and psychological distress were assessed using Spearman's rank correlation coefficients, and associations between voice hearing, trauma, psychological distress, and dissociation were presented as an odds ratio (OR), as an expression of risk for developing the outcome in those with reported exposures relative to those without. Adjusted ORs and associated p-values were calculated using logistic regression.

Additional group divisions were utilised for the second set of research questions. Within this analysis, dissociative symptoms, phenomenological voice hearing characteristics, adverse life events, and general clinical and demographic characteristics in participants with and without a history of exposure to CSA were compared using Mann-Whitney U-tests and independent t-tests. Associations between measures of dissociation, voice characteristics, and psychological distress were assessed using Spearman's rank correlation coefficients, and associations between CSA characteristics and dissociation scores were determined using chi-squared tests. Associations between voice hearing, adversity, psychological distress, and dissociation were computed using linear regression procedures.

Chapter 6

Results of Study 3

The aim of this study was to use a case-control design to derive data on the types of adversities reported by voice hearers (cases) and non-voice hearers (controls) experiencing a first-episode of psychosis; the levels of dissociation in these two groups; and to generate evidence on the way dissociative symptoms co-occur with both adversity exposure and such affective processes as anxiety, depression, and stress. It was hypothesised that (1) self-reported exposure to adverse victimisation events would precede voice hearing onset; (2) CSA exposure would be significantly higher in case participants than controls; (3) scores on measures of dissociation would be significantly higher in case participants; and (4) there would be a significant, positive association and confidence of estimate between voice hearing and dissociation after controlling for psychological distress and levels of adversity exposure

6.1   Parametric Assumptions

In advance of formal analysis, data were examined to determine whether they met criteria for parametric statistical testing. The measurement of psychological distress (DASS-21) and dissociation (DES-II) fulfilled initial assumptions in that data were at an interval level of measurement and the observations were independent between groups. However, data for both measures were not normally distributed, appearing bi-modal for the DASS-21 (kurtosis: -1.26, skewness: .14; see Figure 6.1a) and positively skewed for the DES-II (kurtosis: .63, skewness: .71; see Figure 6.1b).
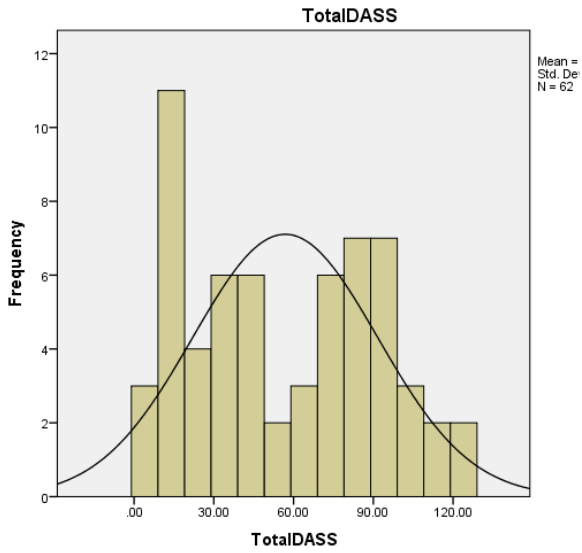
Figure 6.1a   Histogram showing the distribution of DASS-21 scores across the sample.
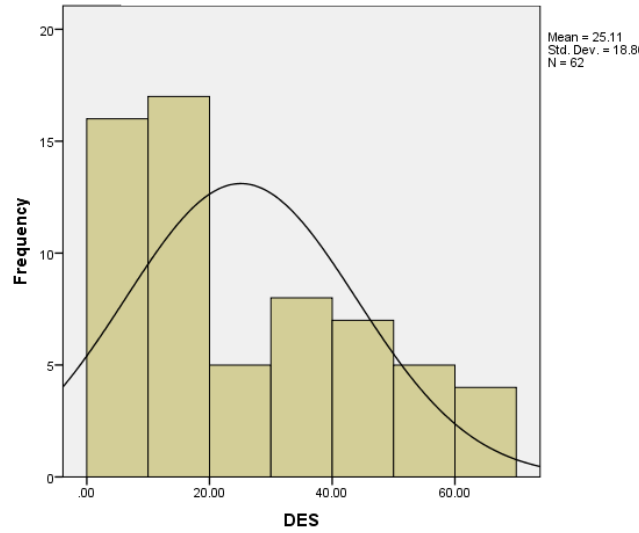
Figure 6.1b   Histogram showing the distribution of DES-II scores across the sample.

When examining group distributions, DES-II data for case participants came closer to a normal distribution, whereas a positive skew remained apparent for the control group (see Figure 6.2a and 6.2b). DASS-21 data for the cases appeared tri-modal, whereas a positive skew was more apparent for the controls (see Figure 6.2c and 6.2d).

Although parametric tests are generally preferred because of their superior power, it is particularly inadvisable to violate parametric assumptions in small samples because of the risk of erroneously accepting a null hypothesis (Howitt & Cramer, 2008). In view of this, more conservative non-parametric inferential statistical tests were selected for the present analyses, as these methods do not assume that data are derived from a given probability distribution (Siegal, 1956).
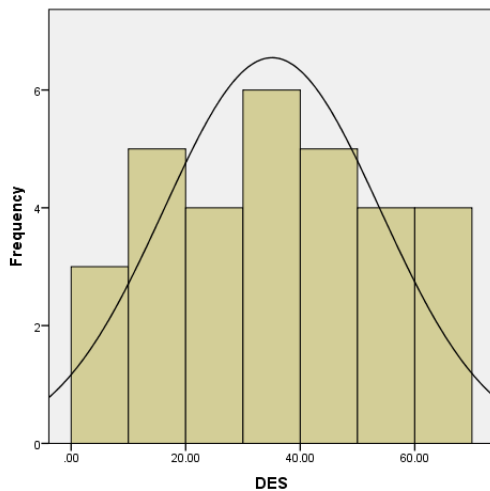
Figure 6.2a   Histogram showing the distribution of DES-II scores for case participants.
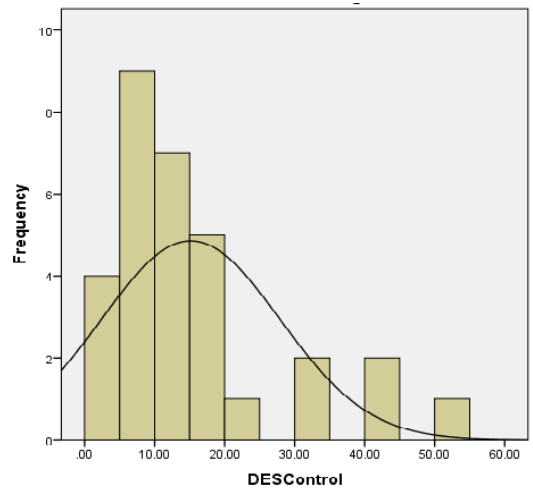
Figure 6.2b   Histogram showing the distribution of DES-II scores for control participants.
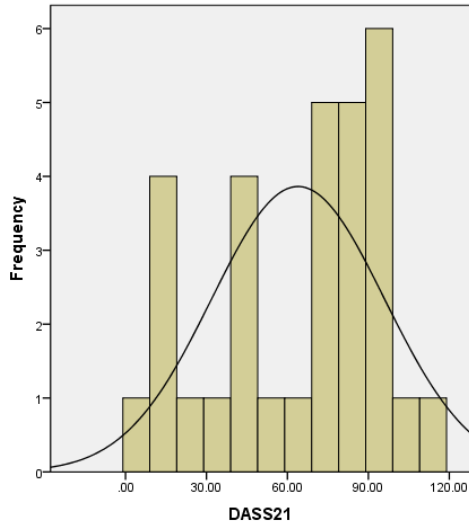
Figure 6.2c   Histogram showing the distribution of DASS-21 scores for case participants.
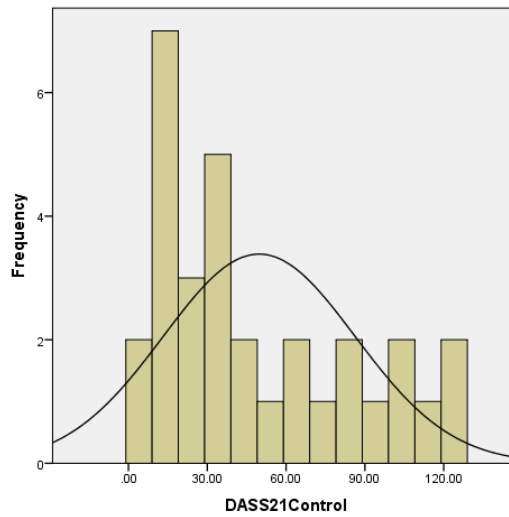
Figure 6.2d   Histogram showing the distribution of DASS-21 scores for control participants.

6.2   Sample Characteristics

In order to determine similarity between groups, case and control participants were initially assessed on a number of demographic and clinical variables.

6.2.1   Demographic Characteristics

Group differences in demographic variables were analysed using t-tests and Mann-Whitney *U*-tests. Of case participants, 17 were female and 14 male, with a mean age of 26.06 (SD=4.16; range 20–34 years), compared to a female to male ratio of 13:18 and mean age of 25.87 (SD=4.74; range 19–36 years) in the control group. None of the additional variables assessed (ethnicity, participant and both parents being born in the UK, marital status, housing, employment, years in education post-age 16, number of illicit substances used) indicated statistically significant group differences, although there was a tendency for case participants to report fewer years of education (see Table 6.1).

Table 6.1   Demographic characteristics for case and control participants.

	Case (n=31)		Control (n=31)	
	n	% of group	n	% of group
Gender				
Male	14	45%	18	58%
Female	17	55%	13	42%
Ethnicity				
White	18	58%	17	55%
Asian	12	39%	12	39%
Afro-Caribbean	1	3%	2	6%
Participant and both parents born in UK				
Yes	23	74%	21	68%
No	8	26%	10	32%
Marital status				
Single	23	74%	26	84%
Married or co-habiting	8	26%	5	16%
Housing				
Live with parents or family	12	39%	15	48%
Live alone	8	26%	7	23%
Sheltered accommodation	6	19%	5	16%
Live with partner	5	16%	4	13%
Employment				
Neither working or studying	22	71%	19	62%
Student	7	23%	9	29%
Part-time employment	1	3%	2	6%
Full-time employment	1	3%	1	3%
Use of illicit substances				
Cannabis	10	16%	14	23%
Amphetamines	3	5%	1	3%
Cocaine	2	3%	1	3%
Inhalants	1	3%	0	--
Heroin	1	3%	0	--
Years in education post-16				
No years	9	29%	5	16%
One year	9	29%	6	19%
Two years	5	16%	6	19%
Three years	2	7%	6	19%
Four years or more	6	19%	8	27%

Table 6.1 cont.

	Mean	Std. D	Mean	Std. D
Age	26.06	(4.16)	25.87	(4.74)
Years in education post-16	1.77	(1.82)	2.45	(1.82)

6.2.2 Clinical Characteristics

A second set of analyses were conducted using t-tests and Mann-Whitney *U*-tests to determine the level of clinical comparability between groups. Case and control participants did not differ significantly in their use of psychiatric medication, incidence of psychosis in first-degree relatives, or rates of different psychiatric diagnoses. However, the mean illness duration of case participants was significantly longer than the control group (t (60) = 2.45, p = .01). In the case participants, the prevalence of visual (U = 310.00, p =.006), tactile (U = 310.00, p =.002), and olfactory (U = 356.00, p =.01) hallucinations were also significantly higher than the control participants, with gustatory hallucinations (U = 403.00, p =.021) more prevalent at a level of borderline significance (see Table 6.2). There were no significant group differences for mean DASS-21 total scores (U = 372.00, p = .126), or for subscale measures of depression (U = 394.00, p = .222), anxiety (U = 348.50, p = .062), and stress (U = 378.00, p = .148). However, data distribution indicated that while control participants had a broader range of aggregated scores for psychological distress, they were less likely to score in the upper quartile of the DASS-21 than the case group (see Figure 6.3).
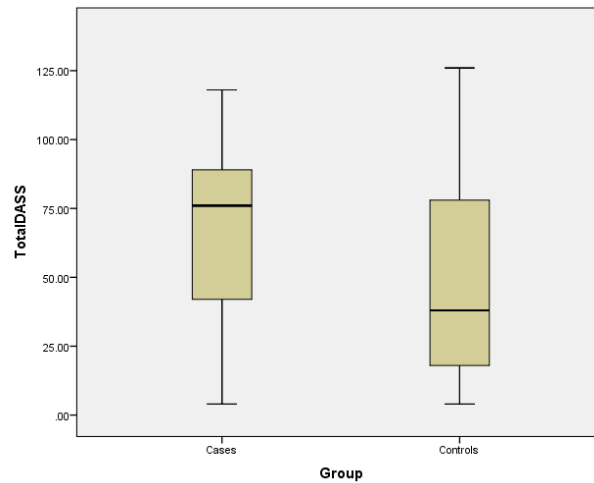
Figure 6.3   Box and whisker plot showing the mean and interquartile range of DASS-21 scores amongst case and control participants.

Table 6.2   Clinical characteristics for case and control participants.

	Case (*n*=31)			Control (*n*=31)		
	n	%		*n*	%	
Psychiatric diagnoses						
First-episode psychosis	19	61%		18	58%	
Schizophrenia	11	35%		10	32%	
Schizoaffective disorder	1	4%		3	10%	
Medication use						
Anti-psychotic	29	94%		28	90%	
Anti-depressant	14	45%		12	39%	
Anxiolytic	11	35%		12	39%	
Hypnotic	9	29%		6	19%	
Mood stabiliser	1	4%		3	10%	
Psychosis in first-degree relatives						
No	23	74%		20	65%	
Yes	8	26%		11	35%	
Non-auditory hallucinations						
Visual	21	68%		10	32% ***	
Tactile	14	45%		3	10%**	
Olfactory	10	32%		2	6% *	
Gustatory	5	16%		0	--	
	Mean	Std. D	Range	Mean	Std. D	Range
Illness duration in years	2.62	(1.12)	1–4	1.98	(0.91)	1–3 *
Affective disturbance						
Total DASS-21 score	63.94	(32.01)	4–118	49.74	(36.52)	4–126
Depression	21.35	(13.44)	0–38	16.83	(12.82)	2–42
Anxiety	21.94	(11.30)	0–38	16.77	(12.85)	0–42
Stress	20.65	(10.64)	0–42	16.13	(13.03)	0–42

* difference significant at .01 level; **difference significant at .002 level; *** difference significant at .006 level.

In summary, comparison of demographic and clinical variables indicated that while illness duration and presence of non-auditory hallucinations were the only statistically significant group differences, the case participants were generally less educated, less likely to be in employment, and to report greater psychological distress than the control group.

6.3 Group Differences in Dissociation

To determine whether dissociation was higher amongst voice hearers, mean DES-II and DES-T scores were compared between groups using Mann-Whitney U-tests (see Table 6.3). The case participants scored significantly higher than the control group for both mean DES-II total scores ($U = 177.50$, p = .001), and for each of its three subscales: depersonalisation ($U = 129.00$, p = .001), absorption ($U = 153.00$, p = .001), and dissociative amnesia ($U = 268.00$, p = .003). In addition, the case participants scored significantly higher on measures of pathological dissociation, as assessed by the DES-T ($U = 189.50$, p = .001).

The distribution of scores for both groups is depicted in Figure 6.4. The three outliers in the control group were firstly re-checked to confirm they were not the result of calculation errors in scoring. All values were subsequently retained on the grounds that they did not exceed 2.5 absolute deviations from the median (Hampel, 1974; see also Leys, Ley, Klien, Bernard & Licata, 2013). Based on Howell (1999), an additional rationale for not eliminating these values was that 1) the sample was small, and 2) the usual distribution of the process being measured was not confidently known.

Table 6.3   Measures of dissociation for case and control participants.

	Case (*n*=31)			Control (*n*=31)		
	Mean	Std. D	Range	Mean	Std. D	Range
DES-II	35.07	(18.89)	2.86–68.21	15.15	(12.73)	0–53.11 **
DP	35.59	(22.94)	1.67–66.67	9.13	(12.18)	0–57.14 **
AB	47.55	(20.40)	8.33–76.67	21.41	(16.82)	0–63.33 **
DA	23.92	(20.74)	0–71.67	10.48	(13.83)	0–50.00 *
DES-T	32.90	(22.64)	1.25–71.25	10.55	(11.90)	0–43.75 **

Note. DP = depersonalisation; AB = absorption; DA = dissociative amnesia.
*difference significant at .003 level; ** difference significant at .001 level.
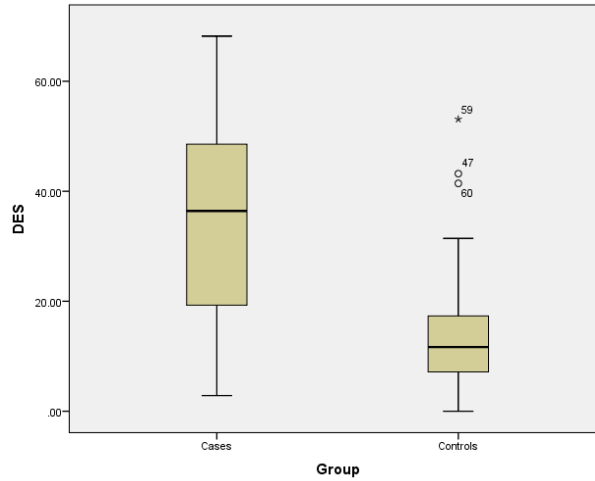
Figure 6.4   Box and whisker plot showing the mean and interquartile range of DES-II scores amongst case and control participants.

6.3.1   Dissociation and Psychological Distress

A series of bivariate correlations were conducted to assess associations in both groups between dissociation, as assessed by the DES-II and DES-T, and psychological distress, as assessed by the DASS-21. Spearman's rank order correlation coefficients for case and control participants are shown in Tables 6.4a and 6.4b respectively.

For case participants, mean scores for the DASS-21 and its three subscales were all positively correlated with mean DES-II total scores, its three subscales, and the DES-T. Significant correlations in excess of .70 (p = .001) were observed between total mean DASS-21 scores and DES-II and DES-T scores, and with two of the DES-II subscales (depersonalisation and absorption). A smaller positive correlation was additionally observed between mean DASS-II total scores and the dissociative amnesia subscale (r_s = .63, p = .001). Of the DASS-21 subscales, depression showed the strongest association with depersonalisation (r_s = .73, p = .001), whereas anxiety (r_s = .57, p = .001) and stress (r_s = .82, p = .001) were most correlated with absorption. In terms of pathological dissociation, correlations of .70 were evident between the DES-T, mean DASS-21 scores, depression, and stress. Anxiety was also positively correlated with the DES-T, although at a lower magnitude (r_s = .53, p = .001). For control participants, total DASS-21 scores showed moderate positive correlations with DES-II total scores and the DES-T, although these were not statistically significant. The association between psychological distress and dissociation is presented graphically for both groups in Figures 6.5a and 6.5b.

Table 6.4a   Spearman's rank order correlation coefficients between measures of dissociation and psychological distress amongst case participants.

n=31	DES-II	DP	AB	DA	DES-T
DASS-21	.73*	.70*	.72*	.63*	.71*
Depression	.66*	.73*	.53*	.57*	.70*
Anxiety	.54*	.52*	.57*	.44*	.53*
Stress	.79*	.69*	.82*	.69*	.70*
DES-II	--	--	--	--	.94*
DP	--	--	--	--	.96*
AB	--	--	--	--	.71*
DA	--	--	--	--	.84*

Note. DP=depersonalisation; AB=absorption; DA=dissociative amnesia.
* correlation significant at .001 level (one-tailed).

Table 6.4b   Spearman's rank order correlation coefficients between measures of dissociation and psychological distress amongst control participants.

n=31	DES-II	DP	AB	DA	DES-T
DASS-21	.30	.33	.28	.30	.34
Depression	.18	.22	.25	.25	.20
Anxiety	.35	.35	.30	.40	.38
Stress	.28	.29	.20	.23	.32
DES-II	--	--	--	--	.84*
DP	--	--	--	--	.84*
AB	--	--	--	--	.66
DA	--	--	--	--	.76*

Note. DP=depersonalisation; AB=absorption; DA=dissociative amnesia.
* correlation significant at .01 level (one-tailed).
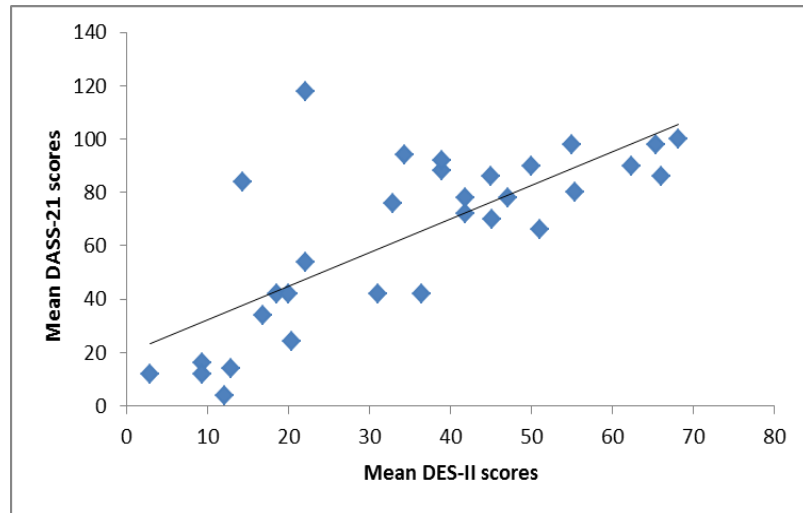
Figure 6.5a   Scatterplot showing the association between mean DASS-21 and DES-II scores amongst case participants.
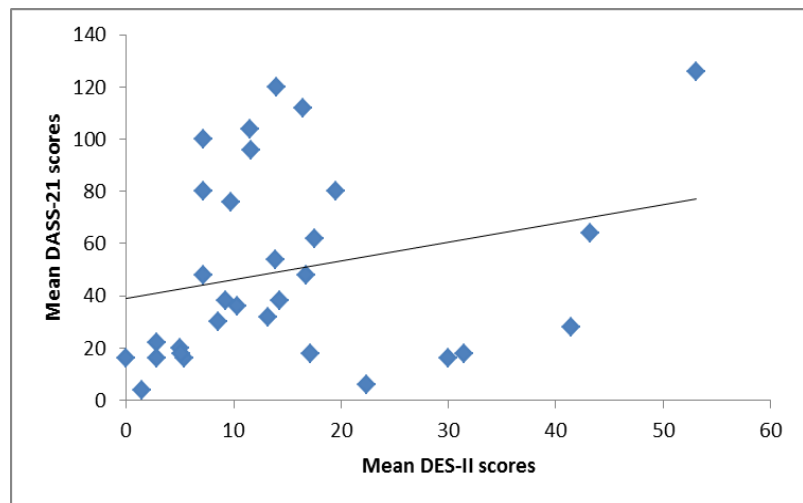
Figure 6.5b   Scatterplot showing the association between mean DASS-21 and DES-II scores amongst control participants.

6.3.2   Dissociation and Non-Auditory Hallucinations

Associations in both groups between dissociation and non-auditory hallucinations were additionally examined by comparing hallucination frequency according to high or low levels of dissociation. In order to derive a categorical measure of dissociation, a median split was calculated across the sample for the DES-T (12.88), the DES-II (18.04), and the three DES-II subscales: depersonalisation (12.50), absorption (30.84), and dissociative amnesia (9.17). This was done on statistical rather than theoretical grounds, as there is no available data for what constitutes a clinically significant score on the subscales or DES-T in this specific population.

Case participants were more likely than controls to experience multi-modal hallucinations, and to score in excess of the sample median for dissociation (see Table 6.5). Visions were the most frequently endorsed experience, although nearly half also reported tactile hallucinations, a third reported olfactory hallucinations, and gustatory hallucinations were reported by around one fifth. Between 80% and 100% of participants with these experiences scored above the sample median for the DES-II. In contrast, controls reported fewer non-auditory hallucinations, and these corresponded with high dissociation scores in only 30% to 50% of participants.

Table 6.5   Frequency of non-auditory hallucinations amongst case and control participants relative to the sample median split in DES-II scores.

		Total n with hallucinations	DES-II ≥ 18.04 n (%)	DES-II < 18.04 n (%)
Cases (n=31)	Visions	21	18 (86%)	3 (14%)
	Tactile	14	13 (93%)	1 (7%)
	Olfactory	10	8 (80%)	2 (20%)
	Gustatory	5	5 (100%)	--
Controls (n=31)	Visions	10	3 (30%)	7 (70%)
	Tactile	4	1 (33%)	3 (67%)
	Olfactory	2	1 (50%)	1 (50%)
	Gustatory	0	--	--

In summary, participants who heard voices scored significantly higher than non-voice hearers on all measures of dissociation: DES-II total scores, all three DES-II subscales, and the DES-T. Dissociation was positively correlated with psychological distress in both groups, although these associations were at a much larger magnitude amongst the voice hearers. These participants also reported more non-auditory hallucinations, and were more likely to score in excess of the sample median for dissociation compared to non-voice hearers reporting non-auditory hallucinations.

6.4   Dissociation and Voice Hearing

To estimate the probability of voice hearing being associated with higher dissociation scores, a cross-tabulation was conducted using voice hearing as the predictor variable. Unadjusted results indicated being a voice hearer increased the probability of scoring above the sample

median on the DES-II (OR=11.76: 95% CI, 3.57–38.67, p = .001), the DES-T (OR=9.86: 95% CI, 3.08–31.59, p = .001), depersonalisation (OR=11.76: 95% CI, 3.57–38.67, p = .001), and absorption (OR=8.27: 95% CI, 2.65–25.79, p = .001). Dissociative amnesia was associated at a level of borderline significance (OR=3.31: 95% CI, 1.17–9.36, p = .021). Respective contingencies are reported in Tables 6.6a-6.6e.

Table 6.6a   Cross-tabulation of DES-II scores and voice hearing.

Voice hearing	DES-II ≥18.04		Total
	Yes	No	
Yes	24	7	31
No	7	24	31
Total	31	31	62

Table 6.6b   Cross-tabulation of DES-T scores and voice hearing.

Voice hearing	DES-T ≥12.88		Total
	Yes	No	
Yes	23	8	31
No	7	24	31
Total	30	32	62

Table 6.6c   Cross-tabulation of depersonalisation scores and voice hearing.

Voice hearing	DP ≥12.50		Total
	Yes	No	
Yes	24	7	31
No	7	24	31
Total	31	31	62

Table 6.6d   Cross-tabulation of absorption scores and voice hearing.

Voice hearing	AB score ≥30.84		Total
	Yes	No	
Yes	23	8	31
No	8	23	31
Total	31	31	62

Table 6.6e   Cross-tabulation of dissociative amnesia scores and voice hearing.

Voice Hearing	DA ≥9.17		Total
	Yes	No	
Yes	20	11	31
No	11	20	31
Total	31	31	62

6.5   Adversity Exposure

The frequency of exposure to different types of non-victimisation adversity for the combined sample is reported in Table 6.7. At least one non-victimisation event was reported by 98%

(61/62) of participants, the three most common being witnessing domestic violence as a child, parental separation pre-age 16, and a sudden or unexpected bereavement pre-age 16.

Table 6.7   Lifetime prevalence of self-reported non-victimisation adversities across a sample of participants with first-episode psychosis.

n=62	*n*	% of total sample
Non-victimisation experiences		
Witnessing domestic violence pre-age 16	35	56%
Parental separation pre-age 16	30	48%
Sudden/unexpected bereavement pre-age 16 (e.g., murder, heart attack, suicide)	25	40%
Bereavement pre-age 16	24	38%
Being a carer	19	31%
Serious money problems	17	27%
Close family member sent to jail	16	26%
Fostered[33], adopted and/or placed in institutional care	15	24%
Bereavement post-age 16	13	21%
Divorce or separation	13	21%
Witnessing a robbery, mugging or assault	13	21%
Witnessing a serious accident	11	18%
Involvement in serious accident	11	18%
Serious physical illness or operation pre-age 16	5	8%
Abortion or miscarriage	4	6%
Disaster (e.g., fire, explosion, natural disaster)	2	3%
Separated from child	2	3%
Total number of non-victimisation experiences		
None	1	2%
1-3	26	41%
4-6	32	52%
6+	3	5%

Lifetime exposure to different types of victimisation adversity for the combined sample is reported in Table 6.8. At least one victimisation event was reported by 92% (57/62), in which bullying, childhood emotional abuse, and childhood physical abuse were the most frequent.

[33] Includes fostering by both extended family members, and carers appointed by local authorities.

Table 6.8   Lifetime prevalence of self-reported victimisation adversities across a sample of participants with first-episode psychosis.

n=62	*n*	% of total sample
Childhood victimisation experiences		
Bullying	36	58%
Emotional abuse	33	53%
Physical abuse	24	34%
Sexual molestation	18	29%
Neglect	18	29%
Rape	11	18%
Adulthood victimisation experiences		
Physical assault by a stranger	21	39%
Emotional abuse	14	23%
Rape	11	18%
Physical abuse	10	16%
Sexual molestation	5	8%
Sexual harassment	3	5%
Number of victimisation experiences		
None	5	8%
1-3	40	65%
4-6	17	27%

6.5.1   Group Differences in Non-Victimisation Events

The frequencies for different types of self-reported non-victimisation adversities in case and control groups are reported in Table 6.9. Group differences in event types were subsequently calculated using Mann-Whitney *U*-tests. As with the combined sample, witnessing domestic violence, parental separation, and sudden or unexpected bereavement were the most frequently reported events for both case and control groups. Although being fostered, adopted, and/or placed in institutional care ($U = 372.00$, p =.039), or experiencing serious financial problems ($U = 403.00$, p =.158) were notably higher in the control group and case group respectively, these differences were not statistically significant. However, while no specific events differed in prevalence between groups, control participants were more significantly more likely to report between four and six different events ($U = 325.50$, p = .01), whereas cases were more likely to report between one and three ($U = 294.50$, p = .002).

Table 6.9   Lifetime prevalence of self-reported non-victimisation adversities in case and control participants.

Type of experience	Case (n=31)		Control (n=31)	
	n	% of sample	n	% of sample
Witnessing domestic violence pre-age 16	18	58%	17	55%
Parental separation pre-age 16	13	42%	17	55%
Sudden/unexpected bereavement pre-age 16 (e.g., murder, heart attack, suicide)	12	39%	13	42%
Bereavement pre-age 16	11	35%	13	42%
Serious money problems	11	35%	6	19%
Being a carer	8	26%	11	35%
Bereavement post-age 16	8	26%	5	16%
Close family member sent to jail	8	26%	10	32%
Involvement in serious accident	6	19%	5	16%
Divorce or separation	6	19%	7	23%
Witnessing a mugging or assault	5	16%	8	26%
Witnessing a serious accident	5	16%	6	19%
Fostered, adopted and/or placed in institutional care	4	13%	11	35%
Serious physical illness or operation pre-16	3	10%	2	6%
Abortion or miscarriage	2	6%	2	6%
Disaster (e.g., fire, explosion, natural disaster)	1	3%	4	13%
Separated from child	1	3%	1	3%
Number of non-victimisation experiences				
None	0	--	1	3%
1-3	19	61%	7	23%**
4-6	11	36%	21	68%*
7+	1	3%	2	6%

* difference significant at .01 level; **difference significant at .002 level.

6.5.2   Group Differences in Victimisation Events

The frequencies for different types of self-reported victimisation adversities in case and control participants are reported in Table 6.10. Bullying was the most commonly reported experience in both groups, followed by childhood emotional abuse, and childhood sexual molestation (case participants); and childhood physical abuse and childhood emotional abuse

(control participants). Significant group differences were observed in the prevalence of childhood sexual molestation ($U = 325.50$, p = .006) and childhood rape ($U = 341.50$, p = .003), which was higher amongst case participants. Childhood physical abuse was more common amongst the control participants at a level of borderline statistical significance ($U = 356.50$, p = .019).

Table 6.10   Lifetime prevalence of self-reported victimisation adversities in case and control participants.

Type of experience	Case (*n*=31)		Control (*n*=31)	
	n	% of sample	*n*	% of sample
Childhood victimisation experiences				
Bullying	19	61%	17	55%
Emotional abuse	19	61%	14	45%
Sexual molestation	14	45%	4	13%**
Neglect	11	35%	7	23%
Rape	10	32%	1	3%*
Physical abuse	8	26%	16	52%
Adulthood victimisation experiences				
Physical assault by a stranger	14	45%	8	26%
Emotional abuse	8	26%	6	19%
Rape	7	23%	4	13%
Physical abuse	5	16%	5	16%
Sexual molestation	2	6%	3	10%
Sexual harassment	1	3%	2	6%
Total victimisation experiences				
None	2	6%	3	10%
1-3	18	58%	22	71%
4-6	11	36%	6	19%

*Difference significant at .003 level; ** difference significant at .006 level.

6.5.3   Co-Occurrence of Childhood Abuse

Additional frequency data was obtained to determine the co-occurrence of different types of childhood maltreatment (emotional, physical, sexual, and neglect: see Table 6.11). The majority of participants reported one form of abuse, which in most instances was emotional.

Of the case participants, 19% (n=6) reported two forms of abuse, which was most likely to be emotional and sexual. In the control group, 26% (n=8) also reported two forms of abuse, although this was most likely to be emotional and physical. Twice as many case participants (n=10) reported three or more types of childhood abuse than control participants (n=4), which was most frequently emotional, sexual, and neglect; compared to emotional, physical, and neglect. Seven individuals in both groups (23%) did not report any form of childhood abuse.

Table 6.11   The frequency of different types of childhood abuse in case and control groups.

	Case (n=31)		Control (n=31)	
	n	% of sample	*n*	% of sample
One type of childhood abuse	8	26%	11	35%
Emotional only	4	13%	6	19%
Sexual only	3	10%	1	3%
Physical only	1	3%	3	10%
Neglect only	0	--	1	3%
Two types of childhood abuse	6	19%	8	26%
Emotional and sexual	3	10%	0	--
Emotional and neglect	1	3%	0	--
Emotional and physical	1	3%	4	13%
Physical and sexual	1	3%	2	6%
Physical and neglect	0	--	2	6%
Three types of childhood abuse	8	26%	5	16%
Emotional, neglect and sexual	5	16%	0	--
Emotional, neglect and physical	3	10%	3	10%
Emotional, sexual and physical	0	--	1	3%
Physical, sexual and neglect	0	--	1	3%
Four types of childhood abuse	2	6%	0	--
Emotional, neglect, physical and sexual	2	6%	0	--
No abuse	7	23%	7	23%

6.5.4. Temporal Sequence between Adverse Life Events and Voice Hearing

The mean age of voice hearing onset amongst case participants was 19.97 years (SD=6.60). Frequency data indicated that a substantial proportion of adverse life events had occurred for the first time prior to voice emergence (see Table 6.12). Of the 16 non-victimisation events, nine had all been experienced for the first time prior to voices starting. An additional four events (serious money problems, being a carer, a close family member sent to jail, getting divorced) had occurred prior to voice onset in 67% to 88% of cases. Only two events (experiencing a disaster such as a fire or explosion, separation from one's child) exclusively occurred after voices had already started.

Of the 12 victimisation events, five were reported as occurring prior to voice onset in 100% of participants, and a further two (bullying, physical assault by a stranger) in 89% and 93% of cases. Three types of exposure (adulthood physical abuse, adulthood rape, adulthood emotional abuse) had occurred after voice onset for the majority of participants (60%, 71%, and 75% respectively). Two events (adulthood sexual molestation and sexual harassment) had only occurred after voice emergence. Across the sample, all participants reported at least one adverse experience prior to their voices starting.

Onset was further analysed across the sample relative to levels of dissociation and exposure to victimisation experiences (see Table 6.13). As control participants did not hear voices, 'onset' was defined as the onset of psychotic illness. Dissociation was categorised using the same median split procedure described in section 6.3.2. A substantial proportion of case participants (77%: n=24) were identified as having high levels of dissociation and experiencing at least one victimisation event prior to voice onset. Controls were also more likely to report victimisation prior to developing psychosis, but this was in conjunction with low dissociation (65%: n=20).

Table 6.12   Adverse life events reported by case participants relative to voice hearing onset.

Total *n* = 31	Prevalence in total sample		Incidence prior to voice emergence		Incidence after voice emergence	
	n	% of sample	*n*	% of group	*n*	% of group
Non-victimisation experiences						
Witnessing domestic violence	18	58%	18	100%	0	--
Parental separation pre-age 16	13	42%	13	100%	0	--
Sudden/unexpected bereavement pre-age 16 (e.g., murder, heart attack, suicide)	12	39%	12	100%	0	--
Bereavement pre-age 16	11	35%	11	100%	0	--
Serious money problems	11	35%	9	82%	2	18%
Being a carer	9	29%	7	78%	2	22%
Close family member sent to jail	8	26%	7	88%	1	12%
Involvement in serious accident	6	19%	6	100%	0	--
Divorce or separation	6	19%	4	67%	2	33%
Witnessing a mugging or assault	5	16%	5	100%	0	--
Witnessing a serious accident	5	16%	5	100%	0	--
Fostered, adopted and/or placed in institutional care	4	13%	4	100%	0	--
Serious physical illness or operation pre-16	3	10%	3	100%	0	--
Abortion or miscarriage	2	6%	1	50%	1	50%
Disaster (e.g., fire, explosion, natural disaster)	1	3%	0	--	1	100%
Separated from child	1	3%	0	--	1	100%
Victimisation experiences						
Childhood emotional abuse	19	61%	19	100%	0	--
Bullying	19	61%	17	89%	2	11%
Childhood sexual molestation	14	45%	14	100%	0	--
Physical assault by stranger	14	45%	13	93%	1	7%
Childhood neglect	11	35%	11	100%	0	--
Childhood rape	10	32%	10	100%	0	--
Childhood physical abuse	8	26%	8	100%	0	--
Adulthood rape	7	23%	2	29%	5	71%
Adulthood physical abuse	5	16%	2	40%	3	60%
Adulthood emotional abuse	8	26%	2	25%	6	75%
Adulthood sexual molestation	2	6%	0	--	2	100%
Sexual harassment	1	3%	0	--	1	100%

Table 6.13   Association between victimisation experiences, levels of dissociation and voice hearing/psychosis onset for cases and controls.

	Case (n=31)		Control (n=31)	
	n	% of total sample	*n*	% of total sample
High dissociation Pre-onset victimisation	24	77%	7	23%
High dissociation No pre-onset victimisation	0	--	1	3%
Low dissociation Pre-onset victimisation	5	16%	20	65%
Low dissociation No pre-onset victimisation	2	6%	3	10%

In summary, both groups reported high exposure to non-victimisation adversities (particularly witnessing domestic violence as a child, parental separation pre-age 16, and a sudden or unexpected bereavement pre-age 16). Control participants reported significantly more non-victimisation events than the case group and, although the difference was not statistically significant, were more likely to have been fostered, adopted, and/or placed in institutional care. Bullying and emotional abuse were commonly reported victimisation experiences in both groups, although case participants were significantly more likely to have been sexually abused, and physical abuse was higher in the control group at a level of borderline statistical significance. Case participants were also more likely to have experienced multiple forms of childhood abuse compared to controls. In addition, the temporal sequence for adversity and voice hearing indicated that the majority of both victimisation and non-victimisation experiences occurred for the first time prior to voice hearing onset. The control group were also more likely to have been exposed to adverse events prior to illness onset, although unlike the case group this was in conjunction with low levels of dissociation.

6.6   Independent Associations with Voice Hearing

To determine whether dissociation scores retained significant associations with voice hearing when adjusting for psychological distress, CSA, and non-CSA childhood trauma exposure, a logistic regression analysis was conducted using voice hearing as the dependent variable, and total exposures to non-CSA childhood trauma (LSC-R data), CSA exposure (LSC-R data),

and log-transformed DASS-21and DES-II data as predictor variables (see Table 6.14). Results indicated that the four-variable model provided a statistically significant improvement over the constant-only model and accounted for 48.6% of the total variance. Wald tests demonstrated that mean DES-II scores were the only statistically significant predictor of voice hearing (OR=5.78; 95% CI: 1.99-16.81; p=.001). CSA exposure also increased the probability of being a voice hearer by 2.18 times, although this was not statistically significant (p=.34). When the analysis was re-run using childhood rape only (rather than rape and molestation combined) this increased the OR to 3.35, although still did not reach statistical significance (p=.31: see Table 6.15).

Table 6.14   Logistic regression model: dissociation, psychological distress, CSA exposure, and non-CSA childhood trauma as predictors of voice hearing, with control participants as the reference category.

				95% CI		
n=62	β (Std.E)	Wald	Odds Ratio	Lower	Upper	p
Dissociation	1.75 (.55)	10.36	5.78	1.99	16.81	.001
Psychological distress	.216 (.43)	.25	1.24	.53	2.91	.62
CSA	.78 (.82)	.90	2.18	.44	10.91	.34
Total non-CSA childhood trauma	-.30 (.14)	4.44	.74	.57	.98	.04

Note. R^2= .33 (Hosmer & Lemeshow); .36 (Cox & Snell). Model $\chi^2(4) = 28.10$, p=.001.

Table 6.15   Logistic regression model: dissociation, psychological distress, exposure to childhood rape, and non-CSA childhood trauma as predictors of voice hearing, with control participants as the reference category.

				95% CI		
n=62	β (Std.E)	Wald	Odds Ratio	Lower	Upper	p
Dissociation	1.50 (.51)	8.71	4.50	1.66	12.22	.003
Psychological distress	.035 (.41)	.008	1.04	.47	2.27	.93
Childhood rape	1.21 (1.20)	1.01	3.35	.32	35.34	.31
Total non-CSA childhood trauma	-.24 (.32)	.57	.79	.42	1.46	.45

Note. R^2= .37 (Hosmer & Lemeshow); .31 (Cox & Snell). Model $\chi^2(4) = 23.04$, p=.001.

6.6.1 Independent Associations with Non-Auditory Hallucinations

To assess whether dissociation also predicted non-auditory hallucinations, the analysis was repeated using any type of non-auditory experience as the dependent measure (see Table 6.16). The four different modalities (visual, olfactory, tactile, gustatory) were modelled as a single variable, partly due to the relatively low numbers of participants reporting each experience, and also owing to a lack of theoretical justification for treating each modality differently. The four-variable model provided an improvement over the constant-only model at a level of borderline significance (p = .02) and accounted for 22.8% of the total variance. However, DES-II scores were only associated with non-auditory hallucinations at a level of borderline statistical significance (OR=3.58; 95% CI: 1.11-11.62; p=.03).

Table 6.16   Logistic regression model: dissociation, psychological distress, CSA, and total non-CSA childhood trauma as predictors of non-auditory hallucinations, with participants without non-auditory hallucinations as the reference category.

n=62	β (Std.E)	Wald	Odds Ratio	95% CI Lower	95% CI Upper	*p*
Dissociation	1.28 (.60)	4.54	3.58	1.11	11.62	.03
Psychological distress	.015 (.01)	2.46	1.02	.99	1.03	.12
CSA	-.13 (.71)	.03	.88	.22	3.55	.86
Total non-CSA childhood trauma	-.03 (.12)	.07	.97	.77	1.22	.79

Note. R^2= .19 (Hosmer & Lemeshow); .17 (Cox & Snell). Model $\chi^2(4)$ = 11.56, p=.02.

In summary, dissociation showed the strongest association with voice hearing presence (but not non-auditory hallucinations) across the sample when adjusting for psychological distress, sexual abuse, and total number of trauma exposures. Childhood rape increased the probability of being a voice hearer over molestation, but not at a level of statistical significance.

Chapter 7

Results of Study 4

The aim of this study was to employ a between-groups comparison design to explore the impact of CSA on subjectively-rated voice characteristics and attributions amongst psychosis patients, and to derive data on the associations between these factors and measures of dissociation and psychological distress. Participants were all voice hearers, either reporting a history of CSA (14 of who were also recruited as part of Study 3) or with no CSA exposure (17 of who were also recruited as part of Study 3). It was hypothesised that (1) measures of CSA severity would be associated with greater levels of dissociation; (2) individuals with a history of CSA would report more negative voice-related attributions and beliefs than non-CSA survivors; and (3) measures of dissociation would show significant positive associations with measures of voice hearing severity when controlling for psychological distress and levels of adversity exposure.

7.1   Parametric Assumptions

As with the Study 3, data were examined prior to multivariate analysis to determine the suitability of parametric statistical tests. Neither sets of scores were normally distributed, resembling a multi-modal distribution for both the DASS-21 (kurtosis: - 1.18, skewness: -.27; see Figure 7.1a) and the DES-II (kurtosis: -.96, skewness: .24; see Figure 7.1b).
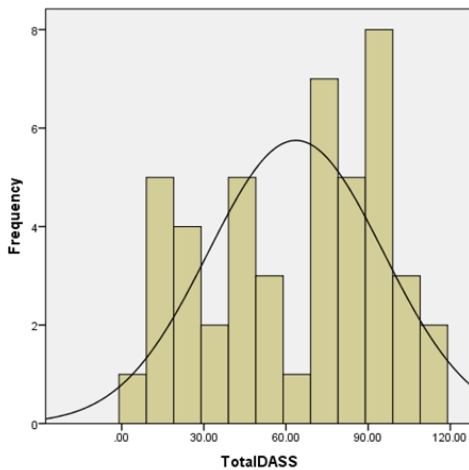
Figure 7.1a   Histogram showing the distribution of DASS-21 scores across the sample.
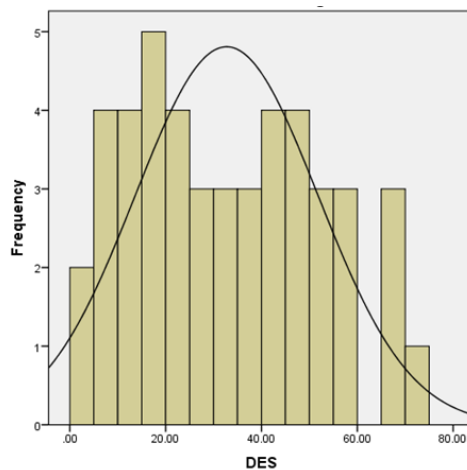
Figure 7.1b   Histogram showing the distribution of DES-II scores across the sample.

When examining distribution by group, DASS-21 data for both the reference (+ CSA) and comparison (– CSA) participants appeared multi-modally distributed, as were DES-II scores in the reference group (see Figure 7.2a-2c). However, DES-II data for the comparison group appeared uni-modal with a positive skew (see Figure 7.2d). In view of this, non-parametric inferential statistical tests were chosen for the analysis, based on the same rationale as that described in section Chapter 6, section 6.1.
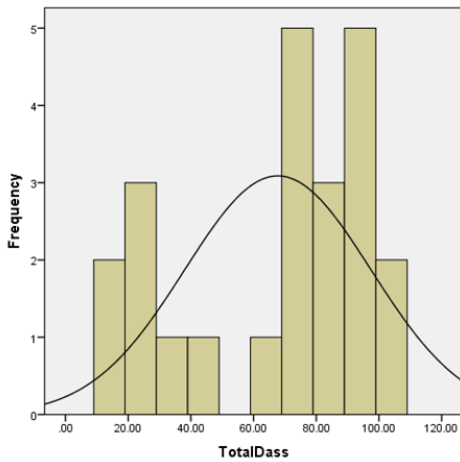
Figure 7.2a Histogram showing the distribution of DASS-21 scores across the reference group (+ CSA).
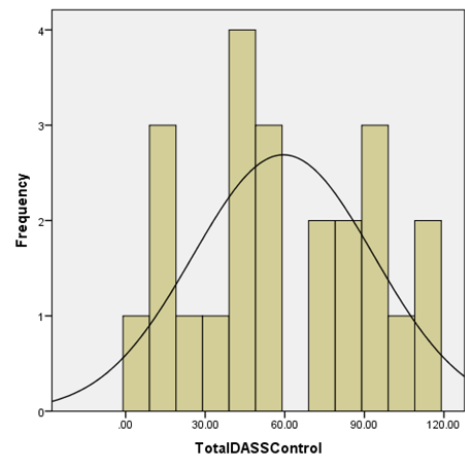
Figure 7.2b Histogram showing the distribution of DASS-21 scores across the comparison group (- CSA).
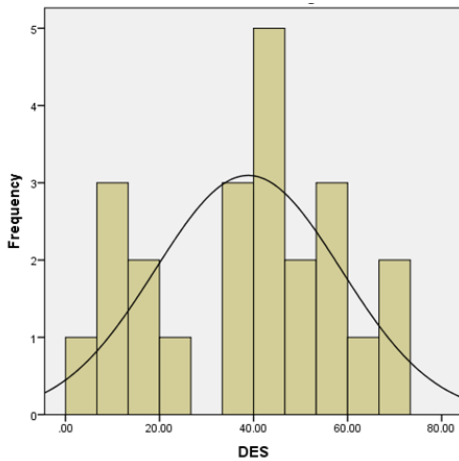
Figure 7.2c Histogram showing the distribution of DES-II scores across the reference group (+ CSA).
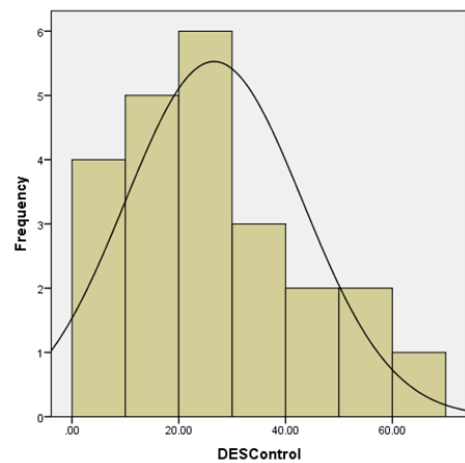
Figure 7.2d Histogram showing the distribution of DES-II scores across the comparison group (- CSA).

7.2   Sample Characteristics

As with Study 3, the two groups were initially assessed on a number of demographic and clinical variables in order to determine relevant similarities and differences.

7.2.1   Demographic Characteristics

Of participants with a history of CSA, 14 were female and 9 male, with a mean age of 25.00 (SD=3.93; range 20–34 years), compared to the reference group of which 11 were female and 12 male, with a mean age of 26.13 (SD=4.50; range 19–36 years). None of the additional variables assessed (ethnicity, participant and both parents being born in the UK, marital status, housing, employment, years in education post-age 16, number of illicit substances used) indicated statistically significant group differences (see Table 7.1).

7.2.2   Clinical Characteristics

A second set of analyses were conducted to determine the level of clinical comparability between groups, which are reported in Table 7.2. Participants with and without a history of CSA did not differ significantly in the frequency of different psychiatric diagnoses, use of psychiatric medication, incidence of psychosis in first-degree relatives, or in mean illness duration. Although there were no group difference in the prevalence of visions ($U = 253.00$, p = .39) or olfactory hallucinations ($U = 264.50$, p = .50), the reported rates of tactile ($U = 184.00$, p = .02) and gustatory ($U = 207.00$, p = .02) hallucinations were higher in participants with a history of CSA at a level of borderline significance. These participants were also significantly more likely to hear six or more voices (t (44)= 2.50, p = .01) and to have begun hearing voices at a younger age (t (44)= -3.58, p= .001). There were no group differences for mean DASS-21 total scores ($U = 227.50$, p = .416), or for subscale measures of depression ($U = 190.50$, p = .103), anxiety ($U = 251.50$, p = .774), and stress ($U = 236.00$, p = .530). However, data distribution indicated that participants with experience of CSA were more likely to score in the upper quartile of the DASS-21 than the comparison group (see Figure 7.3).

In summary, participants with a history of CSA were likely to hear more voices than non-sexually abused participants and to have heard voices from a younger age. They were also more likely to experience tactile and gustatory hallucinations. Although the differences were not significant, these participants also tended towards higher scores on the total DASS-21 and its depression subscale.

Table 7.1   Demographic characteristics of participants with and without a CSA history.

	+ CSA (*n*=23)			- CSA (*n*=23)	
	n	%		*n*	%
Gender					
Male	9	39%		12	52%
Female	14	61%		11	48%
Ethnicity					
White	13	57%		12	52%
Asian	7	30%		11	48%
Afro-Caribbean	3	13%		0	--
Participant and both parents born in UK					
Yes	17	74%		15	65%
No	6	26%		8	35%
Marital status					
Single	16	70%		18	78%
Married or co-habiting	7	30%		5	22%
Housing					
Live with parents or family	8	35%		11	48%
Live alone	6	26%		6	26%
Live with partner/spouse	5	22%		4	17%
Sheltered accommodation	4	17%		2	9%
Employment					
Neither working or studying	18	79%		16	70%
Student	3	13%		6	26%
Part-time employment	1	4%		0	--
Full-time employment	1	4%		1	4%
Use of illicit substances					
Cannabis	7	30%		9	39%
Amphetamines	3	13%		2	9%
Cocaine	1	4%		2	9%
Inhalants	1	4%		0	--
Heroin	1	4%		0	--
Years in education post-16					
No years	7	30%		5	22%
One year	6	26%		6	26%
Two years	3	13%		6	26%
Three years	2	9%		2	9%
Four years or more	5	22%		4	17%
	Mean	Std. D		Mean	Std. D
Age	25.00	(3.93)		26.13	(4.50)
Years in education post-16	1.74	(1.94)		1.96	(1.80)

Table 7.2   Clinical characteristics for participants with and without a history of CSA.

	+ CSA (n=23)				- CSA (n=23)		
	n	%			*n*	%	
Psychiatric diagnoses							
First-episode psychosis	13	56%			15	66%	
Schizophrenia	8	35%			7	30%	
Schizoaffective disorder	2	9%			1	4%	
Medication use							
Anti-psychotic	20	91%			22	96%	
Anti-depressant	13	57%			9	39%	
Anxiolytic	11	48%			8	35%	
Hypnotic	7	30%			3	13%	
Psychosis in first-degree relatives							
No	16	70%			18	78%	
Yes	7	30%			5	22%	
Non-auditory hallucinations							
Visual	14	61%			13	57%	
Tactile	14	61%			7	30%*	
Olfactory	8	35%			8	35%	
Gustatory	5	17%			0	-- *	
Number of voices							
One	2	9%			6	26%	
Two – five	9	39%			12	52%	
Six or more	12	52%			5	22%**	

	Mean	Std.D	Range		Mean	Std.D	Range
Illness duration in years	2.57	(1.08)	1–4		2.24	(1.07)	1–4
Age of voice onset	17.04	(6.71)	6–28		23.00	(4.31)	15–31 ***
Affective disturbance							
Total DASS-21 score	67.74	(29.72)	14–104		59.48	(34.12)	4–118
Depression	24.65	(11.99)	0–42		18.39	(12.78)	0–38
Anxiety	22.04	(9.83)	0–38		21.22	(11.37)	0–40
Stress	21.04	(10.82)	2–40		19.87	(12.54)	0–42

* Difference significant at .02 level; ** difference significant at .01 level; ***difference significant at .001 level.
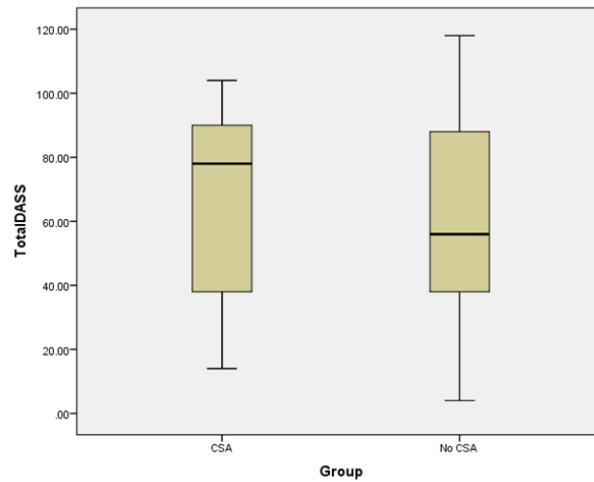
Figure 7.3   Box and whisker plot showing the mean and interquartile range of DASS-21
                     scores amongst participants with and without a history of CSA.

7.3   Group Differences in Dissociation

Mean levels of dissociation in the two groups are reported in Table 7.3 and the distribution of DES-II scores is shown in Figure 7.4. Participants with a history of CSA scored significantly higher on the DES-T ($U = 138.50$, p = .006) and the depersonalisation subscale of the DES-II ($U = 129.00$, p = .003) compared to voice hearers with no CSA history. Although the differences were not significant, sexually abused participants also reported higher mean total DES-II scores ($U = 169.50$, p = .036), and for subscale measures of dissociative amnesia ($U = 174.50$, p = .048) and absorption ($U = 190.00$, p = .102) compared to voice hearers without CSA exposure.

There was one outlier in the comparison group (see Figure 7.4), which was initially re-checked to confirm this was not the result of calculation errors in scoring. This value was ultimately retained on the grounds that it did not exceed 2.5 absolute deviations from the median (Hampel, 1974; see also Leys et al., 2013). In addition to the exploratory nature of the investigation (Haccou & Meelis, 1992), an additional rationale for not eliminating this value was that 1) the sample was small, and 2) the usual distribution of the process being measured was not confidently known (Howell, 1999).

Table 7.3   Measures of dissociation for participants with and without a history of CSA.

	+ CSA (*n*=23)			- CSA (*n*=23)		
	Mean	Std. D	Range	Mean	Std. D	Range
DES-II	38.86	(19.76)	5.36–71.00	26.59	(16.60)	1.79–66.07
DP	43.27	(22.60)	8.33–76.66	22.87	(15.88)	3.33–71.67*
AB	46.72	(23.61)	6.66–78.33	35.95	(18.28)	3.33–70.00
DA	26.75	(20.13)	0–71.67	15.85	(15.92)	0–63.33
DES-T	38.59	(21.30)	6.25–71.25	21.19	(16.71)	1.25–75.00**

Note. DP = Depersonalisation; AB = Absorption; DA = Dissociative amnesia.
* Difference significant at .003 level; **difference significant at .006 level.
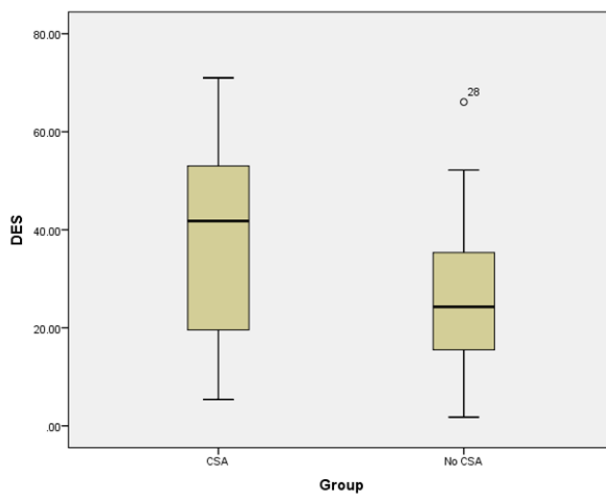
Figure 7.4   Box and whisker plot showing the mean and interquartile range of DES-II scores amongst participants with and without a history of CSA.

7.3.1   Dissociation and Psychological Distress

A series of bivariate correlations were conducted to determine associations in both groups between dissociation, as assessed by the DES-II and DES-T, and psychological distress, as assessed by the DASS-21. Respective correlation coefficients are shown in Table 7.4.

For participants with a history of CSA, mean scores for the DASS-21 and its three subscales were all positively correlated with mean DES-II total scores, its three subscales, and the DES-T. Correlations in excess of .73 (p = .01) were observed between total mean DASS-21 scores and DES-II and DES-T scores, and with two of the DES-II subscales

(depersonalisation and absorption). A smaller positive correlation was additionally observed between mean DASS-II total scores and the dissociative amnesia subscale (r_s = .67, p = .01). The strongest association with total DASS-21 scores was the DES-T (r_s = .80, p = .01). Of the DASS-21 subscales, depression (r_s = .81, p = .01) and anxiety (r_s = .73, p = .01) showed the strongest association with the DES-T, and stress (r_s = .79, p = .01) with absorption.

For non-sexually abused participants, total DASS-21 scores also showed significant positive correlations with DES-II total scores, subscale scores, and the DES-T, although these were of a lower magnitude than the CSA survivors. The strongest statistically significant associations with total DASS-21 scores were for the DES-T (r_s = .67, p = .01), depersonalisation (r_s = .67, p = .01), and the DES-II total (r_s = .62, p = .01), with lower associations apparent between the DASS-21 and absorption (r_s = .53, p = .01) and dissociative amnesia (r_s = .45, p = .01). Of the DASS- 21 subscales, depression showed the strongest association with depersonalisation (r_s = .67, p = .01), anxiety with absorption (r_s = .59, p = .01), and stress with total DES-II scores (r_s = .65, p = .01). The association between psychological distress and dissociation is presented graphically for both groups in Figures 7.5a and 7.5b.

In summary, participants with a history of CSA scored significantly higher than the comparison group on the DES-T and the DES-II depersonalisation subscale. There were no significant group differences in terms of DES-II total scores, or subscale scores for dissociative amnesia and absorption. Psychological distress and dissociation (particularly scores for the DES-T, DES-II total, and depersonalisation subscale) were significantly associated in both groups, although the correlations were generally higher amongst CSA survivors.

Table 7.4 Spearman's rank order correlation coefficients between dissociation and psychological distress amongst participants with and without a history of CSA.

n=46	DES-II	DP	AB	DA	DES-T
DASS-21					
+ CSA (*n*=23)	.76*	.79*	.73*	.67*	.80*
− CSA (*n*=23)	.62*	.67*	.53*	.45	.67*
Depression					
+ CSA	.77*	.78*	.63*	.78*	.81*
− CSA	.51*	.70*	.28	.38	.67*
Anxiety					
+ CSA	.67*	.65*	.60*	.62*	.73*
− CSA	.54*	.52*	.59*	.34	.51*

Table 7.4 Cont.

	DES-II	DP	AB	DA	DES-T
Stress					
+ CSA	.72*	.74*	.79*	.63*	.70*
− CSA	.65*	.60*	.60*	.50*	.62*
DES-II					
+ CSA	--	--	--	--	.96*
− CSA					.84*
DP					
+ CSA	--	--	--	--	.95*
− CSA					.93*
AB					
+ CSA	--	--	--	--	.58*
− CSA					.63*
DA					
+ CSA	--	--	--	--	.93*
− CSA					.68*

Note. DP=depersonalisation; AB=absorption; DA=dissociative amnesia.
* Correlation significant at .01 level (one-tailed).
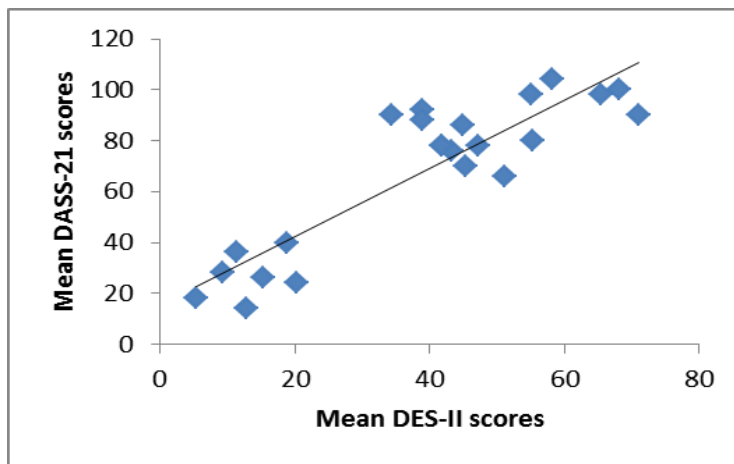
Figure 7.5a   Scatterplot showing the association between mean DASS-21 and DES-II scores amongst + CSA participants.
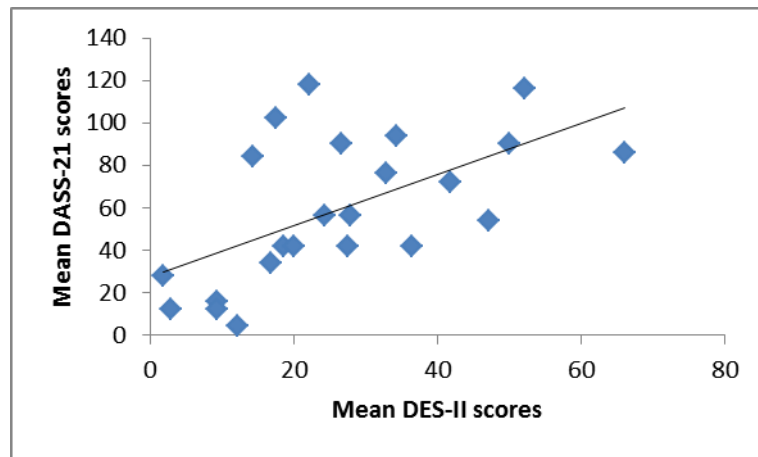
Figure 7.5b   Scatterplot showing the association between mean DASS-21 and DES-II scores amongst - CSA participants.

7.4   Group Differences in Voice Hearing Phenomenology

Cognitive attributions and emotional/behavioural responses to voices were assessed by the BAVQ-R and are reported in Table 7.5. Contrary to predictions, there were no significant group differences in perceived voice malevolence ($U = 206.50$, p = .20), benevolence ($U = 250.50$, p = .75), behavioural resistance to voices ($U = 243.00$, p= .63), emotional resistance ($U = 197.50$, p = .14), behavioural engagement ($U = 248.00$, p = .71), or emotional engagement ($U = 250.00$, p = .74). However, the CSA group experienced their voices as significantly more omnipotent ($U = 155.50$, p = .01).

Table 7.5   Cognitive attributions and behavioural and emotional responses to voices in participants with and without experience of CSA.

	+ CSA (*n* = 23)			- CSA (*n* = 23)		
	Mean	Std. D	Range	Mean	Std. D	Range
Malevolence	10.09	(4.51)	0-17	7.65	(6.06)	0-17
Benevolence	4.61	(4.66)	0-14	4.39	(3.52)	0-15
Omnipotence	11.65	(4.72)	3-18	8.13	(4.61)	0-16*
Behavioural resistance	7.30	(2.84)	3-12	7.65	(3.59)	0-12
Emotional resistance	9.91	(3.27)	4-15	7.96	(4.43)	0-15
Behavioural engagement	2.35	(3.46)	0-12	2.17	(2.82)	0-12
Emotional engagement	2.48	(3.26)	0-9	2.70	2.98	0-9

* Difference significant at .01 level.

Secondary voice hearing characteristics were assessed by the PSYRATS-AH and are reported in Table 7.6. There were no significant group differences in voice volume ($U = 226.50$, p = .39), voice duration ($U = 182.50$, p = .06), amount of negative content ($U = 216.00$, p = .26), or degree of negative content ($U = 190.00$, p = .09). Although participants with experience of CSA tended to report a greater number of distressing voices ($U = 199.50$, p = .14), higher voice-related distress ($U = 210.50$, p = .21), and were more likely to hear externally located voices ($U = 219.00$, p = .28), these differences were also not statistically significant. Differences that approached statistical significance were that participants with a history of CSA were more likely to attribute voices to an external source ($U = 163.50$, p = .02), to report less control over their voices ($U = 181.00$, p = .03), to describe voices as more disruptive ($U = 162.50$, p = .02), and to hear voices more frequently ($U = 158.00$, p = .02).

Table 7.6   Different voices hearing characteristics in participants with and without experience of CSA.

Voice hearing characteristics	PSYRATS -AH item	CSA + (n=23) (M/Std.D)	Closest PSYRATS-AH anchor	CSA − (n=23) (M/Std.D)	Closest PSYRATS-AH anchor
Cognitive interpretation	Beliefs about origin	2.43 (1.08)	≥ 50% certain voices originate from external causes	2.22 (1.04)	≤ 50% certain voices originate from external causes
	Location	2.96 (.88)	Voices close to ears, or outside away from ears	2.65 (.98)	Voices inside head, or outside head close to ears
	Disruption	2.61 (1.20)	Severe disruption to activities/ relationships	1.83 (1.03)	Moderate disturbance to activities/ relationships
	Controlla-bility	3.61 (.66)	Voices always uncontrollable	3.00 (1.09)	Voices uncontrollable majority of time
Physical characteristics	Frequency	3.22 (1.04)	Voices at least once an hour	2.39 (1.16)	Voices at least once a day
	Duration	3.09 (1.12)	Voices last up to an hour	2.61 (1.18)	--
	Volume	2.96 (1.19)	Same volume as own voice	2.17 (1.07)	--

Table 7.6 cont.

Voice hearing characteristics	PSYRATS-AH item	+ CSA (*n*=23) (M/Std.D)	Closest PSYRATS-AH anchor	- CSA (*n*=23) (M/Std.D)	Closest PSYRATS-AH anchor
Emotional characteristics	Amount of negative content	3.13 (.98)	≥50% negative	2.78 (1.09)	--
	Degree of negative content	3.22 (.90)	Personal verbal abuse relating to self-concept	2.61 (1.96)	--
	Amount of distress	3.04 (1.02)	≥ 50% voices distressing	2.48 (1.31)	≤ 50% voices distressing
	Intensity of distress	2.87 (1.22)	Voices very distressing	2.48 (1.20)	Voices moderately distressing

In summary, CSA survivors were significantly more likely to perceive their voices as omnipotent, although the two groups did not differ on any other measure of cognitive attribution or emotional/behavioural responses to voices. Voice phenomenology was also broadly similar in both groups, although participants with a CSA history reported more frequent, uncontrollable, disruptive voices, which were more likely to be attributed to an external source at a level of borderline statistical significance.

7.4.1 Group Comparisons for Associations between Voice Phenomenology, Dissociation, and Distress

Across the entire sample, BAVQ-R rated appraisals (malevolence, benevolence, omnipotence) and responses (emotional and behavioural engagement and resistance) to voices were examined for associations with dissociation, pathological dissociation, and psychological distress (see Table 7.7). Perceived malevolence and omnipotence were positively correlated with all three measures, which were strongest for the DES-T. Behavioural and emotional resistance to voices were also correlated with all three measures, although the strongest associations were with the DASS-21. Benevolence, emotional engagement, and behavioural engagement were not significantly associated with either dissociation or distress.

Correlations were then re-examined by group (see Table 7.7). A significant, positive association between perceived malevolence and both DES-T and DASS-21 scores was apparent in both groups at a similar magnitude, although malevolence was only significantly associated with DES-II scores in CSA survivors. The same pattern was evident for perceived omnipotence, although the correlations were stronger in the CSA group. Emotional resistance

was significantly associated with DASS-21 scores in both groups, in addition to the DES-T in the non-sexually abused group and the DES-II in the CSA group. Behavioural resistance and engagement, emotional engagement, and perceived benevolence were not significantly associated with measures of dissociation or psychological distress in either group.

Table 7.7   Spearman's rank order correlation coefficients between voice appraisals, responses to voices, and measures of dissociation and psychological distress in participants with and without a history of CSA.

	DES-II	DES-T	DASS-21
Malevolence			
Whole sample (*n*=46)	.56*	.65*	.58*
+ CSA (*n*=23)	.68*	.64*	.49*
− CSA (*n*=23)	.38	.67*	.58*
Benevolence			
Whole sample	-.07	-.08	-.01
+ CSA	.02	.13	.17
− CSA	-.08	-.18	-.19
Omnipotence			
Whole sample	.60*	.70*	.60*
+ CSA	.71*	.71*	.66*
− CSA	.28	.55*	.50*
Behavioural resistance			
Whole sample	.29	.28	.44*
+ CSA	.40	.29	.46
− CSA	.27	.37	.46
Emotional resistance			
Whole sample	.46*	.53*	.57*
+ CSA	.53*	.44	.51*
− CSA	.29	.55*	.55*
Behavioural engagement			
Whole sample	-.01	-.04	-.02
+ CSA	-.24	-.24	-.13
− CSA	-.21	-.23	-.20
Emotional engagement			
Whole sample	.01	-.08	-.09
+ CSA	-.24	-.25	-.20
− CSA	-.18	-.39	-.41

* Correlation significant at .01 level (one-tailed).

Secondary voice characteristics, as assessed by the PSYRATS-AH, generally showed moderate, positive correlations across the sample with both measures of dissociation and the

measure of psychological distress (see Table 7.8). The largest associations were generally with the DES-T, with the exception of volume, which had the strongest correlation with the DES-II ($r_s = .42$, p = .01), and amount of negative content, which was most associated with DASS-21 scores ($r_s = .47$, p = .01). Controllability and voice location were not significantly associated with distress, or either measure of dissociation.

A number of differences were apparent when the correlations were repeated for each group (see Table 7.8). Voice frequency and duration were significantly associated with DES-T scores for CSA survivors, although duration was correlated with DASS-21 scores in both groups. Associations between all three measures and voice volume were higher in non-sexually abused participants, whereas correlations between voice disruption and both dissociation measures were higher for participants with a history of CSA. Surprisingly, amount and degree of negative voice content were not significantly associated with dissociation or psychological distress in either group. Degree of voice-related distress was significantly associated with DASS-21 and DES-T scores in the non-abused group, but not for voice hearers with a history of CSA; whereas intensity of distress was significantly correlated with dissociation for CSA survivors, and with DASS-21 scores for the non-abused group. The most striking differences were in controllability, which was associated with all three measures in only the CSA survivors; and beliefs about voice origin, which was comparable in both groups in terms of DASS-21 scores, but had much larger associations with DES-II and DES-T scores in the CSA group.

In summary, two cognitive appraisals for voices (perceived malevolence and omnipotence) and two responses (behavioural resistance and emotional resistance) were significantly correlated with dissociation, pathological dissociation, and psychological distress across the sample. The association was particularly pronounced between appraisals and pathological dissociation, and responses and psychological distress, and were both of greater magnitude in the CSA survivors. Across the sample, phenomenological voice characteristics showed moderate, positive correlations with measures of psychological distress and dissociation, particularly pathological dissociation. However, perceived location showed greater correlations with dissociation measures in the non-abused group, and controllability was only associated with dissociation and psychological distress in the CSA survivors. Furthermore, believing one's voices were externally generated was associated with distress in both groups, but was only correlated with dissociation amongst CSA survivors.

Table 7.8   Spearman's rank order correlation coefficients between secondary voice characteristics and measures of dissociation and psychological distress for participants with and without a history of CSA.

	DES-II	DES-T	DASS-21
Frequency			
Whole sample (*n*=46)	.38*	.57*	.44*
+ CSA (*n*=23)	.47	.58*	.44
− CSA (*n*=23)	.10	.39	.39
Duration			
Whole sample	.43*	.56*	.53*
+ CSA	.48	.57*	.55*
− CSA	.26	.41	.51*
Location			
Whole sample	.16	.18	.05
+ CSA	.01	.07	.15
− CSA	.29	.22	.02
Volume			
Whole sample	.42*	.36*	.30*
+ CSA	.31	.22	.22
− CSA	.54*	.45	.36
Beliefs about origin			
Whole sample	.28	.35*	.25
+ CSA	.53*	.54*	.22
− CSA	.11	.04	.20
Amount of negative content			
Whole sample	.35*	.44*	.47*
+ CSA	.40	.38	.34
− CSA	.07	.33	.47
Degree of negative content			
Whole sample	.55*	.61*	.48*
+ CSA	.44	.42	.21
− CSA	.22	.38	.18
Amount of distress			
Whole sample	.51*	.59*	.48*
+ CSA	.42	.39	.23
− CSA	.47	.68*	.60*
Intensity of distress			
Whole sample	.55*	.61*	.55*
+ CSA	.63*	.62*	.40
− CSA	.36	.51*	.61*

Table 7.8 cont.

	DES-II	DES-T	DASS-21
Disruption			
Whole sample	.53*	.59*	.39*
+ CSA	.58*	.65*	.31
− CSA	.29	.39*	.35
Controllability			
Whole sample	.25	.34	.33
+ CSA	.54*	.60*	.56*
− CSA	-.19	-.04	.09

* Correlation significant at .01 level (one-tailed).

7.5   Independent Associations with Voice Hearing Phenomenology

To determine the relative contribution of dissociation, psychological distress, and total victimisation and non-victimisation experiences to self-reported voice severity across the sample, a series of multiple regression analyses were run using the three PSYRATS-AH factors (emotional characteristics, cognitive appraisals, physical characteristics) as dependent variables, and mean log-transformed DES-II and DASS-21 scores, and LSC-R rated adversities as predictor variables in each analysis. Summary statistics for the regression equation are presented in Table 7.9.

For emotional characteristics of voices, the equation was significant for DES-II ($F(1,45)=19.71$, p=.001, adjusted R^2=.29) and DASS-21 scores ($F(2,45)= 13.26$, p=.001, adjusted R^2=.35), with total number of victimisation ($F(3,45)=8.68$, p=.001, adjusted R^2=.34) and non-victimisation events ($F(4,45)=7.08$, p=.001, adjusted R^2=.35) also accounting for significant amount of variance. However, standardised regression coefficients suggested that DASS-21 scores were the only variable in the model associated with emotional voice characteristics at a level of borderline significance (β = .43, t = 2.38, p=.02).

For physical voice characteristics, DES-II scores ($F(1,45)=21.32$, p=.001, adjusted R^2=.31), DASS-21 scores ($F(2,45)=12.88$, p=.001, adjusted R^2=.35), victimisation ($F(3,45)=9.21$, p=.001, adjusted R^2=.35), and non-victimisation events ($F(4,45)=8.42$, p=.001, adjusted R^2=.40) all accounted for statistically significant changes in variance. As previously, DASS-21 scores were the only variable associated with physical voice characteristics at a level of borderline statistical significance (β = .35, t = 2.14, p=.03).

For cognitive appraisals of voices, the DES-II ($F(1,45)=14.45$, p=.001, adjusted R^2=.23), DASS-21 scores ($F(2,45)=7.40$, p=.001, adjusted R^2=.08), victimisation ($F(3,45)=7.37$, p=.001, adjusted R^2=.30), and non-victimisation events ($F(4,45)=5.61$, p=.001, adjusted R^2=.29) all made a significant contribution to the model. Standardised regression

coefficients indicated that victimisation experiences were the only variable associated with cognitive voice characteristics at a level of borderline significance (β = .37, t = 2.49, p=.02).

Table 7.9   Summary statistics of multiple regression analyses for independent associations with secondary voice hearing characteristics

Variable	B[a]	SE$_B$[b]	β[c]	t	p
Emotional characteristics[d]					
DES-II	.47	.04	.24	1.30	.20
DASS-21	.05	.02	.43	2.38	.02
Victimisation events	.21	.33	.09	.64	.52
Non-victimisation events	-.32	.24	-.18	-1.35	.19
Physical characteristics[e]					
DES-II	.04	.03	.25	1.42	.16
DASS-21	.03	.02	.35	2.14	.03
Victimisation events	.40	.22	.25	1.80	.08
Non-victimisation events	.32	.16	-.25	-2.01	.05
Cognitive characteristics[f]					
DES-II	.04	.03	.27	1. 42	.16
DASS-21	.01	.02	.11	.56	.58
Victimisation events	.62	.25	.37	2.49	.02
Non-victimisation events	-.14	.18	-.10	-.75	.46

(n=46 for each characteristic block)

[a] Unstandardised regression weights; [b] standard error of B; [c] standardised regression coefficients. [d] Constant only model: B=6.91, SE$_B$=1.21, t=5.71, p=.001; [d] Constant only model: B=4.68, SE$_B$=.82, t=5.70, p=.001; [e] Constant only model: B=7.57, SE$_B$=.93, t=8.18, p=.001

7.6   CSA Characteristics and Dissociation

The CSA experiences reported by the reference group are summarised in Table 7.10. Associations between these different CSA characteristics and levels of dissociation were examined across the group by categorising abuse experiences according to high or low dissociation. Dissociation scores were generated by using a median split across the sample for the DES-II (41.79). Results indicated that experiencing penetrative abuse (χ^2 (1,23) = 15.58, p =.001), being abused under the age of ten (χ^2 (1,23) = 7.34, p =.007), being abused by multiple perpetrators (χ^2 (1,23) = 5.24, p =.01), and being abused by a parent (χ^2 (1,23) = 10.16, p =.001), all increased the probability of scoring above the sample median for the DES-II. Experiencing abuse of more than five years duration was associated with dissociation at a borderline level of significance (χ^2 (1,23) = 4.79, p =.03). However, not disclosing abuse at

the time and/or receiving an unsupportive response to disclosure, was not associated with elevated dissociation scores (χ^2 (1,23) = 1.06, p =.30). Respective contingencies are reported in Tables 7.11a-f.

Table 7.10   Characteristics of CSA experiences in a group of voice hearing patients with first-episode psychosis.

Total *n* =23	*n*	% of total sample
Type of abuse		
Contact without penetration	21	87%
Contact with penetration	13	57%
Non-contact	12	52%
Identity of perpetrator		
Parent	11	48%
Extended family member	9	39%
Acquaintance	8	35%
Sibling	4	17%
Stranger	4	17%
Response to disclosure		
Did not disclose	6	26%
Unsupportive response	9	39%
Moderately supportive response	4	17%
Very supportive response	4	17%
Number of perpetrators		
One	11	48%
Two	5	22%
Three +	7	30%
Age when abuse first occurred		
Seven years or younger	6	26%
Eight – 12 years	7	30%
13 – 16 years	10	43%
Duration of abuse		
Single occurrence	3	13%
Up to a year	2	8%
Two – five years	10	43%
Five years +	8	35%

Table 7.11a   Cross-tabulation of DES-II total scores and penetrative CSA.

Penetrative abuse	DES ≥41.79		Total
	Yes	No	
Yes	12	1	13
No	1	9	10
Total	13	10	23

Table 7.11b   Cross-tabulation of DES-II scores and CSA onset of ≤ 10 years of age.

CSA onset ≤ 10 years of age	DES ≥41.79		Total
	Yes	No	
Yes	10	2	12
No	3	8	11
Total	13	10	23

Table 7.11c   Cross-tabulation of DES-II total scores and multiple perpetrators in CSA.

≥ 2 perpetrators	DES ≥41.79		Total
	Yes	No	
Yes	9	3	12
No	3	8	11
Total	12	11	23

Table 7.11d   Cross-tabulation of DES-II total scores and being abused by a parent.

Abused by a parent	DES ≥41.79		Total
	Yes	No	
Yes	11	0	11
No	3	9	12
Total	14	9	23

Table 7.11e   Cross-tabulation of DES-II total scores and CSA disclosure.

Did not disclose/ unsupportive response	DES ≥41.79		Total
	Yes	No	
Yes	9	6	15
No	3	5	8
Total	12	11	23

Table 7.11f   Cross-tabulation of DES-II total scores and CSA duration.

+ 5 years	DES ≥41.79		Total
	Yes	No	
Yes	7	1	8
No	6	9	15
Total	13	10	23

In summary, the majority of participants reported experiencing multiple forms of penetrative and non-penetrative CSA, generally perpetrated by a parent or other family member, and who had either not disclosed the abuse at the time, or disclosed and received an unsupportive response. Nearly half had been abused by a single individual, and the remainder by two or more perpetrators. In two-thirds of cases, CSA had begun aged 12 or younger and most typically lasted between two and five years. The experience of penetrative abuse, being

abused under the age of ten, and being abused by a parent were all significantly associated with elevated dissociation scores, and abuse duration of more than five years was associated with DES-II scores at a level of borderline significance. However, non-disclosure, or an unhelpful response to disclosure, was not associated with dissociation.

7.7   CSA and Non-Auditory Hallucinations

Due to the unanticipated level of description and detail in response to the non-auditory hallucinations screening questionnaire, a decision was taken to perform a *post hoc* inspection of the content of visual, tactile, olfactory, and gustatory hallucinations in relation to CSA exposure. As can be seen from Table 7.14, only a minority of participants identified concrete links between these hallucinations and actual experiences of CSA. More commonly reported experiences were hallucinations with content that appeared to be related to CSA, but were attributed by the participant to external agencies, such as supernatural or paranormal forces. For hallucinations that (1) were deemed by the researcher to be thematically consistent with CSA exposure, but not identified as such by the participant (n=10), and (2) hallucinations that were not thematically linked with CSA by either the researcher or participant (n=10), a series of inter-rater reliability checks were performed to determine the extent to which these experiences might be reliably considered to have content consistent, or otherwise, with CSA exposure.

This process was undertaken by 26 raters, blinded as to whether hallucination descriptors came from a CSA survivor. These were primarily students and staff members from the Institute of Psychological Sciences and the Faculty of Medicine and Health at the University of Leeds (11 female and 15 male; mean age 42.60, SD=10.75).[34] The coefficient of concordance was calculated using Kendall's *W*. For the first set of hallucinations, rater agreement that the content appeared linked to CSA was 80.7% (Kendall's $W = 1.0$, p=.002), whereas agreement that the remaining hallucinations appeared unrelated to CSA was 71.5% (Kendall's $W = 1.0$, p=.002). Given that a Kendall's W of $\geq .70$ indicates high agreement (Legendre, 2005), these results suggest extremely high concordance amongst the raters, although it should be noted that reliability was reduced by the small sample of both responses and raters.

---

[34] Ethical permission for this investigation was given by the Research Ethics Committee at the University of Leeds. For the participant information sheet, consent form and rater questionnaire, please see Appendix D1-D3.

Table 7.12   Thematic content of non-auditory hallucinations in + CSA group.

Total *n*=23	Visual *n*=14	Tactile *n*=14	Olfactory *n*=8	Gustatory *n*=5	% Rater agreement and reliability
Participant relates hallucination content to CSA					
Direct link[a]	14% (2/14)	21% (3/14)	25% (2/8)	40% (2/5)	--
Indirect link[b]	14% (2/14)	14% (2/14)	--	--	
Abuse-related content, but not attributed as such by participant[c]	22% (3/14)	36% (5/14)	13% (1/8)	20% (1/5)	80.7%, *W* = 1.0
Not related or attributed to abuse[d]	36% (5/14)	22% (3/14)	25% (2/8)	--	71.5%, *W* = 1.0
Content not stated/data missing	14% (2/14)	7% (1/14)	37% (3/8)	40% (2/5)	--

[a] Direct thematic link; e.g., sensation of penetration, smell/taste of semen, taste of sedative drugs or alcohol administered during abuse. [b] Not directly related to the experience of abuse itself; e.g., participant claims CSA perpetrator(s) is projecting images from television to harass them; participant claims perpetrator(s) uses sophisticated technology to burn them with lasers. [c] E.g., participant reports recurrent sensations of sexual assault, but attributes it to paranormal or extra-terrestrial source. [d] E.g., bright lights and flashes of colour; smell of burning tyres.

7.8   Other Adverse Life Events

7.8.1   Group Differences in Non-Victimisation Events

Group differences in self-reported exposure to non-victimisation events are reported in Table 7.13. Witnessing domestic violence was the most commonly reported experience for individuals with a history of CSA, followed by parental separation pre-age 16, and sudden or unexpected bereavement pre-age 16. For the group with no CSA history, the most commonly reported experiences were parental separation pre-age 16, witnessing domestic violence, and serious financial problems. None of the group differences were significant, although individuals with a history of CSA were more likely to report witnessing domestic violence as a child ($U = 184.00$, p = .04) and to have experienced an abortion or miscarriage ($U = 218.50$, p = .038).

Table 7.13   Lifetime prevalence of self-reported non-victimisation adversities in participants with and without a history of CSA.

	+ CSA (*n*=23)		- CSA (*n*=23)	
	n	%	*n*	%
Non-victimisation experiences				
Witnessing domestic violence pre-age 16	16	70%	9	43%
Parental separation pre-age 16	10	43%	10	43%
Sudden/unexpected bereavement pre-age 16 (e.g., murder, heart attack, suicide)	10	43%	7	30%
Bereavement pre-age 16	10	43%	8	35%
Serious financial problems	10	43%	9	39%
Being a carer	7	30%	6	26%
Involvement in serious accident	6	26%	4	17%
Witnessing a robbery, mugging or assault	6	26%	2	7%
Fostered, adopted and/or placed in institutional care	5	22%	3	13%
Serious physical illness or operation pre-16	4	17%	3	13%
Abortion or miscarriage	4	17%	0	--
Close family member sent to jail	3	13%	7	30%
Divorce or separation	3	13%	5	22%
Witnessing a serious accident	2	9%	5	22%
Bereavement post-age 16	2	9%	3	13%
Disaster (e.g., fire, explosion, natural disaster)	1	4%	1	4%
Separated from child	1	4%	0	--
Critically ill child	1	4%	0	--
Number of non-victimisation experiences				
None	1	4%	0	--
1-3	14	61%	16	70%
4-6	6	26%	6	26%
7+	2	7%	1	4%

7.8.2   Group Differences in Victimisation Events

Group differences in self-reported exposure to victimisation adversities are reported in Table 7.14. Bullying was the most commonly reported experience in both groups, followed by childhood emotional abuse, and neglect (+ CSA participants); and childhood emotional abuse, and childhood physical abuse (- CSA participants). Participants with a history of CSA were significantly more likely to report between four and six other victimisation events (*U* =

172.50, p = .008), whereas those without CSA were more likely to report between one and three (U = 172.50, p = .01). Although the differences were not significant, individuals who had been sexually abused in childhood were also more likely to report adulthood rape (U = 195.00, p = .05), physical assault by a stranger (U = 195.00, p = .05) and childhood neglect (U = 207.00, p = .11).

Table 7.14   Lifetime prevalence of adverse victimisation experiences in participants with and without a history of CSA.

	+ CSA (*n*=23)		- CSA (*n*=23)	
	n	%	*n*	%
Childhood victimisation experiences				
Bullying	17	74%	16	70%
Emotional abuse	14	61%	12	52%
Neglect	10	43%	5	22%
Physical abuse	6	26%	7	30%
Adulthood victimisation experiences				
Rape	9	39%	3	13%
Physical assault by stranger	8	35%	4	17%
Emotional abuse	5	22%	6	26%
Physical abuse	5	22%	1	4%
Sexual harassment	5	22%	1	4%
Sexual molestation	4	17%	1	4%
Number of victimisation experiences				
None	0	--	2	9%
1-3	11	48%	19	83%*
4-6	10	43%	2	9%**
7 +	2	9%	0	--

*Difference significant at .01 level; ** difference significant at .008 level.

7.8.3   Temporal Sequence between Adverse Life Events and Voice Hearing

The mean age of voice hearing onset was 17.00 years (SD=6.72, range 6-28) for sexually abused participants and 23 years (SD=4.31, range 15-31) for the reference group. Frequency data indicated that a substantial proportion of adverse life events had occurred for the first time prior to voice emergence (see Table 7.15).

Of the 17 non-victimisation events, four (witnessing domestic violence, parental separation, close family member sent to jail, being fostered/adopted/placed in institutional care) were unanimously reported to have happened, or started for the first time, prior to voice onset. An additional seven events had occurred prior to voice onset in 71% to 88% of cases, and three had occurred before voices started in 50% to 63% of cases. Only three events (experiencing a disaster such as a fire or explosion, separation from ones' child, caring for a critically ill child) had exclusively occurred after voices had already started.

Of the 12 victimisation events, all five types of childhood maltreatment (emotional abuse, sexual molestation, rape, physical abuse, neglect) were reported to have happened, or started for the first time, prior to voice onset in 100% of participants. A further three events (adulthood physical abuse, sexual harassment, and bullying) pre-dated voice onset in 63%, 83% and 85% of cases. Only two events (adulthood rape or sexual molestation) were reported as occurring more frequently post-voice hearing. Across the sample, all participants reported at least one adverse experience prior to their voices starting.

Of the participants reporting CSA, only three stated that they had begun hearing voices at the time of their abuse. Across the sample, the mean duration between the start of CSA and the emergence of voice hearing was 7.39 years (SD=6.17, range ≤1-20). A common pattern was that participants reported voices beginning after a precipitating stressful event, which included a sudden or unexpected bereavement (n=4), rape in adulthood (n=3), bullying (n=3), parental separation (n=3), sexual harassment (n=2), emotional abuse (n=2), bereavement (n=2), having an abortion (n=1), a serious physical illness (n=1), being physically attacked by a stranger (n=1), or being a carer (n=1). Two participants did not identify any stressors in conjunction with voice emergence.

Table 7.15   Adverse life events relative to voice hearing onset for whole sample.

Total *n* = 46	Prevalence in total sample		Incidence prior to voice emergence		Incidence after voice emergence	
	n	%	*n*	%	*n*	%
Non-victimisation experiences						
Witnessing domestic violence	25	54%	25	100%	0	--
Parental separation pre-age 16	20	43%	20	100%	0	--
Serious money problems	19	41%	12	63%	7	37%
Bereavement pre-age 16	18	39%	15	83%	3	17%
Sudden/unexpected bereavement pre-age 16 (e.g., murder, heart attack, suicide)	17	37%	15	88%	2	12%
Being a carer	13	28%	10	77%	3	13%
Close family member sent to jail	10	22%	10	100%	0	--
Involvement in serious accident	10	22%	6	60%	4	40%
Fostered, adopted and/or placed in institutional care	8	17%	8	100%	0	--
Divorce or separation	8	17%	4	50%	4	50%
Witnessing a robbery, mugging or assault	8	17%	6	75%	2	25%
Witnessing a serious accident	7	15%	5	71%	2	29%
Serious physical illness or operation pre-16	7	15%	6	86%	1	14%
Abortion or miscarriage	4	8%	3	75%	1	25%
Disaster (e.g., fire, explosion, natural disaster)	2	4%	0	--	2	100%
Separated from child	1	2%	0	--	1	100%
Critically ill child	1	2%	0	--	1	100%
Victimisation experiences						
Bullying	33	72%	28	85%	5	15%
Childhood emotional abuse	26	57%	26	100%	0	--
Childhood sexual molestation	26	50%	26	100%	0	--
Childhood neglect	15	33%	15	100%	0	--
Childhood rape	13	28%	13	100%	0	--
Childhood physical abuse	13	28%	13	100%	0	--
Physical assault by stranger	12	26%	6	50%	6	50%
Adulthood rape	12	26%	5	42%	7	58%
Adulthood emotional abuse	11	24%	6	55%	5	45%
Adulthood physical abuse	6	13%	4	67%	2	33%
Sexual harassment	6	13%	5	83%	1	17%
Adulthood sexual molestation	5	11%	2	40%	3	60%

In summary, witnessing domestic violence and parental separation pre-age 16 were the most commonly reported non-victimisation adversities in both groups, with bullying and

emotional abuse the most frequent victimisation events. While there were no significant group differences in specific events, CSA survivors were more likely to report witnessing domestic violence as a child, childhood neglect, adulthood rape, abortion or miscarriage, and physical assault by a stranger. These participants also reported significantly more total victimisation experiences. Analysis of temporal sequences indicated that the majority of adverse events had occurred for the first time prior to voices emerging, and that all participants had experienced at least one adverse experience before voice hearing onset. In terms of CSA, only three participants reported hearing voices at the time of their abuse, with the remainder starting several years later. Of these participants, 90% (18/20) identified a precipitating stressor for voice emergence, most commonly a sudden or unexpected bereavement, adulthood rape, or bullying.

Chapter 8

Discussion

The aim of this thesis was to evaluate associations between adverse life events (particularly, but not exclusively, CSA), dissociation, and voice hearing in patients with first-episode psychosis: principally through critical literature review, and empirical comparisons with control/reference groups from the same clinical population who either (1) did not report the outcome of interest (voice hearing) or (2) had not experienced relevant exposures (CSA). This final chapter outlines the main findings of both the review and primary components of the thesis, including a consideration of their limitations, before discussing the project's contribution to advancing research, theory, and clinical practice in this area.

8.1 Summary of Main Findings

8.1.1 Literature Reviews

Respectively, the two systematic reviews sought to establish evidence for associations between voice hearing and dissociation (Study 1), and voice hearing and CSA (Study 2) in different clinical and non-clinical populations, and to determine the extent to which an observed association represented a causal relationship. Both studies found significant relationships between key variables, which were replicated across psychiatric service-users with psychotic and non-psychotic conditions, as well as voice hearers with no history of mental health service contact.

Dissociation measures were consistently higher in both voice hearers and hallucination-prone individuals compared to control groups with no history of voice hearing and/or low hallucination-proneness. In turn, the associations between voice hearing and dissociation were not replicated with other positive psychotic symptoms, such as delusions. Similarly there were repeated indications for higher rates of voice hearing in CSA survivors compared to individuals with no CSA history, and a greater prevalence of CSA in voice hearers compared to non-voice hearing controls. Furthermore, exposure to CSA showed stronger associations with voice hearing than other forms of childhood maltreatment, and voice hearing was more likely to be associated with CSA than other types of psychotic symptoms. An additional finding was that while the body of literature meeting criteria for systematic review was relatively small, interest in both areas appears to be rapidly expanding (47% of the papers in Review 1, and 40% in Review 2, were published in the last three

years). This may be partly attributable to the growing popularity of 'complaint-orientated' approaches to psychosis (e.g., Bentall, 2004, 2006), which advocate the independent examination of phenomena like voice hearing rather than subsuming their study within the context of particular syndromes such as schizophrenia; as well as the resurgence of applying dissociation models for understanding psychotic experience (e.g., Moskowitz et al., 2008, 2009; Ross, 2008; Rudegeair & Farrelly, 2003; see also Chapter 1).

The data in the reviewed literature were consistent in the strength of their observed associations, and were congruent with existing claims about the influence of adverse life events on the onset/maintenance of psychosis generally (and voice hearing specifically). There was also some provisional evidence for specificity and a dose-response relationship between key variables. Nevertheless, the reviews did not find evidence for a causal association between voice hearing and either dissociation or CSA. This was primarily due to manifest weaknesses in both sets of literature, which included (but were not limited to) a recurrent failure to control for confounding variables, a reliance on cross-sectional and correlational designs, and a widespread use of small-scale convenience samples. As such, even the best-designed studies did not meet the Bradford Hill criteria for completing a causal chain.

8.1.2 Empirical Studies

8.1.2.1 Dissociation and Voice Hearing

As predicted, group comparisons in Study 3 indicated that voice hearers scored significantly higher on all measures of dissociation than non-voice hearers. Adjusted ORs indicated that DES-II mean scores retained the strongest association with voice hearing when controlling for psychological distress, CSA, and total number of exposures to non-CSA childhood abuse. The hypothesis in Study 4 was partially supported, in that voice hearers who reported CSA scored significantly higher on the DES-T and the depersonalisation subscale of the DES-II compared to those without a CSA history, but not on other measures of dissociation.

8.1.2.1.1 Dissociation and Non-Auditory Hallucinations

Between-group analysis in Study 3 indicated that participants who heard voices were also significantly more likely to experience multi-modal hallucinations than the non-voice hearing controls. Visions were the most frequently reported experience amongst voice hearers, although nearly half also reported tactile hallucinations, a third reported olfactory hallucinations, and gustatory hallucinations were reported by around one fifth. For each endorsed hallucinatory modality, 80-100% of participants scored above the sample median for the DES-II. In contrast, controls reported fewer non-auditory hallucinations, and these corresponded with high dissociation scores in only 30% to 50% of participants. Across the

sample, dissociation showed the strongest association with non-auditory hallucinations when adjusting for psychological distress, CSA, and total number of exposures to non-CSA childhood abuse.

8.1.2.2 Dissociation and Psychological Distress

Dissociation was positively correlated with psychological distress in all four groups, although at differing levels of magnitude. Specifically, more statistically significant associations were found between dissociation and distress for voice hearers compared to non-voice hearers, and for voice hearers with a history of CSA compared to those without. For voice hearers reporting CSA exposure, this was particularly marked for scores on the DES-T, DES-II total scores, and the depersonalisation subscale of the DES-II.

8.1.2.3 Adversity and Dissociation

In Study 3, the temporal sequence for adversity and voice hearing indicated that the majority of both victimisation and non-victimisation experiences occurred for the first time prior to voice hearing onset. Further descriptive analysis indicated that the most common presentation for voice hearers was a lifetime prevalence of ≥2 victimisation events prior to voice onset in conjunction with either high levels of dissociation (77%; 24/31) or low levels of dissociation (16%; 5/31). Only 6% of voice hearers (2/31) reported no pre-onset victimisation and low dissociation, and the combination of high dissociation and no pre-onset victimisation exposures was not found in any voice hearing participants. Almost the reverse was true for non-voice hearers, who were most likely to report victimisation prior to psychosis onset in conjunction with low (65%; 20/31) or high levels of dissociation (23%; 7/31). In addition, a small number of non-voice hearers reported no pre-onset victimisation experiences in conjunction with high dissociation (3%; 1/31) or low dissociation (9%; 3/31).

Of voice hearers with experience of CSA, the majority reported enduring a combination of non-penetrative and penetrative abuse, often perpetrated by a parent or other family member, and who had either not disclosed the abuse at the time, or disclosed and received an unsupportive response. Nearly half had been abused by a single individual, and the remainder by two or more perpetrators. In two-thirds of cases, CSA had begun aged 12 or younger and most typically lasted between two and five years. Contrary to expectation, non-disclosure of abuse, or unhelpful response to disclosure, was not associated with elevated dissociation scores. Abuse of longer duration (more than five years) showed stronger associations with dissociation than disclosure, but still did not meet the adjusted significance level. However, as predicted, the experience of penetrative abuse, being abused under the age of ten, and being abused by a parent all increased the probability of scoring above the sample median for the DES-II.

8.1.2.4 Adversity and Voice Hearing

Exposure to both victimisation and non-victimisation adversity was high across the groups in both studies. In Study 3, childhood physical abuse and being fostered, adopted, and/or placed in institutional care were more frequently reported by non-voice hearers. In addition, these participants reported a significantly greater number of non-victimisation events. In contrast, significantly more voice hearers had experienced CSA (both molestation and rape). There were no group differences in the total number of victimisation experiences. However, compared to the control group, voice hearers were more likely to have experienced multiple types of childhood maltreatment, particularly a combination of neglect, emotional abuse, and CSA (16%; n=5) and emotional abuse and CSA (10%; n=3). Although logistic regression analysis indicated that CSA exposure (rape/molestation) increased the probability of being a voice hearer by 2.18 times, and being raped as a child by 3.35 times, this was not statistically significant (possibly due to a small absolute *n*).

Analysis of the temporal sequence between adversity exposure and voice hearing was also conducted for all four groups. Results indicated that the majority of adverse events had occurred for the first time prior to voice emergence, and that all participants had experienced at least one adverse experience before voice hearing onset. In terms of CSA, 100% of participants reported that this had occurred for the first time prior to voices beginning. Three participants reported hearing voices at the time of their abuse, with the remainder starting, on average, seven years later. Of participants whose voices begun post-CSA, 90% (18/20) identified an immediate, precipitating stressor for voice emergence (most commonly a sudden or unexpected bereavement, adulthood rape, or bullying). CSA survivors also reported significantly more victimisation experiences than voice hearers with no CSA history, although there were no significant group differences for specific events.

8.1.2.4.1 CSA and Secondary Voice Hearing Characteristics

CSA survivors heard a significantly larger number of voices than non-sexually abused voice hearers, and had begun hearing voices at a younger age. In terms of cognitive appraisals and behavioural/emotional responses, CSA survivors were significantly more likely to perceive their voices as omnipotent, although, contrary to predictions, they did not differ from voice hearers with no CSA history on measures of perceived voice malevolence, benevolence, behavioural/emotional resistance to voices, or behavioural/emotional engagement with voices. The hypothesis for significant differences group differences in secondary voice characteristics was also unsupported, although PSYRATS-AH items that approached statistical significance were that participants with a history of CSA were more likely to attribute voices to an external

source, to experience less control over their voices, to experience voices as more disruptive, and to hear voices more frequently.

8.1.2.4.2 CSA and Non-Auditory Hallucinations

Compared to voice hearers with no history of CSA, abuse survivors were more likely to report tactile and gustatory hallucinations, although there were no group differences in the prevalence of visions or olfactory hallucinations. Of the non-auditory hallucinations experienced by sexually abused participants (14 visual; 14 tactile; 8 olfactory; 4 gustatory), 32% (13/40) were directly or indirectly linked to CSA by participants themselves. An additional 25% (10/40) were not linked to CSA by participants, but were deemed to be thematically consistent with CSA exposure by blinded raters at a high degree of percentage agreement. Of the remaining non-auditory hallucinations, 25% (10/40) were not attributed or thematically related to abuse, and data was missing or not stated for 18% (7/40).

8.1.2.5 Secondary Voice Hearing Characteristics, Dissociation and Distress

In voice hearers both with and without a history of CSA, two cognitive appraisals for voices (perceived malevolence and omnipotence) and two emotional/behavioural responses (behavioural resistance and emotional resistance) were significantly correlated with dissociation, pathological dissociation, and psychological distress. The association was particularly pronounced between appraisals and pathological dissociation, and responses and psychological distress. Patterns of association were similar between groups, although the correlations between DES-II scores and malevolence, and perceived omnipotence and DES-II, DES-T, and DASS-21 scores were of greater magnitude in CSA survivors. Benevolence, emotional engagement, and behavioural engagement were not significantly associated with dissociation or distress measures in either group.

Predictions for the contribution of dissociation to the severity of secondary voice characteristics were not supported. Across the whole sample of voice hearers, DES-II scores, DASS-21 scores, total number of victimisation events, and total number of non-victimisation events all contributed significant amounts of variance to the PSYRATS-AH factors of emotional, physical, and cognitive voice characteristics. However, psychological distress was the only predictor variable for both emotional and physical voice characteristics (at a level of borderline significance), with victimisation experiences the only variable to retain an association with cognitive characteristics (also at a level of borderline significance) once the other factors had been controlled for.

8.1.2.6 Sample Heterogeneity

Considerable heterogeneity was apparent within this clinical population, both between and within groups of voice hearers and non-voice hearers. In this respect, while 77% (24/31) of voice hearers in Study 3 conformed to the hypothesised pattern of pre-onset victimisation exposure and high levels of dissociation, 16% (5/31) exhibited low levels of dissociation in conjunction with victimisation; whereas 6% (2/31) had low dissociation and no pre-onset victimisation exposures. Non-voice hearers were more likely to exhibit pre-onset victimisation and low dissociation (65%; 20/31), although a proportion also reported victimisation and high dissociation (23%; 7/31), as well as no victimisation and high (3%; 1/31) and low (9%; 3/31) dissociation levels. There was also a broad range of self-reported adversities amongst all groups for participants. For example while, as hypothesised, self-reported CSA was significantly higher amongst voice hearers compared to the control group in Study 3, the majority of voice hearers had not experienced either childhood molestation (55%; 17/31) or rape (68%; 21/31). Non-auditory hallucinations were also widely reported amongst participants, particularly amongst voices hearers compared to non-voice hearing controls (Study 3) and voice hearers with a history of CSA compared to those without (Study 4).

While mean DASS-21 and DES-II scores were strongly correlated for voice hearers in Study 3 ($r_s = .73$) and Study 4 ($r_s = .76$ for + CSA; $r_s = .62$ for - CSA) there were also participants in both studies who reported high levels of psychological distress in conjunction with low dissociation (see Chapter 6, Figure 6.5a; and Chapter 7, Figure 7.5b). Similarly, whilst non-voice hearers typically reported high distress and low dissociation, a number of individuals demonstrated high distress and high dissociation, and high dissociation and low distress (see Chapter 6, Figure 6.5b).

8.1.3   Summary

The above findings must be interpreted in view of various limitations (please see section 8.2). However, notwithstanding these shortcomings, the current research still addressed many of the methodological limitations of existing cross-sectional and retrospective case-control research in this area: principally in terms of pseudo-random sampling with careful attention to selection biases; the use of comparison and reference groups from the same well-characterised clinical population; summaries of pertinent exposures, outcomes, and the temporal sequence between them; precise definition, operationalisation, and assessment of key variables; and, in some instances, estimates of effect adjusted for relevant confounds. As such, there remain a number of key findings that can, with a reasonable degree of confidence, be considered valid:

1) In a population of first-episode psychosis patients, individuals who hear voices report higher levels of dissociative symptoms, as well as more non-auditory hallucinations,

than patients with paranoia/delusions only. Dissociation remains associated with voice hearing whe controlling for childhood adversity exposure and the type of affective disturbance that occurs in the more general context of psychosis.

2) Self-reported dissociative symptoms show greater associations with self-reported psychological distress in voice hearers compared to non-voice hearers.

3) Both voice hearers and non-voice hearers generally report high exposure to victimisation adversities prior to illness onset. In voice hearers this generally occurred in conjunction with high self-reported dissociation, and with low dissociation in non-voice hearers. Bullying and emotional abuse were prevalent in both groups, but CSA was more commonly reported by voice hearers and physical abuse by non-voice hearers.

4) Participants reporting more severe types of CSA experience higher levels of dissociation compared to participants with less severe CSA.

5) Voice hearers with and without a history of CSA exhibit similarity in secondary voice characteristics and appraisals about voices, although CSA survivors appear more likely to perceive voices as omnipotent, to hear a larger number of voices, to have heard voices from a younger age, and to report tactile and gustatory hallucinations.

6) Subjective voice characteristics show the strongest associations with psychological distress when dissociation and adversity exposure are controlled for.

7) Levels of dissociation, adversity exposure, and psychological distress show considerable heterogeneity in first-episode psychosis patients with and without voice hearing experiences, and in voice hearers with and without a history of CSA. As such, it is unlikely that a single and/or principal theoretical 'narrative' can accurately capture, or account for, the experiences of all participants.

8.2   Limitations

8.2.1 Sampling

As with all research, the findings of the thesis need to be considered within the context of their limitations. The first of these considerations relates to the nature of the sample. Unlike many similar investigations in this field (see Chapters 3 and 4) neither study relied on convenience or opportunity selections, instead incorporating a pseudo-random sampling design with case and control/comparison groups from the same well-characterised clinical population. In addition, sources of detection bias and admission rate bias were addressed and minimised prior to data collection. Nevertheless it was still not a truly chance selection of patients, and the results must be considered in terms of the shortcomings in participant recruitment.

Firstly, despite concerted efforts to recruit a diverse cross-section of EIP patients, time and funding constraints meant accepting the largest number of referrals from healthcare staff who were most willing to engage with the research. This may have affected data outcomes in that it resulted in a large number of participants being drawn from the section of EIP that services the inner city sector of Bradford. This is one of the most deprived civic wards in the UK (Department for Communities and Local Government, 2011), and led to the inclusion of participants with high levels of cumulative exposure to adverse life events (including asylum-seeking survivors of state-sponsored torture; and survivors of both extreme childhood neglect and the most serious types of organised, multi-perpetrator CSA) that may not reflect a representative cohort of first-episode psychosis patients. Secondly, an element of bias may have been introduced into the data pool in that individuals who were experiencing acute distress were not included in either study. In this respect, Schäfer et al. (2012) found that dissociative symptoms rapidly fluctuate amongst patients with schizophrenia spectrum disorders (n=145) when measures were compared over three weeks between acute and stabilisation phases. This suggests that dissociation may be unstable and state-dependent in this population, and supports the need for more representative sampling that can address how dissociative phenomena may influence and interact with acute psychosis presentations, as well as those within more stabilised samples.[35]

Further limitations in sampling methodology included a modest number of participants in both studies, which restricts their statistical power and generalisability. As such, the findings should be interpreted with caution and await replication in a larger sample. Similarly, in this respect, psychosis samples tend to be heterogeneous (Bell et al., 1994; see also section 8.5.2) and it is acknowledged that other well-characterised samples of first-episode psychosis patients might generate quite different findings to the present analyses.

8.2.2 Assessment

Other shortcomings in the research related to measurement of the main constructs. An overarching problem was that, owing to the lack of necessary resources, all key variables (with the exception of voice hearing presence) were assessed using self-report measures rather than the type of structured clinical interviews that augment self-report data with other information sources (e.g., trained observational assessment, reports from family members). As such, this may have limited the internal validity of the findings through the inclusion of biased or idiographic data (e.g., the risk of participants exaggerating or under-reporting complaints),

---

[35] Although this raises ethical problems, such research could be conducted by recruiting patients recently admitted to acute wards (as was done by Schäfer et al., 2012). Although some participants in the current studies were hospitalised during data collection, those who had been recently admitted were not approached as the ethical review process did not consider this appropriate for a student researcher.

a shortcoming shared by the majority of studies in this field (see Chapter 3 and 4). Specific limitations, as they apply to particular constructs, are discussed in more detail below.

8.2.2.1 Assessment of Hallucinations

Although the PANSS supplements self-reported symptoms with more objective data (e.g., reports from family members) it is ultimately still reliant on what respondents choose to disclose. Thus the possibility that some voice hearers were included in the non-voice hearer group cannot be discounted; for example, individuals may conceal voice hearing for several reasons, including threats from the voices (Romme et al., 2009) and the fear of stigma and/or a diagnosis of schizophrenia (D. Corstens, personal communication). Individuals may also feign voice hearing, which in this population could be motivated for financial gain in terms of disability benefits, or to meet emotional needs in terms of increased service input (A. Brewin, personal communication). However the latter was of less concern in the current study, as all voice hearing participants were able to complete detailed assessment measures in ways which were not consistent with malingering (for a phenomenological analysis differentiating genuine from feigned auditory hallucinations, see McCarthy-Jones & Resnick, 2013).

Limitations in assessing secondary voice characteristics include the fact that the main strength of the PSYRATS-AH – its multidimensional nature – is also the source of its main shortcomings (see Ratcliff et al., 2011). As discussed in Chapter 5, some of the subscales lack sensitivity, and the combination of factors that are reasonably constant (e.g., voice volume) and objective (e.g., voice frequency), with characteristics that are more variable (e.g., distress) and subjective (e.g., controllability) may limit its validity (Steel et al., 2007). This was addressed in the thesis by only using measures of individual items, or combined scores for the different factors, rather than a single, aggregated PSYRATS-AH score. Nevertheless, the seemingly counter-intuitive finding that cognitive voice characteristics were not associated with either distress or dissociation in the regression model may well have been an example of measurement artefact arising from the scale's multi-dimensional nature (see also section 8.3.1).

While the demographic questionnaire yielded unexpectedly rich descriptive data in terms of the content of non-auditory hallucinations, its intended purpose was only to assess the presence/absence of hallucinations rather than thematically rate their content in relation to life events. Thus while the *post hoc* rating study provided interesting results regarding CSA exposure and hallucination content, the interpretation of these findings is necessarily limited by the lack of precision in the questionnaire, the limited number of hallucination descriptions (compounded by missing or incomplete data), and the small group of raters. In addition, the data may well have under-estimated the true rate of CSA-themed experiences, in that some

participants might have been uncomfortable disclosing hallucinations with sexual content to a researcher.

8.2.2.2 Assessment of Dissociation

Measuring dissociation also presented a number of shortcomings. Indicators of somatoform dissociation were not included, and future research could ideally incorporate suitable instruments for assessing these types of experience (e.g., the Somatoform Dissociation Questionnaire; Nijenhuis et al., 1996), to increase understandings of their interaction with psychoform symptoms and affective variables within psychosis populations. Similarly, limiting the assessment of dissociation to a single point in time is unlikely to have characterised its dynamic qualities. Methods like experience sampling could provide more nuanced insights into the variability and reactivity of voice hearing, dissociation, and distress including, for example, how they might fluctuate or interact in response to daily stressors. In this respect, it should also be noted that all participants were receiving a combination of case management, psychotropic medication, and psychosocial support, and this treatment may have diluted the associations between psychological distress, dissociation, and voice hearing characteristics, which may have been stronger in an untreated population.

As discussed in Chapter 2, considerable disputes exist about the most appropriate ways of understanding the construct of dissociation, as well as how to assess that construct. This was partly addressed in the thesis by using measures that correspond to contemporary models of 'broad' and 'narrow' conceptualisations, in addition to recruiting well-characterised psychosis patients in which any cases of diagnostic uncertainty were screened and excluded. In addition, the selection of the DES-II increased the comparability of the thesis with existing literature, given that the instrument has been extensively used with other psychosis populations (see Chapter 3 and 5). Nevertheless the DES-II (and by extension the DES-T) presented a number of specific problems for accurate measurement. For example, some respondents find the wording to be repetitive and complex (Goldberg, 1999), with item comprehension requiring a reasonable level of reading fluency (Paolo et al., 1993). This is compounded by the fact that unlike the DASS-21, which assesses more accessible constructs like anxiety and low mood, the DES-II includes unusual and unfamiliar experiences that participants may interpret in idiosyncratic ways. As seen in both empirical studies, the comparative rarity of dissociative symptoms can also create problems when comparing different populations in terms of skewedness and 'floor effects,' wherein scores cluster towards the low end of the scale (Wright & Loftus, 1999). For the population under study, further difficulties include the fact that delusional patients can have trouble comprehending DES-II items, and the claim that some dissociative phenomena overlap with delusional beliefs (e.g., Şar & Öztürk, 2008, argue that 'delusions of possession' may appear

phenomenologically similar between schizophrenia and DID, but arise from discrete processes: primary thought disturbance in psychosis, and ego-dystonic self-states in dissociation[36]). Finally, the DES-II derealisation/depersonalisation subscale items all concern perceptual alteration, wherein shared item content might account for greater endorsement amongst those reporting voice hearing. Taken together, the problems discussed here do highlight the need to consider measurement artefacts when assessing dissociation in psychosis patients, which in the first instance could be addressed by supplementing self-report instruments with more structured, multidimensional assessment tools (e.g., Dell, 2006a; Steinberg et al., 1994).

8.2.2.3 Assessment of Psychological Distress

Although the aggregated measurement of anxiety, depression, and stress posed less conceptual and methodological problems than the other constructs, it was still not without limitations. The first of these relate to the nature of the DASS-21 itself. As discussed in Chapter 5, this abridged version of the 42-item DASS has good psychometric properties and was deemed a suitable instrument for this particular population owing to its shorter administration time, and the corresponding ethical implication of participant burden. Nevertheless, the full-length DASS still yields somewhat more reliable scores (Antony et al., 1998) and would be a preferable choice for future research with greater time and resources. In addition, the DASS-21 suffers from the same limitations as numerous other self-report inventories in that it has no contingency for respondents exaggerating or concealing symptoms. Although there was no compelling reason to assume that participants were responding in a biased way, future research could strengthen results by incorporating measures with 'lie scales,' or administering an additional instrument specifically designed to detect biased responding (Bush et al., 2005).

The second set of limitations was more conceptual, and concerns the extent to which measures of psychological distress could be seen as truly independent. As with other instruments seeking to provide 'pure' measures of affective disturbance, (e.g., Beck et al., 1961; Steer & Beck, 1997), the anxiety, depression, and stress subscales of the DASS-21 are modestly inter-correlated (typically.5–.7: Lovibond & Lovibond, 1995). The Psychology Foundation of Australia (2011) claims that this does not denote conceptual overlap between the three constructs, rather the existence of common underlying psychosocial/biogenetic causes (see also Chapter 5 for analysis of the validity and reliability of the DASS-21's three-

---

[36] In this respect, some authors (e.g., Laddis & Dell, 2012a-b; Simeon & Hamilton, 2008; Vermetten, Lanius & Bremner, 2008) argue that dissociation-like phenomena in schizophrenia spectrum conditions, including voice hearing, are phenomenologically similar to (but aetiologically distinct from) those in dissociative disorders. Steinberg and Siegal (2008) likewise contend that superficial manifestations of Schneiderian first-rank symptoms appear similar in schizophrenia and dissociative disorders, but in many cases can be differentiated upon clinical assessment (see also Chapter 3).

factor model). However, this also extends to the high levels of inter-correlation between DASS-21 scores and measures of dissociation – which similarly indicate that vulnerability factors in participants do not show specificity, but rather become broadly generalised across negative affective and dissociative states. Although this does not imply that anxiety, depression, stress, and dissociation are the same constructs, it does raise both statistical and theoretical issues, which are discussed further in sections 8.2.3 and 8.3.5 respectively.

8.2.2.4 Assessment of Adversity

An additional limitation included the reliance on retrospective, self-report measures of adverse life events. As discussed in Chapter 5, the application of such instruments in psychosis patients (as well as non-psychosis samples: see Chapter 2, section 2.3.3) has been criticised; and while there is evidence to justify their use (e.g., Fisher et al., 2011; Goodman et al., 1999; Meyer et al., 1996), the possibility that accounts of adversity were contaminated by such factors as re-interpretive biases (Lewinsohn & Rosenbaum, 1987), cognitive impairment (Driesen et al., 2008), and impaired reality testing (Lysaker et al., 2005) cannot be discounted. An additional risk specific to the current sample (in that the psychosis onset was relatively recent) is whether participants had a heightened sensitivity to identifying stressors as a way of explicating or justifying an increase or commencement of symptoms (Norman & Malla, 1993a). Despite the steps taken to maximise reliable reporting (see Chapter 5), issues of recall bias may be of particular relevance regarding the assessment of CSA; and given the reluctance of many adult survivors to divulge their experiences, it is possible that the findings in Study 4 were biased by the inclusion of unidentified CSA victims in the comparison group. In this respect, while fallacious over-reporting may also be an issue, such 'false positives' are generally believed to be a less serious threat to validity than the likelihood of nondisclosure (Freyd et al., 2005; Fergusson et al., 2000; Stoltenborgh et al., 2011), although this is obviously not an assertion that is easy to demonstrate empirically.

A further potential source of under-reporting, specific to the nature of the sample, is that participants experiencing suspiciousness and mistrust as part of a paranoid presentation may have been less willing to disclose revealing personal information. Furthermore, while reports of adverse life events were corroborated whenever possible by referral with healthcare workers, it is possible that this collateral information was also subject to the type of attributional biases discussed above. As such, it is important to acknowledge that the thesis had no contingencies for formally evaluating the reliability and validity of self-reported adversity amongst psychosis patients, including whether factors like degrees of dissociation and/or psychological distress at the time of data collection may have influenced reporting in either direction. Because of the emphasis in both studies on temporal associations, this concern would also extend to the accuracy for self-reported timing and duration of events, as

well as their objective occurrence. Future work would preferably replicate the current findings while incorporating more substantiated, corroborating information of adverse life events (e.g., court and/or social service records). Similarly, while the practical complications of longitudinal research are substantially greater than correlational cross-sectional investigations, such studies are better placed to minimise recall errors/biases, and permit exploring the impact of life event stress on symptoms whilst controlling for variations in vulnerability (e.g., the complex, multidirectional impact of different psychological, social, ecological, and biological resources: Norman & Malla, 1993a)

Finally, although the use of the LSC-R permitted a detailed account of the broad range of adversities experienced by participants, including a categorisation of victimisation and non-victimisation events, it also presented a number of limitations. Although participants were asked in detail about exposures as part of a semi-structured interview (rather than brief checklist assessments; see Chapter 2), formal data were not collected on the subjective psychological impact of adverse experience. Similarly, data analysis did not capture whether an individual may have sustained several similar exposures (e.g., multiple physical assaults). It is also feasible in some cases that the influence of certain adversities (e.g., financial problems, relationship breakdown, peer bullying) occurred opposite to the hypothesised direction, in that they were a direct result of prodromal or full psychosis rather than a precursor. Furthermore, it is possible that adversity was an epiphenomenon of other environmental factors that the LSC-R was not sensitive enough to measure (e.g., the quality of emotional and interpersonal family interactions, such as parental bonding, control, criticism and over-involvement). Similarly, neither study could differentiate between CSA as an absolute risk factor for voice hearing, or because sexual maltreatment acts as a proxy for a range of other environmental hardships and disadvantages. CSA is highly conflated with other adversities, yet the small samples precluded the type of analysis that could detect independent variables that are highly correlated with each other, as well as dependent variables, in a single model. In this respect, the studies may have thus underestimated the influence of cumulative adversity on voice hearing, dissociation, and psychological distress; and, conversely, over-emphasised the impact of CSA in Study 4.

8.2.3 Statistical Analysis

The procedures for conducting statistical analyses also presented limitations. Foremost of these was the issue of multiple comparisons. Given that the thesis was largely exploratory, and concerned with estimating the magnitude and precision of effect between associations in addition to hypothesis testing alone, this was addressed by adjusting alpha to a more stringent >.01. This strategy was selected on the grounds that it was the simplest, most robust method for equivalent adjustment when applying numerous tests across different samples and sub-

samples (Howell, 1999), and is conservative in the sense of offering reasonably strong control over family-wise error (Haccou & Meelis, 1992). This method was further strengthened by minimising use of *post hoc* testing (Howitt & Cramer, 2008), and taking steps to maximise the quality and reliability of the studies at the design stage (Feise, 2002; see Chapter 5). Nevertheless, it is important to acknowledge that the number of analyses conducted increased the likelihood of Type 1 error.

Other statistical results were reported despite only reaching significance levels of between .05 and .01. The rationale for this decision was their latent application for future research; in the meantime however they should be treated cautiously, with replication required before more confidence can be placed in the findings. In a related point, the use of non-parametric tests may have reduced precision for detecting genuine effects. Although these methods were necessary given the irregular data distributions, they are less powerful than their parametric counterparts, especially given that statistical power and sample sizes in both studies were originally calculated with the premise that parametric assumptions would be met.

Similarly, dichotomising the case and control groups according to a median split in dissociation scores, whilst necessary on both theoretical and statistical grounds, may have led to a loss of power and underestimated the strength of association between variables (Maxwell & Delaney, 1993). In terms of effect size, the logistic regression analysis was also under-powered, leading to wide confidence intervals and a relatively unstable model. In this regard, failure of power in small samples may not only reduce the likelihood of detecting a true effect, but also increase the chances of a statistically significant result reflecting a false positive due to the inflation of effect magnitude (Button et al., 2013). Although the large number of significant results in the anticipated direction makes it reasonable to assume that the findings retain some validity, the interpretations should still be viewed with caution until replicated in a larger sample with a more precise estimate of effect.

Finally, some of the correlations between dissociation and psychological distress were very high ($\geq$.80) which raises concerns about the independence of the measures employed (as well as that of the underlying constructs). Existing research suggests that while dissociation, depression, and psychiatric distress are highly correlated, they are in fact distinct variables (e.g., Lewis-Fernández et al., 2010; Lipsanen et al., 2004), and the differential associations between DASS-21 and DES-II scores and voice hearing in both the logistic and linear regression models likewise supports this contention. Nevertheless, factor analysis and factor scores could ascertain the exact level of covariance between measures, as well as the extent to which different DES-II subscales may overlap with stress, anxiety, and depression; and which (if any) account for unique variance. While the samples in the current studies were too small to undertake such analysis with the necessary precision (Howitt & Cramer, 2008), it could be

an interesting avenue for future research. In this respect, comparing factored with un-factored results might likewise prove informative.

8.2.4 Design

Although this investigation systematically mapped the temporal sequence between voice hearing onset and adverse life events, the correlational nature of both studies limit the capacity for causal inference. As such, the findings do not permit any definitive conclusions about conceptual or aetiological relationships between adverse life events, dissociation, and voice hearing; and it is recognised that other theoretical models could be applied to fit the data. For example, a design limitation in both empirical studies was that other psychotic symptoms (e.g., paranoia and/or delusional beliefs) were not formally accounted for. This was primarily due to an insufficient number of participants having complete and/or contemporary pre-existing PANSS data sets (and ethical considerations that precluded incorporating further measures into the study in order to prevent participant burden). Future research would be strengthened by the assessment of other first-rank psychotic symptoms, including a consideration of their possible covariation with dissociation and psychological distress, and whether the associations between dissociation and voice hearing remain significant when controlling for comorbid paranoia. In addition, while the current findings were strengthened by the use of case and control participants from a highly comparable population, they would have been improved by the inclusion of a non-psychotic comparison group.

Finally, as observed by Bannister et al. (1994, p.10), "all meaning is indexiacal," and alters according to the context, influences, and circumstances in which it is sought and applied. The thesis was carried out as part of postgraduate study in psychology, and as such was developed and conceptualised using specific frameworks within this tradition. Research literature concerning the neurology, biogenetics, and political/sociological context of psychosis were referred to much more sparingly, and the studies can therefore be seen as only one element of a much broader paradigm. It is important to minimise bias and avoid simplistic reductions of complex phenomena – regardless of the framework favoured by a particular researcher – and it is imperative that future work continues to strive for the development of truly integrated bio-psycho-social models (see also section 8.5.2).

8.3 Theoretical Implications

8.3.1 Voice Hearing and Dissociation

Although respective study designs did not permit causal assumptions, both the review and empirical elements of the thesis found consistent associations between voice hearing and dissociative experience, and suggest that explanations of voice hearing in the context of

psychosis need to take dissociation into account. In Study 3, voice hearers scored significantly higher than the control group on the DES-T, the DES-II and all three DES-II subscales, with sexually abused voice hearers in Study 4 additionally scoring higher than non-abused participants on measures of depersonalisation and pathological dissociation. Furthermore, mean DES-II scores in Study 3 showed the strongest association with voice hearing presence at each step of the multiple regression analysis when controlling for psychological distress, CSA, and non-CSA childhood adversity exposure, indicating that levels of dissociation were significantly associated with an increased likelihood of hearing voices.

However, contrary to predictions, dissociation did not show significant associations with any PSYRATS-AH variables once psychological distress and adversity exposure were controlled for in the regression model. This finding extends (and to an extent contradicts) existing literature reporting that dissociation predicts clinically-defined 'severity variables' for voice hearing (commanding and controlling voices, hearing more than two voices, hearing content relating to influential persons in the patient's life, content that reiterated past memories: Dorahy et al., 2009), and that dissociation is significantly associated with PANSS-rated voice severity (Perona-Garcelán et al., 2010; Perona-Garcelán et al., 2011a-b). Conversely, DASS-21 scores showed the strongest associations for the severity of voices' emotional impact (amount/intensity of distress and negative content) and physical characteristics (frequency, duration, volume) in the current regression analysis. This suggests that despite strong, significant correlations between PSYRATS-AH scores and DES-T and DES-II measures, affective disturbance may play a more significant role in emotional appraisals of voice hearing.

In cognitive-behavioural models, voice-related distress is believed to result from the manner in which individuals interpret and evaluate their voices (Morrison, 2001). In turn this process may in itself be influenced by previous adversity, whereby traumatised voice hearers may develop negative appraisals about their voices more readily (Andrew et al., 2008; Morrison, Nothard, Bowe & Wells, 2004; Romme et al., 2009) and in which voices can embody negative aspects of the patient's social and interpersonal circumstances (Birchwood et al., 2004; Corstens & Longden, 2013; Hayward et al., 2004). In this respect, Morrison's (1998) classic theory of voice continuance draws on theories of anxiety disorders to propose that stress and depression are critical determinants of the negative appraisals, misinterpretations, and safety-seeking behaviours that drive voice persistence and dictate clinical need. Similarly, other authors have emphasised the role of affective variables in heightening the risk of non-patient voice hearers transitioning to psychotic states (e.g., Escher et al., 2002a, 2002b, 2004; Krabbendam et al., 2004; Yoshizumi et al., 2004). On the basis of the current results, it is thus proposed that while voice hearing presence is significantly associated with dissociation (which may be either the result of adversity or innate

sensitivity/proneness: see section 8.5.1 and 8.5.2), psychological distress has a greater influence on subsequent affective responses to, and beliefs about, the voices one hears.

While it is important not to conflate association with a causal role this does suggest that, contrary to predictions, (1) dissociation has a lesser impact on negative appraisals and beliefs about voices (as opposed to the presence of voice hearing itself) compared to the combined effect of anxiety, depression, and stress, and (2) assumptions that heightened dissociation increases the clinical impact of voice hearing may not be wholly correct, but need to consider the confounding role of psychological distress (see also Chapter 3). That is, that dissociation may increase the likelihood of hearing voices, but not necessarily the risk of voices being more disruptive and disabling (e.g., preoccupation with voices, or their perceived power, influence, and intrusiveness). At the very least, it suggests that theories of dissociation and voice hearing must take affective variables into consideration. In a related point, this hypothesis may also partially account for why differences in secondary voice characteristics between individuals with and without a history of CSA were not as marked as anticipated, as while the groups varied significantly in measures of dissociation, there were no significant differences in psychological distress.

In turn total pre-onset victimisation exposures showed the strongest associations with cognitive voice characteristics in the regression model, with neither distress nor dissociation retaining a significant effect. This is an unexpected result, and may be partly explicable through the manner in which this factor combines discrete characteristics (*perceptual*: perceived voice location; *behavioural*: disruption; and *cognitive*; controllability; beliefs about voice origin) into a single variable (for further discussion of the PSYRATS-AH factor structure, please see Chapter 5). In this respect, voice location is not reliably associated with diagnostic or prognostic states, and appears highly variable across different psychotic and trauma-spectrum conditions (see Chapter 2). As such, it is not necessarily surprising that a significant association was not detected. However, when correlations for different PSYRATS-AH items were examined separately, it was apparent that beliefs about the external origins of voices were significantly correlated with both DES-II and DES-T scores (but not psychological distress) in the CSA survivors, whereas voice location was not associated with any of the dissociation or distress variables in either group (please see section 8.3.2.1 for further discussion of external attributions for voices). The association between cognitive factors and victimisation exposure also raises the possibility that features like voice-related disruption and controllability may be more linked with other trauma-related variables that were not assessed in the current research (e.g., arousal/hypervigilence, experiential avoidance, and/or re-experiencing: e.g., Andrew et al., 2008)

8.3.2.1 Heterogeneity of Dissociation

Given the broad range of DES-II and DES-T scores amongst participants in both studies, and allowing for the conceptual and assessment imprecisions of the dissociation construct outlined in Chapter 2, a further consideration is that voice hearing in psychosis may lie on more of a dissociative continuum (and thus the influence of dissociation is more nuanced) than has generally been acknowledged. For example, a mean score of 30 on the DES-II is cited as indicative of a diagnosable dissociative disorder (Bernstein & Putnam, 1986), yet 39% (12/31) of voice hearing participants in Study 3 and 41% (19/46) in Study 4 reported less than this. Similarly, only 58% (18/31) of voice hearers in Study 3 and 52% (24/46) in Study 4 reported so-called pathological levels of dissociation as measured by the DES-T. Given that the DES-T is designed to measure personality fragmentation, this would suggest that voice hearing in psychosis cannot be unequivocally explained as the result of a structurally divided psyche (e.g., van der Hart et al., 2006), whereby a failure to integrate adverse events leads to disaggregated, decontextualised stimuli that aurally intrude onto the executive self (see also Chapter 2). While some authors (e.g., Corstens et al., 2012; Longden et al., 2012a; Moskowitz & Corstens, 2007) have theorised that voice hearing should not be classified as an attributional phenomenon (i.e., as an individual's misattributed inner speech), the heterogeneity in the current sample is not wholly consistent with this premise, and suggests that such models (at least in the context of psychosis) may not be mutually exclusive.

Of course the fact that some voice hearers exhibited few other dissociative symptoms does not mean that voice hearing in itself is not a dissociative experience. Speculatively, however, the wide range of dissociation levels in the current samples suggests the possibility that voice hearing may manifest on a range of dissociative intensity: relatively localised at one extreme (e.g., restricted depersonalisation) and more global at the other (e.g., whereby voices embody intensely externalised and fragmented aspects of the self). More specifically, voices which are highly personified and dynamically engage with the hearer may be more accountable in terms of co-presence and co-consciousness, governed by structural divisions in the personality; whereas less complex and/or persistent voices may be more parsimoniously explained as misattributed intrusions (possibly in conjunction with stress-induced metacognitive distortions), which are mediated via depersonalisation. To an extent, this may be compatible with the divergence between 'broad' and 'narrow' conceptualisations of dissociation outlined in Chapter 2, and raises the question of whether the notion that major dissociative disorders are characterised by a qualitatively different kind of dissociation (e.g., Rodewald et al., 2010) extends to voice hearing in psychosis. Indeed, Jones (2010) argues that the differing phenomenology and neurobiological mechanisms of voice hearing may lend themselves to multiple categorisations and models; and the variability of the current results similarly suggest that the unitary pathway originally hypothesised in the thesis between

adversity exposure, dissociative tendencies, and subsequent voice hearing is unlikely (see Figure 8.1).

Finally, while these results are theoretically consistent with existing clinical and conceptual literature (see Chapters 1 and 3), it is also acknowledged that design limitations in the thesis preclude any definite conclusions about aetiological links between adverse life events, dissociation, and voice hearing. As such there are other models and variables which could be applied to explain the data. For example, dissociation may be a non-specific product and/or comorbidity of psychosis rather than a predecessor (Schäfer et al., 2008), possibly because psychosis reduces the threshold for the expression of dissociative symptoms in individuals already pre-disposed towards absorption and depersonalisation, either due to adversity exposure or innate sensitivity (e.g., Gupta & Chawla, 1991). As discussed in section 8.2.2, heightened dissociation scores in psychosis samples may also be explicable in terms of measurement artefact (Laddis & Dell, 2012a-b), or even as part of a continuum in terms of variants or subtypes of a single disorder (Schäfer et al., 2008). It is even possible, though perhaps theoretically unlikely, that the data is consistent with reverse causality; i.e., that persistent hallucinations induce subsequent dissociative experiences. There were also numerous other developmental and social-cognitive variables not assessed in the current research (e.g., quality of attachment relationships, posttraumatic beliefs, metacognitive styles, self-esteem) that may mediate between adversity and voice hearing, or form a common underlying cause for both voice hearing and dissociation. For a discussion of the research implications raised by these types of considerations, please see section 8.5.1.

8.3.2 Voice Hearing and Adversity

The thesis replicates previous research in first-episode and prodromal psychosis samples (see Table 8.1), in that both empirical studies found high levels of self-reported adversity, including two or more types of childhood abuse in 51% of voice hearers (most commonly emotional and sexual) and 42% of non-voice hearers (most commonly emotional and physical), as well as high rates of loss (e.g., parental separation, bereavement) and family dysfunction (e.g., witnessing domestic violence, incarceration of a family member, being taken into local authority care). As shown in Table 8.1, exposure to emotionally significant life events is disproportionately high amongst this population in comparison to community UK samples, even allowing for the sampling/assessment limitations outlined in section 8.2.
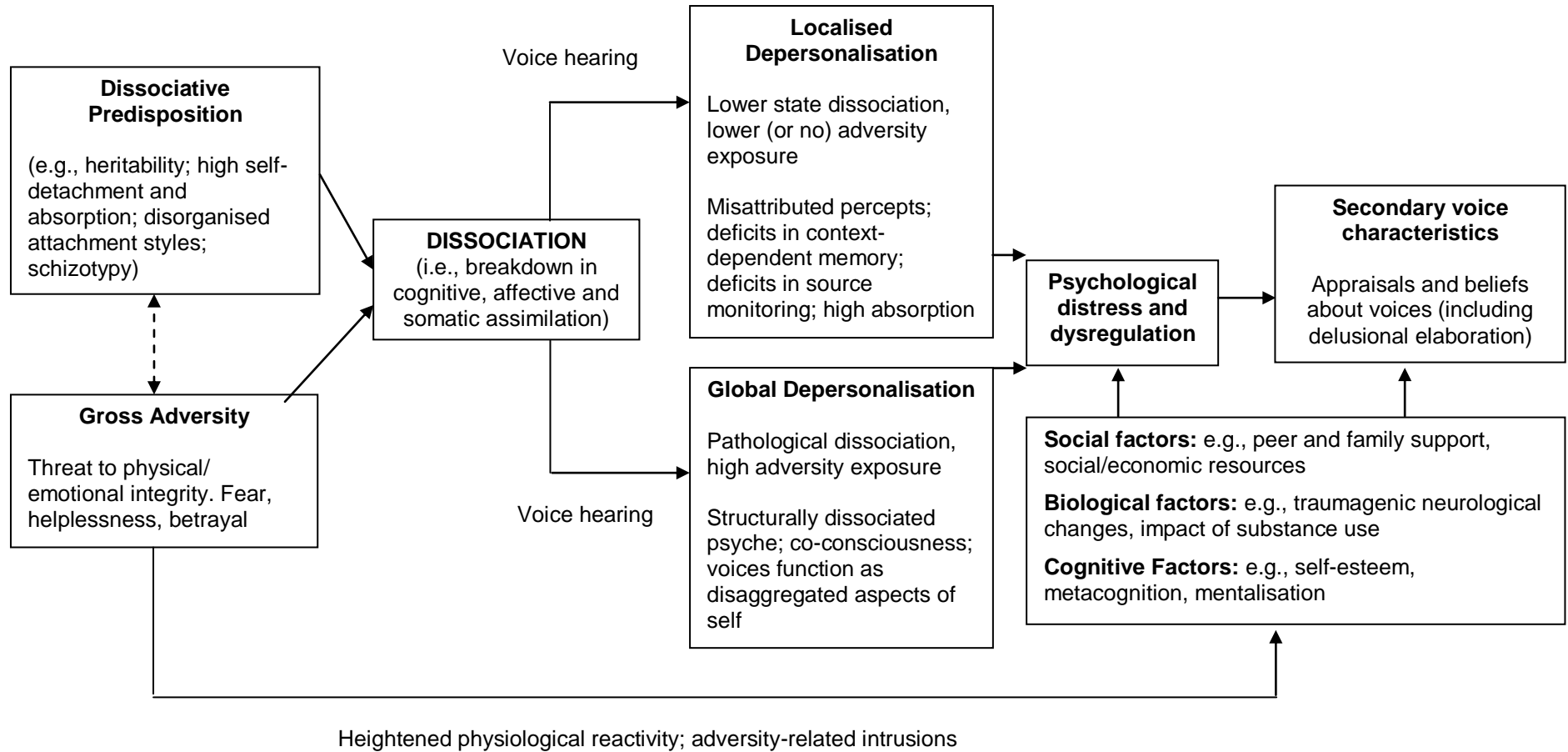
Figure 8.1　Schematic representation of hypothetical relationships between the constructs examined in the thesis (dissociation, voice hearing, psychological distress) in individuals with and without adversity exposure.

Source: Compiled by the author.

Table 8.1 Rates of self-reported adversity in the current sample compared to community prevalence and other first-episode/prodromal psychosis samples.

Self-reported adversity	Prevalence in current sample (*n*=62)	Prevalence in other first-episode and prodromal psychosis samples					Estimated community rates (UK)
		Bechdolf et al. (2010)[a] *n*=92	Braehler et al. (2013a)[b] *n*=61	Conus et al. (2010)[c] *n*=658	Thompson et al. (2009)[d] *n*=30	Üçok& Bikmaz (2007)[e] *n*=57	
Peer bullying *% (n)*	58% (36)	--	--	--	--	--	46%[f]
Placed in local authority care *% (n)*	24% (15)	--	--	--	--	--	0.6%[g]
Childhood sexual abuse *% (n)*	29% (18)	--	21% (13)	16% (105)	27% (8)	30% (17)	4.8%[h]
Childhood emotional abuse *% (n)*	53% (33)	--	26% (16)	--	67% (20)	32% (18)	6.9%[h]
Childhood physical abuse *% (n)*	34% (24)	26% (24)	15% (9)	26% (171)	83% (25)	14% (8)	8.4%[h]
Childhood physical neglect *% (n)*	29% (18)	24% (22)	28% (17)	--	--	19% (11)	9%-16%[i]
Witnessing domestic violence *% (n)*	56% (35)	--	--	--	--	--	12%-18%[j]
Being a carer pre-age 16 *% (n)*	31% (19)	--	--	--	--	--	2.3%[k]
Parental separation pre-age 16 *% (n)*	48% (30)	--	--	42%(277)	--	--	33%[l]
Adulthood sexual assault *% (n)*	18% (11)	--	--	--	--	--	7.3%[m]

Note. Only the sample for Study 3 is included, due to replication of data for some voice hearers between Study 3 and 4. Adversities selected on the basis of comparability with existing samples and/or availability of national data.

-- = not assessed. [a] Consecutive sample of patients at 'ultra high risk' of psychosis, mean age 18.0 (SD=2.9) years. Adverse life events assessed with General Trauma Questionnaire (Creamer et al., 2001).[b] Convenience sample of first-episode psychosis patients, mean age 23.2 (SD=3.3) years. Adverse life events assessed with the Childhood Trauma Questionnaire (Bernstein and Fink, 1998). [c] Epidemiological cohort of first-episode psychosis patients, mean age 22.0 (SD=3.4) years. Adverse life events assessed with Early Psychosis File Questionnaire (Conus et al., 2007). [d] Convenience sample of patients at high risk of psychosis, mean age 18.8 (SD=3.7) years. Adverse life events assessed with Early Trauma Inventory (Bremner et al., 2000). [e] Convenience sample of first-episode psychosis patients, age not stated. Adverse life events assessed with Childhood Trauma Questionnaire (Bernstein & Fink, 1998).[f] Department for Children, Schools and Families (2010). [g] British Association for Adoption and Fostering (2014): based on 68,110 'looked after' children in March 2013. [h] National Society for the Prevention of Cruelty to Children (NSPCC: 2011). [i] NSPCC (2011): 16% constitutes neglect, 9% severe neglect. [j] NSPCC(2011): 12% of children aged 11 and under, 18% of children aged 11-17. [k] Office for National Statistics (2013).[l] Office for National Statistics (2012). [m] Ministry of Justice (2013): data includes victims of attempted sexual assaults, and incorporates any sexual offence from rape to indecent exposure.

Whereas prior investigations, including those with more chronic psychosis samples, often combine victimisation (violence or threat deliberately inflicted by another person; e.g., CSA, bullying) and non-victimisation adversity (stressors which do not involve a perpetrator; e.g., accidents, witnessing violence: see Chapter 2) into a single outcome variable, the current research separated out these events for a more nuanced understanding of their prevalence in a first-episode cohort, including a consideration of traumatic and non-traumatic stressors: see Chapter 2 and Figure 8.2). On the one hand, the range of adversities reported by participants corresponds with existing research about the high frequency of environmental stressors reported by psychosis/schizophrenia populations (e.g., Matheson et al., 2013; Read et al., 2005; Varese et al., 2012a). However, it also highlights the importance of considering a broad range of adversities in addition to the prevailing socio-political emphasis between childhood abuse and subsequent mental health difficulties. For example 23% (14/62) of the sample in Study 3 did not describe exposure to any type of childhood maltreatment, negating the suggestion that such abuse is necessary or sufficient for psychosis (see also Chapter 2 for a discussion of how narrowly-defined childhood abuse is often privileged within trauma research). However, these participants did report other adversities. In particular, this included peer bullying, which has been associated with psychotic symptoms in both longitudinal (e.g., Arseneault et al., 2011) and cross-sectional research (e.g., Latasker et al., 2006); and the loss of a parent, also associated with increased psychosis risk in case-control studies (e.g., Morgan et al., 2007). While more severe types of victimisation, such as CSA, are proposed to wield greater impact on susceptibility to psychosis, it may be that more attention should be paid to the additive impact of numerous and/or chronic stressors of a lower magnitude, and the multilateral impact these might have on healthy functioning. This includes (1) the important issue of threshold, and the relative contribution of major Criterion-A level life events (as opposed to objectively less severe adversities) in establishing the levels of stress an individual experiences; (2) reactions to these events in biological, affective, and behavioural terms; and (3) the relative emphasis that psychosis research should place on stressful stimuli themselves compared to the subjective response of the individual and the context in which they encounter them (see also Chapter 2, and section 8.5.2).

Studies 3 and 4 are also some of the few investigations to explicitly ask participants about the timings of adverse events relative to voice onset. When examining these temporal patterns, it was apparent that the majority of reported adversities had occurred for the first time prior to voice emergence, with 100% of voice hearers in both studies reporting at least one adverse life event before voices started. For the CSA survivors in Study 4, it was also apparent that the majority (87%; 20/23) did not begin hearing voices at the time of the abuse, but on average seven years afterwards. The emergence of voices was identified in conjunction with a precipitating 'triggering' stressor in 91% (21/23) of cases, which was equally likely

NON-VICTIMISATION ADVERSITY

Serious physical illness/operation
Close family member sent to jail
Serious money problems
Bereavement
Parental separation
Divorce or separation
Separation from child
Being a carer
Witnessing a mugging/assault
Fostered/adopted
Abortion/miscarriage

TRAUMA[a]

Witnessing domestic violence
Witnessing a serious accident
Involvement in a serious accident
Surviving a disaster

Childhood sexual molestation
Childhood rape
Childhood physical abuse
Adulthood sexual molestation
Adulthood rape
Adulthood physical abuse
Adulthood physical assault

VICTIMISATION ADVERSITY

Bullying
Neglect
Childhood emotional abuse
Adulthood emotional abuse
Sexual harassment

Source. Compiled by author.

Note. Adversity descriptors obtained from LSC-R data.
[a] Designation of traumatic events derived from classifications of Criterion A traumatic stressors (APA, 2013) and the American Psychological Association's Trauma Group (2000), and as such represent a typical (if not rigorously defined) representation of how these terms are used. However, the limitations of this type of categorical system are also acknowledged, in view of the importance of subjective responses to adverse events outlined in Chapter 2.

Figure 8.2   Venn Diagram depicting the different categorisations of adversity reported by participants: non-victimisation, victimisation, traumatic non-victimisation, and traumatic victimisation.

to be a victimisation (n=11; particularly adulthood rape, bullying, or sexual harassment) or non-victimisation event (n=11; particularly parental separation, or sudden/unexpected bereavement). However, although these 'triggering' events were largely non-specific, it is noteworthy that the ratio of adulthood rape and sexual harassment between abused and non-sexually abused participants were 9:3 and 5:1 respectively, which supports existing evidence that CSA survivors are at elevated risk of sexual re-victimisation in adulthood (e.g., Becker et al., 2010; Cloitre et al., 1996).

Taken together, this pattern suggests that the dynamic of cumulative adversity described by Kira et al. (2008) extends to voice hearing in psychosis, in terms of the interplay between core exposures ('the accumulation') and triggering events ('the kindling'). Indeed, there is an established literature indicating antecedent stressors in the onset of schizophrenia-spectrum disorders (e.g., Brown & Birley, 1968; Corcoran et al., 2003; Day et al., 1987; Norman & Malla, 1993b) which, following the tenets of the the stress-vulnerability model (Zubin & Spring, 1977), differentiate between acute stressors directly precipitating illness onset, and the biogenetic and psychosocial/developmental factors that create vulnerability for emotional crisis. Furthermore, in contrast to the type of loss events typically associated with the onset of affective problems like depression (e.g., Brown & Harris, 1978; Kendler et al., 2003; Shrout et al., 1989) these 'triggers' may often be psychologically non-specific in nature – as in the current research. In terms of voice hearing particularly, Romme and Escher (2000) similarly propose that in the majority of cases, voice hearing begins when susceptible individuals find their coping threshold exceeded by acute stressors. Information is currently lacking regarding how different combinations and durations of exposures may influence voice onset/maintenance, but the current results suggest that voice emergence may follow a trajectory whereby formative adversity could induce stress sensitisation, and later social and/or interpersonal crises initiate the (putative) dissociative response.

8.3.2.1 Voice Hearing and CSA

Study 3 is also one of the few analyses to consider possible links between specific adversities and specific psychotic symptoms. It is important to note that the current data have significant limitations, in that they only examined group differences rather than applying inferential statistical models, and that while levels of paranoia/delusions were assessed for categorisation purposes, they were not formally measured. Nevertheless, the similarities with existing research are striking. In the first of such studies, a population-based analysis of 7,353 individuals in the UK, childhood rape was specifically associated with voice hearing (OR=4.2) after controlling for other adversities, comorbid paranoia, and various demographic confounds; whereas paranoia was associated with physical abuse (OR=4.3) and being raised in local authority care (OR=3.6) when adjusting for other adversities, demographic factors,

and comorbid hallucinations (Bentall et al., 2012). The second, Sitko et al. (2014) report on a probability community sample of 5,877 adults in the United States, and similarly found that when controlling for depression and co-occurring psychotic symptoms, differential associations were apparent between paranoid beliefs/neglect,[37] and hallucinations/CSA. Finally, a large study of inmates of UK prisons also identified specific associations between CSA and hallucinations (but not symptoms of paranoia), and paranoia and being raised in institutional care (Shevlin et al., in submission).

Bentall and Fernyhough (2008) and Bentall et al. (2014) are some of the few authors to explore these links theoretically, positing that paranoia may be connected with heightened threat expectancy and a propensity to attribute adverse events to external sources; psychological mechanisms suggested to logically result from disempowerment and disrupted attachment relationships. In terms of voice hearing, these authors suggest that formative adversity, particularly CSA, may hinder the source monitoring mechanisms required to differentiate between external and self-generated stimuli, possibly in combination with adversity-induced dissociation. In this respect it is noteworthy that the CSA survivors in Study 4 were more likely than the reference group to attribute voices to external sources (i.e., the voices are 'not me'), which in turn was significantly correlated with mean DES-II ($r_s = .53$) and DES-T ($r_s = .54$) scores, but not with psychological distress ($r_s = .22$); a finding consistent with Bromberg's (1995) contention that dissociated content is not characterised as self-referential, instead manifesting as an ego-dystonic, 'alien' event that appears disengaged from autobiographical experience.

Nevertheless, while the parsimony of this account is attractive, it is unlikely to offer a full explanation, given the implausibility of particular adversities always being associated with specific, unitary outcomes (not least because, as observed in the current research, many adversities and symptoms can co-occur). In this respect, a recent study by van Nierop et al. (2014) contradicts the current findings in that no specific associations were detectable between particular adversities and symptoms.[38] Rather, the authors purport that "intention to harm [i.e., victimisation] is the key component linking…traumatic experiences to psychosis" (p. S123). In addition, it should also be noted that associations between source monitoring biases and hallucinations have not always been dependably replicated (for review see Aleman

---

[37] Although this is not the same as being raised in local authority care, the authors note that a caregiver's failure to adequately meet the child's emotional, physical, or intellectual needs can have a comparably severe impact as physical separation (see Ainsworth,1962; Perry, 2002).

[38] However, unlike Bentall et al. (2012) and Sitko et al. (2014), the authors do not appear to control for co-morbidity (e.g., in Bentall et al., CSA was associated with both paranoia and voice hearing when adjusting for IQ and demographic confounds, but only with voice hearing after controlling for paranoia). In turn, there is still some suggestion of specificity in van Nierop et al.'s data: emotional neglect showed stronger associations with paranoia than hallucinations (OR=1.01-1.26, p=.028), whereas hallucinations were marginally more associated with CSA (OR=.86-1.00, p=.064).

& Larøi, 2008)[39] and reiterates that more work is needed to understand what psychological mechanisms linked with CSA,[40] hallucinations, and dissociation might be related to impaired reality testing (cognitive inhibition deficits, for example, which are a well-characterised concomitant of voice hearing [Badcock et al., 2005; Daalman et al., 2011; Waters et al., 2003, 2012] as well as considered a common feature of dissociation [see Giesbrecht et al., 2008]). The research implications for this type of heterogeneity are discussed further in section 8.5.2.

　　　　Whilst replicating existing evidence for associations between CSA and voice hearing (see Chapter 4), the thesis also extends such findings through a consideration of affect, dissociation, and voice phenomenology. Specifically, in comparison with non-sexually abused voice hearers, participants with a CSA history displayed higher levels of pathological dissociation and depersonalisation; reported more visions and gustatory hallucinations; perceived their voices as more omnipotent; reported a greater number of voices which had begun at a younger age; had a greater tendency to attribute voices to external sources; and were more likely to report disruptive, frequent, and uncontrollable voices. Nevertheless, it is also important to note that the majority of voice characteristics did not differ between groups with and without CSA exposure. Given that some variables approached the adjusted significance level, it may be that the study was simply insufficiently powered to detect an effect. However another possibility is that, contrary to predictions, different adversities have a broadly non-specific effect on voice phenomenology and/or that their impact is too idiosyncratic to capture within broad models. Indeed, recent work by Daalman et al. (2012) also found that no type of childhood abuse showed predictive value for voices' emotional valence or associated distress in either psychosis patients (n=127) or healthy voice hearers (n=100). When considering the finding that distress showed stronger associations with emotional voice characteristics than dissociation, this may also help explain why non-patient voice hearers show elevated levels of dissociation compared to non-voice hearing controls (see Chapter 3), but are more likely to report positive, non-threatening voices relative to patients (see Johns et al., 2014). That is, while dissociation may predispose for voice hearing,

---

[39] Some authors suggest this is primarily methodological, due to the failure of investigators to account for guessing parameters in their analyses (e.g., Woodward, Menon & Whitman, 2007); although others object to the theoretical basis, claiming it is erroneous to characterise voice hearers as deficient in source monitoring given that most are able to clearly differentiate voices from internally-generated thoughts (e.g., Leudar & Thomas, 2000).

[40] Hammersley et al. (2003) suggest that CSA is linked with involuntary, intrusive memories that occur with low cognitive effort. In turn, such spontaneous memories specifically correspond with the type of cognitions that are likely to increase errors in source monitoring and be misattributed to an external origin (Johnson, Hashtroudi & Lindsay, 1993). Bentall (2004) has likewise argued that failures in source monitoring and external attributions of agency could be understood as a response to adversity-related intrusions. To an extent, this corresponds with the current findings in that CSA survivors showed a greater tendency to attribute their voices to a non-self source, and were more likely to perceive voices as omnipotent and wielding externalised authority and influence.

appraisals and impact comes from subsequent affective interpretations. It may therefore be that the impact of particular adversities, at least for some individuals, is more specific in terms of semantic/representational themes and content of voices rather than the type of broad categories assessed by the PSYRATS-AH and BAVQ-R. It is also likely that variables not assessed in the current research, such as posttraumatic symptoms (e.g., re-experiencing, avoidance) and subjective appraisals of traumatic events (e.g., guilt and shame attributions) might influence responses to voices rather than CSA *per se*. Further considerations include whether voice salience is independently associated with CSA, or whether it could be better explained as a function of dissociation, distress and/or cumulative adversity exposure. In this respect distress might mediate sensitivity to voices, rather than heightened responsiveness being a function of the voices themselves. Alternatively, it may be that elevated dissociation leads to more personified, dynamically engaging voices. However, this remains speculative, and it is not possible to say from the current data whether CSA exposure in and of itself explains a particular pattern of interpretation, representation, and emotional reactions to voices.

8.3.3   CSA and Dissociation

Study 4 additionally indicated a differential impact of different CSA characteristics on dissociation. Firstly, participants whose abuse commenced under age 10 (i.e., a critical developmental phase wherein children exhibit heightened sensitivity to external stimuli) scored higher on the DES-II than those whose abuse began in post-pubertal phases. This may be partly explicable in terms of existing knowledge of the brain's heightened receptivity to environmental input in early childhood and, correspondingly, the age-dependent effects of child abuse (e.g., Anderson et al., 2008) wherein abnormal patterns of neuronal activation have a more profound impact on subsequent neurodevelopment (Perry et al., 1995). In turn, of the primary adaptive response sets to threat – the hyperarousal continuum (fight or flight defence reaction) and dissociative continuum (freeze and surrender reaction) – the latter is much more likely to be activated in young children, which can prime for chronic dissociation by producing 'traumatic states' that become progressively more complex, self-organised, and disparate from normal consciousness (Putnam, 1997), as acute adaptive states gradually become maladaptive traits (Perry et al., 1995).

In a comparison of patients with a diagnosis of DID (n=29) or schizophrenia with (n=16), or without (n=18), a history of childhood abuse, Dorahy et al. (2009) found that the interaction between dissociation and maltreatment significantly improved the prediction of voices beginning before aged 18, while pathological dissociation was associated with hearing more than two voices. Although their analysis was not limited to CSA, the current results fit this premise in that CSA survivors heard a greater number of voices from a younger age and

scored higher on the DES-T, a measure which is proposed to capture the degree of dissociative divisions in the personality (Waller et al., 1996). This corresponds with the tenets of the Structural Model of Dissociation (see Chapter 2), in that dissociative ruptures become more apparent as the number of voices increases (i.e., a greater number of voice indicates greater dissociation: Dorahy et al., 2009; see also Kilcommons & Morrison, 2005; Nurcombe et al. 2008). However, it is important to acknowledge that while this may be theoretically plausible (and possibly true in a majority of cases), the current results do not unanimously support the principle: in Study 4, 39% (11/28) of participants who scored below the median on the DES-II heard ≥ five voices, whereas 33% (6/18) who scored on or above the median for dissociation only heard between one and five.[41] It could therefore prove instructive to discover more about the qualities of different voices, including whether dissociation levels show greater correspondence with highly differentiated and personified voices as opposed to 'crowd' sounds of indistinguishable commentators, and how common it is for individuals with low self-reported dissociation to report large numbers of distinct, well-characterised voices (see also Yoshizumi et al., 2004, who found that amongst 380 adolescents, self-related voice hearing phenomena showed greater associations with dissociation than voice content that was somewhat, or not at all, related to self).

As predicted, parental abuse was also linked with heightened dissociation, an association that could be explained in terms of dissociation as a self-regulatory mechanism (Dutra et al., 2009) which enables maltreated children to compartmentalise distressing material and 'escape' from repeated trauma and pain (Schore, 2009). More specifically, when a parent "violates a fundamental ethic" (Freyd, 1994, p.307) of their relationship, the child is faced with an insoluble dilemma in which dissociation permits the maintenance of an attachment that is essential for survival and meeting of developmental needs (Freyd, 1994; DePrince & Freyd, 2002). In this respect a greater sense of betrayal also may be experienced as more traumatic, and Freyd et al. (2005) have found that exposures high in betrayal trauma (e.g., abuse by a close other) were significant predictors of anxiety, depression, and dissociation relative to Criterion A-type adversities low in betrayal but high in threat to life (e.g., accidents) amongst 99 non-patient adults. Similarly, the heightened levels of threat, invasiveness, and assault on one's sense of safety and integrity that are incurred by penetrative and/or multi-perpetrator abuse constitute a more severe trauma loading, and are thus likely to both increase peritraumatic dissociation during abuse itself and, in the long-term, create a 'prototype' for dissociative responses (Johnson, Pike & Chard, 2001).

However, contrary to predictions, an inability to disclose/an unsupportive response to abuse disclosure was not associated with higher levels of dissociation. In a review of

---

[41] Some of these participants described the voices as sounding like crowds or groups, although others reported distinctly personified voices with specific names, characteristics etc.

determinants of (non-psychotic) psychiatric and substance abuse disorders in a population-based sample of twins, Bulik et al. (2001) found that a supportive response to CSA disclosure was a protective factor and it is notable that this was not the case for the current psychosis sample, at least in terms of dissociation. There are several methodological limitations which might account for this. Firstly, it may be that the Likert rating for supportiveness of response was not sensitive enough to detect genuine differences (in addition, participants did not always specify whether disclosure signalled an end to the abuse). Furthermore, there was no measure of whether participants had voluntarily decided to disclose. It is also possible that the subjective impact of abuse could confound the protective effects of a successful disclosure, in addition to factors like self-esteem, general social support, and family environment.

Taken together, the pattern of results suggests that CSA's impact may vary along several continua in voice hearers with a diagnosis of psychosis. That said, the conclusions remain speculative, and must be interpreted within the limitations of both the thesis and existing trauma and dissociation literature: see Chapters 2 to 4). For example, it is important to acknowledge other variables not measured in the current analysis, such as social support, temperament, attributions made by survivors in relation to abuse (e.g., sense of shame or guilt), and the impact of other adverse events, including the possibility that CSA severity was acting as a proxy for more general disadvantage and social disruption. The use in Study 4 of a comparison group from the same clinical population in whom identical processes of ascertaining dissociation, psychotic diagnosis, and adversity exposure were employed reduces – but does not remove – the limitations of comparing these groups. It is also highly unlikely that a single abuse-related variable can account for variations in clinical presentation and symptom severity in the aftermath of CSA (Barker-Collo & Read, 2003). Nevertheless, the pattern of findings do suggest that the concept of 'unifinality' (Cicchetti & Rogosch, 1996) may be relevant in this clinical group, in that investigators should consider how a certain outcome (voice hearing and other dissociative symptoms) is reached via various developmental trajectories, and what common elements across different experiences might be associated with the outcome. In this formulation the current results suggest that CSA exposure in and of itself may not supply a complete account of the links between dissociation severity and voice hearing, relative to factors such as type, age of onset, and relationship of perpetrator to victim.

8.3.4 Non-Auditory Hallucinations and CSA

The *post hoc* nature of the non-auditory hallucination content study, coupled with the limitations described in section 8.2.2, only permit limited confidence in the findings. Nevertheless, several broad themes emerge from this data that warrant further consideration. First is that just over half of the non-auditory hallucinations (57%: 24/40) described by

sexually abused voice hearers were either directly (22%: 9/40) or indirectly (10%: 4/40) linked to CSA by participants themselves. A further 25% (10/40) were not linked to CSA by participants (often being attributed to paranormal/supernatural sources), but were judged to have content thematically consistent with CSA exposure by independent, blinded raters. Second is that while there were no group differences in the prevalence of visions or olfactory hallucinations, CSA survivors were more likely to report tactile and gustatory hallucinations. Third is that while the small numbers of participants reporting these experiences reduces reliability, it is notable that direct or thematic links with CSA were also more apparent in tactile (71%: 10/14) and gustatory (75%: 3/4) hallucinations than either visual (50%: 7/14) or olfactory (38%: 3/8) experiences. Finally, the broad content of hallucinations (in both groups with and without CSA exposure) were similar to that which has been found in other studies: (1) visions were predominantly reported as either humanoid figures (which could be attributed to paranormal origins), shadows, and animals (e.g., Dudley, Collerton, Nicholson & Mosimann, 2013); (2) these could occur in conjunction with auditory hallucinations (e.g., Manford & Andermann, 1998); and (3) the majority of gustatory and olfactory hallucinations were reported as unpleasant and a source of disgust (e.g., Connolly & Gittleson, 1971).

Other investigations have also detected links between multi-modal, non-auditory hallucinations and CSA; indeed, the association was noted as early as 1986 in Freud's case history of 'Frau P' (Freud, 1986/1950). More contemporary research interest is often attributed to the work of Ellenson (1985, 1986), who documented a 'predictive syndrome' for identifying a history of incest in female mental health outpatients that included "intrusive recollections taking the form of sensory phenomena and usually involve shadowy figures, often moving rapidly in the peripheral vision. Psychosensorial auditory hallucinations are common, and psychic auditory hallucinations are sometimes quite elaborate" (Ellenson, 1986, p.149). As in the current analysis, tactile and olfactory hallucinations were less commonly reported by Ellenson's participants than visions. In addition complex and recurrent hallucinations were often associated with secondary substance use and particularly with chronic or sadistic CSA that commenced in early childhood (Ellenson, 1985, 1986).

More recent research in samples of psychiatric patients (including those diagnosed with psychosis/schizophrenia) has likewise found significant correlations between CSA and visions (Read & Argyle, 1999; Read et al., 2003) and CSA and tactile hallucinations (Read et al., 2003), although these associations are based on small samples (Read & Argyle, 1999: n=22, CSA reported by 15; Read et al., 2003: n=200, CSA reported by 40). It is hard to compare the current findings for olfactory and gustatory hallucinations with existing work, as so few researchers have considered these experiences in respect to life events. However, an early investigation by Connolly and Gittleson (1971) reported that amongst 114 patients diagnosed with schizophrenia, olfactory and gustatory hallucinations were significantly more

prevalent in both men and women with 'delusions of sexual change' (e.g., believing one is becoming a member of the opposite gender; believing one is a 'neuter'). Although participants were not asked about CSA exposure it may (speculatively) have been a relevant factor, as both delusions with sexual content (Read et al., 2003; Thompson et al., 2010) and gender confusion/conflict (Consentino et al., 1993; Lehavot, Molina & Simoni, 2012; Veale, Clarke & Lomax, 2010) have been shown to be associated with childhood sexual trauma.

In one of the few studies examining hallucination content as opposed to just presence, Hardy et al. (2005) report that amongst 75 individuals with schizophrenia spectrum disorders, multi-modal hallucinations (auditory, n=49; somatic, n=5; visual, n=3; olfactory, n=1) had similar themes and content to previous traumas in 12.5% of cases, and similar themes in 45% of cases. In turn, CSA and bullying were the two adversities most likely to be associated with hallucinatory themes/content. In a survey of 92 patients at 'ultra-high risk' for psychosis, Thompson et al. (2010) similarly found that sub-threshold psychotic symptoms with sexual content (delusions, auditory/visual/tactile hallucinations) were significantly related to a history of previous sexual trauma (OR=7.17, p=.01) after controlling for other traumatic experiences, PTSD symptoms, age, and gender (for similar findings, see also Heins, Gray & Tennant, 1990; Reiff et al., 2012; Raune, 2001). However, it should be noted that many of these studies share the same limitation as the current research – obtaining hallucination data using research measurement tools rather than more rigorous clinical assessment, which may reduce validity.

At least some of the hallucinations reported by CSA survivors in Study 4 could be explicable in terms of a dissociation framework. For example, the type of localised tactile sensations in the pelvis/genitals described by some individuals might be more accurately characterised as somatoform dissociation, wherein integrative failure during abuse leads to dissociated material that intrudes into consciousness (Janet, 1889, 1907; Nijenhuis, 2000; Nijenhuis et al., 1998). Furthermore, other participants reported the type of systematised hallucinations that Moskowitz et al. (2009) term 'secondary delusions,' in which erroneous explanations are constructed to interpret intense sensory and emotional experiences that have been dissociated from autobiographical memory.[42] Nevertheless, it is also important to avoid

---

[42] For example, one CSA survivor described seeing shadowy figures in his bedroom and images of blood on his sheets, which he subsequently attributed to vampires. From the perspective of a 'secondary delusion,' the human figures and blood-stained bedclothes could be understood as dissociated memories, reactivated by bedtime stimulus. The vampire explanation can be interpreted as a confused attempt to make sense of these sensations, which in turn corresponds to the deep sense of threat, helplessness, and predation felt at the time of the abuse (see Moskowitz et al., 2009). In turn, this is analogous to Janet's (1929) claim that material which is encoded and stored within dissociated systems can be reactivated by conditioned stimulus associated with the original trauma. In voice hearing, an equivalent phenomenon is imbuing voice(s) with characteristics of a previous perpetrator/aggressor with a threatening preternatural origin (the Devil, for example, is a common representation: Romme et al., 2009). Therapeutic guidance for such experiences includes the use of remembrance and integration, whilst acknowledging that directly addressing traumatic

drawing spurious generalisations about exposure to CSA (and other adversities) and a ubiquitous presence of hallucinations. For example, whilst the blinded, independent raters in the current study showed high agreement for which descriptions came from CSA survivors, a number of descriptions from participants with no disclosed or documented CSA history were also judged to be consistent with CSA by the same raters. In clinical terms, it could be damaging and confusing for clinicians to pre-suppose a history of CSA on the basis of hallucination content alone, particularly scenarios (which, albeit, appear to be rare) in which over-zealous workers insist that symptoms indicate abuse must have occurred, despite the client reporting no memory of it.

Furthermore it should also be noted that while dissociation was a significant predictor variable for voice hearing in the regression analysis in Study 3 (OR=5.78; p=.001), it was associated with non-auditory hallucinations at a lower threshold (OR=3.58; p=.03) and at a level that did not meet the adjusted level of significance (although the study may have been underpowered owing to the smaller number of participants reporting non-auditory hallucinations). In addition 25% (10/40) of the non-auditory hallucinations described by the CSA survivors in Study 4 were not judged by the raters to be attributable, or thematically related to, any type of abuse (a figure that in reality is most likely higher, given that content was withheld and/or data was missing for a further 18%: 7/40). These hallucinations appeared more non-specific (e.g., visions of sparkling lights, animals, puppets) and may be better explained with a neurological rather than psychological framework (e.g., dysfunctions in the visual pathway/abnormal cortical release phenomena: Manford & Andermann, 1998), or even, in the case of less complex hallucinations, as a function of suggestibility (Young et al., 1987). Furthermore, the extent to which the hallucinatory experiences of the current sample may have been related to substance use, chronic sleep disturbance (Manford & Andermann, 1998), or as side effects of certain psychiatric medications (RxList, 2014; Toner et al., 2000) was not determined.

A final consideration is the manner in which voice hearing has been privileged within psychiatric research; for example, a PSYCinfo search between April 2003 and April 2013 for "schizophrenia OR psychosis AND auditory hallucinations" yielded 931 results, compared to 200 for visual hallucinations, 21 for olfactory hallucinations, 19 for tactile hallucinations, and 3 for gustatory hallucinations. Likewise service-user organisations, such as Intervoice (D. Corstens, personal communication) and the English Hearing Voices Network (R. Waddingham, personal communication), receive consistent feedback from members about the scarcity of information and resources available for those suffering with unusual sensory experiences that are not auditory. Yet while non-auditory hallucinations may be more

---

material may not be immediately possible or advisable (e.g., Levine, 1997; Ross & Halpern, 2009; Rothschild, 2003).

infrequent than voice hearing, they are not uncommon in themselves (see Table 8.2), and are associated with significant distress and impairment in both children (David et al., 2011) and adults (Mueser, Bellack & Brady, 1990). More research is needed to understand how different hallucinations may relate to each other and/or the ways they may be systematised in a delusional belief system, as well as the psychological correlates of hallucinations that are associated with, or explicable in terms of, adversity exposure. In turn, it would be beneficial to generate more knowledge on (1) whether adversity is necessary or sufficient for multi-modal hallucinations, or if there are particular aspects that may increase the risk (e.g., age when trauma occurred, duration, guilt/shame attributions, cumulative exposures); and (2) if hallucinations are trauma-related, how methods can be refined for coping with both the distress caused by their presence, and the emotional representations (e.g., humiliation, intimidation, invasion: e.g., Hardy et al., 2005) they may evoke in relation to previous traumatic circumstances.

8.3.5 Psychological Distress and Dissociation

A further question raised by both empirical studies is the nature of the association between psychological distress and dissociation in psychosis samples. There was a strong positive relationship between the two in voice hearing participants ($r_s = .73$ for the DES-II; $r_s = .71$ for the DES-T), particularly in those with a history of CSA ($r_s = .76$ for the DES-II; $r_s = .80$ for the DES-T). In this respect Lysaker, Davis, Gatton, and Herman (2005b) have also reported that schizophrenia patients with a history of CSA (n=21) exhibited higher levels of dissociation, intrusive experiences, and state and trait anxiety than a non-abused comparison group (n=19). In contrast, the association in Study 3 was much weaker amongst non-voice hearers ($r_s = .30$ for the DES-II; $r_s = .34$ for the DES-T), who had a greater tendency for high distress-low dissociation.

A somewhat similar pattern has been reported by Fikretoglu et al. (2006) in an analysis of peritraumatic dissociation and psychological distress amongst 747 police officers and 317 civilians exposed to various 'critical incidents.' In these results, 13.7% (n=141) of participants reported high distress in conjunction with high dissociation, compared to 1.4% (n=14) reporting high distress and low dissociation, with moderate to strong correlations apparent between dissociation and distress in both police officers ($r = .60$) and civilians ($r = .52$). These findings were interpreted by the authors as suggestive of a sub-group of individuals for whom dissociation is not a defensive reaction to adversity exposure, but rather an epiphenomenon of high levels of distress. To the researcher's knowledge, this is the first time such a pattern has been observed in an early psychosis sample in relation to different symptom profiles, adversity exposures, and state dissociation (whilst acknowledging several important limitations, including the fact that confounding factors like cumulative exposures,

Table 8.2   Reported rates of non-auditory hallucinations in psychosis samples relative to voice hearing.

Study	*n*	Auditory % (*n*)	Visual % (*n*)	Tactile % (*n*)	Olfactory % (*n*)	Gustatory % (*n*)
			Hallucination Modality			
Current sample	46	100% (46)	58% (27)	45% (46)	35% (16)	8% (4)
Andreasen (1987)[a]	111	70% (77)	31% (34)	16% (18)	6% (7)	--
Connolly & Gittleson (1971)[b]	114	--	--	--	39% (40)	31% (36)
David et al. (2011)[c]	117	95% (111)	80% (94)	61% (71)	30% (35)	--
Dudley et al. (2013)[d]	176	--	35% (61)	--	--	--
Goodwin et al. (1971)[e]	45	87% (39)	64% (29)	53% (24)	20% (9)	--
Lewandowski et al. (2009)[f]	133	76% (101)	24% (32)	20% (27)	17% (23)	--
Small et al. (1966)[g]	50	66% (33)	30% (15)	42% (21)	38% (19)	--
Weighted mean		79%[h] (361/456)	43% (292/678)	41% (207/502)	24% (149/616)	25% (40/160)

Note. Only the sample from Study 4 is included, due to replication of data for some voice hearers between Study 3 and 4.

-- = not assessed. [a] Convenience sample of schizophrenia patients, age unspecified. Hallucinations assessed using Scale for the Assessment of Positive Symptoms (Andreasen, 1984). [b] Convenience sample of schizophrenia patients, mean age 46.9 years (male) and 42.4 years (female). Hallucinations assessed using psychiatrist-administered clinical interview. [c] Convenience sample of patients with childhood onset schizophrenia, mean age 13.6 (SD=2.6) years. Hallucinations assessed using Scale for the Assessment of Positive Symptoms (Andreasen, 1984). [d] Convenience sample of first-episode psychosis patients, mean age 22 (SD=4.5) years. [e] Convenience sample of schizophrenia patients (32 chronic and 13 acute), aged 18-86 years. Hallucinations assessed using structured clinical interview. Hallucinations assessed using The North East Visual Hallucination Interview (Mosimann et al., 2008). [f] Convenience sample of schizophrenia patients, aged 19-65 years. Hallucinations assessed using The Positive and Negative Syndrome Scale (Kay et al., 1987). [g] Convenience sample of schizophrenia patients, aged 19-48. Hallucinations assessed using medical records and psychiatrist-administered clinical interview. [h] Data from current study not included, as participants were recruited on the basis of hearing voices.

time elapse since exposures, and subjective impact of adversity were not controlled for).

There are several possible ways to interpret this phenomenon. For individuals with a history of childhood abuse, one possibility is that the predominant adaptive response during acute exposure (e.g., dissociation or hyperarousal) strongly determines what posttraumatic responses will subsequently be developed and maintained (Chu, 1998; Dell, 2002; Perry et al., 1995). This may partly be a function of the type of traumatic event (e.g., physical abuse may be more allayed with hyperarousal; CSA with dissociation), although even if this is the case it would almost certainly be moderated and/or mediated by additional variables, including (but not limited to) exposures to other types of adversity and early attachment experiences, as well as personality traits like neuroticism, emotional regulation skills, and innate levels of absorption and/or hypnotisability (a marker for dissociative predisposition: Spiegel, Hunt & Dondershine, 1988); which in themselves might be products of adversity exposure.

Another explanation may be the psychobiological mechanisms of trait anxiety and high arousal, which in some individuals can trigger acute dissociation (Krystal et al., 1991; Marmar, Weiss & Metzler, 1997), and can often be related to involuntary re-experiencing of psychological states encountered during trauma (van der Hart et at., 2006). While this may be a factor for those with simultaneous high levels of dissociation and psychological distress, an alternative process for those with high dissociation-low distress may be the 'anaesthetising' effect of dissociation on subduing emotional overwhelm. In this respect a further possibility, particularly for those participants for whom no adversity was identified, is whether dissociation could be a non-specific product of psychosis, possibly as a defence against overwhelming psychological distress as part of psychotic mood disorder (Giese, Thomas & Dubovsky, 1997). Although these are not questions that can be answered with the current data, the results from both empirical studies suggest the existence of important individual differences in the threshold for dissociation and distress in patients with first-episode psychosis; and that the association between the two is complex and by no means homogenous (both between, and within, groups of voice hearers and non-voice hearers). Issues arising for understanding this type of heterogeneity are discussed further in section 8.5.2.

8.4   Implications for Clinical Practice

Determining links between adverse life events, dissociation, distress, and voice hearing is of theoretical importance, but additionally presents a number of clinical considerations in terms of accurate assessment and intervention (see Figure 8.3).

1) Assessment and formulation   **2) Integrated intervention**
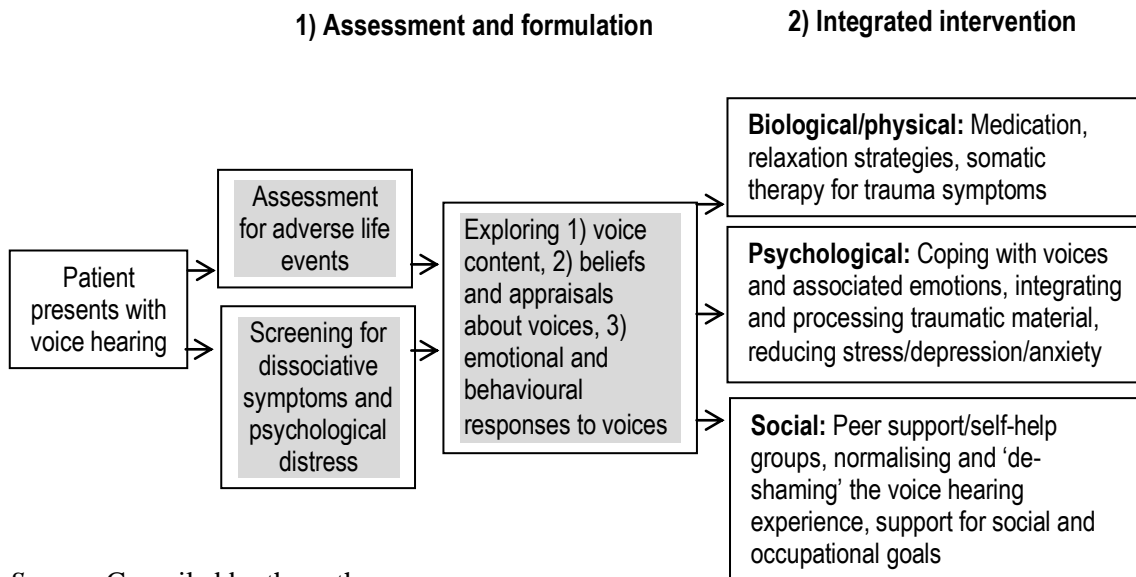
Source: Compiled by the author.

Figure 8.3   Suggested framework for clinical assessment, formulation, and intervention with psychosis patients who hear voices.

8.4.1 Assessment

Despite guidelines emphasising the need to routinely assess adversity exposure in psychiatric service-users (e.g., NHS Confederation, 2008), research suggests such recommendations are yet to be adequately implemented (Fisher et al., 2011; Hepworth & McGowan, 2012; Read, Hammersley & Rudegeair, 2007). While mental health staff should not pre-suppose a history of maltreatment unless confirmed by the client, the findings from both the empirical and review components of the thesis support the contention that clinicians should receive adequate support and training for making routine evaluations for possible experiences of abuse and adversity (see Read & Bentall, 2012). This is particularly important given the significant under-detection of posttraumatic stress in patients diagnosed with psychosis (Lommen & Restifo, 2009; Mauritz et al., 2013; Salyers et al., 2004), and that such individuals are less likely to receive an appropriate clinical response when abuse is disclosed relative to those with non-psychotic diagnoses (Agar & Read, 2002; Grubaugh et al., 2011; Schizophrenia Commission, 2012).

In addition, the findings of both empirical studies reinforce the importance of not restricting definitions of adversity to Criterion A-type traumatic stressors (see also Chapter 2). This is not to suggest that the Criterion A threshold should be revised or lowered, as diluting its 'gatekeeper function' by less restrictive definitions would potentially render the concept of posttraumatic stress as meaningless (Rosen & Lilienfeld, 2008). Nor does it necessarily imply a causal, aetiological role for these stressors in the onset of psychosis. Rather, this recommendation is based on the premise that 'low magnitude' events induce a negative

emotional impact, and should therefore be acknowledged within clinical settings on a case-by-case basis (McHugo et al., 2005). As such, assessment techniques like 'timelines' (wherein clients and workers collaboratively frame a chronological narrative of adverse events), or broadly inclusive checklist tools like the LSC-R, are useful for identifying adversity exposure that has caused significant subjective distress but would not classically be defined as traumatic in the sense of Criterion-A. In the current research this included experiences like peer bullying, family dysfunction (e.g., witnessing domestic violence, incarceration of a family member, being taken into local authority care), and loss (e.g., parental separation, bereavement). Indeed, when workers were present during data collection, it was striking how many commented that they were previously unaware that their clients had experienced these events and/or that they had caused such profound distress. In this respect, feedback led the Clinical Lead of the EIP service to recommended research involvement to staff members during weekly team reviews, on the grounds that the LSC-R could elicit therapeutically useful information.

While levels of anxiety and depression are more likely to be routinely assessed in first-episode psychosis populations (B. Johnson, personal communication; A. Sanderson, personal communication), there are currently no clinical guidelines on the need to determine levels of dissociation. As such, a further implication of the current results is the desirability of assessing patients (particularly those who hear voices) for the presence of other concomitant dissociative experiences. Although many available instruments are lengthy and require specialist training to administer, a self-report tool like the DES-II can be completed in as little as ten minutes and scored in five (Ross, 1997), and could thus be incorporated into clinical work with minimum time or disruption (for example, as part of the standard assessment phase within EIP services, where a battery of measures are administered to new clients). Taken together, relevant information on adversity exposure(s) and/or levels of dissociation could be extremely valuable for providing recourse to appropriate interventions and devising treatment plans that encompass relevant cognitive, affective, and psychosocial factors (see also section 8.4.2).

Correspondingly, careful assessment of voice hearing experiences is an additional consideration. This naturally includes the objective presence of voices, but also extends to the type of secondary characteristics and appraisals discussed within the thesis, as well as exploring how voice content (and other modalities of hallucination) may be emotionally linked to representations of adverse life events (e.g., Johnstone, 2011; Corstens & Longden, 2013; Romme & Escher, 2000; see also section 8.4.2.2). Prompt identification of such factors could usefully guide treatment plans in terms of targeting distressing beliefs about voices and, with client collaboration, could also inform where clinical attention should be best placed. For example, some individuals in mental health services are not troubled by their voices, and may

grow dissatisfied that therapeutic resources are focussed on eradicating an experience that is not causing difficulties, or in some cases may be actively valued (e.g., James, 2001; Jenner et al., 2008; Romme et al., 2009).

Finally, in terms of accurate assessment, it should also be reiterated that considerable heterogeneity was reported in key variables between and within groups of voice hearers and non-voice hearers. As such, determining relevant treatment targets is crucial if interventions are to be effectively tailored and individual needs most appropriately met. In the current population, this could be segmented according to the extent of psychological distress, dissociation, and adversity exposure; and possible clinical options are discussed in more detail below.

8.4.2 Intervention

8.4.2.1 Pharmacology

Much research has explored the use of, and best practice for, psychotropic medication for psychosis (e.g., Kreyenbuhl et al., 2010; McGorry, 2005; National Institute of Clinical Excellence [NICE], 2009), including the benefits of dose reduction/discontinuation of antipsychotics during the early stages of remitted first-episode psychosis (Wunderlink et al., 2013). As such, the intention of this section was to focus on configuring prescription practices for psychosis patients presenting with high levels of dissociation. In attempting this, however, it becomes apparent that the field lacks systematic evidence for the efficacy of psychotropic agents on dissociative symptoms, and no NICE guidelines or Cochrane reviews are currently available to advise on medication as either adjunct or substitute for psychotherapeutic strategies. Taken together, existing opinions appear to favour the use of medication as an intervention for patients with high levels of dissociation (e.g., International Society for the Study of Trauma and Dissociation, 2011; Medford et al., 2005), including those with a psychotic diagnosis (e.g., Ross & Halpern, 2009; Rudegeair & Farrelly, 2008). However, given that such guidelines are based on small trials, case series, or anecdotal evidence from experts drawing from their own clinical experience, the literature is of a sparseness and low quality that prohibits any definite proposals for practice. The growing recognition of complex comorbidity for dissociation and psychosis (see Chapter 1) makes the lack of high-quality evidence for best-use of pharmacotherapy a striking and serious omission in the literature, and there is a manifest need for large-scale, well-designed clinical trials that evaluate prescribing practices in this client group.

8.4.2.2 Psychosocial Approaches

Although psychotherapy for psychosis is virtually as old as psychiatry itself (Porter, 2003), the feasibility and utility of non-pharmacological approaches have only become an area of systematic research interest within the last two decades (see BPS, 2000). With the exception of CBT, robust, high-quality evidence for their efficacy (e.g., Cochrane reviews) is therefore very limited. Although a revival of interest in the explanatory potential and therapeutic possibility of psychosocial frameworks for psychosis means this is set to change (Alanen et al., 2009), the subsequent discussion must be considered in view of the incomplete evidence base, namely small samples and a pervasive lack of randomised trials. Given the size, scope, and varying quality of this literature, the following sections are therefore not presented as an exhaustive or definitive account, and the inclusion of material was based on the following parameters. Firstly, where relevant, methods that report specific outcomes for voice hearing were chosen in preference to those that focus on improvements in positive psychotic symptoms *per se*. Secondly, therapeutic strategies deemed consistent with the thesis aims (i.e., those incorporating dissociative variables in the context of psychosis, such as depersonalisation and affect regulation) were also prioritised for discussion. Finally, although there is a substantial body of evidence for successfully treating the sequalae of interpersonal adversities like CSA, preference was given to approaches that have been applied amongst psychosis populations.

8.4.2.2.1 Voice hearing, dissociation, and psychological distress

8.4.2.2.1.1 Depersonalisation. Both the review and empirical elements of the thesis support the contention that depersonalisation is an element of dissociation that has particularly strong associations with voice hearing, which raises the question as to whether such experiences might be a useful target for intervention. For example, the type of elevated emotional/experiential detachment typified by depersonalisation is known to be negatively associated with mindfulness (a state of consciousness characterised by present-state awareness), which may be particularly pronounced in survivors of childhood adversity (Michal et al., 2007; Perona-Garcelan et al., 2014; Walach et al., 2006). In this respect, positive results have been reported for mindfulness practice in reducing distress and belief conviction for voice hearing amongst small samples of psychosis patients (e.g., Abba, Chadwick & Stevenson, 2008, n=16; Chadwick, Newman-Taylor & Abba, 2005, n=10; Newman-Taylor, Harper & Chadwick, 2009, n=2). Applications of Acceptance and Commitment Therapy (ACT), which likewise emphasise flexible, non-judgmental attention to mental events, have also demonstrated positive therapeutic results in patients hearing voices (García & Pérez, 2001; Valmaggia & Morris, 2010; Veiga-Martínez et al., 2008). For

example, an RCT comprising 80 inpatients with psychosis allocated to either ACT or treatment as usual (TAU), found 50% lower rates of hospitalisation, less reported 'believability' of voices, and a greater willingness to disclose voice presence to clinicians in the ACT condition after four months (Bach & Hayes, 2002). More recently, comparable results were reported by Gaudiano and Herbert (2006), whose RCT of ACT and enhanced TAU in 40 psychosis patients found advantages for ACT at four month follow-up in terms of reduced social impairment, affective symptoms, hallucination-related distress, and decreased conviction in the reality of voices. At present, ACT and mindfulness practice are the only approaches for voice hearing in psychosis that provide a provisional evidence-base for targeting dissociation-like processes (although, as can be seen, these still await large-scale, systemic replication). A discussion of the future for more exploratory therapeutic approaches that consider adversity, dissociation, and voice hearing is discussed in section 8.4.2.2.2.

8.4.2.2.1.2 Affect regulation. In addition to dissociation, the thesis also identified high rates of psychological distress in voice hearers (which in general showed stronger associations with voices' emotional characteristics than either dissociation or total adversity exposures). As such, affective factors like anxiety, stress, and depression, and the regulation of these, may be useful targets for intervention in early psychosis (Gumley, 2011). Indeed, Garfield (1995) has developed on the early theorising of Bleuler (1911/1960), Jung (1976), and Semrad and van Buskirk (1969), to suggest that "unbearable affect" is a core feature of psychosis, wherein the capacity to "acknowledge, bear and put in perspective" (p.7) a sense of focal, overwhelming emotion is an important task of recovery. In turn this perspective is very similar to guidance in the dissociation field, wherein confronting, tolerating, and processing distressing material is a central aim of therapy (e.g., Herman, 1992; ISSTD, 2011; van der Hart et al., 2006). This concept may be of particular relevance to first-episode patients, given that the years immediately following initial onset are a critical period for influencing future outcomes, and in which deterioration can be aggressive (Crumlish et al., 2009). Indeed, Bleuler (1911/1960), who emphasised the primacy of affectivity over the other two elements of Kraepelin's trinity of volition and connation (cognition), argued that "It has been known since the early years of psychiatry that an 'acute curable' psychosis became 'chronic' when the affects began to disappear" (p.40).

CBT is one strategy with proven effectiveness for targeting anxiety and depression in psychosis (see Turkington et al., 2004), not only in general terms, but also in their specific relationship with voice attributions. The relevance of the latter point was highlighted in Study 4, wherein psychological distress showed strong positive associations with secondary voice characteristics. In this respect, changing perceptions about control, omnipotence and the "power and purpose" of voices (Trower et al., 2010, p.81) forms a central component for individuals undergoing CBT, and appears an effective means for both reducing psychological

distress and enhancing coping capacity (e.g., Meaden et al., 2010; Smith et al., 2010; Trower et al., 2010). However the concept of emotional regulation described previously is not a component generally emphasised by CBT, which tends to focus more on the cognitive constructions and appraisals of negative affect.

An alternative approach for this clinical goal is Compassion-Focussed Therapy (CFT), which is based on theories of emotional regulation derived from evolutionary psychology and neuroscience (Gilbert 2007, 2009a-b, 2014). CFT posits that hypersensitive threat processing (including social-rank threats linked with shame and stigmatisation and/or that originating from adverse experience) can severely impair emotional regulation and reduce affiliation capacities. In addition to enhancing mentalisation and affiliative relating, it therefore aims to help patients develop the capacity for empathic, comforting, and compassionate responding to both self and others in attempts to regulate emotion and mitigate distressing threat appraisals (Gumley, Braehler, Laithwaite, MacBeth & Gilbert, 2010). Although the evidence base in psychosis is only an emergent one, initial results are encouraging, and CFT may present a suitable avenue for treatment in distressed first-episode populations (particularly those for whom more explicitly trauma-focussed interventions are either undesired or unsuitable). For example, a recent pilot RCT of 40 patients with schizophrenia-spectrum diagnoses (Braehler et al., 2013b) found that relative to TAU, CFT was associated with significant improvements in blinded, observer-rated measures on the Clinical Global Impression-Improvement Scale (Guy, 1976), as well as self-reported depression and perceived social marginalisation. It has demonstrated similarly positive outcomes for psychosis patients held in secure (Laithwaite et al., 2009) and inpatient (Heriot-Maitland, Vidal, Ball & Irons, 2014) settings, as well as those with significant negative symptoms (Johnson et al., 2011). In addition, a small yet extremely detailed case series of three voice hearers with psychotic diagnoses by Mayhew and Gilbert (2008) found that CFT was associated with significant decreases in anxiety, depression, paranoia, interpersonal sensitivity and obsessive-compulsive disorder, as well as reductions in perceived voice malevolence and persecution, and enhanced perceptions of voices as reassuring (improvements which were maintained at six month follow-up).

8.4.2.2.1.3 Social interventions. Finally, initiatives focussed on promoting self-esteem, social inclusion, and a sense of autonomy and purpose have also been shown to be beneficial for mitigating the type of anxiety and low mood identified in this clinical group. In addition to historical exposures to subordination, stress, and invalidation discussed in the thesis, psychosis patients as a group are also at high risk of disempowerment, diminished social status, and loss of life roles (Birchwood et al., 2000, 2005; Harrison & Gill, 2009). This was evident in the current samples, of which the majority were single, reported high substance use, were in neither work nor study, and were unable to live independently.

Furthermore, emotional dysfunction may not only be an intrinsic feature of first-episode psychosis, it can also develop as a secondary reaction to the experience itself (Birchwood, 2003; Gumley, 2007). As discussed previously, the years directly following a first-episode of psychosis represent a 'critical period' (Birchwood, Todd & Jackson, 1998) that is formative for subsequent social and emotional development. Given that significant psychosocial responses develop during this timeframe, including interpersonal reactions to psychosis and alliance with mental health services, it can afford valuable opportunities for secondary prevention (Birchwood & Fiorillo, 2000; Gumley & Park, 2010; MacBeth et al., 2014). This includes, but is not limited to, support with employment and educational goals (Nuechterlein et al., 2008); maintaining or re-establishing familial and social ties (Falzer, Stayner & Davidson, 2004), and strategies that promote recovery by reducing negative expectancies about the impact of psychosis (Gumley et al., 2006).

In terms of voice hearing specifically, normalising the experience can offer clinical benefit by emphasising its continuum with ordinary mental events, reducing shame and stigma, and promoting a positive therapeutic alliance with service-users (Garrett, 2010). The thesis findings support this idea by locating voice hearing, at least in some individuals, as an intelligible response to stress exposure. Such information could prove reassuring for those troubled by the psychiatric implications of their experiences, which in turn could have positive consequences for help-seeking behaviours. In turn, recourse to peer support, particularly self-help groups, appears a further helpful strategy for accomplishing improved mood amongst voice hearers, with cited benefits including devising and refining coping strategies, solidarity and social support, reducing stigma, and enhancing self-efficacy, confidence and self-esteem (Dillon & Hornstein, 2013; Conway, 2004; Longden & Dillon, 2013; Romme et al., 2009).

8.4.2.2.1 Dissociation, adversity, and psychosis: Exploratory therapeutic approaches

There are numerous documented strategies in the traumatology field for diminishing dissociation and working with experiences like voice hearing amongst patients with diagnoses of dissociative disorder and PTSD. These include, but are not limited to, dialoguing and negotiating with voices (e.g., Gantt & Tinnin, 2007; Holmes & Tinnin, 1995; Ross & Halpern, 2009); trauma-based psychotherapy (e.g., Ellason & Ross, 1997; Kluft, 1984), and psychoeducation, anxiety management, and CBT programmes based on cognitive restructuring (Meuser et al., 2008). Substantially more research is needed to gain a better understanding of the indications and contraindications of employing these approaches in well-characterised psychosis populations. Nevertheless this is an area of burgeoning interest, and more authors are beginning to discuss the extension of these methods into psychosis patients with identified trauma histories (e.g., Alenen et al., 2009; Dillon, Johnstone & Longden, 2012; Moskowitz & Corstens, 2007; Moskowitz et al., 2009; Ross, 2008; Ross & Halpern, 2009).

Numerous traumatic victimisation experiences were identified in the current samples, and interventions for such individuals might usefully include exploring ways in which posttraumatic beliefs impact on voice hearing attributions, developing strategies for coping with dissociation, and employing narrative techniques to aid memory contextualisation and integrate traumatic material. For example, sensorimotor psychotherapy (Ogden, Minton & Pain, 2006) employs neuroscience/somatic theory and psychodynamic/attachment therapies to promote physical and affective processing of traumatic memories whilst simultaneously breaking down dissociative amnesias and assimilating fractured experience into a coherent, autobiographical context. In terms of voice hearing specifically, the exploratory technique of Voice Dialoguing (e.g., Corstens, Longden & May, 2012; Corstens, May & Longden, 2011; Moskowitz & Corstens, 2007) has applied the customary methods of dissociative disorder treatment to psychosis patients. Similar to the Structural Model of Dissociation (van der Hart et al., 2006: see Chapter 2), which posits that the personality of traumatised individuals is fragmented into independent subsystems, Voice Dialoguing relates to voices as disowned experiential/emotional representations within the person that can be directly engaged with by a therapist in a manner that instigates integration and reconciliation.

Likewise, 'voice profiling' techniques (Romme & Escher, 2000) employ the methods of psychological formulation to systematically explore and interpret voice content and characteristics, and in doing so aim to encourage association (rather than dissociation) between voice presence and stressful life events, as well as tailor customised interventions that meet the needs and circumstances of the voice hearer (e.g., Corstens & Longden, 2013; Corstens, Escher & Romme, 2008; Longden et al., 2012b). In this respect, 'deconstructing' voices as latently psychologically interpretable/interpersonally significant is consistent with the premise that construing meaning and narrative from distressing experiences (including those in the context of psychosis) promotes hope, empowerment, reflectivity, and psychological adjustment (e.g., BPS, 2011; Johnstone & Dallos, 2006; Stainsby, Sapochnik, Bledin & Mason, 2010). At the current time, however, the benefits of these approaches have yet to be demonstrated in a systematic, standardised manner with randomised samples of psychosis patients.

CBT is the most commonly applied psychotherapeutic approach for voice hearing in psychosis (Dickerson & Lehman, 2011), and there is also scope to incorporate trauma-informed approaches within existing CBT protocols (e.g., Bisson & Andrew, 2009; Cohen & Mannarino, 2008; Seidler & Wagner, 2006). There is a growing consensus amongst experts in CBT for psychosis (CBTp) that therapists "should work directly with content of voices to explore its relationship to life experiences and beliefs about the self" (Morrison & Barratt, 2010, p.139), and emphasising this therapeutic element (as opposed to simply modifying voice-related appraisals) could help refine CBTp's specificity. In other words, if cognitive or

affective representations underpinning malevolent, critical voices remain unresolved after the voices' salience is reduced, then these factors may continue to exert damaging effects on the person's functioning via other pathways, like self-injury, depression, or low self-esteem. In this respect, a meta-analysis of 26 investigations of CBTp for voice hearing found that, contrary to the expectations of the cognitive model, "modifying cognitions of malevolence and supremacy [does not] consistently reduce voice-related distress" (Mawson, Cohen & Berry, 2010, p.256). The authors consequently suggest that other, unspecified "underlying mechanisms" (p. 248) are likely to mediate the appraisal-distress relationship; and the current findings suggest that dissociative symptoms (and/or other adversity-related intrusions) may be viable candidate variables and a future target for intervention.

Another possibility is Eye Movement Desensitisation and Reprocessing (EMDR), a novel time-limited therapy for alleviating symptoms of psychological trauma. Its precise mechanism of action is speculative, although it is claimed to aid the processing and integration of distressing memories via bilateral sensory input (Shapiro & Laliotis, 2010). EMDR has a strong evidence-base for the treatment of PTSD (Foa, Keane & Friedman, 2009; NICE, 2005), and there are provisional indications of its utility in psychosis. For example, a recent pilot trial of 27 patients with comorbid psychosis and PTSD found significant improvements in posttraumatic symptoms, voice hearing, delusions, anxiety, depression, and self-esteem (although not paranoid ideation or feelings of hopelessness) after six sessions of EMDR treatment (van den Berg & van der Gaag, 2012). Other authors have also rationalised its use in the context of psychosis (e.g., van der Vleugel et al., 2012), including as a specific treatment for voice hearing (e.g., Helen, 2011), although it should be noted that the latter recommendations are based on quasi-anecdotal clinical case studies rather than controlled evaluations.

8.4.2.3 Contraindications for psychosocial approaches

Because patients with psychosis diagnoses are frequently excluded from PTSD (Bradley et al., 2005) and dissociation (Ross & Halpern, 2009) treatment trials, there remains limited data on the utility of applying these types of protocols to individuals with complex comorbidity. As discussed above, much existing evidence is therefore limited to small case series and observational data.[43] As with any clinical intervention, standard precautions should thus apply when undertaking trauma-based work, or attempting to engage with patients' voice hearing experiences. If painful or frightening memories and emotions have been substantially disowned, then abrupt confrontation via therapy can be de-stabilising and potentially

---

[43] An exception to this is non-randomised trials of PTSD-directed treatment in psychosis patients, which show that CBT programmes based on cognitive restructuring (e.g., Meuser et al., 2008, Rosenberg et al., 2004) and exposure paradigms (e.g., Frueh et al., 2009) provide clinical benefit for reducing posttraumatic symptoms without adverse effects.

dangerous (e.g., a heightened risk of self-injury or suicide: Ringrose, 2011). As such, practitioners are advised to spend time helping patients develop safety, grounding, and stabilisation strategies prior to commencing any in-depth work with traumatic material (Herman, 1997), as well as developing fluid, effective communication between all agencies and individuals involved in a patient's care (ISSTD, 2011).

If an individual, such as those in the current studies, have developed delusional frameworks to account for the presence of their voices (or other hallucinations), then caution should also be taken to validate the patient's reality while not reinforcing negative or harmful beliefs. Similarly, commencing clinical work with voices can temporarily increase voice activity and/or increase a sense of fear and anxiety in the voice hearer (Romme & Escher, 1992, 2000), which emphasises the need to collaboratively tailor treatment to a pace that patients can tolerate. In this respect, the iterative 'three stage model' of therapeutic trauma work (e.g., Brown & Fromm, 1986; Herman, 1992; Janet, 1889; Putnam, 1989) provides a useful general template, in terms of (1) establishing safety and stabilisation, (2) integrating and processing the emotional meaning of traumatic events, and (3) reintegration, rehabilitation, and working towards social and occupational life goals.

In addition, a further concern is not coercively or clumsily imposing psychological explanatory frameworks upon unwilling individuals, regardless of whether voices may show contextual associations with previous adversity exposure. For example, the English (R. Waddingham and J. Dillon, personal communications) and Australian (K. Comans and R. Thomas, personal communication) Hearing Voices Networks cite examples of supporting individuals for whom alternatives to biomedical explanations are unsettling, threatening, or otherwise inappropriate (e.g., the belief that the concept of mental illness absolves one of 'blame' or 'weakness;' not wishing to acknowledge the impact of abuse perpetrated by a family member; the belief that attributing psychological meaning to voices augments their power and influence; feeling that psychosocial explanations trivialise what is perceived as a serious medical condition). As discussed in section 8.5.2.2, the thoughtful assessment and formulation of *individual* need – rather than being overly led by pre-existing explanatory or therapeutic assumptions – is an important component of tailoring a successful intervention (Johnstone & Dallos, 2006), whether this is derived from mainly biomedical or psychosocial approaches.

In summary, and as with so much clinical work, a healthy alliance between worker and patient is therefore a vital foundation for helping those with complex presentations move towards recovery (Ross & Halpern, 2009). This, in turn, supports the prognostic value of identifying and assessing the quality of the therapeutic relationship as psychotherapy commences (Frank & Gunderson, 1990). As Warner (1998) observes: "work…with clients who experience dissociation follows classic client-centred principles. As with other client

groups we have found that therapeutic relationships grounded in empathy, authenticity and prizing of clients tend to foster latent abilities for self-directed change" (p. 375).

8.5   Future Research

In effect the research implications of the thesis are of two sorts. The emphasis of the following sections will be the first consideration; that is, avenues of theoretical enquiry for advancing understandings of the links between dissociation, adversity exposure, and voice hearing. Secondly, however, it is also important to quickly reiterate the conceptual and methodological issues within this area that have previously been outlined in Chapters 2, 3, and 4, as well as the limitations of the current research described in section 8.2. Therefore, in brief, the recommendations outlined below should be seen as situated within a more robust research paradigm than that which currently characterises the field, including: (1) a greater use of control/reference groups from comparable populations; (2) adjusting results for confounding variables that may be independently associated with dissociation, voice hearing, and adversity exposure, including establishing independence of different measures; (3) careful definition and operationalisation of complex constructs like 'dissociation' and 'trauma;' (4) the use of large, representative, and randomised samples; and (5) less reliance on purely cross-sectional, correlational research designs.

8.5.1   Voice Hearing and Dissociation

An important consideration for future research is understanding more about the observed associations between dissociation and voice hearing, both in terms of academic theory development and the practical implications for those troubled by voice hearing experiences.

8.5.1.1 Clinical Intervention

Could reducing levels of dissociation help reduce voice hearing frequency/intensity in psychosis populations? In this respect, the lack of robust evidence for treatment efficacy discussed in section 8.4.2 highlights the feasibility and desirability of an intervention study assessing the specific impact of dissociation on voice hearing (including those patients with and without identified adversity). Given the observed association between the two highlighted in Studies 1 and 3, a clinical strategy designed to target dissociation and psychological distress amongst voice hearers (using, for example, the type of strategies outlined in section 8.4.2) presents several fruitful lines of enquiry. This could include base-line and follow-up measures to determine whether reducing levels of dissociation influences voice frequency, as well as examining the extent to which dissociation and psychological distress co-vary in relation to voice impact, and to what extent treating one might be equivalent to treating the other. In

addition, it may be helpful to clarify understandings of how different treatment mechanisms impact on voices. For example: whether is it more beneficial to directly target levels of dissociation, affective distress, and/or traumatic representations for some patients without specific therapeutic work with voices; whether direct interventions with voices are more necessary for others (e.g., addressing the hearer's relationship with and/or beliefs about the voices, dialoguing with voices, formulating voice content); as well as how these two approaches might be most usefully combined. Although possibly more feasible as a pilot study initially, an ideal long-term aim would be employing RCT methodology to derive a more robust and reliable estimate of the advantages, or otherwise, of targeting dissociation in voice hearers with a diagnosis of psychotic disorder.

In addition to the latent clinical benefit, such an intervention study would also be a valuable research enterprise in terms of testing associations between voice hearing and dissociative experience that, at the time of writing, are purely derived from observational data. Specifically, if reducing dissociation corresponds with reductions in voice hearing, then this could provide important empirical evidence for a causal link or, alternatively, whether voice hearing in psychosis patients is primarily a perceptual phenomenon that is causally preceded by dissociation, or a dissociative experience in and of itself. Alternate measures of dissociation to those used in the current studies would most likely be useful here. The DES-II is premised on the notion of a dissociative continuum (see Chapter 5), yet as discussed in section 8.3.1, the distribution of dissociation scores in the current samples are more consistent with a typological model of dissociation. Although the use of the DES-T partly corrected for this, it is possible that neither instrument has sufficient discriminative validity to overcome misleading variance from individuals in mixed samples who experience dissociation-like alterations of consciousness but do not exhibit pathological levels of dissociation (Rodewald et al., 2010). Tools like the MID (Dell, 2006a) which assess dissociation as a taxonic variable (as opposed to a dimensional construct) could be useful in this regard, as could more detailed tools for assessing particular variables of interest, such as the Cambridge Depersonalisation Scale (Sierra & Berrios, 2000) and the Tellegen Absorption Scale (Tellegen & Atkinson, 1974).

An additional consideration in this respect is outcome measurement in terms of assessing intervention impact. Collaboration between different experiential and disciplinary credentials is cited as a desirable trend in psychiatric research (Schrader, 2013), and recruiting voice hearers as active partners in research protocols could enhance investigative endeavours. For example, at the time of writing there are no available outcome measures that have been devised through consultation with voice hearers themselves, and increased efforts to evaluate interventions against patient-defined criteria could be a beneficial step for enhancing clinical understandings (Corstens et al., 2014). Not least, this includes definitions of what constitutes

'recovery;' for example, whilst much clinical research uses voice cessation as an outcome variable, improved relationships with voices, or eliminating some voices whilst retaining others, may be more desirable/feasible goal for many individuals (Corstens et al., 2014; Intervoice, 2010; Romme et al., 2009). In this regard, dimensional instruments may be particularly useful over tools like the PANSS, as they are more able to capture nuanced changes in a person's relationship with their voices, and the impact of this on subjective wellbeing.

8.5.1.2 Theoretical Development

A further line of enquiry suggested by the current findings concerns both the origins of dissociative experience and the possible influence of this on voice content (i.e., what the voices actually say, as opposed to the type of appraisals and interpretations assessed by the PSYRATS-AH and BAVQ-R). The temporal sequence identified in the thesis between adversity exposure and voice hearing supports claims that, in some cases, voice hearing in psychosis can be framed as dissociative sequelae to adverse life events (e.g., Foote & Parke, 2008; Moskowitz & Corstens, 2007; Read et al., 2005; Ross, 2008; Varese et al., 2012b). However, it would be instructive to test this proposition in greater depth through, for example, identifying different types of exposures and determining the extent to which such episodes are embodied by voice content.[44] One possible strategy for this could be examining voice content and representations against a tool like Frewen and Lanius's (2014) 4-D Model of Trauma-Related Dissociation, which differentiates posttraumatic symptoms occurring in normal waking consciousness from those that intrinsically embody dissociative, trauma-related altered states of consciousness. In this respect, the literature concerning adversity and voice-related appraisals is currently much more substantial than that for adversity and voice content, and while a small number of studies have found recurring, discernable links between life events and voice content in psychosis populations (e.g., Corstens & Longden, 2013, n=100; Hardy et al., 2005, n=75; Romme et al., 2009, n=50) to date none have done so using a dissociation-informed framework. Such an endeavour could help expand existing memory-based models of voice hearing, as well as promote understanding of the ways in which disaggregated cognitive/affective representations might be stored, processed, and generated (e.g., Ehlers & Clark, 2000).

A study of this type is based on the premise that voice hearing is, in many cases, an intelligible response to adversity exposure. This in turn leads to a secondary consideration;

---

[44] As in the current analysis of non-auditory hallucinations, this may be through either literal or thematic/symbolic representations (McCarthy-Jones & Longden, in preparation). In this respect, for example, the PTSD literature recognises that hallucinations do not always reflect auditions surrounding trauma, and thus do not meet the criteria of re-experiencing phenomena (e.g., Anketell et al., 2010; Braakman, Kortman & van den Brink, 2009; Butler et al., 1996b).

what advantages and disadvantages might such a model offer in clinical practice compared to biomedical explanations? Chapter 1 outlined how voice hearing in those diagnosed with psychosis/schizophrenia is principally conceptualised as biogenetic in origin, with medication offered as a first-line treatment response rather than therapy. However, as discussed in section 8.4.2.2, the application of psychosocial frameworks may be unacceptable to some voice hearers for a variety of reasons. Thus, in advocating alternatives, it is important to understand how this might accord with patient preferences and expectations, including how competing biological and social frameworks[45] might be usefully combined for a genuinely client-centred approach (see also section 8.5.2.2). A mixed-method investigation into how individuals respond to these models of voice hearing (e.g., qualitative interview combined with clinical questionnaires assessing voice impact) could help further understandings of how different interventions might be tailored. This could also usefully include assessment of different groups; for example, Romme and Escher's (1993, 1997, 2000) three-phase model (startling; organisational; stabilisation) indicates that individual reactions to, and appraisals of, their voices vary substantially according to how long voices have been present.

Finally, both the review and empirical components of the thesis identified depersonalisation as an element of dissociation that may exert particular influence on voice hearing. Nevertheless, the fact that depersonalisation is a widespread psychiatric complaint (third in prevalence to only anxiety and depression: Simeon, 2004), suggests that it is most likely a continuous variable that manifests at different levels of severity; probably at its most extreme in voice hearing, DID, and other dissociative disorders (Dell, 2002). In this respect, Perona-Garcelán et al. (2008, 2011a) also suggest that in addition to its continuous nature, depersonalisation could also be conceptualised according to its level of specificity: global and generalised in DID, for example, but relatively localised and partial in voice hearing, wherein only certain types of emotional/experiential content are fragmented and distanced from the self. This association warrants more detailed study, particularly in terms of whether voice hearing forms part of a depersonalisation disorder, or whether they are discrete experiences with a shared cause (Perona-Garcelán et al., 2008; see also Figure 8.1).

The associations between absorption and depersonalisation could also be usefully clarified with further research. While the latter is understood as detachment from emotional and experiential events, absorption is characterised as a rigid, self-conscious preoccupation with internal mental experience; both of which are consistent with patterns of experiential avoidance described in posttraumatic stress (Chawla & Ostafin, 2007). For example, Castillo (2003) conceptualises voice hearing as episodic, spontaneous trance states (i.e., extreme states

---

[45] Other individuals reject both by privileging a spiritual/cultural framework (Beavan, 2007), and interviews with 50 voice hearers by Romme et al. (2009) likewise reported that minimising or disregarding spiritual/cultural experience was a commonly cited grievance against mental health staff.

of absorption) wherein individuals dissociate from objective reality and, by focusing attention on imaginary structures and/or traumatic memories, become submerged in subjective fantasy. Correspondingly, Varese et al. (2011) have reported significant associations between hallucination-proneness and self-focussed attention amongst university students (see also Morrison & Petersen, 2003), whereas Perona-Garcelán et al. (2011a, 2014) suggest that intense preoccupation with negative cognitions may promote and/or intensify depersonalisation experiences – possibly through mechanisms like imaginative involvement, rumination (Perona-Garcelán et al., 2008), and cognitive distortions (Morrison & Petersen, 2003) – which in turn may ultimately hinder the capacity to discriminate between external reality and internal representations. This position is well summarised within Glicksohn and Barrett's (2003) analysis of absorption in relation to hallucination-proneness in non-patient groups: "There is an ominous degree of circularity here: anomalous experience generating anomalous belief, which in turn lends structure to subjective experience, evoking the anomalous experience, which reinforces this belief" (p.835).

In this respect, the current results found significantly higher rates of absorption in voice hearers compared to non-voice hearers; as well as stronger, more significant correlations between absorption and all measures of psychological distress in voice hearers compared to non-voice hearing controls, and voice hearers with a history of CSA compared to those without. Such associations are worthy of further study amongst psychosis patients, and it would be beneficial to clarify whether the nature and severity of dissociative absorption can advance understandings of voice hearing onset and maintenance. For example: whether absorption and depersonalisation interact to increase the likelihood of individuals ascribing voices to external sources, including the development of delusional ideation; and how elevated absorption may be a predisposing/mediating factor for depersonalisation (i.e., self-focussed attention paradoxically distances voice hearers from their internal experience). In turn, whether this is as a result of adversity exposure (Allen, Fultz, Huntoon & Brethour, 2002), and/or via innate proneness that intensifies subjective experience, wherein "individuals with high levels of absorption…are at increased risk of…anomalous experiences because they may intentionally try to have them, or may be more likely to explore aspects of their phenomenological worlds that other people would not explore" (Berenbaum, Kerns & Raghavan, 2000, p.39).

8.5.2 Heterogeneity

The current research began with a central founding premise – that clear associations would emerge between victimisation exposure (particularly, but not exclusively CSA), dissociation, and voice hearing. At a broad level this assumption was supported. However over the course of both the review and empirical components of the thesis, it becomes increasingly clear that

such a model, while it may be true for some individuals, is neither accurate nor universal in its applicability. This may partly be accountable in terms of the measurement and design artefacts discussed in section 8.2, as well as the conceptual problems of the secondary literature described in Chapter 2. Nevertheless, an unavoidable conclusion is that this prevailing framework cannot adequately capture or account for the level of individual experience – and that a more nuanced approach is required. As such, the purpose of the following section is to consider the diversity of presentation within the current sample, as well as strategies for elucidating it.

8.5.2.1 Heterogeneity in Psychosis Populations

It would of course be unrealistic to expect any clinical population to be strictly homogenous. However, even allowing for measurement errors and the cross-sectional, correlational nature of the data, the findings reinforce the suggestion that pathways to voice hearing (and paranoia/delusions) are highly variable. For example, in the first empirical study there was evidence of participants who scored highly on measures of psychological distress and victimisation adversity yet did not exhibit any dissociative symptoms; similarly of those who scored highly on measures of dissociation and reported CSA exposure, but did not hear voices. Both voice hearers and non-voice hearers likewise reported high dissociation combined with low levels of psychological distress, whereas others experienced high distress and low dissociation (see Table 8.3). Furthermore, analysis of the CSA survivors in Study 4 suggested the existence of two distinct groups with substantial variability in levels of dissociation and distress (see Chapter 7, Figure 7.5a). The levels of reported adversity exposures similarly fluctuated within and between groups, even allowing for the fact that some participants may have been uncomfortable disclosing distressing life events, or in some cases have manifested dissociative amnesias for particular experiences (Briere & Conte, 1993).

To an extent this diversity reiterates existing concerns about the most suitable nosology for psychotic presentations, which are increasingly recognised as disparate and hard to reliably categorise (Bentall, 2004; Linscott & van Os, 2010; Read, 2013a).[46] In view of this, some authors have argued for more 'complaint-orientated' (Bentall, 2006) approaches to

---

[46] Bentall et al. (2014) note the problem is compounded further by a lack of reliable taxonomic distinctions across the psychosis spectrum (e.g., affective psychosis, schizoaffective disorder, schizophrenia, delusional disorder). Similarly van Os and Kapur (2009) argue that psychotic symptoms can be represented both dimensionally and categorically in terms of five factors (positive, negative, cognitive disorganisation, depression, and mania), which in turn associate with different risk factors and clinical variables (Demjaha et al., 2009). Furthermore, Bentall et al. (2014) also highlight how other studies indicate a general psychopathology factor that is superordinate to both the five-factor model of psychotic symptoms (Reininghaus et al., 2013) and the psychosis spectrum (Caspi et al., 2014).

Table 8.3 Heterogeneity in self-reported levels of dissociation, psychological distress, and adversity exposure in voice hearers and non-voice hearers experiencing a first episode of psychosis.

Total *n*=62[a]	Voice hearer (*n*=31)	Non-voice hearer (*n*=31)	
	n (%)	*n* (%)	*n* (%) total sample
+ CSA, high dissociation,[b] high distress[c]	12 (39%)	3 (10%)	15 (24%)
+ CSA, low dissociation, low distress	1 (3%)	1 (3%)	2 (3%)
≥ 1 Criterion A traumatic stressor,[b] high dissociation, high distress	18 (58%)	5 (16%)	23 (37%)
≥ 1 Criterion A traumatic stressor, low dissociation, low distress[d]	3 (10%)	5 (16%)	8 (13%)
≥ 1 victimisation adversity, high dissociation, high distress	19 (61%)	5 (16%)	24 (39%)
≥ 1 victimisation adversity, low dissociation, low distress	5 (16%)	10 (32%)	15 (24%)
High dissociation and high distress	19 (61%)	5 (16%)	24 (39%)
High dissociation and low distress	5 (16%)	5 (16%)	10 (16%)
Low dissociation and high distress	1 (3%)	11 (36%)	12 (19%)
Low dissociation and low distress	6 (19%)	10 (32%)	16 (26%)
No exposure to Criterion A traumatic stressors	3 (9%)	4 (13%)	7 (11%)
No exposure to victimisation adversity	2 (6%)	3 (10%)	5 (8%)

Note. [a] Only the sample for Study 3 is included, due to replication of data for some voice hearers between Study 3 and 4; [b] only pre-illness onset exposures are included; [c] above the sample median for DES-II and DASS-21 scores; [d] below the sample median for DES-II and DASS-21 scores.

psychosis, that would move beyond rigid diagnostic taxonomies and instead focus on specific symptoms, their putative mechanisms, and interactions with environmental hazards and stressors (e.g., Bentall, 2004, 2006; BPS, 2011; van Os et al., 2013; Wigman et al., 2013). Others, in turn, have speculated about the existence of subtypes of trauma-related or dissociative psychosis (e.g., Ross & Keyes, 2009; van der Hart & Witztum, 2008; Vogel et al., 2009), which could be typified by variations in phenomenology, outcome, clinical course, and pathological processes. Provisionally, both the review and empirical components of the thesis support the contention that several differences may exist within psychosis populations; including that dissociation appears more evident in voice hearers than those with paranoia/delusions alone (e.g., Altman et al., 1997; Bentall et al., 2012; Perona-Garcelán et al., 2010, 2011a-b, 2012a; Kilcommons & Morrison, 2005) and, more tentatively, that CSA shows stronger associations with voice hearing whereas physical abuse and prolonged attachment disruption may be a more likely precursor of paranoia (e.g., Bentall & Fernyhough, 2008; Bentall et al., 2012, 2014; Sitko et al., 2014).

Taken together, this raises the question of whether discrete mechanisms might underlie different clinical presentations? In this respect, Bradford Hill (1965) emphasised that in addition to strong and consistent associations, demonstrating specificity and credible candidate mechanisms between exposure and outcome are central factors for identifying causal relationships from epidemiological data (see Chapter 5). However, identifying genuine specificity is highly problematic given that adverse events appear be so imprecise in their impact (see Chapter 2). This can be seen in the current results, but is also very apparent in the broader literature: for example, a large, well-designed prospective assessment of 2,759 CSA survivors found that sexual abuse increases the risk of numerous negative mental health outcomes, including personality disorders, anxiety and mood disorders, and psychosis (Cutajar et al., 2010a-b). Thus an important question when trying to unravel the issue of specificity is, "specificity for *what*?" (Bentall & Varese, 2012, p.186; emphasis added). Although much research has presented associations between adversity and psychosis/schizophrenia (e.g., Matheson et al., 2013; Read et al., 2005; Varese et al., 2012a) little research has been designed to comprehend these links at the level of symptoms. More work is therefore needed to understand the possible mediators between adversity and particular clinical presentations (including the manner in which one symptom can lead to another: e.g., delusional explanations for hallucinatory events), which in turn could help illuminate the underlying biological mechanisms and psychological processes that lead to psychosis (Bentall et al., 2012). Furthermore, these explanations could perhaps be more usefully understood in terms of general patterns, rather than specific pathways; an issue that will be discussed further in the following section.

One possibility for addressing this are studies that collect comprehensive data about patients' life experiences and incorporate accurate measures of biological and psychosocial mediators, and/or consider the possibility of distal/proximal interactions, or additive causal effects, between specific symptoms and relevant risk factors. Indeed, Bentall et al. (2014) argue that, given what is now known about the link between life stress and psychosis, a failure to consider such variables jeopardises the integrity of resulting data: "[for example] it is sobering to consider that the…corpus of structural neuroimaging research on psychosis may be compromised by the failure to consider life experience: a recent comparison between psychotic patients who reported childhood abuse and those who did not found that structural abnormalities were much more evident in the former group [Sheffield et al., 2013a]" (p.7). Longitudinal designs are likely to prove more instructive in this regard, as they are better placed to minimise the biases of retrospective reporting and address causality issues (e.g., a prospective study with children on social service 'at risk' registers). Existing analyses have already proven the feasibility of detecting associations between voice hearing and relevant biopsychosocial variables from, for example, large birth cohort datasets (e.g., Horwood et al., 2008; Lyons-Ruth, 2003; Zammit et al., 2008), although this would admittedly be a complex and costly enterprise, wherein some processes may be obscured in the statistical 'noise' of such large samples. Imaging studies may also be a possibility in the future, although their current limitations for evaluating neuropsychiatric mechanisms means technical and theoretical advances are necessary before achieving truly comprehensive and meaningful results (Linden, 2012; Muellera et al., 2012; Perlini, Bellani, Brambilla, 2012)[47].

Given the considerable challenges of both longitudinal and imaging approaches, a more practical short-term alternative to promote understanding of possible mechanisms could be purposive sampling, specifically 'negative instances' in terms of seeking participants who exhibit specific, relevant characteristics but do not fit in the hypothesised target class (e.g., individuals with CSA exposure and high dissociation but who do not hear voices; voice hearers with low dissociation and low exposure to victimisation adversities). In addition, given the claimed continuum of voice hearing and paranoia within the general population (i.e., from critical to sub-clinical psychotic experience: van Os et al., 2000), a further alternative

---

[47] A further new paradigm, currently under development, is the Research Domain Criteria Program (RDoC: National Institute of Mental Health, 2011), an ambitious initiative that aims to provide alternative conceptualisations of mental disorders to supplement the prevailing phenomenologically-driven diagnostic system of the DSM and ICD. The framework is based on a dimensional research matrix of behavioural, genetic, and neural features of mental disorder, and intends to incorporate the major neurobehavioral domains of arousal and regulatory systems, cognition, social processes, and valence systems. It will be some time before the results of this endeavour become known, but its stated intent is to substantially improve illness classification, as well as progress current aetiological knowledge and devise new therapeutic and primary prevention programmes (Morris & Cuthbert, 2012). For a specific discussion of the RDoC framework in relation to hallucinations, see Ford et al. (2014).

could be examining the analogues of clinical symptoms within non-patient groups (e.g., Gracie et al., 2007; Lovatt et al., 2010; Morrison & Petersen, 2003: see also Chapter 3 and 4).

Psychological approaches can also inform biological models through exploring how the developmental impact of adverse life events may influence some of the neurological changes associated with hearing voices (e.g., Aas et al., 2012; Hoy et al., 2012; Sheffield et al., 2013a; Read et al., 2001, 2014). Similarly, biogenetic theories can both complement and challenge psychological understandings by examining whether genetic differences can help account for why, as in the current sample, some individuals report extreme adversity and don't hear voices whilst others do. In this respect, while dissociation is more prevalent amongst traumatised individuals, the fact that non-traumatised persons can exhibit dissociative tendencies (and some trauma survivors do not) implies that other factors moderate the aetiology and development of dissociation (Briere, 2006; Korol, 2008). Candidate variables are still speculative and provisional, and include heritability (Becker-Blease et al., 2004), innate dissociative disposition (Braun, 1993), and the mechanisms of intergenerational transmission whereby children are prolonged witnesses to the distress of their elders (Weingarten, 2004). In this regard, a literature has also developed around a variable that was not assessed in the current research: the putative role of dysfunctional, disorganised, or avoidant attachment styles in early childhood (not necessarily in the context of abuse).

According to the classic internal working model of attachment (Bowlby, 1969, 1973, 1982), formative contact with caregivers sustains and nurtures mental representations of the self, ultimately underpinning the development of behavioural, affective, and cognitive styles that endure into adulthood. This 'interpersonal template' can influence various factors, including mentalisation, relational and affiliation skills, and the capacity to regulate autonomic arousal in response to stress and threat (Hankin, 2005; Rosenstein & Horowitz, 1996; Schechter et al., 2007). While secure attachment to a nurturing, responsive carer is the developmental ideal, attachment styles that are ambivalent, avoidant, or disorganised (the latter being generally characterised as a feature of abuse) may increase vulnerability to affective distress and dysregulation, poorer resilience and coping ability, autonomic reactivity, and (meta)cognitive distortions (Liotti, 1992, 2004).

As such, attachment quality may set a precedent for responding to later stress and adversity with dissociation and psychological fragmentation (Liotti & Gumley, 2008). For example, when confronted with a confusing, inconsistent, or alarming caregiver, infants and young children are faced with the unsolvable dilemma of seeking comfort and nurturance from the very cause of their fear. According to Sroufe (2005), "collapse of strategies, rapid state changes, and other proto-dissociative mechanisms [are all that are] available…Thus, a prototype of psychic collapse or segregating experience [is] established" (p.361). Lyons-Ruth (2003) similarly suggests that emotionally unavailable caregivers who do not engage in

sufficiently integrated dialogue with a child (in terms of affective, symbolic, and interactive components) prime the infant for developing dissociated mental representations. In turn this lack of integration can be further compromised by stress exposure in later life, and there is some evidence from prospective, longitudinal studies to suggest that disorganised attachment patterns in infancy can act as a developmental precursor for later dissociative symptoms (Lyons-Ruth, Dutra, Schuder & Bianchi, 2006; Ogawa et al., 1997; Sroufe, 2005) as well as cross-sectional evidence that adulthood attachment styles may moderate associations between victimisation experiences, PTSD, and dissociation (Sandberg, 2010).

Although it is still unclear how caregiving quality and family relational processes interact with social, biological, and adversity-related factors to influence dissociation in psychosis patients across the life course,[48] the concept might partly explain some of the variability in the current sample. For example: in Study 3, the high levels of dissociative symptoms in association with high victimisation exposure in some participants, in contrast to high dissociation and low (or no) experiences of adversity in others. In this respect, it is also notable that participants in both empricial studies reported high levels of experiences that could be indicative of disrupted attachment, including parental loss and separation, witnessing domestic violence, and the illness or incarceration of close family members. Tools such as the Adult Attachment Questionnaire (Hazen & Shaver, 1987) or Parental Bonding Instrument (Parker et al., 1979) could be applied for a study such as this, and structural equation modelling applied to examine whether associations between adversity exposure/dissociation and voice hearing are direct or mediated (fully or partially) via attachment quality.

Another consideration for relevant mechanisms include whether cognitive pathways link adversity and psychosis through the emergence of maladaptive appraisals and negative schematic beliefs (Gracie et al., 2007); a process that may be more likely with interpersonal victimisation (Lovatt et al., 2010). In terms of appraisals, it is also important to improve understandings of the extent to which attributions made in response to adversity exposure (e.g., guilt, shame, self-blame) may influence the onset and maintenance of voice hearing, and the contribution of this to clinical outcome relative to the type of adversity experienced (e.g., Andrew et al., 2008; Morrison, Frame & Larkin, 2003; Lovatt et al., 2010; Romme et al.,

---

[48] Parenting characterised by 'affectionless control' (Read & Gumley, 2008), and avoidant/anxious attachment styles (Ponizovsky, Nechamkin & Rosca, 2007) have also been shown to be associated with psychotic symptoms, including voice hearing; whereas experiences suggestive of attachment disruption (e.g., death of one's mother, parental separation, being an unwanted child) may increase the risk of psychosis (see Read, 2013b). In this respect, some authors have argued that in addition to being an adversity in and of itself, disordered attachment is also a relevant mediator between stress exposure and later psychosis (e.g., Berry et al., 2006, 2008; MacBeth et al., 2008; Read & Gumley, 2010), with attachment theory additionally nominated as a promising avenue for "understanding the developmental and interpersonal basis of recovery and adaptation in the context of psychosis" (Gumley, Taylor, Schwannauer & MacBeth, 2014a, p.257; see also Gumley et al., 2014b).

2009). In turn, it is still not fully understood what factors may be relevant for determining resilience and adaptation in response to adversity, and how these may be protective against subsequent psychosis (e.g., adequate social support, meta-cognitive styles, self-esteem).

8.5.2.2 Integrated Biopsychosocial Frameworks

Taken together, the current research identifies several broad patterns that suggest it is possible to derive within-group categories that are related in logical and meaningful ways (e.g., the relevance of victimisation exposures that engender factors like humiliation, fear, and disempowerment; psychological distress increasing the likelihood of experiencing voices as malign and controlling; dissociation showing stronger links to voice hearing than paranoia/delusions alone; CSA severity characteristics increasing levels of dissociation). This chapter has explored some of the biological, psychological, and social factors that might influence these associations, but both the review and empirical components of the thesis have also highlighted the considerable difficulties (and inherent limitations) in attempting to identify specific, predictable pathways from psychosocial circumstances to individual manifestations of distress. This includes the fact that relationships between adversity exposure and psychosis (as opposed to other types of clinical presentation) are largely non-specific (see also Chapter 2), as well as the considerable intricacy, density, and interface of multiple variables (e.g., dissociation, psychological distress, types and durations of adversity exposure). Issues identified in the broader literature additionally include the mediating influence of a patient's personal attributions and interpretations, as well as the potentially moderating role of factors like gender (e.g., female psychosis patients are more likely to report CSA [Morgan & Fisher, 2007] and voice hearing, in turn, appears more prevalent in female patients than male [Abel et al., 2009]; see also Chapter 4). Taken together – and given the considerable constraints of generating 'causal' explanations for human experience (see Groff, 2008) – such issues mean the types of associations identified in the current research are not predictable and universal but, at best, heterogeneous and 'probabilistic' (L. Johnstone, personal communication).

This does not mean that attempting to decipher and deconstruct the routes to psychosis is a futile enterprise. But, as discussed in the previous section, it perhaps indicates that identifying general patterns (rather than specific pathways) is a more realistic endeavour (BPS Division of Clinical Psychology working group, in preparation). At present, there are two existing models that might help provide a template for enhanced understandings of clinical heterogeneity in psychosis populations, both of which advocate mapping and linking biological, social, and developmental factors. The first, by Paul Gilbert (e.g., 1992, 2006, 2007), draws on the disciplines of evolutionary theory, neuroscience, and developmental and social psychology, to develop a model that relates personal attributions, attachment styles, and

biologically-based defence systems to different manifestations of low mood. In this respect Gilbert posits that depression stems from evolved defence strategies that are primed to negotiate interpersonal threat and loss (Gilbert, 2000), all of which are organised via the same biologically-based systems and in turn create (overlapping) psychobiological response patterns. These are (1) *threat systems*, leading to submissiveness and withdrawal; (2) *soothing/affiliative/emotional regulation systems*, associated with 'protest-despair' defence strategies characterised by anxiety, sadness, and disconnection, and (3) *drive/excitement systems*, wherein 'competitive defeat' and social comparisons lead to shame, pessimism, and perceived inadequacy. In turn, early attachment experiences are believed to be a formative way of balancing and regulating these systems (e.g., in an abusive or neglectful environment, drive-seeking and threat systems will be more readily rehearsed and activated whereas the capacity for self-soothing and affiliation is inhibited). While acknowledging that these categories are not mutually exclusive, Gilbert's work demonstrates that an expansive conceptualisation of depression's phenomenology can both contextualise the person's distress (i.e., how early experiences have affected them, and the type of response patterns and protection strategies that may have been learnt to survive and cope), as well as offer practical explanatory frameworks for tailoring therapeutic interventions (e.g., validating the client's feelings to reduce feelings of isolation; developing their capacity for self-soothing).

In turn, Crittenden's Dynamic Maturational Model (DMM: 2002, 2005; 2006) synthesises an even wider range of sources than Gilbert (evolutionary biology, ethology, epigenetics, cognitive neuroscience, attachment theory, psychoanalysis, general systems theory, and several others) to conceptualise psychopathology *per se* in terms of attachment-based psychobiological response patterns. In brief, the DMM is an ambitious and inclusive framework that addresses the impact of surviving interpersonal threat exposure (from Criterion-A type trauma to lower level adversity) on various aspects of human functioning. Crittenden postulates that various formative attachment experiences (anxious/avoidant; anxious/resistant; secure) engender emotional, behavioural, cognitive, and somatic responses that are defensive and self-protective, and which are adapted throughout development. One main tenet of the theory is that when certain adaptations extend beyond the original threatening circumstances in which they are developed then they can be considered psychopathological. Thus the presenting problem (e.g., dissociation, paranoia, anxiety) could once be considered a 'solution' that has exceeded its original usefulness and adaptive utility. As with Gilbert's model of depression, the DDM suggests that the same symptoms may not cluster together, because they perform different functions (mediated by subjective psychological and social meanings) for each individual patient. Like Gilbert's work, the DMM also emphasises the importance of customising therapeutic interventions to each client's response set.

Both models have limitations, not least their considerable complexity and mutual emphasis on individual and family-based factors relative to social/cultural influences. However, notwithstanding this, they also emphasise the difficulty of devising universal, predictable causal pathways and in turn, are able to accommodate heterogeneity because they allow for general, functional patterns of individual adaptation as opposed to more rigid pathways of (specific) causal events and (specific) clinical outcomes, as well as flexible definitions of what constitutes threat and adversity. Several of the current findings can be incorporated within frameworks like these: for example, the possible role of different response sets (dissociative freeze response *vs*. hyperarousal fight or flight response); the heightened levels of dissociation in those with more severe adversity exposure; the association between levels of dissociation and exposure to CSA at different developmental stages; and explaining why particular adversities, like CSA, are neither necessary or sufficient for voice hearing. Highlighting the broad commonalities that humans share (i.e., psychobiological response tendencies) may therefore be a useful 'bottom-up' strategy for understanding more about the complex processes that result in experiences like voice hearing, whilst also recognising the limitations of trying to create predictable causal pathways from psychosocial events to individual manifestations of distress. Finally, both models attempt a fluid synthesis of biological and psychological data. This is important, because, as noted by Bentall et al. (2014), "[t]here has been a tendency in psychiatry and psychology to regard psychological and biological models as providing competing accounts of the causes of psychosis" (p.7). Thus a potentially more productive strategy is that outlined by Gilbert and Crittenden: distinguishing patterns that might influence and synchronise human responses, then attempting a complementary identification of instigating biological mechanisms.

8.6   Summary and Conclusions

Taken together, both the review and empirical components of the thesis contribute original evidence for understandings how dissociation, distress, and adversity relate to the experience of voice hearing. Firstly, both systematic reviews identify avenues for future research in terms of expanding the evidence base for understanding and clarifying associations between CSA, dissociation, and voice hearing. In turn, the empirical studies demonstrate that dissociation remains significantly associated with voice hearing when controlling for adversity exposure and affective processes that may arise in the more general context of psychosis. Furthermore, the studies provide new insights into the previously unacknowledged variability of self-reported dissociation amongst voice hearers with psychosis, as well as the potentially greater role of psychological distress (relative to dissociation) in influencing emotional interpretations and responses to voices. By highlighting the considerable differences in self-reported

dissociation, distress, and exposure to specific adversities, the thesis also illustrates the considerable heterogeneity in first-episode psychosis patients with and without voice hearing experiences, and in voice hearers with and without a history of CSA. By utilising pseudo-random samples, comparison and reference groups from the same well-characterised clinical population, summaries and timings of relevant exposures, and careful definition, operationalisation, and assessment of key variables, the current studies have also attempted to address and minimise several of the methodological weaknesses of existing observational work in this area.

While a number of limitations remain in the present research, the thesis as a whole represents a unique attempt to investigate and analyse the experiences of voice hearing, dissociation, psychological distress, and adversity in young adults undergoing first-episode psychosis, and has contributed to advancing knowledge in this field. Suggestions for developing and strengthening the interpretations of the current work have been outlined, and it is hoped that future research will utilise larger samples and more robust designs to explore the complex associations between these variables with greater detail and precision. In turn, the current findings endorse and extend existing evidence that suggests many individuals hear voices (and experience psychosis) in conjunction with exposure to adversities, social deprivations, and psychological distress. As such it supports an important goal: the continued development of clinical and community approaches that seek to address these vulnerabilities in healing and restorative ways.

List of References

Aas, M., Navari, S., Gibbs A. Mondelli, V., Fisher, H.L., Morgan, C.,…Dazzan, P. (2012). Is there a link between childhood trauma, cognition, and amygdala and hippocampus volume in first-episode psychosis? *Schizophrenia Research, 137*(1), 73-79.

Abba, N., Chadwick, P., & Stevenson, C. (2008). Responding mindfully to distressing psychosis: A grounded theory analysis. *Psychotherapy Research, 18*(1), 77-87.

Abel, K.M., Drake, R., & Goldstein, J.M. (2009). Sex differences in schizophrenia. *International Review of Psychiatry, 22*(5), 417–428.

Aboraya, A., Rankin, E., France, C., El-Missiry, A., & John, C. (2006). The reliability of psychiatric diagnoses revisited: The clinician's guide to improve the reliability of psychiatric diagnosis. *Psychiatry, 3*(1), 41-50.

Adler, A.B., Wright, K.M., Bliese, P.D., Eckford, R., & Hoge, C.W. (2008). A2 diagnostic criterion for combat-related posttraumatic stress disorder. *Journal of Traumatic Stress, 21*(3), 301-308.

Agar, K., & Read, J. (2002). What happens when people disclose sexual or physical abuse to staff at a community mental health centre? *International Journal of Mental Health Nursing, 11*(2), 70–79.

Ainsworth, M.D. (1962). The effects of maternal deprivation: A review of findings and controversy in the context of research strategy. In *Deprivation of maternal care: A reassessment of its effects* (pp. 97-165). Geneva, Switzerland: World Health Organization.

Alanen, Y.O., González de Chavez, M., Silver, A.L.S., & Martindale, B. (2009). *Psychotherapeutic approaches to schizophrenic psychoses: Past present and future*. Hove, England: Routledge.

Aleman, A., & Larøi, F. (2008). *Hallucinations: The science of idiosyncratic perception*. Washington, DC: American Psychological Association.

Allen, J. G., Coyne, L., & Console, D. A. (1997). Dissociative detachment relates to psychotic symptoms and personality decompensation. *Comprehensive Psychiatry*, *38*(6), 327-334.

Allen, J. G., Fultz, J., Huntoon, J., & Brethour, J.R. (2002). Pathological dissociative taxon membership, absorption, and reported childhood trauma in women with trauma-related disorders. *Journal of Trauma & Dissociation, 3*(1), 89-110.

Allen, P., Larøi, F., McGuire, P. K., & Aleman, A. (2008). The hallucinating brain: A review of structural and functional neuroimaging studies of hallucinations. *Neuroscience and Biobehavioral Reviews, 32*(1), 175–191.

Altman, D.G. (1991). *Practical statistics for medical research*. London, England: Chapman and Hall.

Altman, H., Collins, M., & Mundy, P. (1997). Subclinical hallucinations and delusions in nonpsychotic adolescents. *Journal of Child Psychology and Psychiatry, 38*(4), 413-420.

Alvesson, M., & Sköldberg. K. (2009). *Reflexive methodology: New vistas for qualitative research*. London, England: SAGE Publications.

American Psychiatric Association (APA). (1980). *Diagnostic and Statistical Manual of Mental Disorders* (3rd Edition). Washington, DC: APA.

_____. (1994). *Diagnostic criteria for DSM-IV*. Washington, DC: APA.

_____. (2000). *Diagnostic and statistical manual of mental disorders* (4th Edition, Text Revised). Washington, DC: APA.

_____. (2013). *Diagnostic and statistical manual of mental disorders* (5th Edition). Washington, DC: APA.

_____. (2013b). *Highlights of changes from DSM-IV-TR to DSM-5*. Washington, DC: APA.

American Psychological Association (APA) Trauma Group (2000). Members meeting minutes update on August 6, 2000, by Nightingale, E., Director of Psychology, Minneapolis, VAMC. Trauma group members who participated include Laura Brown, Maria Root, Sari Dworkin, Laura Barbanel, Marty Seligman, Terry Keane, and Judy Alpert.

Ananth, J., Parameswaran, S., & Gunatilake, S. (2004). Side effects of atypical antipsychotic drugs. *Current Pharmaceutical Design, 10*(18), 2219-2229.

Anders, S.L., Frazier, P.A., Frankfurt, S.B. (2011). Variations in Criterion A and PTSD rates in a community sample of women. *Journal of Anxiety Disorders*, 25(2), 176-184.

Anders, S.L., Shallcross, S.L., & Frazier, P.A. (2012). Beyond Criterion A1: The effects of relational and non-relational traumatic events. *Journal of Trauma & Dissociation, 13*(2), 134-151.

Anderson, S. L., Tomoda, A., Vincow, E. S., Valente, E., Polcari, A., & Teicher, M. H. (2008). Preliminary evidence for sensitive periods in the effect of childhood sexual abuse on regional brain development. *The Journal of Neuropsychiatry and Clinical Neurosciences*, *20*(3), 292–301.

Andreasen, N.C. (1984). *Scale for the Assessment of Positive Symptoms (SAPS)*. Iowa City, IA: University of Iowa.

_____. (1987). The diagnosis of schizophrenia. *Schizophrenia Bulletin, 13*(1), 9-22.

Andrew, E., Gray, N.S., & Snowden, R.J. (2008). The relationship between trauma and beliefs about hearing voices: A study of psychiatric and non-psychiatric voice hearers. *Psychological Medicine, 38*(10)*,* 1409–1417.

Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD symptoms in victims of violent crime: The role of shame, anger, and childhood abuse. *Journal of Abnormal Psychology, 109*(1), 69-73.

Anketell, C., Dorahy, M. J., Shannon, M., Elder, R., Hamilton, G., Corry, M., … O'Rawe, B. (2010). An exploratory analysis of voice hearing in chronic PTSD: Potential associated mechanisms. *Journal of Trauma & Dissociation*, *11*(1), 93-107.

Antony, M.M., Bieling, P.J., Cox, B.J., Enns, M.W., & Swinson, R.P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales (DASS) in clinical groups and a community sample. *Psychological Assessment*, *10*(2), 176-181.

Armstrong, J., Putname, F.W., Carlson, E., Libero, D., & Smith, S. (1997). Development and validation of a measure of adolescent dissociation: The Adolescent Dissociative Experience Scale. *Journal of Nervous and Mental Disease, 185*(8), 491-497.

Arntz, A., de Groot, C., & Kindt, M. (2005). Emotional memory is perceptual. *Journal of Behavior Therapy and Experimental Psychiatry, 36*(1), 19–34.

Arseneault, L., Cannon, M., Fisher, H.L., Polanczyk, G., Moffitt, T.E., & Caspi A. (2011). Childhood trauma and children's emerging psychotic symptoms: A genetically sensitive longitudinal cohort study. *American Journal of Psychiatry*, *168*(1), 65-72.

Asaad, G., & Shapiro, B. (1986). Hallucinations: theoretical and clinical overview. *American Journal of Psychiatry, 143*(9), 1088-1097.

Aspire. (2005). *Leeds Early Intervention in Psychosis Service: Operational policy*. Leeds, England: Aspire.

Atallah, S. F., El-Dosoky, A. R., Coker, E. M., Nabil, K.M ., & El-Islam, M. F. (2002). A 22-year retrospective analysis of the changing frequency and patterns of religious symptoms among inpatients with psychotic illness in Egypt. *Social Psychiatry and Psychiatric Epidemiology, 36*(8), 407-415.

Avina, C., & O'Donohue,W. (2002). Sexual harassment and PTSD: Is sexual harassment diagnosable trauma? *Journal of Traumatic Stress, 75*(1), 69–75.

Bach, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology,70*(5), 1129–1139.

Badcock, J.C., Waters, F.A.V., Maybery, M.T., & Michie, P.T. (2005). Auditory hallucinations: Failure to inhibit irrelevant memories. *Cognitive Neuropsychiatry, 10*(2), 125–136.

Badgley, R.F., Allard, H.A., McCormick, N., Proudfoot, P.M., Fortin, D., …. Sutherland, S. (1984). *Sexual offences against children*. Catalogue no. J250/1984E. Ottawa: Department of Supply Services.

Bak, M., Krabbendam, L., Janssen, I., de Graaf, R., Vollebergh, W., & van Os, J. (2005a). Early trauma may increase the risk for psychotic experiences by impacting on emotional response and perception of control. *Acta Psychiatrica Scandinavica, 112*(5), 360-366.

Bak, M., Myin-Germeys, I., Delespaul, P., Vollebergh, W., de Graaf, R., & van Os, J. (2005b). Do different psychotic experiences differentially predict need for care in the general population? *Comprehensive Psychiatry*, *46*(3), 192-199.

Balkin, T., Braun, A., Westensten. N.J., Jeffries, K., Varga, M., Baldwin, P., Belenky, G., & Herscovitch, P. (2002). The process of awakening: A PET study of regional brain activity patterns mediating the reestablishment of alertness and consciousness. *Brain*, *125*(10), 2308–2319.

Bannister, P., Burman, E., Parker, I., Taylor, M., & Tindall, C. (1994). *Qualitative methods in psychology: A research guide*. Buckingham, England: Open University Press.

Barker-Collo, S., & Read, J. (2003). Models of response to childhood sexual abuse: Their implications for treatment. *Trauma, Violence, and Abuse, 4*(2), 95-111.

Barrett, T.R., & Etheridge, J.B. (1992). Verbal hallucinations in normals .1. People who hear voices. *Applied Cognitive Psychology, 6*(5), 379–387.

Barrowcliff, A.L., & Haddock, G. (2010). Factors affecting compliance and resistance to auditory command hallucinations: Perceptions of a clinical population. *Journal of Mental Health*, *19*(6), 542-552.

Bauer, S. (1970). The function of hallucinations: An enquiry into the relationship of hallucinatory experience to creative thought. In W. Keup (Ed.), *Origin and mechanisms of hallucinations*. New York, NY: Plenum.

Beavan, V. (2007). *Angels at our tables: New Zealanders' experiences of hearing voices* (Unpublished Ph.D. thesis). University of Auckland, Auckland, New Zealand.

Beavan, V., & Read, J. (2010). Hearing voices and listening to what they say: The importance of voice content in understanding and working with distressing voices. *Journal of Nervous and Mental Disease, 198*(3), 201-205.

Beavan, V., Read, J., & Cartwright, C. (2011). The prevalence of voice-hearers in the general population: A literature review. *Journal of Mental Health*, *20*(3), 281-292.

Bebbington, P., Bhugra, D., Brugha, T., Singleton, N., Farrell, M., Jenkins, R., … Meltzer, H. (2004). Psychosis, victimization and childhood disadvantage: Evidence from the second British National Survey of Psychiatric Morbidity. *British Journal of Psychiatry, 185*(3), 220-226.

Bebbington, P., & Nayani, T. (1995). The Psychosis Screening Questionnaire. *International Journal of Methods in Psychiatric Research*, *5*(1), 11-19.

Bechdolf, A., Thompson, A., Nelson, B., Cotton, S., Simmons, M.B., Amminger, G.P., … Yung, A.R. (2010). Experience of trauma and conversion to psychosis in an ultra-high-risk (prodromal) group. *Acta Psychiatrica Scandinavica,121*(5), 377–384.

Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *BDI-II Manual.* San Antonio, TX: The Psychological Corporation.

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*(6), 561-571.

Beck-Sander, A., Birchwood, M., & Chadwick, P. (1997). Acting on command hallucinations: A cognitive approach. *British Journal of Clinical Psychology*, *36*(1), 139-148.

Becker, K. D., Stuewig, J., & McCloskey, L. A. (2010). Traumatic stress symptoms of women exposed to different forms of childhood victimization and intimate partner violence. *Journal of Interpersonal Violence, 25*(9), 1699-1715.

Becker-Blease, K. A., Deater-Deckard, K., Eley, T., Freyd, J. J., Stevenson, J., & Plomin, R. (2004). A genetic analysis of individual differences in dissociative behaviors in childhood and adolescence. *Journal of Child Psychology and Psychiatry, 45*(3), 522-532.

Beebe G. (1975). Follow-up studies of World War II and Korean war prisoners. *American Journal of Epidemiology, 101*(5), 400-402.

Begg, C.B., & Mazumdar, M. (1994). Operating characteristics of a rank correlation test for publication bias. *Biometrics*, *50*(4), 1088-1101.

Bell, M.D., Lysaker, P.H., Beam-Goulet, J.L., Milstein, R.M., & Lindenmayer, J-P. (1994). Five-component model of schizophrenia: Assessing the factorial invariance of the positive and negative syndrome scale. *Psychiatry Research, 52*(3)*,* 295–303.

Bell, V., Halligan, P.W., & Ellis, H.D. (2006). The Cardiff Anomalous Perceptions Scale (CAPS). *Schizophrenia Bulletin, 32*(2), 366–377.

Bell, V., Raballo, A., & Larøi, F. (2010). Assessment of hallucinations. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 378-397). Oxford, England: Oxford University Press.

Bendall, S., Jackson, H.J., Hulbert, C.A., & McGorry, P.D. (2008). Childhood trauma and psychotic disorders: A systematic, critical review of the evidence. *Schizophrenia Bulletin*, *34*(3), 568-579.

Bendixen, M., & Olweus, D. (1999). Measurement of antisocial behaviour in early adolescence and adolescence: Psychometric properties and substantive findings. *Criminal Behaviour and Mental Health, 9*(4), 323–354.

Benson, K., & Hartz, A. J. (2000). A comparison of observational studies and randomized, controlled trials. *New England Journal of Medicine*, *342*(25), 1878-1886.

Bentall, R.P. (1990). The illusion of reality: A review and integration of psychological research on hallucinations. *Psychological Bulletin, 107*(1), 82–95.

_____. (2004). *Madness explained: Psychosis and human nature*. London, England: Penguin.

_____. (2006). Madness explained: Why we must reject the Kraeplinian paradigm and replace it with a "complaint-orientated" approach to understanding mental illness. *Medical Hypothesis, 66*, 220–233.

_____. (2013, November). Opening address; presented at the 2nd International Consortium on Hallucination Research, Durham, England.

Bentall, R.P., Corcoran, R., Howard, R., Blackwood, R., & Kinderman, P. (2001). Persecutory delusions: A review and theoretical integration. *Clinical Psychology Review, 21*(8), 1143-1192.

Bentall, R.P., de Sousa, P., Varese, F., Wickham, S., Sitko, K., Haarmans, M., & Read, J. (2014). From adversity to psychosis: Pathways and mechanisms from specific adversities to specific symptoms. *Social Psychiatry and Psychiatric Epidemiology*. Advanced online publication. Doi: 10.1007/s00127-014-0914-0

Bentall, R.P., & Fernyhough, C. (2008). Social predictors of psychotic experiences: Specificity and psychological mechanisms. *Schizophrenia Bulletin*, *34*(6), 1009-1011.

Bentall, R.P., Haddock, G., & Slade, P. (1994). Cognitive behaviour therapy for persistent auditory hallucinations: From theory to therapy. *Behavioural Therapy*, *25*(1), 51–66.

Bentall, R.P., & Slade, P.D. (1985). Reliability of a scale measuring disposition towards hallucination. *Personality and Individual Differences, 6*(4), 527-529.

Bentall, R.P., & Varese, F. (2012). A level playing field? Are biogenetic and psychosocial studies evaluated by the same standards? *Psychosis: Psychological, Social and Integrative Approaches, 4*(3), 183-190.

Bentall, R.P., Wickham, S., Shevlin, M., & Varese, F. (2012). Do specific early-life adversities lead to specific symptoms of psychosis? A study from the 2007 The Adult Psychiatric Morbidity Survey. *Schizophrenia Bulletin*, *38*(4), 734-740.

Berenbaum, H., Kerns, J., & Raghavan, C. (2000). Anomalous experiences, peculiarity, and psychopathology. In E. Cardeña, S.J. Lynn, & S. Krippner (Eds.), *Varieties of anomalous experience: Examining the scientific evidence* (pp.25–46). Washington, DC: American Psychological Association.

Bernstein, D.P., & Fink, L. (1998). *Manual for the childhood trauma questionnaire: A retrospective self-report*. New York, NY: The Psychological Corporation, Harcourt Brace.

Bernstein, D.P., Stein, J.A., Newcomb, M.D., Walker, E., Pogge, D., Ahluvalia, T., … Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect, 27*(2), 169–190.

Bernstein, E.M., & Putnam, F.W. (1986). Development, reliability and validity of a dissociation scale. *The Journal of Nervous and Mental Disease*, *174*(12), 727–735.

Berry, K., Barrowclough, C., & Wearden, A. (2008). Attachment theory: A framework for understanding symptoms and interpersonal relationships in psychosis. *Behaviour Research and Therapy, 46*(12), 1275–1282.

Berry, K., Wearden, A., Barrowclough, C., & Liversidge, T. (2006). Attachment styles, interpersonal relationships and psychotic phenomena in a non-clinical student sample. *Personality and Individual Differences, 41*(4), 707-718.

Bhopal, R. (2004). *Concepts of epidemiology: An integrated introduction to the ideas, theories, principles and methods of epidemiology*. Oxford, England: Oxford University Press.

Bhui, K., Abdisalama, A., Abdi, M., Pereira, S., Dualeh, M., Robertson, D., Sathyamoorthy, G., & Ismail, H. (2003). Traumatic events, migration characteristics and psychiatric symptoms among Somali refugees. *Social Psychiatry and Psychiatric Epidemiology, 38*(1), 35-43.

Bifulco, A., Moran, P., Baines, R., Bunn, A., & Stanford, K. (2002). Exploring psychological abuse in childhood: II. Association with other abuse and adult clinical depression. *Bulletin of the Menninger Clinic, 66*(3), 241-258.

Birchwood, M. (2003). Pathways to emotional dysfunction in first-episode psychosis. *British Journal of Psychiatry*, *182*(5), 373-375.

Birchwood, M., & Chadwick, P. (1997). The omnipotence of voices: Testing the validity of a cognitive model. *Psychological Medicine, 27*(6), 1345-1353.

Birchwood, M., & Fiorillo, A. (2000). The critical period for early intervention. *Psychiatric Rehabilitation Skills, 4*(2)*,* 182-198.

Birchwood, M., Gilbert, P., Gilbert, J., Trower, P., Meaden, A., Hay, J., Murray, E., & Miles, J. N. (2004). Interpersonal and role-related schema influence the relationship with the dominant 'voice' in schizophrenia: A comparison of three models. *Psychological Medicine*, *34*(8), 1571-1580.

Birchwood, M., Iqbal, Z., Chadwick, P., & Trower, P. (2000). Cognitive approach to depression and suicidal thinking in psychosis. 2. Testing the validity of a social ranking model. *British Journal of Psychiatry*, *177*, 522-528.

Birchwood, M., Iqbal, Z., & Upthegrove, R. (2005). Psychological pathways to depression in schizophrenia: Studies in acute psychosis, post psychotic depression and auditory

hallucinations. *European Archives of Psychiatry and Clinical Neuroscience, 255*(3), 202-212.

Birchwood, M., Meaden, A., Trower, P., Gilbert, P., & Plaistow, J. (2000). The power and omnipotence of voices: Subordination and entrapment by voices and significant others. *Psychological Medicine, 30*(2), 337–344.

Birchwood, M., Todd, P., & Jackson, C. (1998). Early intervention in psychosis: The critical period hypothesis. *British Journal of Psychiatry,172*(33), 53-59.

Bird, V., Premkumar, P., Kendall, T., Whittington, C., Mitchell, J., & Kuipers, E. (2010). Early intervention services, cognitive-behavioural therapy and family intervention in early psychosis: Systematic review. *British Journal of Psychiatry, 197*(5), 350-356.

Birtchnell, J. (2002). *Relating in psychotherapy: The application of a new theory*. Hove, England: Brunner Routledge.

Bisson, J., & Andrew, M. (2009). *Psychological treatment of post-traumatic stress disorder (PTSD). (Review)*. London, England: John Wiley & Sons, Ltd. Reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library,* 2007, Issue 3.

Blackman, L. (2001). *Hearing voices: Embodiment and experience*. London, England: Free Association Books.

Blanchard, J.J. (1992). Medication effects: Conceptual and methodological issues in schizophrenia research. *Clinical Psychology Review, 12*(3), 345-361.

Blanchard, E.B., Hickling, E.J., Taylor, A.E., Loos,W.R., Forneris, C.A., & Jaccaard, J. (1996). Who develops PTSD from motor vehicle accidents? *Behaviour Research & Therapy, 34*(1), 1–10.

Bland, M. (1995). *An introduction to medical statistics*. Oxford, England: Oxford University Press.

Bleuler, E. (1911/1960). *Dementia praecox oder gruppe der schizophrenien*. [Dementia praecox or the group of schizophrenias]. Leipzig, Germany: Deuticke.

Bleuler, M., & Bleuler, R. (1986). *Dementia praecox oder gruppe der schizophrenien: Eugen Bleuler* [Dementia praecox or the group of schizophrenias: Eugen Bleuler]. *British Journal of Psychiatry, 149*(5)*,* 661–664.

Bleuler, E., & Jung, C. (1908). Komplexe und krankheits ursachen bei dementia praecox [Complexes and etiology of dementia praecox]. *Zentralblatt fu¨r Nervenheilkunde und Psychiatrie, 19,* 220–227.

Bob, P., & Mashour, G.A. (2011). Schizophrenia, dissociation, and consciousness. *Consciousness and Cognition, 20*(4), 1042–1049.

Bob, P., Susta, M., Glaslova, K., & Boutros, N. N. (2010). Dissociative symptoms and interregional EEG cross-correlations in paranoid schizophrenia. *Psychiatry Research, 177*(1-2), 37–40.

Bodkin, A., Pope, H.G., Detke, M.J., & Hudson, J.I. (2007). Is PTSD caused by traumatic stress? *Journal of Anxiety Disorders, 21*(2), 176–182.

Bowlby, J. (1969). *Attachment and loss, Vol. 1. Attachment*. New York: Basic Books.

_____. (1973). *Attachment and loss, Vol. 2. Separation, anxiety and anger*. New York: Basic Books.

_____. (1982). *Attachment and loss, Vol. 3. Loss*. New York: Basic Books.

Bowling, A. (1999). *Research methods in health: Investigating health and health services* (2nd Edition). Buckingham, England: Open University Press.

Bowman, E.S. (2011). Nijenhuis and Van der Hart: One view of the elephant. *Journal of Trauma & Dissociation, 12*(4), 446-449.

Boyce, W. T., & Ellis, B. J. (2005). Biological sensitivity to context: I. An evolutionary–developmental theory of the origins and functions of stress reactivity. *Development and Psychopathology*, *17*(2), 271-301.

Boyle, M. (2011). Making the world go away, and how psychiatry and psychology benefit. In M. Rapley, J. Moncrieff, & J. Dillon (Eds.), *De-medicalizing misery: Psychiatry, psychology and the human condition* (pp. 27–44). Eastbourne, England: Palgrave Macmillan.

Braakman, M.H., Kortman, F.A.M., & van den Brink, W. (2009). Validity of 'post-traumatic stress disorder with secondary psychotic features': A review of the evidence. *Acta Psychiatrica Scandinavica*, *119*(1), 15-24.

Bracken, P., Giller, J.E., & Summerfield, D. (1995). Psychological responses to war and atrocity: The limitations of current concepts. *Social Science and Medicine*, *40*(8), 1073-1082.

Bracken, P., Thomas, P., Timimi, S., Asen, E., Behr., G., Beuster, C., … Yeomans, D. (2012). Psychiatry beyond the current paradigm. *British Journal of Psychiatry, 201*(6), 430-434.

Bradford District Index of Multiple Deprivation. (2011). Retrieved from: http://www.investinbradford.com/Resources/Invest%20In%20Bradford/Bradford%20 Economy/Documents/IMD2010_Deprivation_in_Bradford_October2011.PDF

Bradford Hill, A. (1965). The environment and disease: Association or causation? *Proceedings of the Royal Society of Medicine, 58*(5), 295–300.

Bradley, R., Greene, J., Russ, E., Dutra, L., & Westen, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *American Journal of Psychiatry*, *162*(2), 214-227.

Braehler, C., Valiquette, L., Holowka, D., Malla, A.K., Joober, R., Ciampi, A., …. King, S. (2013a). Childhood trauma and dissociation in first-episode psychosis, chronic schizophrenia and community controls. *Psychiatry Research, 200*(1), 36-42.

Braehler, C., Gumley, A.I., Harper, J., Wallace, S., Norrie, J., & Gilbert, P. (2013b). Exploring change processes in compassion focused therapy in psychosis: Results of a feasibility randomized controlled trial. *British Journal of Clinical Psychology, 52*(2), 199-214.

Brand, B.L. Lanius, R., Vermetten, E., Loewenstein, R.J., & Spiegel, D. (2012). Where are we going? An update on assessment, treatment, and neurobiological research in dissociative disorders as we move toward the DSM-5. *Journal of Trauma & Dissociation, 13*(1), 9-31.

Brašić, J.R., & Holland, J.A. (2007). A qualitative and quantitative review of obstetric complications and autistic disorder. *Journal of Developmental and Physical Disability, 19*, 337–364.

Braun, B.G. (1993). Multiple personality disorder and posttraumatic stress disorder. In J. P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. 35–47). New York: Plenum.

Brébion, G., David, A.S., Jones, H.M., Ohlsen, R., & Pilowsky, L.S. (2007). Temporal context discrimination in patients with schizophrenia: Associations with auditory hallucinations and negative symptoms. *Neuropsychologia, 45*(4), 817–823.

Bremner, J.D, Bolus, R., & Mayer, E.A. (2007). Psychometric properties of the Early Trauma Inventory - Self-Report. *Journal of Nervous and Mental Disease*, *195*(3), 211–218.

Bremner, J.D., Shobe, K.K., & Kihlstrom, J.F. (2000). False memories in women with self-reported childhood sexual abuse: An empirical study. *Psychological Science*, *11*(4), 333-337.

Bremner, J.D., Vermetten, E., & Mazure, C.M. (2000). Development and preliminary psychometric properties of an instrument for the measurement of childhood trauma: The Early Trauma Inventory. *Depression and Anxiety*, *12*(1), 1–12.

Breslau, N., Kessler, R., & Peterson, E.L. (1998). Post-traumatic stress disorder assessment with a structured interview: reliability and concordance with a standardized clinical interview. *International Journal of Methods in Psychiatric Research*, *7*(3), 121-127.

Brewin, C.R., Andrews, B., & Valentine, J. D. (2000a). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*(5), 748-766.

Brewin, C.R., Andrews, B., & Rose, S. (2000b). Fear, helplessness, and horror in posttraumatic stress disorder: Investigating DSM-IV Criterion A2 in victims of violent crime. *Journal of Traumatic Stress, 13*(3), 499-509.

Brewin, C.R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of posttraumatic stress disorder. *Psychological Review, 103*(4), 670-686.

Brewin, C. R., Lanius, R. A., Novac, A., Schnyder, U., & Galea, S. (2009). Reformulating PTSD for *DSM-V*: Life after Criterion A. *Journal of Traumatic Stress*, *22*(5), 366-373.

Brewin, C.R., & Patel T. (2010). Auditory pseudohallucinations in United Kingdom war veterans and civilians with posttraumatic stress disorder. *Journal of Clinical Psychiatry, 71*(4), 419-425.

Briere, J. (2002). Treating adult survivors of severe childhood abuse and neglect: Further development of an integrated model. In J.E.B. Myers, L. Berliner, J. Briere, C.T. Hendrix, C. Jenny, & T.A. Reid (Eds.), *The APSAC handbook on child maltreatment* (pp.175-203). California, CA: Sage Publication Inc.

_____. (2006). Dissociative symptoms and trauma exposure: Specificity, affect dysregulation, and posttraumatic stress. *Journal of Nervous & Mental Disease, 194*(2), 78–82.

Briere, J., & Conte, J. (1993). Self-reported amnesia for abuse in adults molested as children. *Journal of Traumatic Stress, 6*(1), 21-31.

Briere, J., & Runtz, M. (1987). Post sexual abuse trauma: Data and implications for clinical practice. *Journal of Interpersonal Violence, 2*(4), 367-379.

_____. (1988). Symptomatology associated with childhood sexual victimization in a nonclinical sample. *Child Abuse and Neglect, 12*(1), 51–59.

Brison, S.J. (2003). *Aftermath: Violence and the remaking of a self*. New Jersey, NY: Princeton University Press.

British Association for Adoption and Fostering. (2014). *Statistics*. Retrieved from: http://www.baaf.org.uk/res/statengland

British Psychological Society (BPS). (2000). *Recent advances in understanding mental illness and psychotic experiences. A report by the British Psychological Society Division of Clinical Psychology.* London, England: BPS.

_____. (2010). *Code of human research ethics*. Leicester, England: BPS.

_____. (2011). *Good practice guidelines on the use of psychological formulation. A report by the British Psychological Society Division of Clinical Psychology.* Leicester, England: BPS.

British Psychological Society, Division of Clinical Psychology working group [Bentall, R., Boyle, M., Dillon, J., Harper, D., Johnstone, L., Kinderman, P., Longden, E., Pilgrim, D., & Read, J.]. (in preparation). *Developing a psychosocial framework for identifying patterns in mental health problems.*

Bromberg, P. (1995). A rose by any other name: Commentary on Lerner's "Treatment issues in a case of possible multiple personality disorder." *Psychoanalytic Psychology*, *12*(1), 143-149.

Brown, R.J. (2006). Different types of "dissociation" have different psychological mechanisms. *Journal of Trauma & Dissociation, 7*(4), 7–28.

Brown, R.J. (2011). Commentary on "Dissociation in trauma: A new definition and comparison with previous formulations" by Nijenhuis and van der Hart. *Journal of Trauma & Dissociation, 12*(4), 450-453.

Brown, G.W., & Birley, J.L.T. (1968). Crises and life changes and onset of schizophrenia. *Journal of Health and Social Behaviour, 9*, 203-214.

Brown, D.P., & Fromm, E. (1986). *Hypnotherapy and hypno-analysis.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Brown, G.W., & Harris, T. (1978). *Social origins of depression: A study of. psychiatric disorder in women*. New York, NY: The Free Press.

Bryant, R.A. (2009). Is peritraumatic dissociation always pathological? In P.F. Dell & J.A. O'Neil (Eds.), *Dissociation and the dissociative disorders: DSM–V and beyond* (pp. 185–195). New York, NY: Routledge.

Buccheri, R., Trygstad, L., Dowling, G., Hopkins, R., White, K., Griffin, J.J., … Herbert, P. (2004). Long-term effects of teaching behavioral strategies for managing persistent auditory hallucinations in schizophrenia. *Journal of Psychosocial Nursing & Mental Health Services, 42*(1), 18–27.

Bulik, C.M., Prescott, C.A., & Kendler, K.S. (2001). Features of childhood sexual abuse and the development of psychiatric and substance use disorders. *British Journal of Psychiatry*, *179*(5), 444-449.

Burton, M. (1991). *Research interview for the assessment of early loss events* (Unpublished Ph.D. thesis). University of Birmingham, Birmingham. England.

Bush, S.S., Ruff, R.M., Tröster, A.I., Barth, J.T., Koffler, S.P., Pliskin, N.H.,...Silver, C.H. (2005). Symptom validity assessment: Practice issues and medical necessity: NAN Policy & Planning Committee. *Archives of Clinical Neuropsychology*, *20*(4), 419-426.

Butler, L.D. (2006). Normative dissociation. *Psychiatric Clinics of North America*, *29*(1), 45–62.

Butler, L.D. (2011). Must dissociation be unusual? *Journal of Trauma & Dissociation, 12*(4), 454-456.

Butler, L.D., Duran, R., Jasiukaitis, P., Koopman, C., & Spiegel, D. (1996a). Hypnotizability and traumatic experience: A diathesis-stress model of dissociative symptomatology. *American Journal of Psychiatry*, *153*(7), 42–63.

Butler, R. W., Mueser, K. T., Sprock, J., & Braff, D. L. (1996b). Positive symptoms of psychosis in posttraumatic stress disorder. *Biological Psychiatry, 39*(10), 839–844.

Button, K.S., Ioannidis, J.P.A., Mokrysz, C., Nosek, B.A., Flint, J., Robinson, E.S.J., & Munafò, M.R. (2013). Power failure: Why small sample size undermines the reliability of neuroscience. *Nature Reviews Neuroscience, 14*(3), 365-376.

Campbell, M., & Morrison, A.P. (2007). The relationship between bullying, psychotic-like experiences and appraisals in 14-16-year olds. *Behaviour Resarch and Therapy*, *45*(7), 1579-1591.

Caplan, P.J., & Cosgrove, L. (Eds.). (2004). *Bias in psychiatric diagnosis*. New York, NY: Rowman & Littlefield Inc.

Cardeña, E. (1994). The domain of dissociation. In S.J. Lynn & J.W. Rhue (Eds.), *Dissociation: Clinical and theoretical perspectives* (pp. 15–31). New York, NY: Guilford Press.

Cardeña, E. (2011). One split too many… *Journal of Trauma & Dissociation*, *12*(4), 457-460.

Cardeña, E., & Gleaves, D. (2007). Dissociative disorders. In M. Hersen (Ed.), *Adult psychopathology and diagnosis* (5th Edition), (pp. 473-503). New York, NY: Odin Books.

Cardeña, E., Koopman, C., Classen, C., Waelde, L., & Spiegel, D. (2000). Psychometric properties of the Stanford Acute Stress Reaction Questionnaire (SASRQ): A valid and reliable measure of acute stress reactions. *Journal of Traumatic Stress, 13*(4), 719-734.

Carlson, E.B., & Putnam, F.W. (1993). An update on the Dissociative Experiences Scale. *Dissociation, 6*(1), 16-27.

Carter, D.M., Mackinnon, A., Howard, S., Zeegers, T., & Copolov, D.L. (1995). The development and reliability of the Mental Health Research Institute Unusual Perceptions Schedule (MUPS): An instrument to record auditory hallucinatory experience. *Schizophrenia Research*, *16*(2), 157–165.

Cash, T.F. (1973). Methodological problems and progress in schizophrenia research: A survey. *Journal of Consulting and Clinical Psychology, 40*(2), 278-286.

Caspi, A., Houts, R.M., Belsky, D.W., Goldman-Mellor, S.J., Harrington, H., Israel, S., … Moffitt, T. E. (2014). The p factor: One general psychopathology factor in the structure of psychiatric disorders? *Clinical Psychological Science, 2*(2), 119-137.

Castillo, R. J. (2003). Trance, functional psychosis, and culture. *Psychiatry, 66*(1), 9-21.

Castle, D.J. (2000). Epidemiology of women and schizophrenia. In D.J. Castle, J. McGrath, & J. Kulkarni (Eds.), *Women and Schizophrenia* (pp. 19-33). Cambridge, England: Cambridge University Press.

Centre for Reviews and Dissemination (CRD) (2009). *Systematic Reviews: CRD's Guidance for Undertaking Reviews in Health Care*. York, England: University of York.

Chadwick, P., & Birchwood, M. (1994). The omnipotence of voices: A cognitive approach to auditory hallucinations. *British Journal of Psychiatry, 164*(2), 190-201.

Chadwick, P., & Birchwood, M. (1995). The omnipotence of voices: II. The Beliefs About Voices Questionnaire (BAVQ). *British Journal of Psychiatry*, *166*(6), 773–776.

Chadwick, P., Birchwood, M., & Trower, P. (1996). *Cognitive therapy for delusions, voices and paranoia*. Chichester, England: Wiley.

Chadwick, P., Lees, S., & Birchwood, M. (2000). The revised Beliefs About Voices Questionnaire (BAVQ-R). *The British Journal of Psychiatry*, *177*(3), 229-232.

Chadwick, P., Newman-Taylor, K., & Abba, N. (2005). Mindfulness groups for people with psychosis. *Behavioural and Cognitive Psychotherapy, 33*(3), 351-359.

Chadwick, P., Sambrooke, S., Rasch, S., & Davies, E. (2000) Challenging the omnipotence of voices: Group cognitive therapy for voices. *Behaviour Research and Therapy*, *38*(10), 993-1003.

Charcot, J.-M. (1868). Histologie de la sclerose en plaques [Studies of diseases of the nervous system]. *Gazette des Hopitaux, Paris, 41,* 554–555.

Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology, 59*, 301-328.

Chawla, N., & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology, 63*(9), 871-890.

Cheyne, J.A., & Girard, T.A. (2007). Paranoid delusions and threatening hallucinations: A prospective study of sleep paralysis experiences. *Consciousness and Cognition, 16*(4), 959-974.

Chin, J. T., Hayward, M., & Drinnan, A. (2009). 'Relating' to voices: Exploring the relevance of this concept to people who hear voices. *Psychology and Psychotherapy: Theory, Research and Practice*, *82*(1), 1–17.

Choi, B., & Noseworthy, A. (1992). Classification, direction, and prevention of bias in epidemiologic research. *Journal of Occupational Medicine*, *34*(3), 265-271.

Choi, J., Jeong, B., Rohan, M. L., Polcari, A. M., & Teicher, M. H. (2009). Preliminary evidence for white matter tract abnormalities in young adults exposed to parental verbal abuse. *Biological Psychiatry, 65*(3), 227–234.

Chu, J.A. (1998). Dissociative symptomatology in adult patients with histories of childhood physical and sexual abuse. In J.D. Bremner, & C.R. Marmar (Eds.), *Trauma, dissociation, and memory* (pp. 179–203). Washington, DC: American Psychiatric Press, Inc.

Chu, J.A., & Dill, D.L. (1990). Dissociative symptoms in relation to childhood physical and sexual abuse. *American Journal of Psychiatry*, *147*(7), 887-892.

Chu, J.A, Frey, L.M., Ganzel, B.L., & Matthews, J.A. (1999). Memories of childhood abuse: Dissociation, amnesia, and corroboration. *American Journal of Psychiatry, 156*(5), 749-755.

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology, 8*(4), 597–600.

City of Bradford Metropolitan District Council. (2012). *2011 Census results*. Retrieved from http://www.bradford.gov.uk/bmdc/government_politics_and_public_administration/2011_census

Cloitre, M., Tardiff, K., Marzuk, P., Leon, A., & Portera, L. (1996). Childhood abuse and subsequent sexual assault among female inpatients. *Journal of Traumatic Stress, 9*(3), 473-482.

Close, H., & Garety, P. (1998). Cognitive assessment of voices: Further developments in understanding the emotional impact of voices. *The British Journal of Clinical Psychology, 37*(2), 173-188.

Cochrane Collaboration. (2002). *Publication bias: Interpreting funnel plots*. Retrieved from: http://www.cochrane-net.org/openlearning/html/mod15-3.htm

Cohen, R.A., Grieve, S., Hoth, K.F., Paul, R.H., Sweet, L., Tate, D., … Williams, L.M. (2006). Early life stress and morphometry of the adult anterior cingulate cortex and caudate nuclei. *Biological Psychiatry, 59*(10), 975–982.

Cohen, J., & Mannarino, A.P. (2008). Disseminating and implementing trauma-focused CBT in community settings. *Trauma, Violence, & Abuse, 9*(4), 214-226.

Coles, S., Keenan, S., & Diamond, B. (Eds.). (2013). *Madness contested: Power and practice*. Ross-on-Wye, England: PCCS Books.

Collerton, D., Dudley, R., & Mosimann, U.P. (2012). Visual hallucinations. In J.D. Blom and I. Sommer (Eds.), *Hallucinations: Research and practice* (pp. 75-90). New York, NY: Springer.

Concato, J. (2004). Observational *versus* experimental studies: What's the evidence for a hierarchy? *The American Society for Experimental NeuroTherapeutics, 1*(3), 341–347.

Concato, J., Shah, N., & Horwitz, R. I. (2000). Randomized, controlled trials, observational studies, and the hierarchy of research designs. *New England Journal of Medicine, 342*(25), 1887-1889.

Connolly, F.H., & Gittleson, N.L. (1971). The relationship between delusions of sexual change and olfactory and gustatory hallucinations in schizophrenia. *The British Journal of Psychiatry, 119*(551), 443-444.

Connor, C., & Birchwood, M. (2011). Power and perceived expressed emotion of voices: Their impact on depression and suicidal thinking in those who hear voices. *Clinical Psychology & Psychotherapy, 20*(3), 199-205.

Connor, C., & Birchwood, M. (2012). Abuse and dysfunctional affiliations in childhood: An exploration of their impact on voice-hearers' appraisals of power and expressed emotion. *Psychosis: Psychological, Social and Integrative Approaches, 4*(1), 19-31.

Conus, P., Cotton, S., Schimmelmann, B.G., McGorry, P.D., & Lambert, M. (2007). The First-Episode Psychosis Outcome Study: Premorbid and baseline characteristics of an epidemiological cohort of 661 first-episode psychosis patients. *Early Intervention in Psychiatry*, 1(2), 191–200.

_____. (2010). Pretreatment and outcome correlates of sexual and physical trauma in an epidemiological cohort of first-episode psychosis patients. *Schizophrenia Bulletin, 36*(6), 1105–1114.

Conway, T. (2004). Hearing voices: An experience of group work in a medium secure psychiatric hospital. *Practice: Social Work in Action*, 16(2), 137-145.

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M.; Cloitre, M., … van der Kolk, B. (2005). Complex trauma in children and adolescents. *Psychiatric Annals, 35*(5), 390-398.

Coons, P.M. (1999). Psychogenic or dissociative fugue: A clinical investigation of five cases. *Psychological Reports, 84*(3), 881-886.

Copolov, D. L., Trauer, T., & Mackinnon, A. (2004a). On the non-significance of internal versus external auditory hallucinations. *Schizophrenia Research, 69*(1), 1-6.

Copolov, D. L., Mackinnon, A., & Trauer, T. (2004b). Correlates of the affective impact of auditory hallucinations in psychotic disorders. *Schizophrenia Bulletin, 30*(1), 163–171.

Corcoran, C., Walker, E., Huot, R., Mittal, V., Tessner, K., Kestler, L., & Malaspina, D. (2003). The stress cascade and schizophrenia: Etiology and onset. *Schizophrenia Bulletin*, 29(4), 671-692.

Corstens, D., Escher, S., & Romme, M. (2008). Accepting and working with voices: The Maastricht Approach. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 319–331). Chichester, England: Wiley-Blackwell.

Corstens, D., & Longden, E. (2013). The origins of voices: Links between voice hearing and life history in a survey of 100 cases. *Psychosis: Psychological, Social and Integrative Approaches, 5*(3), 270-285.

Corstens, D., Longden, E., & May, R. (2012). Talking with voices: Exploring what is expressed by the voices people hear. *Psychosis: Psychological, Social and Integrative Approaches*, *4*(2), 95-104.

Corstens, D., Longden, E., McCarthy-Jones, S., Waddingham, R., & Thomas, N. (2014). Emerging perspectives from the Hearing Voices Movement: Implications for research and practice. *Schizophrenia Bulletin*, *40*(S4), S285-S294.

Corstens, D., Longden, E., Rydinger, B., Bentall, R., & van Os, J. (2013). Treatment of hallucinations: A comment. *Psychosis: Psychological, Social and Integrative Approaches*, *5*(1), 98-102.

Corstens, D., May, R., & Longden, E. (2011). Talking with voices. In M. Romme & S. Escher (Eds.), *Psychosis as a personal crisis: An experience based approach* (pp. 166–178). London: Routledge.

Cosentino, C.E., Meyer-Bahlburg, H.F.L., Alpert, J.L., & Gaines, R. (1993). Cross-gender behavior and gender conflict in sexually abused girls. *Journal of the American Academy of Child & Adolescent Psychiatry, 32*(5), 940-947.

Costa, A., & Kallick, B. (1993). Through the lens of a critical friend. *Educational Leadership 5*(2) 49-51.

Cottam, S., Paul, S. N., Doughty, O. J., Carpenter, L., Al-Mousawi, A., Karvounis, S., & Done, D. J. (2011). Does religious belief enable positive interpretation of auditory hallucinations? A comparison of religious voice hearers with and without psychosis. *Cognitive Neuropsychiatry*, *16*(5), 403-421.

Cougnard, A., Marcelis, M., Myin-Germeys, I., de Graaf, R., Volleberge, W., Krabbendam, L., … van Os, J. (2007). Does normal developmental expression of psychosis combine with environmental risk to cause persistence of psychosis? A psychosis proneness-persistence model. *Psychological Medicine, 37*(4), 513-527.

Courtois, C.A. (2010, June 10). *Understanding complex trauma, complex reactions, and treatment approaches*. Retrieved from http://giftfromwithin.org/html/cptsd-understanding-treatment.html

Courtois, C.A., & Ford, J.D. (2009). *Treating complex traumatic stress disorders: An evidence-based guide*. New York, NY: The Guilford Press.

Coyne, J.C., & Thompson, R. (2007). Posttraumatic stress syndromes: Useful or negative heuristics? *Journal of Anxiety Disorders, 21*(2), 223–229.

Crawford, J.R., & Allan, K.M. (1997). Estimating premorbid WAIS-R IQ with demographic variables: Regression equation derived from a UK sample. *The Clinical Neuropsychologist*, *11*(2), 192–197.

Creamer, M., Burgess, P., & McFarlane, A.C. (2001). Post-traumatic stress disorder: Findings from the Australian National Survey of Mental Health and Well-being. *Psychological Medicine*, *31*(7), 1237–1247.

Crittenden, P.M. (2002). Attachment, information processing, and psychiatric disorder. World *Psychiatry, 1*(2), 72-75.

_____. (2005). Teoria dell attaccamento, psicopatologia e psicoterapia: L'approccio dinamico maturativo. *Psicoterapia, 30*, 171-182.

_____. (2006). A Dynamic-Maturational Model of attachment. *Australian and New Zealand Journal of Family Therapy*, *27*(2), 105-115.

Crumlish, N., Whitty, P., Clarke, M., Browne, S., Karnali, M., Gervin, M., … O'Callaghan, E. (2009). Beyond the critical period: Longitudinal study of 8-year outcome in first-episode non-affective psychosis. *The British Journal of Psychiatry, 194*(1), 18-24.

Cutajar, M. C., Mullen, P. E., Ogloff, J. R. P., Thomas, S. D., Wells, D. L., & Spataro, J. (2010a). Schizophrenia and other psychotic disorders in a cohort of sexually abused children. *Archives of General Psychiatry, 67*(11), 1114–1119.

_____. (2010b). Psychopathology in a large cohort of sexually abused children followed up to 43 years. *Child Abuse and Neglect, 34*(11), 813–822.

Daalman, K., Boks, M. P., Diederen, K. M., de Weijer, A. D., Blom, J. D., Kahn, R. S., & Sommer, I. E. (2011a). The same or different? A phenomenological comparison of auditory verbal hallucinations in healthy and psychotic individuals. *Journal of Clinical Psychiatry, 72*(3), 320-325.

Daalman. K., van Zandvoort ,M., Bootsman, F., Boks, M.P.M., Kahn, R.S., & Sommer, I.E.C. (2011b). Auditory verbal hallucinations and cognitive functioning in healthy individuals. *Schizophrenia Research, 132*(2-3), 203–207.

Daalman, K., Diederen, K.M.J., Derks, E.M., van Lutterveld, R., Kahn, R.S., & Sommer, I.E.C. (2012). Childhood trauma and auditory verbal hallucinations. *Psychological Medicine, 42*(12), 2475-2484.

Dalenberg, C., Loewenstein, R., Spiegel, D., Brewin, C., Lanius, R., Frankel, S., ... Paulson, K. (2007). Scientific study of the dissociative disorders. *Psychotherapy and Psychosomatics*, *76*(6), 400–401; author reply 401–403.

Dalenberg, C., & Paulson, K. (2009). The case for the study of "normal" dissociation processes. In P. F. Dell & J. A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 145-154). New York, NY: Routledge.

Daly, M. (2011). Childhood psychotic symptoms: Link between non-consensual sex and later psychosis. *British Journal of Psychiatry, 199*(3), 251-252.

Darves-Bornoz, J.M, Lemperiere, T., Degiovanni, A., & Gaillard, P. (1995). Sexual victimization in women with schizophrenia and bipolar disorder. *Social Psychiatry and Psychiatric Epidemiology*, *30*(2), 78–84.

David, A. (1994). The neuropsychological origin of auditory hallucinations. In A.S. David & J.C. Cutting (Eds.), *The neuropsychology of schizophrenia* (pp. 269-313). Hove, England: The Psychology Press.

David, C.N., Greenstein, D., Clasen, L., Gochman, P., Miller, R., Tossell, J.W., … Rapoport, J.L. (2011). Childhood onset schizophrenia: High rate of visual hallucinations. *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(7), 681-686.

Davies, P., Thomas, P., & Leudar, I. (1999). Dialogical engagement with voices: A single case study. *British Journal of Medical Psychology*, *72*(2), 179–187.

Day, R., Nielsen, J.A., Korten, A., Ernberg, G., Dube, K.C., Gebhart, J., … Wynne, L.C. (1987). Stressful life events preceding the acute onset of schizophrenia: A cross-national study from the World Health Organization. *Culture, Medicine and Psychiatry, 11*(2), 123-205.

De Bellis, M.D., Keshavan, M.S., Frustaci, K., Shifflett, H., Iyengar, S., Beers, S.R., ... Hall, J. (2002). Superior temporal gyrus volumes in maltreated children and adolescents with PTSD. *Biological Psychiatry, 51*(7), 544–552.

De Guerrero, M.C.M. (2005). *Inner speech–L2: Thinking words in a second language.* New York, NY: Springer.

_____. (2009). Understanding dissociation. In P.F. Dell & J.A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 709-825). New York, NY: Routledge.

De Weijer, A.D., Mandl, R.C.W., Diederen, K.M.J., Neggers, S.F.W., Kahn, R.S., Hulshoff Pol, H.E., & Sommer, I.E.C. (2011). Microstructural alterations of the arcuate fasciculus in schizophrenia patients with frequent auditory verbal hallucinations. *Schizophrenia Research, 130*(1), 68-77.

Dell, P.F. (2002). Dissociative phenomenology of dissociative identity disorder. *Journal of Nervous and Mental Disease, 190*(1), 10-15.

_____. (2006a). The Multidimensional Inventory of Dissociation (MID): A comprehensive measure of pathological dissociation. *Journal of Trauma & Dissociation*, *7*(2), 77–106.

_____. (2006b). A new model of dissociative identity disorder. *Psychiatric Clinics of North America*, *29*(1), 1–26.

Demissie, K., Mills, O.F., & Rhoads, G.G. (1998). Empirical comparison of the results of randomized, controlled trials and case-control studies in evaluating the effectiveness of screening mammography. *Journal of Clinical Epidemiology, 51*(2), 81–91.

Demjaha, A., Morgan, K., Morgan, C., Landau, S., Dean, K., Reichenberg, A., … Daazan, P. (2009). Combining dimensional and categorical representation of psychosis: The way forward for DSM-V and ICD-11? *Psychological Medicine*, *39*(12), 1943–1955.

Department for Children, Schools and Families. (2010). *Local authority measures for national indicators supported by the Tellus4 Survey*. London, England. Department for Children, Schools and Families

Department for Communities and Local Government. (2011). *The English indices of deprivation 2010*. London, England: Department for Communities and Local Government.

DePrince, A.P., & Freyd, J.J. (2002). The harm of trauma: Pathological fear, shattered assumptions, or betrayal? In J. Kauffman (Ed.), *Loss of the assumptive world: A theory of traumatic loss*. (pp. 71–82). New York, NY: Brunner-Routledge.

Diaz, A., Simantov, E., & Rickert, V.I. (2002). Effect of abuse on health: Results of a national survey. *Archives of Pediatrics & Adolescent Medicine, 156*(8), 811-817.

Dickerson, F.B., & Lehman, A.F. (2011). Evidence-based psychotherapy for schizophrenia: 2011 update. *The Journal of Nervous and Mental Disease, 199*(8), 520-526.

Diederen, K.M.J., Neggers, S.F.W., Daalman, K., Blom, J.D., Goekoop, R., Kahn, R.S., & Sommer, I.E. (2010). Deactivation of the parahippocampal gyrus preceding auditory hallucinations in schizophrenia. *American Journal of Psychiatry, 167*(4), 427–435.

Dillon, J. (2011). The personal *is* the political. In M. Rapley, J. Moncrieff, & J. Dillon (Eds.), *De-medicalizing misery: Psychiatry, psychology and the human condition* (pp.141–157). Eastbourne, England: Palgrave Macmillan.

Dillon, J., & Hornstein, G.A. (2013). Hearing voices peer support groups: A powerful alternative for people in distress. *Psychosis: Psychological, Social and Integrative Approaches, 5*(3), 286-295.

Dillon, J., Johnstone, L., & Longden, E. (2012). Trauma, dissociation, attachment and neuroscience: A new paradigm for understanding severe mental distress. *Journal of Critical Psychology, Counselling and Psychotherapy, 12*(3), 145-155.

Dillon, J., & May. R. (2002). Reclaiming experience. *Clinical Psychology, 17*, 25-27.

Dodgson, G., & Gordon, S. (2009). Avoiding false negatives: Are some auditory hallucinations an evolved design flaw? *Behavioural and Cognitive Psychotherapy, 37*(3), 325-334.

Dohrenwend, B.P. (2000). The role of adversity and stress in psychopathology: Some evidence and its implications for theory and research. *Journal of Health and Social Behavior*, *41*(1), 1-19.

_____. (2006). Inventorying stressful life events as risk factors for psychopathology: Toward resolution of the problem of intracategory variability. *Psychological Bulletin, 132*(3), 477-495.

_____. (2010). Toward a typology of high-risk major stressful events and situations in posttraumatic stress disorder and related psychopathology. *Psychology in Law, 1*(3), 89-99.

Doll, R. (1956). Lung cancer and other causes of death in relation to smoking. *British Medical Journal, 2*(5001), 1071.

_____. (1991). Sir Austin Bradford Hill and the progress of medical science. *British Medical Journal, 305*(6868), 1521-1526.

Dorahy, M.J., Shannon, C., Seagar, L., Corr, M., Stewart, K., Hanna, D., … Middleton, W. (2009). Auditory hallucinations in dissociative identity disorder and schizophrenia with and without a childhood trauma history: Similarities and Differences. *The Journal of Nervous and Mental Disease*, *197*(12), 892-898.

Dorahy, M.J., & van der Hart, O. (2007). The relationship between trauma and dissociation: an historical analysis. In E. Vermetten, M.J. Dorahy, & D. Spiegel (Eds.), *Traumatic dissociation: Neurobiology and treatment* (pp. 3-31). Washington, DC: American Psychiatric Press, Inc.

Downs, J. (2005). *Coping with voices and visions*. Manchester, England: The Hearing Voices Network.

Draijer, N., & Langeland, W. (1999). Childhood trauma and perceived parental dysfunction in the etiology of dissociative symptoms in psychiatric inpatients. *American Jounal of Psychiatry, 156*(3), 379–385.

Drake, R., Haddock, G., Tarrier, N., Bentall, R., & Lewis, S. (2007). The Psychotic Symptom Rating Scales (PSYRATS): Their usefulness and properties in first episode psychosis. *Schizophrenia Research, 89*(1-3), 119-122.

Driesen, N.R., Leung, H-C., Calhoun, V.D., Constable, R.T., Gueorguieva, R., Hoffman, R., … Krystal, J.H. (2008). Impairment of working memory maintenance and response in schizophrenia: Functional magnetic resonance imaging evidence. *Biological Psychiatry, 64*(12)*,* 1026-1034.

Dudley, R., Collerton, D., Nicholson, M., & Mosimann, U. (2013). Clinical characteristics of disclosed visual hallucinations in users of an Early Intervention in Psychosis Service. *Psychosis: Psychological, Social and Integrative Approaches, 5*(2), 127-133.

Du Feu, M., & McKenna, P. (1999). Prelingually profoundly deaf schizophrenic patients who hear voices: A phenomenological analysis. *Acta Psychiatrica Scandinavica, 99*(6), 453-459.

Dunmore, E., Clark, D. M., & Ehlers, A. (1999). Cognitive factors involved in the onset and maintenance of posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy, 37*(9), 809-829.

Dunn, G.E., Paolo, A.M., Ryan, J.J., & van Fleet, J.K. (1993). Dissociative symptoms in a substance abuse population. *American Journal of Psychiatry*, *150*(7), 1043-1047.

Durham University. (2014, January 17). *Hearing the voice*. Retrieved from: https://www.dur.ac.uk/hearingthevoice/

Dutra, L., Bianchi, I., Siegal., D. J., & Lyons-Ruth, K. (2009). The relational context of dissociative phenomena. In P. F. Dell & J. A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 83-92). New York, NY: Routledge.

Egger, M., Schneider, M., Davey-Smith, G. (1998). Spurious precision? Meta-analysis of observational studies. *British Medical Journal, 316*(7125), 140-144.

Ehlers, A., & Clark, D.M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38*(4), 319-345.

Eid, J., Johnsen, B.H., & Thayer, J. F. (2001). Post-traumatic stress symptoms following shipwreck of a Norwegian Navy frigate—an early follow-up. *Personality and Individual Differences, 30*(8), 1283–1295.

Eisenman, R. (1966). Psychopathology and sociometric choice. *Journal of Abnormal Psychology, 71*(4), 256-259.

Elias, R. (1986). *The politics of victimization: Victims, victimology, and human rights*. New York, NY: Oxford University Press.

Elklit, A., & Shevlin, M. (2011). Female sexual victimization predicts psychosis: A case-control study based on the Danish Registry System. *Schizophrenia Bulletin, 37*(6), 1305–1310.

Ellason, J. W., & Ross, C. A. (1997). Two-year follow-up of inpatients with dissociative identity disorder. *American Journal of Psychiatry, 154*(6), 832–839.

Ellenson, G.S. (1985). Detecting a history of incest: A predictive syndrome. *Social Casework, 66*(9), 525-532.

_____. (1986). Disturbances of perception in adult female incest survivors. *Social Casework, 67*(3), 149-159.

Elliott, D. M. (1997). Traumatic events: Prevalence and delayed recall in the general population. *Journal of Consulting and Clinical Psychology, 65*(5), 811-820.

Ensink, B.J., & van Otterloo, D. (1989). A validation of the DES in the Netherlands. *Dissociation, 2*(4), 221-224.

Ensum, I., & Morrison A.P. (2003). The effects of focus of attention on attributional bias in patients experiencing auditory hallucinations. *Behaviour Research and Therapy, 41*(8), 895-907.

Ericsson, K.A., & Simon, H.A. (1993). *Protocol analysis: Verbal reports as data.* Cambridge, MA: MIT Press.

Escher, S., Romme, M., Buiks, A., Delespaul, P., & van Os, J. (2002a). Independent course of childhood auditory hallucinations: A sequential 3-year follow up study. *British Journal of Psychiatry, 181*(43), s10-s18.

_____. (2002b). Formation of delusional ideation in adolescents hearing voices: A prospective study. *American Journal of Medical Genetics, 114*(8), 913-920.

Escher, S., Morris, M., Buiks, A., Delespaul, P., Van Os, J., & Romme, M. (2004). Determinants of outcome in the pathways through care for children hearing voices. *International Journal of Social Welfare*, *13*(3), 208–222.

Esquirol, J. E-D. (1838/1865). *Mental maladies: A treatise on insanity*. New York, NY: Hafner.

Eulenburg, A. (1897). *Lehrbuch der Nervenkrankheiten* [Textbook of nervous diseases]*, vols 1-2*. Berlin, Germany: August Hirschwald.

Falzer, P.R., Stayner, D.A., & Davidson, L. (2004). Principles and strategies for developing psychosocial treatments for negative symptoms in early psychosis. In J.F.M. Gleeson & P.D. McGorry (Eds.), *Psychological interventions in early psychosis: A treatment handbook* (pp. 229-244). Chichester, England: John Wiley & Sons.

Farhall, J. (2010). Understanding and shaping adaptive coping with voices. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 205-231). Oxford, England: Oxford University Press.

Fassler, I. R., Amodeo, M., Griffin, M. L., Clay, C. M., & Ellis, M. A. (2005). Predicting long-term outcomes for women sexually abused in childhood: Contribution of abuse severity versus family environment. *Child Abuse and Neglect, 29*(3), 269–284.

Favrod, J., Rexhaj, S., Ferrari, P., Bardy, S., Hayoz, C., Morandi, S., … Giuliani, F. (2012). French version validation of the psychotic symptom rating scales (PSYRATS) for outpatients with persistent psychotic symptoms. *BMC Psychiatry*, *12*(1), 161.

Feeny, N.C., Zoellner, L.A., & Foa, E.B. (2000a). Anger, dissociation, and posttraumatic stress disorder among female assault victims. *Journal of Traumatic Stress, 13*(1), 89-100.

Feise, R.J. (2002). Do multiple outcome measures require p-value adjustment? *BMC Medical Research Methodology, 2*(8). Doi: 10.1186/1471-2288-2-5

Feldman-Summers, S., & Pope, K.S. (1994). The experience of 'forgetting' childhood abuse: A national survey of psychologists. *Journal of Consulting and Clinical Psychology, 62*(3), 636-639.

Fergusson, D.M., Boden, J.M., & Horwood, L.J. (2008). Exposure to childhood sexual and physical abuse and adjustment in early adulthood. *Child Abuse & Neglect*, *32*(6), 607–619.

Fergusson, D.M., Horwood, L.J., & Woodward, L.J. (2000). The stability of child abuse reports: A longitudinal study of the reporting behaviour of young adults. *Psychological Medicine*, *30*, 529–544.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Fialko, L., Freeman, D., Bebbington, P.E., Kuipers, E., Garety, P.A., Dunn, G., & Fowler, D. (2006). Understanding suicidal ideation in psychosis: Findings from the Psychological Prevention of Relapse in Psychosis (PRP) trial. Acta Psychiatrica Scandinavica, 114(3), 177-186.

Fikretoglu, D., Brunet, A., Best, S., Metzler, T., Delucchi, K., Weiss, D.S., … Marmar, C. (2006). The relationship between peritraumatic distress and peritraumatic dissociation: An examination of two competing models. *The Journal of Nervous and Mental Disease, 194*(11), 853-858.

Finkelhor, D., & Hotaling, G. T. (1984). Sexual abuse in the National Incidence Study of Child Abuse and Neglect: An appraisal. *Child Abuse & Neglect, 8*(1), 23-32.

First, M.B., Spitzer, R.L., Gibbon, M., Williams, J.B.W., & Benjamin, L.S. (1996). *Structured clinical interview for DSM-IV (SCID)*. New York, NY: Biometric Research.

Fisher, H.L., Craig, T.K., Fearon, P., Morgan, K., Dazzan, P., Lappin, J., … Morgan, C. (2011). Reliability and comparability of psychosis patients' retrospective reports of childhood abuse. *Schizophrenia Bulletin, 37*(3), 546-553.

Fleming, J., Mullen, P.E., Sibthorpe, B., & Bammer, G. (1999). The long-term impact of sexual abuse in Australian women. *Child Abuse & Neglect, 23*(2), 145-159.

Foa, E.B. (1995). *Posttraumatic Stress Diagnostic Scale*. National Computer Systems: Minneapolis, MN.

Foa, E.B., Keane, T.M., & Friedman, M.J. (2009). *Effective treatments for PTST: Practice guidelines of the International Society for Traumatic Stress Studies.* New York, NY: Guilford Press.

Foote, B., & Park, J. (2008). Dissociative identity disorder and schizophrenia: Differential diagnosis and theoretical issues. *Current Psychiatry Reports 10*(3), 217–222.

Foote, B., Smolin, Y., Kaplan, M., Legatt, M. E., & Lipschitz, D. (2006). Prevalence of dissociative disorders in psychiatric outpatients. *American Journal of Psychiatry, 163*(4), 623–629.

Ford, J.M., & Mathalon, D.H. (2005). Corollary discharge dysfunction in schizophrenia: Can it explain auditory hallucinations? *International Journal of Psychophysiology, 58*(2-3),179–189.

Ford, J.M., Morris, S.E., Hoffman, R.E., Sommer, I., Waters, F., McCarthy-Jones, S., … Cuthbert, B.N. (2014). Studying hallucinations within the NIMH RDoC framework. *Schizophrenia Bulletin, 40*(4), S295-304.

Forel, A. (1907/1927). *Hypnotism or suggestion and psychotherapy: A study of the psychological, psychophysiological, and therapeutic aspects of hypnotism* (5th Edition). New York, NY: Allied.

Foulds, G.A., & Bedford, A. (1975). Hierarchy of classes of personal illness. *Psychological Medicine, 5*(2), 181-192.

Frankel, S.A. (2009). Dissociation and dissociative disorders: Clinical and forensic assessment with adults. In P. F. Dell & J. A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 571-583). New York, NY: Routledge.

Frary, R.B. (1996). *Brief guide to questionnaires development*. Washington, DC: ERIC Clearinghouse on Assessment and Evaluation.

Freeman, D., & Fowler, D. (2009). Routes to psychotic symptoms: Trauma, anxiety and psychosis-like experiences. *Psychiatry Research, 169*(2), 107–112.

Freud S. (1986/1950). A case of chronic paranoia. In E. Jones (Ed.), *Collected Papers of Sigmund Freud, Vol 1* (pp.174-183). London, England: Hogarth.

_____. (1915). The unconscious. *Standard Edition, 12*, 166-215.

_____. (1925). An autobiographical study. *Standard Edition, 20*, 7-74.

Frewen, P.A., & Lanius, R.A. (2014). Trauma-related altered states of consciousness (TRASC): Exploring the 4-D model. *Journal of Trauma & Dissociation*. Advanced online publication. Doi: 10.1080/15299732.2013.873377

Freyd, J. (1994). Betrayal trauma: Traumatic amnesia as an adaptive response to childhood abuse. *Ethics & Behavior, 4*(4), 307-330.

Freyd, J., Klest, B., & Allard, C.B. (2005). Betrayal trauma: Relationship to physical health, psychological distress, and a written disclosure intervention. *Journal of Trauma and Dissociation, 6*(3), 83-104.

Frischholz, E.J., Braun, B.G., Sachs, R.G., & Hopkins, L. (1990). The Dissociative Experiences Scale: Further replication and validation. *Dissociation: Progress in the Dissociative Disorders, 3*(3), 151-153.

Frueh, B.C., Grubaugh, A.L., Cusack, K.J., Kimble, M.O., Elhai, J.D., & Knapp, R.G. (2009). Exposure-based cognitive-behavioral treatment of PTSD in adults with schizophrenia or schizoaffective disorder: A pilot study. *Journal of Anxiety Disorders*, *23*(5), 665-675.

Gantt, L., & Tinnin, L. W. (2007). Intensive trauma therapy of PTSD and dissociation: An outcome study. *The Arts in Psychotherapy, 34*(1), 69–80.

García, J.M., & Pérez, M. (2001). ACT as a treatment for psychotic symptoms. The case of auditory hallucinations. *Análisis y Modificación de Conducta, 27*(113), 455–472.

Garfield, D.A.S. (1995). *Unbearable affect: A guide to the psychotherapy of psychosis*. New York, NY: Wiley.

Garrett, M. (2010). 'Normalizing' the voice hearing experience: The continuum between auditory hallucinations and ordinary mental life. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 183-204). Oxford, England: Oxford University Press.

Gaudiano, B. A., & Herbert, J. D. (2006). Acute treatment of inpatients with psychotic symptoms using acceptance and commitment therapy: Pilot results. *Behaviour Research and Therapy, 44*(3), 415–437.

Gavrilovic, J., Lecic-Tosevski, D., Knezevic, G., & Priebe, S. (2002). Predictors of posttraumatic stress in civilians 1 year after air attacks: A study of Yugoslavian students. *Journal of Nervous and Mental Disease, 190*(4), 257-262.

Geraerts, E., & McNally, R. J. (2008). Assessment of recovered and false memories. In R. Rogers (Ed.), *Clinical assessment of malingering and deception* (pp. 274-285). New York, NY: The Guildford Press.

Geraerts, E., Smeets, E., Jelicic, M., van Heerden, J., & Merckelbach, H. (2005). Fantasy proneness, but not self-reported trauma is related to DRM performance of women reporting recovered memories of childhood sexual abuse. *Consciousness and Cognition, 14*(3), 602-612.

Gharaibeh, N. (2009). Dissociative identity disorder: Time to remove it from DSM-V? *Current Psychiatry, 8*(9), 30-36.

Giesbrecht, T., Lynn, S.J., Lilienfeld, S.O., & Merckelbach, H. (2008). Cognitive processes in dissociation: An analysis of core theoretical assumptions. *Psychological Bulletin, 134*(5), 617-647.

Giese, A.A., Thomas, M.R., & Dubovsky, S.L. (1997). Dissociative symptoms in psychotic mood disorders: An example of symptom nonspecificity. *Psychiatry*, *60*(1), 60-66.

Gilbert, P. (1992). *Depression: The evolution of powerlessness*. Hove, England: Lawrence Erlbaum.

_____. (2000). Varieties of submissive behavior as forms of social defense: Their evolution and role in depression. In L. Sloman & P. Gilbert (Eds.), *Subordination and defeat: An evolutionary approach to mood disorders and their therapy* (pp. 3-45). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

_____. (2006). Evolution and depression: Issues and implications. *Psychological Medicine*, *36*(3), 287-298.

_____. (2007). *Psychotherapy and counselling for depression* (3rd ed.). London, England: SAGE Publications.

_____. (2009a). *The compassionate mind*. London, England: Constable-Robinson.

_____. (2009b). An introduction to compassion focused therapy. *Advances in Psychiatric Treatment*, *15*, 199-208.

_____. (2014). Compassion-focused therapy: Preface and introduction for special section. *British Jounal of Clinical Psychology*, *53*(1), 1-5.

Gilbert, P., & Allen, S. (1998). The role of defeat and entrapment (arrested flight) in depression: An exploration of an evolutionary view. *Psychological Medicine, 28*(3), 584-567.

Gladstone, G.L., Parker, G.B., & Malhi, G.S. (2006). Do bullied children become anxious and depressed adults?: A cross-sectional investigation of the correlates of bullying and anxious depression. *Journal of Nervous & Mental Disease, 194*(3), 201-208.

Glaser, D. (2000). Child abuse and neglect and the brain – a review. *Journal of Child Psychology and Psychiatry, 41*(1), 97-116.

Glaser, J-P., van Os, J., Portesgijs, & Myin-Germeys, I. (2005). Childhood trauma and emotional reactivity to daily life stress in adult frequent attenders of general practitioners. *Journal of Psychosomatic Research, 61*(2), 229-236.

Glasziou, P., Vandenbroucke, J.P., & Chalmers, I. (2004). Assessing the quality of research. *British Medical Journal, 328*(7430), 39-41.

Gleaves, D.H., May, M.C., & Cardeña, E. (2001). An examination of the diagnostic validity of dissociative identity disorder. *Clinical Psychology Review*, *21*(4), 577–608.

Glicksohn, J., & Barrett, T.R. (2003). Absorption and hallucinatory experience. *Applied Cognitive Psychology, 17*(7), 833–849.

Gloster, A.T., Rhoades, H.M., Novy, D., Klotsche, J., Senior, A., Kunik, M., Wilson, N., & Stanley, M.A. (2008). Psychometric properties of the Depression Anxiety and Stress Scale-21 in older primary care patients. *Journal of Affective Disorders*, *110*(3), 248-259.

Glymour, M.M. (2006). Using causal diagrams to understand common problems in social epidemiology. In M. Oakes & J. Kaufman (Eds.), *Methods in social epidemiology* (pp. 387-422). San Francisco, CA: Jossey-Bass.

Goldberg, L.R. (1999). The Curious Experiences Survey, a revised version of the Dissociative Experiences Scale: Factor structure, reliability, and relations to demographic and personality variables. *Psychological Assessment*, *11*(2), 134-145.

Goldstone, E., Farhall, J., & Ong, B. (2012). Modelling the emergence of hallucinations: Early acquired vulnerabilities, proximal life stressors and maladaptive psychological processes. *Social Psychiatry and Psychiatric Epidemiology, 47*(9), 1367-1380.

Goodman, G.S., Batterman-Faunce, J.M., Schaaf, J.M., & Kenney, R. (2002). Nearly 4 years after the event: Children's eyewitness memory and adults' perceptions of children's accuracy. *Child Abuse and Neglect, 26*(8), 849–884.

Goodman, L., Thompson, K., Weinfurt, K., Corl, S., Acker, P., Mueser, K.T., & Rosenberg, S.D. (1999). Reliability of violent victimization and PTSD among men and women with serious mental illness. *Journal of Traumatic Stress, 12*(4), 587-599.

Goodwin, D.W., Alderson, P., Rosenthal, R. (1971). Clinical significance of hallucinations in psychiatric disorders. A study of 116 hallucinatory patients. *Archives of General Psychiatry*, *24*(1), 76-80.

Gordis, L. (2009). *Epidemiology* (4th Edition). Philadelphia, PA: Saunders Elsevier.

Gracie, A., Freeman, D., Green, S., Garety, P. A., Kuipers, E., Hardy, A., … Fowler, D. (2007). The association between traumatic experience, paranoia and hallucinations: A test of the predictions of psychological models. *Acta Psychiatrica Scandinavica*, *116*(4), 280-289.

Greenfield, S.F., Strakowski, S.M., Tohen, M., Batson, S.C., & Kolbrener, M.L. (1994). Childhood abuse in first-episode psychosis. *British Journal of Psychiatry*, *164*(6), 831-834.

Greyson, B., & Stevenson, I. (1980). The phenomenology of near-death experiences. *American Journal of Psychiatry*, *137*(10), 1193-1196

Grimby, A. (1993). Bereavement among elderly people: Grief reactions, post-bereavement hallucinations and quality of life. *Acta Psychiatrica Scandinavica, 87*(1), 72-80.

Grimes, D.A., & Schultz, K.F. (2002). Descriptive Studies: What they can and cannot do. *The Lancet, 359*(9301), 145-149.

Grissom, R.J., & Kim, J.J. (2005). *Effect sizes for research: A broad practical approach*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Groff, R. (Ed.), (2008). *Revitalizing causality: Realism about causality in philosophy and social science*. New York, NY: Routledge.

Grohol, J. (2013, 06 January). *DSM-5 changes: Schizophrenia and psychotic disorders*. Retrieved from: http://pro.psychcentral.com/2013/dsm-5-changes-schizophrenia-psychotic-disorders/004336.html

Grove, W.M., & Meehl, P.E. (1993). Simple regression based procedures for taxometric investigations. *Psychological Reports* (Monograph suppl. 1-V73).

Grubaugh, A.L., Zinzow, H.M., Paul, L., Egede, L.E., & Frueh, B.C. (2011). Trauma exposure and posttraumatic stress disorder in adults with severe mental illness: A critical review. *Clinical Psychology Review, 31*(6), 883-899.

Gumley, A. (2007). Staying well after psychosis: A cognitive interpersonal approach to emotional recovery and relapse prevention. *Tidsskrift for Norsk Psykologforening*, *44*(5), 667-676.

Gumley, A. (2011). Metacognition, affect regulation and symptom expression: A transdiagnostic perspective. *Psychiatry Research, 190*(1), 72–78.

Gumley, A., Braehler, C., Laithwaite, H., MacBeth, A., & Gilbert, P. (2010). A compassion focussed model of recovery after psychosis. *International Journal of Cognitive Psychotherapy, 3(2),* 186-201.

Gumley, A., Karatzias, A., Power, K.G., Reilly, J., McNay, L., & O'Grady, M. (2008). Early Intervention for relapse in schizophrenia: Impact of cognitive behavioural therapy on negative beliefs about psychosis and self-esteem. *British Journal of Clinical Psychology, 45*(2), 247-260.

Gumley, A., & Park, C. (2010). Relapse prevention and early psychosis. In P. French, D. Shiers, M. Reed, & M. Rayn (Eds.), *Promoting recovery in early psychosis: A practice manual* (pp. 157–167). Chichester, England: Wiley-Blackwell.

Gumley, A., Taylor, H.E.F., Schwannauer, M., & MacBeth, A. (2014a). A systematic review of attachment and psychosis: Measurement, construct validity and outcomes. *Acta Psychiatrica Scandinavica, 129*(4), 257-274.

Gumley, A., Schwannauer, M., Macbeth, A., Fisher, R., Clark, S., Rattrie, L., … Birchwood, M. (2014b). Insight, duration of untreated psychosis and attachment in first-episode psychosis: Prospective study of psychiatric recovery over 12-month follow-up. *British Journal of Psychiatry*. Advanced online publication. Doi:10.1192/bjp.bp.113.126722.

Gupta, R., & Chawla, L.S. (1991). Dissociation in endogenous psychosis. *American Journal of Psychiatry, 148*(3), 395.

Guy, W. (1976). Clinical global impression. In: W. Guy (Ed.), *ECDEU assessment manual for psychopharmacology* (revised), (pp. 217–221) Rockville, MD: National Institute of Mental Health.

Haccou, P., & Meelis, E. (1992). *Statistical analysis of behavioural data: An approach based on time-structured models*. New York, NY: Oxford University Press.

Hacker, D., Birchwood, M., Tudway, J., Meaden, A., & Amphlett, C. (2008). Acting on voices: Omnipotence, sources of threat, and safety-seeking behaviours. *British Journal of Clinical Psychology*, *47*(2), 201–213.

Haddock, G., McCarron, J., Tarrier, N., & Faragher, E.B. (1999). Scales to measure dimensions of hallucinations and delusions: The psychotic symptom rating scales (PSYRATS). *Psychological Medicine*, *29*(4), 879–889.

Hainsworth, C., Starling, J., Brand, F., Groen, K., & Munro, K. (2011). Trauma and psychotic symptoms: Data from a pediatric mental health inpatient unit. *Journal of Traumatic Stress*, *24*(4), 491–494.

Hammersley, P., Dias, A., Todd, G., Bowen-Jones, K., Reilly, B., & Bentall, R.P. (2003). Childhood trauma and hallucinations in bipolar affective disorder: Preliminary investigation. *British Journal of Psychiatry, 182*(6), 543–547.

Hammersley, P., & Fox, R. (2006). Childhood trauma and psychosis in the major depressive disorders. In W. Larkin & A. P. Morrison (Eds.), *Trauma and psychosis: New directions for theory and therapy* (pp. 148-161). London, England: Routledge.

Hammersley, P., Read, J., & Bullimore, P. (2005). *Childhood sexual abuse and trauma - enquiry and response: A workbook for mental health care workers*. Sheffield, England: The Limbrick Centre.

Hampel, F. R. (1974). The influence curve and its role in robust estimation. *Journal of the American Statistical Association, 69*(346), 383–393.

Hankin, B. L. (2005). Childhood maltreatment and psychopathology: Prospective tests of attachment, cognitive vulnerability, and stress as mediating processes. *Cognitive Therapy and Research, 29(*6), 645-671.

Hanssen, M.S.S., Bijl, R.V., Vollebergh, W., & Van Os, J. (2003). Self-reported psychotic experiences in the general population: A valid screening tool for DSMIII-R psychotic disorders? *Acta Psychiatrica Scandinavica*, *107*(5), 369-377.

Haraway, D. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies, 14*(3), 575–599.

Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. *Journal of Child Psychology and Psychiatry, 45*(2), 260–273.

Hardy, A., Fowler, D., Freeman, D., Smith, B., Steel, C., Evans, J., … Dunn, G. (2005). Trauma and hallucinatory experience in psychosis. *The Journal of Nervous and Mental Disease*, *193*(8), 501–507.

Harris, T.O. (1987). Recent developments in the study of life events in relation to psychiatric and physical disorders. In B. Cooper (Ed.), *Psychiatric Epidemiology* (pp. 81-103). London, England: Croom Helm.

Harrison, J., & Gill, A. (2009). The experience and consequences of people with mental health problems, the impact of stigma upon people with schizophrenia: A way forward. *Journal of Psychiatric and Mental Health Nursing, 17*(3), 242-250.

Hassan, E. (2005). Recall bias can be a threat to retrospective and prospective research designs. *The Internet Journal of Epidemiology*, *3*(2), ISPUB.com/ IJE/3/2/13060.

Hatashita-Wong, M., & Silverstein, S.M. (2003). Coping with voices: Selective attention training for persistent auditory hallucinations in treatment refractory schizophrenia. *Psychiatry: Interpersonal and Biological Processes, 66*(3), 255-261.

Hayward, M. (2003). Interpersonal relating and voice hearing: To what extent does relating to the voice reflect social relating? *Psychology and Psychotherapy: Theory, Research and Practice*, *76*(4), 369–383.

Hayward, M., Denney, J., Vaughan, S., & Fowler, D. (2008). The voice and you: Development and psychometric evaluation of a measure of relationships with voices. *Clinical Psychology and Psychotherapy, 15*(1), 45–52.

Hayward, M., Overton, J., Dorey, T., & Denney, J. (2009). Relating therapy for people who hear voices: A case series. *Clinical Psychology and Psychotherapy, 16*(3), 216–227.

Hazen, C., & Shaver, P. (1987). Romantic love conceptualised as an attachment process. *Journal of Personality and Social Psychology, 52*(3), 511-524.

Hearing Voices Network England. (2012). *About HVN*. Retrieved from http://www.hearing-voices.org/about-us/

Hearing Voices Network New South Wales. (2012). *About HVNNSW*. Retrieved from http://www.hvnnsw.org.au/about.html

Heffernan, C. (2010). *Epidemiological study designs*. Retrieved from http://www.drcath.net/toolkit/casecontrol.html

Heilbronner, R., Martelli, M. F., Nicholson, K., & Zasler, N. D. (2002). Brain injuries and functional disorders. *Journal of Controversial Medical Claims, 9*(3), 1–7.

Heim, C., & Nemeroff, C. B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biological Psychiatry*, *49*(12), 1023-1039.

Heim, C., Newport, D.J., Bonsall, R., Miller, A.H., & Nemeroff, C.B. (2003). Altered pituitary-adrenal axis responses to provocative challenge tests in adult survivors of childhood abuse. *FOCUS: The Journal of Lifelong Learning in Psychiatry*, *1*(3), 282-289.

Heinks-Maldonado, T.H., Mathalon, D.H., Houde, J.F., Gray, E., & Ford, J.M. (2007). Imprecise corollary discharge in schizophrenia is related to auditory hallucinations. *Archives of General Psychiatry, 64*(3), 286–296.

Heins, T., Gray, A., & Tennant, M. (1990). Persisting hallucinations following childhood sexual abuse. *Australian and New Zealand Journal of Psychiatry, 24*(4), 561-565.

Helen. (2011). Child abuse and voice hearing: Finding healing through EMDR. *Psychosis*, *3*(1), 90-95.

Hemsley, D.R. (2005). The development of a cognitive model of schizophrenia: Placing it in context. *Neuroscience and Biobehavioral Reviews, 29*(6), 977–988.

Henquet, C., Krabbendam, L., Dautzenberg, J., Jolles, J., & Merckelback, H. (2005). Confusing thoughts and speech: Source monitoring and psychosis. *Psychiatry Research, 133*(1), 57–63.

Henry, J.D., & Crawford, J.R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227–239.

Hepworth, L., & McGowan, L. (2012). Do mental health professionals enquire about childhood sexual abuse during routine mental health assessment in acute mental health settings? A substantive literature review. *Journal of Psychiatric and Mental Health Nursing, 20*(6), 473-483.

Heriot-Maitland, C., Knight, M., & Peters, E. (2012). A qualitative comparison of psychotic-like phenomena in clinical and non-clinical populations. *British Journal of Clinical Psychology*, *51*(1), 37-53.

Heriot-Maitland, C., Vidal, J.B., Ball, S., & Irons, C. (2014). A compassionate-focused therapy group approach for acute inpatients: Feasibility, initial pilot outcome data, and recommendations. *British Jounal of Clinical Psychology*, *53*(1), 78-94.

Herman, J.L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress*, *5*(3), 377–391.

_____. (1997). *Trauma and recovery: The aftermath of violence from domestic abuse to political terror* (2nd Edition). New York, NY: Basic Books.

Hersencentrum. (2013, September 10). *Interview with Iris Sommer*. Retrieved from: http://research.umcutrechthersencentrum.nl/psychotic-disorders/research/interviews/interview-iris-sommer/

Hersh, K., & Borum, R. (1998). Command hallucinations, compliance, and risk assessment. *Journal of the American Academy of Psychiatry and the Law*, *26*(3), 353-359.

Higgins, J.P.T., Thompson, S.G., Deeks, J., & Altman, D.G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal, 327*(7414), 557-560.

Hilgard, E.R. (1977). The problem of divided consciousness: A neodissociation interpretation. *Annals of the New York Academy of Sciences, 296, 48-59.*

Hirsch, S.R. (1986). The influence of social experience and environment on the course of schizophrenia. In P. Bradley & S. Hirsch (Eds.), *The psychopharmacology and drug treatment of schizophrenia*. London, England: Oxford University Press.

Hoffman, R.E. (1986). Verbal hallucinations and language production processes in schizophrenia. *Behavioural and Brain Sciences, 9*(3), 503-548.

Hoffman, R.E., Hawkins, K.A., Gueorguieva, R., Boutros, N.N., Rachid, F., Carroll, K., & Krystal, J.H. (2003). Transcranial magnetic stimulation of left temporoparietal cortex and medication-resistant auditory hallucinations. *Archives of General Psychiatry*, *60*(1), 49–56.

Hoffman, R.E., Oates, E., Hafner, J., Hustig, H. H., & McGlashan, T.H. (1994). Semantic organization of hallucinated 'voices' in schizophrenia. *American Journal of Psychiatry, 151*(8), 1229-1230.

Holmes, D.S., & Tinnin, L.W. (1995). The problem of auditory hallucinations in combat PTSD. *Traumatology, 1*(2), 1-7.

Holmes, E.A., Brown, R. J., Mansell, W., Fearon, R.P., Hunter, E.C., Frasquilho, F., & Oakley, D.A. (2005). Are there two qualitatively distinct forms of dissociation? A review and some clinical implications. *Clinical Psychological Review, 25*(1), 1-23.

Holmes, E.A., & Steel, C. (2004). Schizotypy: A vulnerability factor for traumatic intrusions. *Journal of Nervous and Mental Disease, 192*(1), 28–34.

Honig, A., Romme, M, Ensink, B., Escher, S., Pennings, M., & deVries, M. (1998). Auditory hallucinations: A comparison between patients and nonpatients. *The Journal of Nervous and Mental Disease, 186*(10), 646–651.

Hornstein, G.A. (2009). *Agnes's jacket: A psychologist's search for the meaning of madness*. New York, NY: Rodale.

Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine, 41*(3), 209–218.

Horwood, J., Thomas, K., Duffy, L., Gunnell, D., Hollis, C., Lewis, G., … Harrison, G. (2008). Frequency of psychosis-like symptoms in a nonclinical population of 12 year olds: Results from the ALSPAC birth cohort. *European Psychiatry, 23*(Suppl. 2), S282.

Howell, D.C. (1999). *Fundamental statistics for the behavioural sciences* (4th Edition). Pacific Grove, CA: Duxbury Press.

Howitt, D., & Cramer, D. (2008). *Introduction to SPSS in psychology* (4th Edition). Harlow, England: Pearson Education Ltd.

Hoy, K., Barrett, S., Shannon, C., Campbell, C., Watson, D., Rushe, T.,…Mulholland, C. (2012). Childhood trauma and hippocampal and amygdalar volumes in first-episode psychosis. *Schizophrenia Bulletin, 38*(6), 1162-1169.

Hubl, D., Koenig, T.,Strik, W., Federspiel, A., Kreis, R. Boesch, C., ... Dierks, T. (2004). Pathways that make voices: White matter changes in auditory hallucinations. *Archives General Psychiatry, 61*(7), 658-668.

Hulme, P.A., & Agrawal, S. (2004). Patterns of childhood sexual abuse characteristics and their relationships to other childhood abuse and adult health. *Journal of Interpersonal Violence, 19*(4), 389–405.

Huppert, J.D., Smith, T.E., & Apfeldorf, W.J. (2002). Use of self-report measures of anxiety and depression in outpatients with schizophrenia: Reliability and validity. *Journal of Psychopathology and Behavioral Assessment, 24*(4), 275-283.

International Society for the Study of Trauma and Dissociation. (2011). Guidelines for treating dissociative identity disorder in adults, third revision: Summary version. *Journal of Trauma & Dissociation*, *12*(2), 188-212.

Intervoice. (2010, November 30). *About Intervoice: The international network for training, education and research into hearing voices*. Retrieved from http://www.intervoiceonline.org/about/about-intervoice

Irwin, H. (1999). Pathological and nonpathological dissociation: The relevance of childhood trauma. *Journal of Psychology*, *133*(2), 157-164.

Jackson, M.C., & Fulford, K. (1997). Spiritual experience and psychopathology. *Philosophy, Psychiatry and Psychology*, *4*(1), 41–65.

Jackson, R., Ameratunga, S., Broad, J., Connor, J., Lethaby, A., Robb, G.,…Heneghan, C. (2006). The GATE frame: Critical appraisal with pictures. *Evidence Based Medicine, 11*(2), 35-38.

James, A. (2001). *Raising our voices: An account of the hearing voices movement*. Gloucester, England: Handsell Publishing.

James, W. (1894). Review of Breuer and Freud's "Über den psychischen Mechanismus hysterischer Phänomene [On the psychical mechanism of hysterical phenomena]." *Psychological Review*, *1*, 199.

Janet, P. (1889). *L'automatisme psychologique* [The psychological automatism]. Paris, France: Félix Alcan.

_____. (1898). *Névroses et idées fixes* [Neuroses and obsessions] *Vol. 1*. Paris, France: Félix Alcan.

_____. (1907). *The major symptoms of hysteria: Fifteen lectures given in the medical school of Harvard University.* New York, NY: Macmillan.

_____. (1909). *Les névroses* [The neuroses]. Paris, France: Flammarion.

_____. (1911/1983). *L'état mental des hystériques* [The mental state of hysterics]. Paris, France: Félix Alcan. Reprint: Marseille, Lafitte Reprints, 1983.

_____. (1927/2007). *La pensée intéreure et ses troubles* [Inner thought and its troubles]. Paris, France: L'Harmattan.

_____. (1929). *L'evolution psychologique de la personnalité* [The psychological evolution of personality]. Paris, France: Chahine.

Janssen, I., Krabbendam, L., Bak, M., Hanssen, M., Vollebergh, W., de Graaf, R., & van Os, J. (2004). Childhood abuse as a risk factor for psychotic experiences. *Acta Psychiatrica Scandinavica*, *109*(1), 38–45.

Jenner, J.A. (2006). Hallucinatie gerichte integratieve therapie (HIT). In: J.A. Jenner (Ed.), Hallucinaties: Kenmerken, verklaringen en behandeling (pp. 110-131). Assen, NL: Van Gorcum.

Jenner, J.A., Nienhuis, F. J., van de Willige, G., & Wiersma D. (2006). "Hitting" voices of schizophrenia patients may lastingly reduce persistent auditory hallucinations and their burden: 18-month outcome of a randomized controlled trial. *Canadian Journal of Psychiatry, 51*(3), 169-177.

Jenner, J.A., Nienhius, F.J., Wiersma, D., & van de Willige, G. (2004). Hallucination focused integrative treatment: A randomized controlled trial. *Schizophrenia Bulletin*, *30*(1), 133–145.

Jenner, J.A., Rutten, S., Beuckens, J., Boonstra, N., & Sytema, S. (2008). Positive and useful auditory vocal hallucinations: Prevalence, characteristics, attributions, and implications for treatment. *Acta Psychiatrica Scandinavica*, *118*(3)*, 238-245.

Jessop, M., Scott, J., & Nurcombe. B. (2008). Hallucinations in adolescent inpatients with post-traumatic stress disorder and schizophrenia: Similarities and differences. *Australasian Psychiatry, 16*(4), 268-272.

Johns, L., Hemsley, D., & Kuipers, E. (2002). A comparison of auditory hallucinations in a psychiatric and non-psychiatric group. *British Journal of Clinical Psychology, 41*(1), 81–86.

Johns, L., Kompus, K., Connell, M., Humpston, C., Lincoln, T., Longden, E., … Larøi, F. (2014). Auditory verbal hallucinations in persons with and without a need for care. *Schizophrenia Bulletin*, *40*(S4)*, S255–S264.

Johnson, D.M., Pike, J.L., & Chard K.M. (2001). Factors predicting PTSD, depression, and dissociative severity in female treatment-seeking childhood sexual abuse survivors. *Child Abuse & Neglect, 25*(1), 179–198.

Johnson, D.P., Penn, D.L., Fredrickson, B.L., Kring, A.M., Meyer, P.S., Catalino, L.I., & Brantley, M. (2011). A pilot study of loving-kindness meditation for the negative symptoms of schizophrenia. *Schizophrenia Research, 129*(2), 137–140.

Johnson, J. G., Cohen, P., Kasen, S., & Brook, J. S. (2006). Dissociative disorders among adults in the community, impaired functioning, and axis I and II comorbidity. *Journal of Psychiatric Research, 40*(2), 131–140.

Johnson, M.K., Hashtroudi, S., & Lindsay, D.S. (1993). Source monitoring. *Psychological Bulletin, 114*(1), 3–28.

Johnstone, L. (2011). Voice hearers are people with problems, not patients with illnesses. In M. Romme & S. Escher (Eds.), *Psychosis as a personal crisis: An experience-based approach* (pp.27-36). London, England: Routledge.

Johnstone, L., & Dallos, R. (2006). *Formulation in psychology and psychotherapy: Making sense of people's problems*. London, England: Routledge.

Jones, S.R. (2010). Do we need multiple models of auditory verbal hallucinations? Examining the phenomenological fit of cognitive and neurological models. *Schizophrenia Bulletin, 36*(3), 566–575.

Jones, S.R., & Fernyhough, C. (2007). Neural correlates of inner speech and auditory verbal hallucinations: A critical review and theoretical integration. *Clinical Psychology Review, 27*(2), 140–154.

Jones, N., & Shattell, M. (2013). Engaging with voices: Rethinking the clinical treatment of psychosis. *Issues in Mental Health Nursing*, *34*(7), 562–563.

Judkins, M., & Slade, P.D. (1981). A questionnaire study of hostility in persistent auditory hallucinators. *British Journal of Medical Psychology, 54*(3), 243–250.

Jung, C.G. (1907/1909). *The psychology of dementia praecox.* New York, NY: Journal of Nervous and Mental Disease.

Jung, C.G. (1976). The psychogenesis of mental disease. In W. McGuire (Ed.), *The collected works of C.G. Jung* (Vol. 3). Princeton, NJ: Princeton University Press.

Junginger, J. (1990). Command hallucinations and the prediction of dangerousness. *The American Journal of Psychiatry*, *147*(2), 245-247.

_____. (1995). Command hallucinations and the prediction of dangerousness. *Psychiatric Services*, *46*(9), 911-914.

Junginger, J., & Frame, C. L. (1985). Self-report of the frequency and phenomenology of verbal hallucinations. *Journal of Nervous and Mental Disease, 173*(3), 149-155.

Karlsson, L.-B. (2008). 'More real than reality': A study of voice-hearing. *International Journal of Social Welfare, 17*(4), 365–373.

Kay, S.R., Fiszbein, A., & Opler, L.A. (1987). The Positive and Negative Syndrome Scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, *13*(2), 261–276.

Kay, S.R., Opler, L.A., & Fiszbein, A. (1986). Significance of positive and negative syndromes in chronic schizophrenia. *British Journal of Psychiatry, 149*(4), 439-448.

Kelleher, I., Harley, M., Lynch, F., Arseneault, L., Fitzpatrick, C., & Cannon, M. (2008). Associations between childhood trauma, bullying and psychotic symptoms among a school-based adolescent sample. *British Journal of Psychiatry, 193*(5), 378 –382.

Kendler, K.S., Bulik, C.M., Silberg, J., Hettema, J.M., Myers, J., & Prescott, C.A. (2000). Childhood sexual abuse and adult psychiatric and substance use disorders in women:

An epidemiological and co-twin control analysis. *Archives of General Psychiatry*, *57*(10), 953–959.

Kendler, K.S., Gallagher, T.J., Abelson, J.M., & Kessler, R.C. (1996). Lifetime prevalence, demographic risk factors and diagnostic validity of nonaffective psychosis as assessed in a US community sample. The National Comorbidity Survey. *Archives of General Psychiatry*, *53*(11), 1022–1031.

Kendler, K.S., Hettema, J.M., Butera, F., Gardner, C.O., & Prescott, C.A. (2003). Life event dimensions of loss, humiliation, entrapment, and danger in the prediction of onsets of major depression and generalized anxiety**.** *Archives of General Psychiatry, 60*(8), 789-796.

Kilcommons, A., & Morrison, A. P. (2005). Relationships between trauma and psychosis: An exploration of cognitive and dissociation factors. *Acta Psychiatrica Scandinavica, 112*(5), 351–359.

Kilcommons, A., Morrison, A. P., Knight, A., & Lobban, F. (2008). Psychotic experiences in people who have been sexually assaulted. *Social Psychiatry and Psychiatric Epidemiology*, *43*(8), 602-611.

Kilpatrick, A. (1986). Some correlates of women's childhood sexual experiences: A retrospective study. *The Journal of Sex Research, 22*(2), 221-242.

Kilpatrick, D.G., Resnick, H.S., & Acierno, R. (2009). Should PTSD Criterion A be retained? *Journal of Traumatic Stress*, *22*(5), 374-383.

Kimerling, R., Calhoun, K. S., Forehand, R., Armistead, L., Morse, E., Morse, P., … Clark, L. (1999a). Traumatic stress in HIV-infected women. *Aids Education and Prevention*, *11*(4), 321-30.

Kimerling, R., Armistead, L., & Forehand, R. (1999b). Victimization experiences and HIV infection in women: Associations with serostatus, psychological symptoms, and health status. *Journal of Traumatic Stress, 12*(1), 41-58.

Kimerling, R., Clum, G.A., & Wolfe, J. (2000). Relationships among trauma exposure, chronic posttraumatic stress disorder symptoms, and self-reported health in women: Replication and extension. *Journal of Traumatic Stress, 13*(1), 115-128.

Kingdon, D.G., Ashcroft, K., Bhandari, B., Gleeson, S., Warikoo, N., Symons, M., … Mehta, R. (2010). Schizophrenia and borderline personality disorder: Similarities and differences in the experience of auditory hallucinations, paranoia, and childhood trauma. *The Journal of Nervous and Mental Disease*, *198*(6), 399-403.

Kinzie, J., & Boehnlein, J. (1989). Posttraumatic stress among Cambodian refugees. *Journal of Traumatic Stress*, *2*(2), 185-198.

Kinzie, J., Boehnlein, J., Leung, P., Moore, L., Riley, C., & Smith, D. (1990). The prevalence of posttraumatic stress disorder and its clinical significance among Southeast Asian refugees *American Journal of Psychiatry, 147*(7), 913-917.

Kira, I. (2002). Torture assessment and treatment: The wraparound approach. *Truamatology, 8*(2), 54-86.

Kira, I. A., Lewandowski, L., Templin, T., Ramaswamy, V., Ozkan, B., & Mohanesh, J. (2008). Measuring cumulative trauma dose, types, and profiles using a development-based taxonomy of traumas. *Traumatology, 14*(2), 62-87.

Kirk, S.A., & Kutchins, H. (1994). The myth of the reliability of DSM. *Journal of Mind and Behavior, 15*(1&2), 71-86.

Kirmayer, L.J. (2011). Defining and delimiting trauma-related dissociation: A view from cultural psychiatry. *Journal of Trauma & Dissociation, 12*(4), 465-468.

Kisiel, C. L., & Lyons, J. S. (2001). Dissociation as a mediator of psychopathology among sexually abused children and adolescents. *American Journal of Psychiatry, 158*(7), 1034-1039.

Kleinman, A. (2012). Rebalancing academic psychiatry: Why it needs to happen – and soon. *British Journal of Psychiatry, 201*(6), 421-422.

Kluft, R.P. (1984). Treatment of multiple personality disorder: A study of 33 cases. *Psychiatric Clinics of North America, 7*(1), 9–29.

_____. (1987). First-rank symptoms as a diagnostic clue to multiple personality disorder. *American Journal of Psychiatry, 144*(3), 293-298.

Koenen, K. C., Moffitt, T. E., Poulton, R., Martin, J., & Caspi, A. (2007). Early childhood factors associated with the development of post-traumatic stress disorder: Results from a longitudinal birth cohort. *Psychological Medicine*, *37*(2), 181-92.

Korol, S. (2008). Familial and social support as protective factors against the development of Dissociative Identity Disorder. *Journal of Trauma and Dissociation, 9*(2), 249-267.

Krabbendam, L., Myin-Germeys, I., Hanssen, M., Bijl, R.V., de Graaf, R., Vollebergh, W., … van Os, J. (2004). Hallucinatory experiences and onset of psychotic disorder: Evidence that the risk is mediated by delusion formation. *Acta Psychiatrica Scandinavica, 110*(4), 264-272.

Krawiecka, M., Goldberg, D., & Vaughan, M. (1977). A standardized psychiatric assessment scale for rating chronic psychotic patients. *Acta Psychiatrica Scandinavica*, *55*(4), 299–308.

Kreyenbuhl, J., Buchanan, R.W., Dickerson, F.B., & Dixon, L.B. (2010).The Schizophrenia Patient Outcomes Research Team (PORT): Updated treatment recommendations 2009. *Schizophrenia Bulletin*, *36*(1), 94-103.

Kronmüller, K-T., von Bock, A., Grupe, S., Büche, L.,Gentner, N.C., Rückl, S., Marx, J., … Mundt, C. (2011). Psychometric evaluation of the Psychotic Symptom Rating Scales. *Comprehensive Psychiatry*, *52*(1), 102–108.

Krüger, C., & Mace, C.J. (2002). Psychometric validation of the State Scale of Dissociation (SSD). *Psychology and Psychotherapy: Theory, Research and Practice, 75*(1), 33-51.

Krystal, J.H., Woods, S.W., Hill, C.L., & Charney, D.S. (1991). Characteristics of panic attack subtypes: Assessment of spontaneous panic, situational panic, sleep panic, and limited symptom attacks. *Comprehensive Psychiatry, 32*(6), 474–480.

Laddis, A., & Dell, P.F. (2012a). All that dissociation instruments measure is not dissociation: "All that glistens is not gold. *Journal of Trauma & Dissociation, 13*(4), 418-420.

Laddis, A., & Dell, P.F. (2012b). Dissociation and psychosis in dissociative identity disorder and schizophrenia. *Journal of Trauma & Dissociation, 13*(4), 397-413.

Laithwaite, H., O'Hanlon, M., Collins, P., Doyle, P., Abraham, L., Porter, S., & Gumley, A. (2009). Recovery after psychosis (RAP): A compassion focused programme for individuals residing in high security settings. *Behavioural and Cognitive Psychotherapy, 37*(5), 511–526.

Langdon, R., Jones, S.R., Connaughton, E., & Fernyhough, C. (2009). The phenomenology of inner speech: Comparison of schizophrenia patients with auditory verbal hallucinations and healthy controls. *Psychological Medicine, 39*(4), 655-663.

Langdridge, D., & Hagger-Johnson, G. (2009). *Introduction to research methods and data analysis in psychology* (2nd Edition). Harlow, England: Pearson Education Ltd.

Lange, A., Kooiman, K., Huberts, L., van Oostendorp, E. (1995). Childhood unwanted sexual events and degree of psychopathology of psychiatric patients. *Acta Psychiatrica Scandinavica*, *92*(6), 441-446.

Larøi, F., Sommer, I., Blom, J.D., Fernyhough, C., Ffytche, D.H., Hugdahl, K., … Waters, F. (2012). The characteristic features of auditory verbal hallucinations in clinical and nonclinical groups: State-of-the-art overview and future directions. *Schizophrenia Bulletin*, *38*(4), 724–733.

Larøi, F., & van der Linden, M. (2005). Nonclinical participants' reports of hallucinatory experiences. *Canadian Journal of Behavioural Science*, *37*(1), 33-43.

Latasker, T., van Os, J., Drukker, M., Henquet, C., Feron, F., Gunther, N., & Myin-Germeys, I. (2006). Childhood victimisation and developmental expression of non-clinical delusional ideation and hallucinatory experiences: Victimisation and non-clinical psychotic experiences. *Social Psychiatry and Psychiatric Epidemiology*, *41*(6), 423-428.

Launay, G., & Slade, P. (1981). The measurement of hallucinatory predisposition in male and female prisoners. *Personality and Individual Differences, 2*(3), 221–234.

Lauterbach, D., Somer, E., Dell, P., & Vondevlen, H. (2008). Abuse history and pathological dissociation among Israeli and American college students: A comparative study. *Journal of Trauma and Dissociation, 9*(1), 51-62.

Lawrence, C., Jones, J., & Cooper, M. (2010). Hearing voices in a non-psychiatric population. *Behavioural and Cognitive Psychotherapy*, *38*(3), 363–373.

Lee, T.M., Chong, S.A., Chan, Y.H., & Sathyadevan. G. (2004). Command hallucinations amongst Asian patients with schizophrenia. *Canadian Journal of Psychiatry*, *49*(12), 838-842.

Lee, W., Bindman, J., Ford, T., Glozier, N., Moran, P., Stewart, R., & Hotopf, M. (2007). Bias in psychiatric case-control studies: Literature survey. *British Journal of Psychiatry*, *190*(3), 204-209.

Lees-Haley, P.R. (1986). Pseudo post-traumatic stress disorder. *Trial Diplomacy Journal, 9*(4), 17–20.

Lees-Haley, P.R., Price, J.R.,Williams, C.W., & Betz, B.P. (2001). Use of the impact of event scale in the assessment of emotional distress and PTSD may produce misleading results. *Journal of Forensic Neuropsychology, 2*(2), 45–52.

Legendre, P. (2005). Species associations: The Kendall coefficient of concordance revisited. *Journal of Agricultural, Biological, and Environmental Statistics, 10*(2)*,* 226–245.

Lehavot, K., Molina, Y., & Simoni, J.M. (2012). Childhood trauma, adult sexual assault, and adult gender expression among lesbian and bisexual women. *Sex Roles, 67*(5-6), 272-284.

Leudar, I., & Thomas, P. (2000). *Voices of reason, voices of insanity: Studies of verbal hallucinations*. London, England: Routledge.

Leudar, I., Thomas, P., McNally, D., & Glinski, A. (1997). What voices can do with words: Pragmatics of verbal hallucinations. *Psychological Medicine*, *27*(4), 885–898.

Levine, P. (1997). *Waking the tiger: Healing trauma - The innate capacity to transform overwhelming experiences.* New York, NY: North Atlantic Books.

Levitan, C., Ward, P.B., & Catts, S.V. (1999) Superior temporal gyral volumes and laterality correlates of auditory hallucinations in schizophrenia. *Biological Psychiatry, 46*(7), 955-962.

Lewandowski, K.E., DePaola, J., Camsari, G.B., Cohen, B.M., & Ongur, D. (2009). Tactile, olfactory, and gustatory hallucinations in psychotic disorders: A descriptive study. *Annals of the Academy of Medicine, Singapore, 38*(5), 383-385.

Lewinsohn, P.M., & Rosenbaum, M. (1987). Recall of parental behaviour by acute depressives, remitted depressives, and nondepressives. *Journal of Personality and Social Psychology, 52*(3), 611-619.

Lewis-Fernández, R., Gorritz, M., Raggio, G.A., Peláez, C., Chen, H., Guarnaccia, P.J. (2010). Association of trauma-related disorders and dissociation with four idioms of distress among Latino psychiatric outpatients. *Culture, Medicine and Psychiatry, 34*(2), 219-243.

Leys, C., Ley, C., Klien, O., Bernard, P., & Licata, L. (2013). Detecting outliers: Do not use standard deviation around the mean, use absolute deviation around the median. *Journal of Experimental Social Psychology, 49*(4), 764-766.

Liberati, A., Altman, D.G., Tetzlaff, J., Mulrow, C., Gotzsche, P.C., Ioannidis, J.P.A., … Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *British Medical Journal, 339*, b2700.

Liester, M.B. (1996). Inner voices: Distinguishing transcendent and pathological characteristics. *Journal of Transpersonal Psychology, 28*(1), 1–30.

_____. (1998). Toward a new definition of hallucination. *American Journal of Orthopsychiatry, 68*(2), 305–312.

Light, R.J., & Pillemer, D.B. (1984). *Summing up: The science of reviewing research*. Cambridge, MA: Harvard University Press.

Linden, D.E.J. (2012). The challenges and promise of neuroimaging in psychiatry. *Neuron, 73*(1), 8-22.

Linscott, R.J., & van Os, J. (2010). Systematic reviews of categorical versus continuum models in psychosis: Evidence for discontinuous subpopulations underlying a psychometric continuum. Implications for DSM-V, DSM-VI, and DSM-VII. *Annual Review of Clinical Psychology, 6*, 391-419.

Liotti, G. (1992). Disorganized/disoriented attachment in the etiology of the dissociative disorders. *Dissociation*, *5*(4), 196-204.

_____. (2004). Trauma, dissociation, and disorganized attachment: Three strands of a single braid. *Psychotherapy: Theory, Research, Practice, Training, 41*(4), 472-486.

Liotti, G., & Gumley, A. (2008). An attachment perspective on schizophrenia: The role of disorganised attachment, dissociation and mentalisation. In A. Moskowitz, I. Schäfer & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp.117–134). Chichester, England: Wiley-Blackwell.

Lipsanen, T., Saarijärvi, S., & Lauerma, H. (2004). Exploring the relations between depression, somatization, dissociation and alexithymia: Overlapping or independent constructs? *Psychopathology*, *37*(4), 200-206.

Loewenstein, R.J. (1991). Psychogenic amnesia and psychogenic fugue: A comprehensive review. *American Psychiatric Press Review of Psychiatry*, *10*(2), 189-222.

Lommen, M.J.J., & Restifo, K. (2009). Trauma and posttraumatic stress disorder (PTSD) in patients with schizophrenia or schizoaffective disorder. *Community Mental Health Journal*, *45*(6), 485-496.

Longden, E. (2013a). *Learning from the voices in my head*. New York, NY: TED Books.

Longden, E. (2013b, August 08). *The voices in my head*. Retrieved from: http://www.ted.com/talks/eleanor_longden_the_voices_in_my_head.html

Longden, E. (2012). Secrets and lies: Society's denial of the prevalence and impact of childhood sexual abuse. *Journal of Critical Psychology, Counselling and Psychotherapy*, *12*(3), 131-141.

Longden E., Corstens D., & Dillon, J. (2013). Recovery, discovery and revolution: The work of Intervoice and the hearing voices movement. In S. Coles, S. Keenan, & B. Diamond, (Eds.), *Madness contested: Power and practice* (pp.161-180). Ross-on-Wye, England: PCCS Books.

Longden, E., Corstens, D., Escher, S., & Romme, M. (2012b). Voice hearing in biographical context: A model for formulating the relationship between voices and life history. *Psychosis: Psychological, Social and Integrative Approaches, 4*(3), 224-234.

Longden, E., & Dillon, J. (2013). The hearing voices movement. In J. Cromby, D. Harper & P. Reavey (Eds.), *Psychology, mental health and distress* (pp. 151-156). Basingstoke, England: Palgrave-Macmillan.

Longden, E., Madill, A., & Waterman, M. G. (2012a). Dissociation, trauma, and the role of lived experience: Toward a new conceptualization of voice hearing. *Psychological Bulletin*, *138*(1) 28-76.

Longden, E., Moskowitz, A., Corstens, D., Dorahy, M., & Perona-Garcelán, S. (in press). The role of dissociation in auditory verbal hallucinations. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (2nd Edition). Chichester, England: Wiley-Blackwell.

Longden, E., & Waterman, M. (in preparation). Recovery, coping and control in voice hearing: Clinical and theoretical implications of voice location.

Lovatt, A., Mason, O., Brett, C., & Peters, E. (2010). Psychotic-like experiences, appraisals, and trauma. *The Journal of Nervous and Mental Disease, 198*(11), 813-819.

Lovibond, S.H., & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales*. Sydney, Australia: Psychology Foundation.

Lukoff, D., Neuchterlein, K.H., & Ventura, J. (1986). Manual for Expanded Brief Psychiatric Rating Scale. *Schizophrenia Bulletin, 12*(4), 594–602.

Lynn, S.J., Lilienfeld, S.O., Merckelbach, H., Giesbrecht, T., & van der Kloet, D. (2012). Dissociation and dissociative disorders: Challenging conventional wisdom. *Current Directions in Psychological Science, 21*(1), 48-53.

Lysaker, P., Beattie, N. L, Strasburger, A., & Davis L. (2005a). Reported history of child sexual abuse in schizophrenia: Associations with heightened symptom levels and poorer participation over four months in vocational rehabilitation. *The Journal of Nervous and Mental Disease*, *193*(12), 790–795.

Lyons-Ruth, K. (2003). Dissociation and the parent-infant dialogue: A longitudinal perspective from attachment research. *Journal of the American Psychoanalytic Association, 51*(3), 883-911.

Lyons-Ruth, K., Dutra, L., Schuder, M. R., & Bianchi, I. (2006). From infant attachment disorganization to adult dissociation: Relational adaptations or traumatic experiences? *Psychiatric Clinics of North America, 29*(1), 63-68.

Lysaker, P.H., Davis, L.W., Gatton, M.J., & Herman, S.M. (2005b). Associations of anxiety-related symptoms with reported history of childhood sexual abuse in schizophrenia spectrum disorders. *Journal of Clinical Psychiatry, 66*(10), 1279-1284.

Maaranen, P. Tanskanen, A., Honkalampi, K., Haatainen, K., Hintikka, J., & Viinamäki, H. (2005). Factors associated with pathological dissociation in the general population. *Australian and New Zealand Journal of Psychiatry, 39*(5), 387–394.

MacBeth, A., Gumley, A., Schwannauer, M., & Fisher, R. (2014). Self-reported quality of life in a Scottish first-episode psychosis cohort: Associations with symptomatology and premorbid adjustment. *Early Intervention in Psychiatry*. Advanced online publication. Doi: 10.1111/eip.12087

MacBeth, A., Schwannauer, M., & Gumley, A. (2008). The association between attachment style, social mentalities, and paranoid ideation: An analogue study. *Psychology and Psychotherapy: Theory, Research and Practice, 81*(1), 79–93.

Mackie, C. J., Castellanos-Ryan, N., & Conrod, P. J. (2011). Developmental trajectories of psychotic-like experiences across adolescence: Impact of victimization and substance use. *Psychological Medicine, 41*(1), 47–58.

Maher, B.A. (2006). The relationship between delusions and hallucinations. *Current Psychiatry Reports*, *8*(3), 179–183.

Maier T. (2007). Weathers' and Keane's "The Criterion A problem revisited: Controversies and challenges in defining and measuring psychological trauma". *Journal of Traumatic Stress, 20*(5), 915-916.

Manford, M., & Andermann, F. (1998). Complex visual hallucinations. Clinical and neurobiological insights. *Brain, 121*(10), 1819-1840.

Mann, C. J. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medicine Journal, 20*(1), 54-60.

Markowitsch, H. J. (2003). Psychogenic amnesia. *Neuroimage, 20*(1), 132-138.

Marmar, C.R., Weiss, D.S., & Metzler, T.J. (1997). The Peritraumatic Dissociative Experiences Questionnaire. In J.P. Wilson & T.M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp 412–428). New York, NY: Guilford.

Marmar, C.R., Weiss, D.S., Schlenger, W.E., Fairbank, J.A., Jordan, B.K., Kulka, R.A., & Hough, R.L. (1994). Peritraumatic dissociation and posttraumatic stress in male Vietnam theater veterans. *American Journal of Psychiatry, 151*(6), 902–907.

Marshall, R. D., Amsel, L., & Suh, E. J. (2008). Response to McNally and Breslau (2008). *American Psychologist, 63*(4), 283-285.

Matheson, S.L., Shepherd, A.M., Pinchbeck, R.M., Laurens, K.R., & Carr, V.J. (2013). Childhood adversity in schizophrenia: A systematic meta-analysis. *Psychological Medicine*, *43*(2), 225-238.

Mauritz, M. W., Goossens, P. J., Draijer, N., & van Achterberg, T. (2013). Prevalence of interpersonal trauma exposure and trauma-related disorders in severe mental illness. *European Journal of Psychotraumatology*, *4*: 10.3402/ejpt.v4i0.19985.

Mauthner, N.S., & Douchet, A. (2003). Reflexive accounts and accounts of reflexivity in qualitative data analysis. *Sociology, 37*(3), 413–431.

Mawson, A., Cohen, K., & Berry, K. (2010). Reviewing evidence for the cognitive model of auditory hallucinations: The relationship between cognitive voice appraisals and distress during psychosis. *Clinical Psychology Review, 30*(2), 248–258.

Maxwell, S.E., & Delaney, H.D. (1993). Bivariate median splits and spurious statistical significance. *Psychological Bulletin, 113*(1), 181-190.

May, R., & Longden, E. (2010). Self-help approaches to hearing voices. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 257-279). Oxford, England: Oxford University Press.

Mayhew, S., & Gilbert, P. (2008). Compassionate mind training with people who hear malevolent voices: A case series report. *Clinical Psychology and Psychotherapy, 15*(2), 113-138.

McCarthy-Jones, S. (2011). Voices from the storm: A critical review of quantitative studies of auditory verbal hallucinations and childhood sexual abuse. *Clinical Psychology Review, 31*(6), 983-992.

_____. (2012). *Hearing voices: The histories, causes and meanings of auditory verbal hallucinations.* Cambridge, England: Cambridge University Press.

McCarthy-Jones, S., & Resnick, P.J. (2013). Listening to voices: The use of phenomenology to differentiate malingered from genuine auditory verbal hallucinations. *International Journal of Law and Psychiatry*. Advanced online publication. Doi: 10.1016/j.ijlp.2013.11.004.

McCarthy-Jones, S., Trauer, T., Mackinnon, A., Sims, E., Thomas, N., & Copolov, D.L. (2014). A new phenomenological survey of auditory hallucinations: Evidence for subtypes and implications for theory and practice. *Schizophrenia Bulletin, 40*(1), 231-135.

McCarthy-Jones, S., Waegeli, A., & Watkins, J. (2013). Spirituality and hearing voices: Considering the relation. *Psychosis: Psychological, Social and Integrative Approaches, 5*(3), 247-258.

McDougall, W. (1926). *Outline of abnormal psychology*. New York, NY: Charles Scribner's Sons.

McGorry, P. (2005). Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the treatment of schizophrenia and related disorders. *Australian and New Zealand Journal of Psychiatry*, *39*(1-2), 1-30.

McGough, J.J., & Faraone, S.V. (2009). Estimating the size of treatment effects: Moving beyond *P* values. *Psychiatry, 6*(10), 21-29.

McGuire, P.K., Silbersweig, D.A., Wright, I., Murray, R.M., David, A.S., Frackowiak, R.S., & Frith, C.D. (1995). Abnormal monitoring of inner speech: A physiological basis for auditory hallucinations. *Lancet, 346*(8975), 596–600.

McHugh, P.R., & Treisman, G. (2007). PTSD: A problematic diagnostic category. *Journal of Anxiety Disorders, 21*(2), 211–222.

McHugo, G. J., Caspi, Y., Kammerer, N., Mazelis, R., Jackson, E.W., Russell, L., … Kimerling, R. (2005). The assessment of trauma history in women with co-occurring substance abuse and mental disorders and a history of interpersonal violence. *Journal of Behavioural Health Services and Research, 32*(2), 113–127.

McIsaac, H. K., & Eich, E. (2004). Vantage point in traumatic memory. *Psychological Science*, *15*(4), 248-253.

McKee, M., Britton, A., Black, N., McPherson, K., Sanderson, C., & Bain, C. (1999). Methods in health services research: Interpreting the evidence: Choosing between randomised and non-randomised studies. *British Medical Journal, 319*(7205), 312–315.

McManus, S., Meltzer, H., Brugha, T., & Bebbington, P. (2009). *Adult psychiatric morbidity in England, 2007: Results of a household survey*. London, England: The NHS Information Centre.

McNally, R.J. (2003). Progress and controversy in the study of posttraumatic stress disorder. *Annual Review of Psychology, 54*, 229–252.

_____. (2004). Conceptual problems with the DSM-IV criteria. In G. M. Rosen (Ed.), *Posttraumatic stress disorder: Issues and controversies* (pp. 1-14). Chichester, England: Wiley.

_____. (2007). Can we solve the mysteries of the National Vietnam Veterans Readjustment Study? *Journal of Anxiety Disorders*, 21(2), 192–200.

McNally, R.J., Bryant, R.A., & Ehlers, A. (2003). Does early psychological intervention promote recovery from posttraumatic stress? *Psychological Science in the Public Interest, 4*(2), 45-79.

Meaden, A., Birchwood, M., & Trower, P. (2010). Cognitive therapy for command hallucinations. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 103-121). Oxford, England: Oxford University Press.

Meaney, M. J. (2001). Maternal care, gene expression, and the transmission of individual differences in stress reactivity across generations. *Annual Review of Neuroscience, 24*, 1161-1192.

Mechanic, M.B., Resick, P.A., & Griffin, M.G. (1998). A comparison of normal forgetting, psychopathology, and information-processing models of reported amnesia for recent sexual trauma. *Journal of Consulting and Clinical Psychology, 66*(6), 948-957.

Medford, N., Sierra, M., Baker, D., & David, A.S. (2005).Understanding and treating depersonalisation disorder. *Advances in Psychiatric Treatment, 11*(2), 92-100.

Meehl, P. E., & Yonce, L. J. (1994). Taxometric analysis: I. Detecting taxonicity with two quantitative indicators using means above and below a sliding cut (MAMBAC procedure). *Psychological Reports, 74* (3, Pt. 2, Special Issue), 1059-1274.

Meltzer, H.Y., & McGurk, S.R. (1999). The effects of clozapine, risperidone, and olanzapine on cognitive function in schizophrenia. *Schizophrenia Bulletin, 25*(2), 233-255.

Merckelbach, H., Devilly, G. J., & Rassin, E. (2002). Alters in dissociative identity disorder: Metaphors or genuine entities? *Clinical Psychology Review*, 22(4), 481-497.

Merckelbach, H., Rassin, E., & Muris, P. (2000). Dissociation, schizotypy, and fantasy proneness in undergraduate students. *Journal of Nervous & Mental Disease,188*(7), 428-431.

Merritt, R.D., & You S. (2008). Is there really a dissociative taxon on the dissociative experiences scale? *Journal of Personality Assessment*, 90(2), 201-203.

Meyer, I., Muenzenmaier, K., Cancienne, J., & Struening, E. (1996). Reliability and validity of a measure of sexual and physical abuse histories among women with serious mental illness. *Child Abuse and Neglect, 20*(3), 213-219.

Michal, M., Beutel, M. E., Jordan, J., Zimmermann, M., Wolters, S., & Heidenreich, T. (2007). Depersonalization, mindfulness, and childhood trauma. *Journal of Nervous and Mental Disease*, 195(8), 693–696.

Middleton, W., Dorahy, M. J., & Moskowitz, A. (2008). Historical conceptions of dissociation and psychosis: Nineteenth and early twentieth century perspectives on severe psychopathology. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.),

Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology (pp. 9–20). Chichester, England: Wiley-Blackwell.

Miller, R.S., & Johnson, J.A. (1998). Early sexual experience checklist. In C.M. Davis, W.L. Yarber, R. Bauserman, G. Schreer, & S.L. Davis (Eds.), *Handbook of sexuality-related measures* (pp. 23-24). London, England: Sage Publications.

Miller, R. S., Johnson, J. A., & Johnson, J. K. (1992). Assessing the prevalence of unwanted childhood sexual experiences. *Journal of Psychology and Human Sexuality, 4*(3), 43-54.

Miller, L. J., O'Connor, E., & Di Pasquale, T. (1993). Patients' attitudes toward hallucinations. *American Journal of Psychiatry, 150*(4), 584-588.

Ministry of Justice. (2013). *An overview of sexual offending in England and Wales*. London, England: Ministry of Justice, Home Office & the Office for National Statistics.

Modestin, J., & Erni, T. (2004). Testing the dissociative taxon. *Psychiatry Research, 126*(1), 77–82.

Mollon, P. (1996). *Multiple selves, multiple voices: Working with trauma, violation and dissociation*. Chichester, England: Wiley.

Moreau de Tours, J.-J. (1865). *De la folie hystérique et de quelques phénoménes nerveux propres à l'hystérie convulsive, à l'hystériépilepsie et à l'épilepsie* [On hysterical madness and some of its nervous phenomena in hysterical convulsions, hysterical epilepsy and epilepsy]. Paris, France: Masson.

Morgan, C., & Fisher, H. (2007). Environmental factors in schizophrenia: Childhood trauma - a critical review. *Schizophrenia Bulletin, 33*(1), 3-10.

Morgan, C., Kirkbride, J., Leff, J., Craig, T., Hutchinson, G., McKenzie, K.,… Fearon, P. (2007). Parental separation, loss and psychosis in different ethnic groups: A case-control study. *Psychological Medicine, 37*(4), 495-503.

Moritz, S., & Larøi, F. (2008). Differences and similarities in the sensory and cognitive signatures of voice-hearing, intrusions and thoughts. *Schizophrenia Research, 102*(1-3), 96–107.

Morris, S., & Cuthbert, B.N. (2012). Research Domain Criteria: Cognitive systems, neural circuits, and dimensions of behaviour. *Dialogues in Clinical Neuroscience, 14*(1), 29–37.

Morrison, A.P. (1998). A cognitive analysis of the maintenance of auditory hallucinations: Are voices to schizophrenia what bodily sensations are to panic? *Behavioural and Cognitive Psychotherapy*, *26*(4), 289–302.

_____. (2001). The interpretation of intrusions in psychosis: An integrative cognitive approach to hallucinations and delusions. *Behavioral and Cognitive Psychotherapy, 29*(3), 257–276.

_____. (2004). *Cognitive therapy for psychosis: A formulation-based approach*. Hove, England: Brunner-Routledge.

_____. (2005). Cognitive therapy for people with psychosis. In J. Read, L. Mosher, & R. Bentall (Eds.), *Models of madness: Psychological, social and biological approaches to schizophrenia* (pp. 291–306). Hove, England: Brunner-Routledge.

Morrison, A.P., & Baker, C.A. (2000). Intrusive thoughts and auditory hallucinations: A comparative study of intrusions in psychosis. *Behavior Research and Therapy, 38*(11), 1097-1106.

Morrison, A.P., & Barratt, S. (2010). What are the components of CBT for psychosis? A Delphi study. *Schizophrenia Bulletin*, *36*(1), 136-142.

Morrison, A. P., Frame, L., & Larkin, W. (2003). Relationships between trauma and psychosis: A review and integration. *British Journal of Clinical Psychology*, *42*(4), 331–353.

Morrison, A.P., Haddock, G., & Tarrier, N. (1995). Intrusive thoughts and auditory hallucinations: A cognitive approach. *Behavioural and Cognitive Psychotherapy, 23*(3), 265-280.

Morrison, A.P., Nothard, S., Bowe, S.E., & Wells, A. (2004). Interpretations of voices in patients with hallucinations and non-patient controls: A comparison and predictors of distress in patients. *Behaviour Research and Therapy, 42*(11), 1315–1323.

Morrison, T., & Petersen, T. (2003). Trauma, metacognition and predisposition to hallucinations in non-patients. *Behavioural and Cognitive Psychotherapy*, *31*(3), 235–246.

Mosimann, U.P., Collerton, D., Dudley, R., Meyer, T.D., Graham, G., Dean, J.L., … McKeith, I. G. (2008). A semi-structured interview to assess visual hallucinations in older people. *International Journal of Geriatric Psychiatry, 23*(7), 712-718.

Moskowitz, A. (2008). Association and dissociation in the historical concept of schizophrenia. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 36–49). Chichester, England: Wiley-Blackwell.

Moskowitz, A. (2012). Commentary on "Dissociation and Psychosis in Dissociative Identity Disorder and Schizophrenia" (Laddis & Dell), *Journal of Trauma & Dissociation*, *13*(4), 414-417.

Moskowitz, A., & Corstens, D. (2007). Auditory hallucinations: Psychotic symptom or dissociative experience? *The Journal of Psychological Trauma, 6*(2/3)*, 35-63.

Moskowitz, A., & Heim, G. (2011). Eugen Bleuler's *Dementia Praecox or the Group of Schizophrenias* (1911): A centenary appreciation and reconsideration. *Schizophrenia Bulletin, 37*(3), 471-479.

Moskowitz, A., Read, J., Farrelly, S., Rudegeair, T., & Williams, O. (2009). Are psychotic symptoms traumatic in origin and dissociative in kind? In P. F. Dell & J. A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 521-533). New York, NY: Routledge.

Muellera, S., Keesera, D., Reisera, M.F., Teipelc, S., & Meindla, T. (2012). Functional and structural MR imaging in neuropsychiatric disorders, part 2: Application in schizophrenia and autism. *American Journal of Neuroradiology, 33*(4), 2033–2037.

Mueser, K.T., Bellack, A.S., & Brady, E.U. (1990). Hallucinations in schizophrenia. *Acta Psychiatrica Scandinavica, 82*(1), 26-29.

Mueser, K.T., Rosenberg, S.D., Xie, H., Jankowski, M.K., Bolton, E.E., Lu, W., . . . Wolfe, R. (2008). A randomized controlled trial of cognitive-behavioral treatment of posttraumatic stress disorder in severe mental illness. *Journal of Consulting and Clinical Psychology, 76*(2), 259–271.

Mullen, P.E., Martin, J.L., Anderson, J.C., Romans, S.E., & Herbison, G.P. (1993). Childhood sexual abuse and mental health in adult life. *British Journal of Psychiatry, 163*(6), 721-732.

_____. (1996). The long-term impact of the physical, emotional, and sexual abuse of children: A community study. *Child Abuse and Neglect, 20*(1), 7-21.

Mundy, P., Robertson, M., Robertson, J., & Greenblatt, M. (1990). The prevalence of psychotic symptoms in homeless adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*(5), 724–731.

Murphy, S.A., & Keating, J.P. (1995). Psychological assessment of postdisaster class action and personal injury litigants: A case study. *Journal of Traumatic Stress, 8*(3), 473–482.

Myers, C.S. (1940). *Shell shock in France 1914-1918*. Cambridge, England: Cambridge University Press.

Nadel, L., & Jacobs, W. (1996). The role of the hippocampus in PTSD, panic and phobia. In N. Kato (Ed.), *The hippocampus: Functions and clinical relevance* (pp. 455–463). Amsterdam, the Netherlands: Elsevier.

National Health Service Confederation (NHS). (2008). *Briefing 162: Implementing national policy on violence and abuse.* London, England: NHS.

National Institute for Clinical Excellence (NICE). (2005). *Post traumatic stress disorder (PTSD): The management of adults and children in primary and secondary care*. London, England: NICE Guidelines.

_____. (2009). *Core interventions in the treatment and management of schizophrenia in adults in primary and secondary care*. London, England: NICE Guidelines.

National Institute of Mental Health. (2011, June). *NIMH Research Domain Criteria (RDoC). Draft 3.1*. Retrieved from http://www.nimh.nih.gov/research-priorities/rdoc/nimh-research-domain-criteria-rdoc.shtml

National Society for the Prevention of Cruelty to Children (NSPCC). (2011). *Child abuse and neglect in the UK today*. London, England: NSPCC.

Newman-Taylor, K., Harper, S., & Chadwick, P. (2009). Impact of mindfulness on cognition and affect in voice hearing: Evidence from two case studies. *Behavioural and Cognitive Psychotherapy, 37*(4), 397-402.

Nayani, T.H., & David, A.S. (1996). The auditory hallucination: A phenomenological survey. *Psychological Medicine, 26*(1), 177-189.

Ng, F., Trauer, T., Dodd, S., Callaly, T., Campbell, S., & Berk, M. (2007). The validity of the 21-item version of the Depression Anxiety Stress Scales (DASS-21) as a routine clinical outcome measure. *Acta Neuropsychiatrica, 19*(5), 304–310.

Nijenhuis, E.R.S. (2000). Somatoform dissociation: Major symptoms of dissociative disorders. *Journal of Trauma & Dissociation*, *1*(4), 7-30.

Nijenhuis, E.R.S., Spinhoven, P., van Dyck, R., van der Hart, O., & Vanderlinden, J. (1996). The development and the psychometric characteristics of the Somatoform Dissociation Questionnaire (SDQ-20). *Journal of Nervous and Mental Disease, 184*(11), 688-694.

_____. (1998). Degree of somatoform and psychological dissociation in dissociative disorder is correlated with reported trauma. *Journal of Traumatic Stress, 11*(4), 711–730.

Nijenhuis, E.R.S., & van der Hart, O. (2011). Dissociation in trauma: A new definition and comparison with previous formulations. *Journal of Trauma and Dissociation*, *12*(4), 416–445.

Norman, R.M.G., & Malla, A.K. (1993a). Stressful life events and schizophrenia II: Conceptual and methodological issues. *British Journal of Psychiatry, 162*(2)*,* 166-174.

Norman, R.M.G., & Malla, A. K. (1993b). Stressful life events and schizophrenia. I: A review of the research. *British Journal of Psychiatry, 162*(2), 161-166.

Novac, A., & Hubert-Schneider, S. (1998). Acquired vulnerability: Comorbidity in a patient population of adult offspring of Holocaust survivors. *American Journal of Forensic Psychiatry, 19*(1), 45-58.

Nuechterlein, K.H., Subotnik, K.L., Turner, L.R., Ventura, J., Becker, D.R., & Drake, R.E. (2008). Individual placement and support for individuals with recent-onset schizophrenia: Integrating supported education and supported employment. *Psychiatric Rehabilitation Journal, 31*(4), 340-349.

Nurcombe, B., Scott, J.G., & Jessop, M.E. (2008). Trauma-based dissociative hallucinosis: Diagnosis and treatment. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 271–280). Chichester, England: Wiley-Blackwell.

_____. (2009). Dissociative hallucinosis. In P. F. Dell & J. A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM–V and beyond* (pp. 547–555). New York, NY: Routledge.

Ochberg, F. M. (1988). Post-traumatic therapy and victims of violence. In F. M. Ochberg (Ed.), *Post-traumatic therapy and victims of violence* (pp. 3-20). New York, NY: Brunner/Mazel, Inc.

Offen, L., Waller, G., & Thomas, G. (2003). Is reported childhood sexual abuse associated with the psychopathological characteristics of patients who experience auditory hallucinations? *Child Abuse and Neglect*, *27*(8), 919–927.

Office for National Statistics. (2012). *Divorces in England and Wales – 2011*. London, England: Office for National Statistics.

Office for National Statistics. (2013, 04 June). *A summary of unpaid care by 5-17-year-olds in England and Wales*. Retrieved from: http://www.ons.gov.uk/ons/rel/census/2011-census-analysis/provision-of-unpaid-care-in-england-and-wales--2011/sty-unpaid-care.html

Ogawa, J. R., Sroufe, L., Weinfield, N. S., Carlson, E. A., & Egeland, B. (1997). Development and the fragmented self: Longitudinal study of dissociative symptomatology in a nonclinical sample. *Development and Psychopathology, 9*(4), 855–879.

Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensori-motor approach to psychotherapy*. London, England: W.W. Norton & Co.

Ohayon, M.M. (2000). Prevalence of hallucinations and their pathological associations in the general population. *Psychiatry Research, 97*(2), 153-164.

Ohayon, M.M., Priest, R. G., Caulet, M., & Guilleminault, C. (1996). Hypnagogic and hypnopompic hallucinations: Pathological phenomena? *The British Journal of Psychiatry, 169*(4), 459-467.

Olweus, D. (1991). Bully/victim problems among schoolchildren: Basic facts and effects of a school based intervention program. In D.J. Pepler, & K.H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 411-448). Hillsdale, NJ: Erlbaum.

_____. (1994). Bullying at school: Basic facts and effects of a school-based intervention program. *Journal of Child Psychology and Psychiatry, 35*(7), 1171–1190.

_____. (1996). *The revised Olweus Bully/Victim Questionnaire*. Bergen, Norway: Research Center for Health Promotion (HEMIL Center), University of Bergen.

Opler, L.A., Caton, C.L., Shrout, P., Dominguez, B., & Kass, F.I. (1994). Symptom profiles and homelessness in schizophrenia. *The Journal of Nervous and Mental Disease, 182*(3),174-178.

Overall, J. E., & Gorham, D. R. (1962). Brief Psychiatric Rating Scale. *Psychological Reports, 10*(3), 799-812.

Owen, P.R. (2012). Portrayals of schizophrenia by entertainment media: A content analysis of contemporary movies. *Psychiatric Services, 63*(7), 655–659.

Paolo, A.M., Ryan, J.J., Dunn, G.E., & van Fleet, J. (1993). Reading level of the Dissociative Experiences Scale. *Journal of Clinical Psychology, 49*(2), 209-211.

Paris, J. (1996). Dissociative symptoms, dissociative disorders, and cultural psychiatry. *Transcultural Psychiatry, 33*(1), 55–68.

Parker, G., Roussos, J., Hadzi-Pavlovic, D., Mitchell, P., Wihelm, K., & Austin, M. P. (1997). The development of a refined measure of dysfunctional parenting and assessment of its relevance in patients with affective disorders. *Psychological Medicine, 27*(5), 1193-1203.

Parker, G., Tupling, H., & Brown, L.B. (1979). A parental bonding instrument. *British Journal of Medical Psychology, 52*(1), 1–10.

Paulik, G., Badcock, J.C., & Maybery, M.T. (2006). The multifactorial structure of the predisposition to hallucinate and associations with anxiety, depression and stress. *Personality and Individual Differences, 41*(6), 1067-1076.

Paykel. E.S. (1983). Methodological aspects of life events research. *Journal of Psychosomatic Research, 27*(5), 341-352.

Pearson, D., Burrow, A., FitzGerald, C., Green, K., Lee, G., & Wise, N. (2001). Auditory hallucinations in normal child populations. *Personality and Individual Differences*, *31*(3), 401-407.

Pearson, D., Smalley, M., Ainsworth, C., Cook, M., Boyle, J., & Flury, S. (2008). Auditory hallucinations in adolescent and adult students: Implications for continuums and adult pathology following child abuse. *The Journal of Nervous and Mental Disease*, *196*(8), 634–638.

Peralta, V., & Cuesta, M.J. (1994). Psychometric properties of the Positive and Negative Syndrome Scale (PANSS) in Schizophrenia. *Psychiatry Research, 53*(1), 31-40.

Pereda, N., Guilera, G., Forns, M., & Gómez-Benito, J. (2009). The prevalence of child sexual abuse in community and student samples: A meta-analysis. *Clinical Psychology Review, 29*(4), 328-338.

Perlini, C., Bellani, M., Brambilla, P. (2012). Structural imaging techniques in schizophrenia. *Acta Psychiatrica Scandinavica, 126*(4), 235–242.

Perona-Garcelán, S., Cuevas-Yust, C., García-Montes, J.M., Pérez-Álvarez, M., Ductor-Recuerda, M. J., Salas-Azcona, R.,…Rodríguez-Martin, B. (2008). Relationship between self-focused attention and dissociation in patients with and without auditory hallucinations. *Journal of Nervous and Mental Disease, 196*(3), 190–197.

Perona-Garcelán, S., Garcìa-Montes, J. M., Cuevas-Yust, C., Pérez-Álvarez, M., Ductor-Recuerda, M. J., Salas-Azcona, R., & Gómez-Gómez, M. T. (2010). A preliminary exploration of trauma, dissociation, and positive psychotic symptoms in a Spanish sample. *Journal of Trauma & Dissociation*, *11*(3), 284–292.

Perona-Garcelán, S., Carrascoso-López, F., García-Montes, J.M., Vallina-Fernández, O., Pérez-Álvarez, M., Ductor-Recuerda, M.J., … Gómez-Gómez, M.T. (2011a). Depersonalization as a mediator in the relationship between self-focused attention and auditory hallucinations. *Journal of Trauma & Dissociation, 12*(5), 535-548.

Perona-Garcelán, S., García-Montes, J.M., Ductor-Recuerda, M.J., Vallina-Fernández, O., Cuevas-Yust, C., Pérez-Álvarez, M.,…Gómez-Gómez, M.T. (2011b). Relationship of metacognition, absorption, and depersonalization in patients with auditory hallucinations. *British Journal of Clinical Psychology, 51*(1), 100-118.

Perona-Garcelán, S, Carrascoso-López, F., García-Montes, J.M., Ductor-Recuerda, M.J., López-Jiménez, A.M., Vallina-Fernández, O.,…Gómez-Gómez, M.T. (2012a). Dissociative experiences as mediators between childhood trauma and auditory hallucinations. *Journal of Traumatic Stress, 25*(3)*,* 1-7.

Perona-Garcelán, S., García-Montes, J.M., Rodríguez-Testal, J.F., Ruiz-Veguilla, M., Benítez-Hernández, M,d,M., López-Jiménez, A.M., … Pérez-Álvarez, M. (2012b). Relationship of absorption, depersonalisation, and self-focused attention in subjects with and without hallucination proneness. *Cognitive Neuropsychiatry*. Advanced online publication. Doi: 10.1080/13546805.2012.728133.

Perry, B.D. (2002). Childhood experience and the expression of genetic potential: What childhood neglect tells us about nature and nurture. *Brain and Mind: A Transdisciplinary Journal of Neuroscience and Neurophilosophy, 3*(1), 79-100.

Perry, B.D., & Pollard, R. (1998). Homeostasis, stress, trauma, and adaptation: A neurodevelopmental view of childhood trauma. *Child and Adolescent Psychiatric Clinics of North America, 7*(1), 33-51.

Perry, B.D., Pollard, R.A., Blaicley, T.L., Baker, W.L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits." *Infant Mental Health Journal, 16*(4), 271-291.

Phillips, C.V., & Goodman, K.J. (2004). The missed lessons of Sir Austin Bradford Hill. *Epidemiologic Perspectives and Innovations, 1*(3), 1-3.

Piper, A., & Merskey, H. (2004a). The persistence of folly: A critical examination of dissociative identity disorder. Part II. The defence and decline of multiple personality or dissociative identity disorder. *Canadian Journal of Psychiatry, 49*(10), 678–683.

_____. (2004b). The persistence of folly: A critical examination of dissociative identity disorder. Part I. The excess of an improbably concept. *Canadian Journal of Psychiatry, 49*(9), 592–600.

Ponizovsky, A., Nechamkin, P., & Rosca, P. (2007). Attachment patterns in schizophrenia in male inpatients. *American Journal of Orthopsychiatry, 77*(2), 324-331.

Porter, R. (2003). *Madness: A brief history*. Oxford, England: Oxford University Press.

Posey, T.B., & Losch, M.E. (1983). Auditory hallucinations of hearing voices in 375 normal subjects. *Imagination, Cognition and Personality, 3*(2), 99–113.

Preti, A., Bonventre, E., Ledda, V., Petretto, D., & Masala, C. (2007). Hallucinatory experiences, delusional thought proneness and psychological distress in a nonclinical population. *Journal of Nervous and Mental Disease*, *195*(6), 484–491.

Preventive Services Task Force. (1996). *Guide to clinical preventive services: Report of the U.S. Preventive Services Task Force* (2nd Edition). Baltimore, MD: Williams & Wilkins.

Prince, M. (1922). An experimental study of the mechanism of hallucinations. *British Journal of Medical Psychology, 2*(3), 165–208.

Psychology Foundation of Australia. (2011, November 16). *DASS FAQ (frequently asked questions)*. Retrieved from http://www2.psy.unsw.edu.au/groups/dass/DASSFAQ.htm

Purcell, S.M., Wray, N.R., Stone, J.L., Visscher, P.M., O'Donovan, M.C., Sullivan, P.F., … Sklar, P. (2009). Common polygenic variation contributes to risk of schizophrenia and bipolar disorder. *Nature*, *460*(7256), 748–752.

Putnam, F.W. (1989). *Diagnosis and treatment of multiple personality disorder*. New York, NY: The Guildford Press.

_____. (1997). *Dissociation in children and adolescents: A developmental perspective*. New York, NY: Guilford Press.

Raij, T.T, Valkonen-Korhonen, M., Holi, M., Therman, S., Lehtonen, J., & Hari, R. (2009). Reality of auditory verbal hallucinations. *Brain, 132*(12), 2994-3001.

Rajah, A., Kumar, R. S., Somasundaram, C. P., & Kumar, A. A. (2009). Dissociative fugue in the elderly. *Indian Journal of Psychiatry, 51*(4), 305-307.

Raphael, K.G., Cloitre, M., & Dohrenwand, B.P. (1991). Problems of recall and misclassification with checklist methods of measuring stressful life events. *Health Psychology, 10*(1), 62-74.

Ratcliff, K., Farhall, J., & Shawyer, F. (2011). Auditory hallucinations: A review of assessment tools. *Clinical Psychology and Psychotherapy, 18*(6), 524–534.

Raune, D. (2001). *Psychosocial stress and first episode psychosis* (Unpublished Ph.D. thesis). Institute of Psychiatry, London, England.

Raune, D., Bebbington, P., Dunn, G., & Kuipers, E. (2006). Event attributes and the content of psychotic experiences in first-episode psychosis. *Psychological Medicine, 36*(2), 221-230.

Read, J. (1998). Child abuse and severity of disturbance among adult psychiatric inpatients. *Child Abuse &Neglect*, *22*(5), 359-368.

_____. (2013a). Does 'schizophrenia' exist? Reliability and validity. In J. Read & J. Dillon (Eds.), *Models of madness: Psychological, social and biological approaches to psychosis* (pp.47-61). London, England: Routledge.

_____. (2013b). Childhood adversity and psychosis: From heresy to certainty. In J. Read & J. Dillon (Eds.), *Models of madness: Psychological, social and biological approaches to psychosis* (pp.249-275). London, England: Routledge.

Read, J., Agar, K., Argyle, N., & Aderhold, V. (2003). Sexual and physical abuse during childhood and adulthood as predictors of hallucinations, delusions and thought disorder. *Psychology and Psychotherapy: Theory, Research Practice, 76*(1), 1–23.

Read, J., & Argyle, N. (1999). Hallucinations, delusions and thought disorders among adult psychiatric inpatients with a history of child abuse. *Psychiatric Services, 50*(11), 1467–1472.

Read, J., & Bentall, R.P. (2012). Negative childhood experiences and mental health: Theoretical, clinical and primary prevention implications. *British Journal of Psychiatry*, *200*(2), 89-91.

Read, J., Dillon, J., & Lampshire, D. (2014). Commentary on 'Does social defeat mediate the association between childhood trauma and psychosis?': How much evidence is required for a paradigm shift?' *Acta Psychiatrica Scandinavica*. In press.

Read, J., Fosse, R., Moskowitz, A., & Perry, B. (2014). The traumagenic neurodevelopmental model of psychosis revisited. *Neuropsychiatry, 4*(1), 65-79.

Read, J., & Gumley, A. (2008). Can attachment theory help explain the relationship between childhood psychosis and adversity? *Attachment: New Directions in Psychotherapy and Relational Psychoanalysis*, *2*(1), 1-35.

Read, J., & Gumley, A. (2010). Can attachment theory help explain the relationship between childhood adversity and psychosis? In S. Benamer (Ed.), *Telling stories? Attachment based approach to the treatment of psychosis* (pp.51–94). London, England: Karnac Books.

Read, J., Hammersley, P., & Rudegeair, T. (2007). Why, when and how to ask about childhood abuse. *Advances in Psychiatric Treatment, 13*(1), 101–110.

Read, J., Perry, B.D., Moskowitz, A., & Connolly, J. (2001). The contribution of early traumatic events to schizophrenia in some patients: A traumagenic neurodevelopmental model. *Psychiatry, 64*(4), 319-345.

Read, J., van Os, J., Morrison, A.P., & Ross, C.A (2005). Childhood trauma, psychosis and schizophrenia: A literature review with theoretical and clinical implications. *Acta Psychiatrica Scandinavica, 112*(5), 330–350.

Reiff, M., Castille, D.M., Muenzenmaier, K., & Link, B. (2012). Childhood abuse and the content of adult psychotic symptoms. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(4), 356–369.

Reinders, A.A.T.S., Nijenhuis, E.R.S., Paans, A.M.J., Korf, J., Willemsen, A.T.M., den Boer, J.A. (2003). One brain, two selves. *Neuroimage, 20*(4), 2119-2125.

Reinders, A.A.T.S., Nijenhuis, E.R.S., Quak, J., Korf, J., Haaksma, J., Paans, A.M.J., … den Boer, J.A. (2006). Psychobiological characteristics of dissociative identity disorder: A symptom provocation study. *Biological Psychiatry, 60*(7), 730-740.

Reinders, A.A.T.S., Willemsen, A.T.M., van Ekeren, M.C., Vos, H.P.J., Haaksma, J., den Boer, J.A., & Nijenhuis, E.R.S. (2010, April). *Investigating the etiology of dissociative identity disorder: A brain imaging study*. Paper presented at The Conference of The European Society for Trauma and Dissociation. Healing from traumatic relationships: Psychological and social persepctives in trauma and dissociation, Belfast, Northern Ireland.

Reininghaus, U., Priebe, S., & Bentall, R.P. (2013). Testing the psychopathology of psychosis: Evidence for a general psychosis dimension. *Schizophrenia Bulletin*, *39*(4), 884–895.

Resnick, P.J. (2003). Guidelines for evaluation of malingering in PTSD. In R.I. Simon (Ed.), *Posttraumatic stress disorder in litigation: Guidelines for forensic assessment* (2nd ed., pp. 187–205). Washington, DC: American Psychiatric Press.

Rieber, R. (2010). *The bifurcation of the self: The history and theory of dissociation and its disorders* (2nd Edition). New York, NY: Springer.

Riegelman, R. (1979). Contributory cause: Unnecessary and insufficient. *Postgraduate Medicine*, *66*(2), 177–179.

Riley, K.C. (1988). Measurement of dissociation. *Journal of Nervous and Mental Disease 176*(7), 449-450.

Riley, R.D., Higgins, J.P.T., & Deeks, J.J. (2011). Interpretation of random effects meta-analyses. *British Medical Journal*, *342,* d549.

Ringrose, J.L. (2011). Meeting the needs of clients with dissociative identity disorder: Considerations for psychotherapy. *British Journal of Guidance & Counselling*, *39*(4), 293-305.

Ritsher, J., Coursey, R., Farrell, E. (1997). A survey on issues in the lives of women with severe mental illness. *Psychiatric Services*, *48*(10), 1273-1282.

Robins, L., Helzer, J., Ratcliff, K., & Seyfried, W. (1982). Validity of the Diagnostic Interview Schedule, Version II: DSM-III diagnoses. *Psychological Medicine, 12*(4), 855-870.

Robins, L.N., Wing, J., Wittchen, H.U., Helzer, J.E., Babor, T.F., … Towle, L.H. (1988). The Composite International Diagnostic Interview. An epidemiologic instrument suitable for use in conjunction with different diagnostic systems and in different cultures. *Archives of General Psychiatry, 45*(12), 1069–1077.

Rodewald, F., Dell, P.F., Wilhelm-Gößling, C., & Gast, U. (2010). Are major dissociative disorders characterized by a qualitatively different kind of dissociation? *Journal of Trauma & Dissociation, 12*(1), 9-24.

Rogers, R., Kropp, P. R., Resnick, S.G., Bond, G.R., & Mueser, K.T. (2003). Trauma and posttraumatic stress disorder in people with schizophrenia. *Journal of Abnormal Psychology, 112*(3), 415–423.

Romme, M., & Escher, S. (1989). Hearing voices. *Schizophrenia Bulletin, 15*(2), 209–216.

_____. (1993). *Accepting voices*. London, England: Mind Publications.

_____. (2000). *Making sense of voices*. London, England: Mind Publications.

_____. (2006). Trauma and hearing voices. In A. Morrison & W. Larkin (Eds.), *Trauma and psychosis: New directions for theory and therapy* (pp. 162–193). Hove, England: Routledge.

_____. (2010). Personal history and hearing voices. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 233-257). Oxford, England: Oxford University Press.

Romme, M., Escher, S., Dillon, J., Corstens, D., & Morris, M. (Eds.), (2009). *Living with voices: Fifty stories of recovery*. Ross-on-Wye, England: PCCS Books.

Romme, M., Honig, A., Noorthoorn, E.O., & Escher, S. (1992). Coping with hearing voices: An emancipatory approach. *British Journal of Psychiatry, 161*(Jul), 99-103.

Romme, M., & Morris, M. (2013). The recovery process with hearing voices: Accepting as well as exploring their emotional background through a supported process. *Psychosis: Psychological, Social and Integrative Approaches*, *5*(3), 259-259.

Rose, S. M., Peabody, C. G., & Stratigeas, B. (1991). Undetected abuse among intensive case management clients. *Hospital and Community Psychiatry*, *42*(5), 499–503.

Rosen, G.M. (2004). Traumatic events, criterion creep, and the creation of pre traumatic stress disorder. *Scientific Review of Mental Health Practice, 3*(2), 39-42.

Rosen, G.M., & Lilienfeld, S.O. (2008). Posttraumatic stress disorder: An empirical evaluation of core assumptions. *Clinical Psychology Review, 28*(5), 837–868.

Rosen, G.M., & Taylor, S. (2007). Pseudo-PTSD. *Journal of Anxiety Disorders, 21*(2), 201–210.

Rosenberg, S.D., Mueser, K.T., Jankowski, K., Salyers, M.P., & Acker, K. (2004). Cognitive-behavioral treatment of PTSD in severe mental illness: Results of a pilot study. *American Journal of Psychiatric Rehabilitation, 7*(2), 171-186.

Rosenstein, D.S., & Horowitz, H.A. (1996). Adolescent attachment and psychopathology. *Journal of Consulting and Clinical Psychology*, *64*(2), 244-253.

Ross, C.A. (1997). *Dissociative identity disorder: Diagnosis, clinical features and treatment of multiple personality* (2nd Edition). New York, NY: Wiley.

_____. (2004). *Schizophrenia: Innovations in diagnosis and treatment*. Hove, England: Routledge.

_____. (2006). Dissociative identity disorder. *Current Psychosis and Therapeutics Reports, 4*(3), 112-116.

_____. (2008). Dissociative schizophrenia. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 281–295). Chichester, England: Wiley-Blackwell.

Ross, C.A., Anderson, G., & Clark, P. (1994). Childhood abuse and positive symptoms of schizophrenia. *Hospital and Community Psychiatry*, *45*(5), 489–491.

Ross, C.A., & Halpern, N. (2009). *Trauma model therapy: A treatment approach for trauma, dissociation and complex comorbidity*. Richardson, TX: Manitou Communications Inc.

Ross, C.A., Heber, S., Norton, G. R., & Anderson, G. (1989a). Differences between multiple personality disorder and other diagnostic groups on structured interview. *Journal of Nervous and Mental Disease, 177*(8), 487-491.

Ross, C.A., Heber, S., Norton, G.R., Anderson, D., Anderson, G., & Barchet, P. (1989b). The Dissociative Disorders Interview Schedule: A structured interview. *Dissociation*, *2*(3), 169 –189.

Ross, C.A., Joshi, S., & Currie, R. (1990). Dissociative experiences in the general population. *American Journal of Psychiatry, 147*(11), 1547-1552.

Ross, C.A., & Keyes, B. (2004). Dissociation and schizophrenia. *Journal of Trauma and Dissociation*, *5*(3), 69-83.

Ross, C.A., Miller, S.D., Reagor, P., Bjornson, L., Fraser, G.A., & Anderson, G. (1990). Schneiderian symptoms in multiple personality disorder and schizophrenia. *Comprehensive Psychiatry, 31*(2), 111-118.

Ross, C. A., & Norton, G. R. (1989). Differences between men and women with multiple personality disorder. *Hospital and Community Psychiatry*, *40*(2), 186–188.

Ross, C.A., Norton, G.R., & Anderson, G. (1988). The dissociative experiences scale: A replication study. *Dissociation, 1*(3), 21-22.

Ross, C.A., Norton, G. R., & Wozney, K. (1989b). Multiple personality disorder: An analysis of 236 cases. *Canadian Journal of Psychiatry*, *34*(5), 413-418.

Ross, T. A. (1941). *Lectures on war neuroses*. Toronto, Canada: Macmillan.

Rothschild, B. (2003). *The body remembers casebook: Unifying methods and models in the treatment of trauma and PTSD.* New York, NY: Norton.

Rudegeair, T., & Farrelly, S. (2003, November). *Is all psychosis dissociative?* Paper presented at the Annual Conference of the International Society for the Study of Dissociation, Chicago, IL.

Rudegeair, T., & Farrelly, S. (2008). Pharmacotherapy in the collaborative treatment of trauma-induced dissociation and psychosis. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 307–318). Chichester, England: Wiley-Blackwell.

Rudnick, A. (1999). Relation between command hallucinations and dangerous behavior. *Journal of the American Academy of Psychiatry and the Law*, *27*(2), 252-257.

Russell, D. (1983). The incidence and prevalence of intrafamilial and extrafamilial sexual abuse of female children. *Child Abuse & Neglect, 7*(1), 33-146.

RxList. (2014, March 20). *Paxil side effects center*. Retrieved from http://www.rxlist.com/paxil-side-effects-drug-center.htm

Ryan, L., & Golden, A. (2006). 'Tick the box please': A reflexive approach to doing quantitative social research. *Sociology, 40*(6), 1191-1200.

Salyers, M.P., Evans, L.J., Bond, G.R., & Meyer, P.S. (2004). Barriers to assessment and treatment of posttraumatic stress disorder and other trauma-related problems in people with severe mental illness: Clinician perspectives. *Community Mental Health Journal, 40*(1), 17-31.

Sandberg, D. (2010). Adult attachment as a predictor of posttraumatic stress and dissociation. *Journal of Trauma & Dissociation*, *11*(3), 293–307.

Sanders, S. (1986). The perceptual alteration scale: A scale measuring dissociation. *American Journal of Clinical Hypnosis, 29*(2), 95-102.

Sanders, B., & Becker-Launsen, E. (1995). The measurement of psychological maltreatment: Early data on the Child Abuse and Trauma Scale. *Child Abuse and Neglect, 19*(3), 315–323.

Sanjuan, J., Aguilar, E.J., & Artigas, F. (2010). Pharmacological treatment of hallucinations. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management (pp.* 9–28*).* Oxford, England: Oxford University Press.

Sanjuan, J., Gonzalez, J. C., Aguilar, E. J., Leal, C., & van Os, J. (2004). Pleasurable auditory hallucinations. *Acta Psychiatrica Scandinavica, 110*(4), 273–278.

Şar, V., & Öztürk, E. (2008). Psychotic symptoms in complex dissociative disorders. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 165–175). Chichester, England: Wiley-Blackwell.

Şar, V., Taycanb, O., Bolatc, N., Özmenb, M., Duranb, A., Öztürk, E., & Ertem-Vehidd, H. (2010). Childhood trauma and dissociation in schizophrenia. *Psychopathology, 43*(1), 33-40.

Şar, V., Unal, S.N., & Öztürk, E. (2007). Frontal and occipital perfusion changes in dissociative identity disorder. *Psychiatry Research: Neuroimaging, 156*(3), 217-223.

Saracci, R. (2010). *Epidemiology: A very short introduction*. Oxford, England: Oxford University Press.

Sayer, J., Ritter S., & Gournay, K. (2000). Beliefs about voices and their effects on coping strategies. *Journal of Advanced Nursing, 31*(5), 1199-1205.

Scaer, R.C. (2005). *The trauma spectrum: Hidden wounds and human resiliency*. New York, NY: Norton.

Schacter, D.L. (2001). *The seven sins of memory: How the mind forgets and remembers*. Boston, MA: Houghton Mifflin Company.

Schafer, H.H., & Martin, P.L. (1969) *Behavioral therapy*. New York, NY: McGraw-Hill.

Schäfer, I., Aderhold, V., Freyberger, H. J., & Spitzer, C. (2008). Dissociative symptoms in schizophrenia. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 151–163). Chichester, England: Wiley-Blackwell.

Schäfer, I., Harfst, T., Aderhold, V., Briken, P., Lehmann, M., Moritz, S., … Naber, D. (2006). Childhood trauma and dissociation in female patients with schizophrenia spectrum disorders: An exploratory study. *Journal of Nervous and Mental Disease, 194*(2), 135-138.

Schäfer, I., Fisher, H.L., Aderhold, V., Huber, B., Hoffmann-Langer, L., Golks, D., … Harfs, T. (2012). Dissociative symptoms in patients with schizophrenia: Relationships with

childhood trauma and psychotic symptoms. *Comprehensive Psychiatry, 53*(4)*,* 364–371.

Schäfer, I., Reitmeier, B., Langer, L., Aderhold, V., & Harfst, T. (2008). Dissociation in patients with schizophrenia: Relationships with childhood trauma and psychotic symptoms. *European Psychiatry*, *23*(2), S144.

Scharfetter, C. (2008). Ego-fragmentation in schizophrenia: A severe dissociation in self-experience. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 51–64). Chichester, England: Wiley-Blackwell.

Schechter, D. S., Zygmunt, A., Coates, S. W., Davies, M., Trabka, K. A., McCaw, J., … Robinson, J. L. (2007). Caregiver traumatization adversely impacts young children's mental representations of self and others. *Attachment & Human Development, 9*(3), 187-220.

Schenkel, L., Spaulding, W., Dilillo, D., & Silverstein, S. (2005). Histories of childhood maltreatment in schizophrenia: Relationships with premorbid functioning, symptomatology, and cognitive deficits. *Schizophrenia Research*, *76*(2-3), 273–286.

Schizophrenia Commission. (2012). *The abandoned illness: A report by the Schizophrenia Commission*. London, England: Rethink Mental Illness.

Schneider, K. (1959). *Clinical psychopathology* (5th Edition). New York, NY: Grune and Stratton.

Schore, A. N. (2009). Attachment trauma and the developing right brain: Origins of pathological dissociation. In P. F. Dell & J. A. O'Neill (Eds.), *Dissociation and the dissociative disorders: DSM-V and beyond* (pp. 107-141). New York, NY: Routledge.

Schrader, S. (2013). Illuminating the heterogeneity of voices in a multiple perspectives research paradigm. *Psychosis: Psychological, Social and Integrative Approaches, 5*(3), 216-225.

Schreier A., Wolke, D., Thomas, K., Horwood, J., Hollis, C., Gunnell, D., … Harrison, G. (2009). Prospective study of peer victimization in childhood and psychotic symptoms in a nonclinical population at age 12 years. *Archives of General Psychiatry, 66*(5), 527-536.

Scott, E. (1967). A study of the contents of delusions and hallucinations in 100 African female psychotics. *South African Medical Journal, 41*(34), 853-858.

Seal, M.L., Aleman, A., & McGuire, P.K. (2004). Compelling imagery, unanticipated speech and deceptive memory: Neurocognitive models of auditory verbal hallucinations in schizophrenia. *Cognitive Neuropsychiatry, 9*(1-2), 43–72.

Seidler, G.H., & Wagner, F.E. (2006). Comparing the efficacy of EMDR and trauma-focused cognitive-behavioral therapy in the treatment of PTSD: A meta-analytic study. *Psychological Medicine*, *36*(11), 1515-1522.

Seligman, R. (2005). Distress, dissociation, and embodied experience: Reconsidering the pathways to mediumship and mental health. *Ethos*, *33*(1), 71-99.

Semrad, E.V, & Van Buskirk, D. (1969). *Teaching psychotherapy of psychotic patients: Supervision of beginning residents in the 'clinical approach.'* New York, NY: Grune & Stratton.

Serra, L., Fadda, L., Buccione, I., Caltagirone, C., & Carlesimo, G. A. (2007). Psychogenic and organic amnesia: A multidimensional assessment of clinical, neuroradiological, neuropsychological and psychopathological features. *Behavourial Neurology, 18*(1), 53–64.

Shapiro, F., & Laliotis, D. (2010). EMDR and the adaptive information processing model: Integrative treatment and case conceptualization. *Clinical Social Work Journal, 39*(2), 191–200.

Shawyer, F., Mackinnon, A., Farhall, J., Sims, E., Blaney, S., Yardley, P., … Copolov, D. (2008). Acting on harmful command hallucinations in psychotic disorders: An integrative approach. *Journal of Nervous & Mental Disease*, *196*(5), 390–398.

Sheffield, J.M., Williams, L.E., Woodward, N.D., & Heckers, S. (2013a). Reduced gray matter volume in psychotic disorder patients with a history of childhood sexual abuse. *Schizophrenia Research 143*(1), 185-191.

Sheffield, J.M., Williams, L.E., Blackford, J.U., & Heckers, S. (2013b). Childhood sexual abuse increases risk of auditory hallucinations in psychotic disorders. *Comprehensive Psychiatry, 54*(7), 1098–1104.

Shevlin, M., Dorahy, M., & Adamson, G. (2007). Childhood traumas and hallucinations: An analysis of the National Comorbidity Survey. *Journal of Psychiatric Research, 41*(3-4), 222–228.

Shevlin M., Murphy, J., Read J., Mallett, J., Adamson, G., & Houston, J.E. (2010). Childhood adversity and hallucinations: A community-based study using the National Comorbidity Survey Replication. *Social Psychiatry and Psychiatric Epidemiology 46*(12):1203-1210.

Shevlin, M. et al. (in submission). Specificity of association between adversities and the occurrence and co-occurrence of paranoia and hallucinations: Evaluating the stability of risk in an adverse adult environment.

Shrout, P.E., Link, B.G., Dohrenwend, B.P., Skodol, A.E., Stueve, A., Mirotznik, J. (1989). Characterizing life events as risk factors for depression: The role of fateful loss events. *Journal of Abnormal Psychology, 98*(4), 460-467.

Siegal, S. (1956). *Nonparametric statistics for the behavioral sciences*. York, PA: McGraw-Hill.

Sierra, M. (2009). *Depersonalization: A new look at a neglected syndrome*. Cambridge, England: Cambridge University Press.

Sierra, M., & Berrios, G.E. (2000). The Cambridge Depersonalisation Scale: A new instrument for the assessment of depersonalisation. *Psychiatry Research*, *93*(2), 153–164.

Silverman, S.L. (2009). From randomized controlled trials to observational studies. *The American Journal of Medicine, 122*(2), 114-120.

Simeon, D. (2004). Depersonalisation disorder: A contemporary overview. *CNS Drugs, 18*(6), 343–354.

Simeon, D., & Abugel, J. (2006). *Feeling unreal: Depersonalization disorder and the loss of the self*. New York, NY: Oxford University Press.

Simeon, D., Gross, S., Guralnik, O., Stein, D. J., Schmeidler, J., & Hollander, E. (1997). Feeling unreal: 30 cases of DSM-III-R depersonalization disorder. *American Journal of Psychiatry*, *154*(8), 1107-1113.

Simeon, D., & Hamilton, H. K. (2008). Depersonalization disorder and schizotypal personality disorder. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 209-220). Chichester, England: Wiley-Blackwell.

Simeon D., Knutelska M., Nelson, D., Guralnik, O., & Schmeidler, J. (2003). Examination of the pathological dissociation taxon in depersonalization disorder. *Journal of Nervous and Mental Disorders, 191*(11), 738–744.

Simms, J., McCormack, V., Anderson, R., & Mulholland, C. (2007). Correlates of self-harm behaviour in acutely ill patients with schizophrenia. *Psychology and Psychotherapy: Theory, Research and Practice*, *80*(1), 39–49.

Sims, A. (2002). *Symptoms in the mind: An introduction to descriptive psychopathology*. Philadelphia, PA: W. B. Saunders.

Singh, M. M., & Kay, S.R. (1975). Comparative study of haloperidol and chlorpromazine in terms of clinical effects and therapeutic reversal with benztropine in schizophrenia: Theoretical implications for potency differences among neuroleptics. *Psychopharmacologia, 43*(2), 103-113.

Sitko, K., Bentall, R.P., Shevlin, M., O'Sullivan, N., Sellwood, W. (2014). Associations between specific psychotic symptoms and specific childhood adversities are mediated by attachment styles: An analysis of the National Comorbidity Survey. *Psychiatry Research*. Advanced online publication. Doi: 10.1016/j.psychres.2014.03.019

Skirrow, P., Jones, C., Griffiths, R., & Kaney, S. (2002). The impact of current media events on hallucinatory content: The experience of the intensive care unit (ICU) patient. *British Journal of Clinical Psychology, 41*(1), 87-91.

Slade, P.D., & Bentall, R.P. (1988). *Sensory deception: A scientific analysis of hallucinations*. London, England: Croom Helm.

Small, I.F., Small, J.G., & Andersen, J.M., (1966). Clinical characteristics of hallucinations of schizophrenia. *Diseases of the Nervous System*, *27*(5), 349-353.

Smeets, F., Lataster, T., Dominguez, M-d-G., Hommes, J., Lieb, R., Wittchen, H-U., & van Os, J. (2012). Evidence that onset of psychosis in the population reflects early hallucinatory experiences that through environmental risks and affective dysregulation become complicated by delusions. *Schizophrenia Bulletin, 38*(3), 531-542.

Smith, D.B. (2007). *Muses, madmen and prophets: Rethinking the history, science and meaning of auditory hallucination*. New York, NY: The Penguin Press.

Smith, B., O'Sullivan, B., Watson, P., Onwumere, J., Bebbington, P., Garety, P., … Kuipers, E. (2010). Individual Cognitive Behavioural Therapy of auditory-verbal hallucinations. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 41-60). Oxford: Oxford University Press.

Somasundaram, D., Thivakaran, T., & Bhugra, D. (2008). Possession states in northern Sri Lanka. *Psychopathology, 41*(4), 245-253.

Sommer, I.E.C., Daalman, K., Rietkerk, T., Diederen, K. M., Bakker, S., Wijkstra, J., & Boks, M.P.M. (2010). Healthy individuals with auditory verbal hallucinations; who are they? Psychiatric assessments of a selected sample of 103 subjects. *Schizophrenia Bulletin*, *36*(3), 633-641.

Sommer, I.E.C., Slotema, C.W., Daskalakis, Z.J., Derks, E.M., Blom, J.D., & van der Gaag, M. (2012). The treatment of hallucinations in schizophrenia spectrum disorders. *Schizophrenia Bulletin, 38*(4), 704–714.

Song, F., Khan, K.S., Dinnes, J., & Sutton, A.J. (2002). Asymmetric funnel plots and publication bias in meta-analyses of diagnostic accuracy. *International Journal of Epidemiology, 31*(1), 88-95.

Spiegel, D., Hunt, T., & Dondershine, H.E. (1988). Dissociation and hypnotizability in posttraumatic stress disorder. *American Journal of Psychiatry, 145*(3), 301–305.

Spitzer, C., Barnow, S., Joergen Grabe, H., Klauer, T., Schneider, W., Freyberger, H. J., & Stieglitz, R-D. (2006). Frequency, clinical and demographic correlates of pathological dissociation in Europe. *Journal of Trauma and Dissociation, 7*(1), 51-62.

Spitzer, R.L., First, M.B., & Wakefield, J.C. (2007).Saving PTSD from itself in DSM-V. *Journal of Anxiety Disorders, 21*(2), 233–241.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development, 7*(4), 349–367.

Stainsby, M., Sapochnik, M., Bledin, K., & Mason, O.J. (2010). Are attitudes and beliefs about symptoms more important than symptom severity in recovery from psychosis? *Psychosis: Psychological, Social and Integrative Approaches, 2*(1), 41–49.

Steel, C., Fowler, D., & Holmes, E. A. (2005). Trauma-related intrusions and psychosis: An information processing account. *Behavioural and Cognitive Psychotherapy, 33*(2), 139–152.

Steel, C., Garety, P.A., Freeman, D., Craig, E., Kuipers, E., Bebbington, P., Fowler, D., & Dunn, G. (2007). The multidimensional measurement of the positive symptoms of psychosis. *International Journal of Methods in Psychiatric Research*, *16*(2), 88–96.

Steele, K., Dorahy, M.J., van der Hart, O., & Nijenhuis, E.R. (2009). Dissociation and alterations in consciousness: Related but different concepts. In P.F. Dell & J.A. O'Neill, (Eds.), *Dissociation and dissociative disorders: DSM-IV and beyond* (pp. 155–170). New York, NY: Routledge.

Steer, R. A., & Beck, A.T. (1997). Beck Anxiety Inventory. In Zalaquett, C.P., & Wood, R.J. (Eds.) *Evaluating stress: A book of resources* (pp. 23-40). Lanham, MD: Scarecrow Education.

Steinberg, M. (1994). *Interviewer's guide to the Structured Clinical Interview for DSM-IV Dissociative Disorders: Revised (SCID-D-R)* (2nd Edition). Washington, DC: American Psychiatric Press.

Steinberg, M., Cicchetti, D., Buchanan, J., Rakfeldt, J., & Rounsaville, B. (1994). Distinguishing between multiple personality disorder (dissociative identity disorder) and schizophrenia using the Structured Clinical Interview for DSM-IV Dissociative Disorders. *Journal of Nervous and Mental Disorders, 182*(9), 495-502.

Steinberg, M., & Siegal, H. (2008). Advances in assessment: The differential diagnosis of dissociative identity disorder and schizophrenia. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 177-189). Chichester, England: Wiley-Blackwell.

Stephane, M., Thuras, P., Nasrallah, H., & Georgopoulos, A. P. (2003). The internal structure of the phenomenology of auditory verbal hallucinations. *Schizophrenia Research, 61*(2-3)*,* 185–193.

Sterne, J.A., & Egger, M. (2001). Funnel plots for detecting bias in meta-analysis: Guidelines on choice of axis. *Journal of Clinical Epidemiology 54*(10), 1046-1055.

Sterne, J.A.C., Sutton, A.J.S., Ioannidis, J.P.A., Terrin, N., Jones, D.R., Lau, J., … Higgins, J.PT. (2011). Recommendations for examining and interpreting funnel plot

asymmetry in meta-analyses of randomised controlled trials. *British Medical Journal, 343*: d4002.

Stoltenborgh, M., van IJzendoorn, M.H., Euser, E.M., & Bakermans-Kranenburg, M.J. (2011). A global perspective on child sexual abuse: Meta-analysis of prevalence around the world. *Child Maltreatment, 16*(2), 79-101.

Suhail, K., & Cochrane, R. (2002). Effect of culture and environment on the phenomenology of delusions and hallucinations. *International Journal of Social Psychiatry, 48*(2), 126-138.

Summerfield, D. (2001). The invention of post-traumatic stress disorder and the social usefulness of a psychiatric category. *British Medical Journal, 322*(4278), 95–98.

Suri, R. (2010). Hearing voices: What can we learn from them. *Psychosis: Psychological, Social and Integrative Approaches, 2*(2), 178-180.

Swaen, G., & van Amelsvoort, L. (2009). A weight of evidence approach to causal inference. *Journal of Clinical Epidemiology, 62*(3), 270-277.

Tanabe, H. (2002). *The development of Japanese version of the A-DES (Adolescent Dissociative Experiences Scale)*. Presented at the 48th Conference of Japanese Society of Hypnosis (in Japanese).

Teicher, M., Andersen, S., Polcari, A., Anderson, C., Navalta, C., & Kim, D. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience and Biobehavioral Reviews*, *27*(1-2), 33-44.

Tellegen, A. (1982). *Multidimensional personality questionnaire*. Minneapolis, MN: University of Minnesota.

Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences ('absorption'), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology*, *83*(3), 268–277.

Terr, L.C. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry, 148*(1), 10-20.

Thomaes, K., Dorrepaal, E., Draijer, N., de Ruiter, M.B., van Balkom, A.J., Smit, J.H., & Veltman, D.J. (2010).Reduced anterior cingulate and orbitofrontal volumes in child abuse-related complex PTSD. *The Journal of Clinical Psychiatry, 71*(12), 1636-1644.

Thomas, P., & Longden, E. (2013). Madness, childhood adversity, and narrative: On the necessity of the moral imagination. *Medical Humanities, 39*(2)*,* 119-125.

Thompson, A., Nelson, B., McNab, C., Simmons, M., Leicester, S., McGorry, P., … Yung, A.R. (2010). Psychotic symptoms with sexual content in the "ultra high risk" for psychosis population: Frequency and association with sexual trauma. *Psychiatry Research, 177*(1-2), 84–91.

Thompson, J.L., Kelly, M., Kimhy, D., Harkavy-Friedman, J.M., Khan, S., Messinger, J.W., … Corcoran, C. (2009). Childhood trauma and prodromal symptoms among individuals at clinical high risk for psychosis. *Schizophrenia Research, 108*(1-3), 176–181.

Titchener, J.L. (1986). Post-traumatic decline: A consequence of unresolved destructive drives. In C. Figley (Ed.), *Trauma and its wake, volume II: Traumatic stress theory, research and intervention*. New York, NY: Brunner/Mazel.

Tomoda, A., Sheu, Y-S., Rabi, K., Suzuki, H., Navalta, C.P., Polcari, A., & Teicher, M.H. (2011). Exposure to parental verbal abuse is associated with increased gray matter volume in superior temporal gyrus. *Neuroimage, 54*(S1), S280-286.

Toner, L., Tsambiras, B.M., Catalano, G., Catalano, M., & Cooper, D.S. (2000). Central nervous system side effects associated with zolpidem treatment. *Clinical Neuropharmacology, 23*(1), 54-58.

Trickett, P.K., Noll, J.G., Reiffman, A., & Putnam, F.W. (2001). Variants of intrafamilial sexual abuse experience: Implications for short- and long-term development. *Development and Psychopathology, 13*(4), 1001–1019 .

Trower, P., Birchwood, M., & Meaden, A. (2010). Appraisals: Voices' power and purpose. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 81-101). Oxford, England: Oxford University Press.

Trower, P, Birchwood, M., Meaden, A., Byrne, S., Nelson, A., & Ross, K. (2004). Cognitive therapy for command hallucinations: Randomised controlled trial. *British Journal of Psychiatry*, *184*(4), 312–320.

Turkington, D., Dudley, R., Warman, D., & Beck, A.T. (2004). Cognitive-behavioral therapy for schizophrenia: A review. *Journal of Psychiatric Practice*, *10*(1), 5-16.

Turner, M. (2002). *Evaluation of early intervention for psychosis services in New Zealand: What works?* Auckland, New Zealand: Health Research Council.

Üçok, A., & Bikmaz, S. (2007). The effects of childhood trauma in patients with first-episode schizophrenia. *Acta Psychiatrica Scandinavica*, *116*(5), 371–377.

Ullman, S. E. (2002). Social reactions to child sexual abuse disclosures: A critical review. *Journal of Child Sexual Abuse, 12*(1), 89-121.

Valmaggia, L. R., & Morris, E. (2010). Attention training technique and acceptance and commitment therapy for distressing auditory hallucinations. In F. Larøi & A. Aleman (Eds.), *Hallucinations: A guide to treatment and management* (pp. 123–141). Oxford, England: Oxford University Press.

Van den Berg, D.P.G., & van der Gaag, M. (2012). Treating trauma in psychosis with EMDR: A pilot study. *Journal of Behavior Therapy and Experimental Psychiatry, 43*(1), 664-671.

Vandenbroucke, J.P. (2001). In defense of case reports and case series. *Annals of Internal Medicine*, *134*(4), 330-334.

Van der Hart, O., Brown, P., & Graafland, M. (1999). Trauma-induced dissociative amnesia in World War I combat soldiers. *Australian and New Zealand Journal of Psychiatry, 33*(1), 37-46.

Van der Hart, O., & Horst, R. (1989). The dissociation theory of Pierre Janet. *Journal of Traumatic Stress, 2*(4), 1-11.

Van der Hart, O., Nijenhuis, E. R., & Steele, K. (2006). *The haunted self: Structural dissociation and the treatment of chronic traumatization*. London, England: Norton.

Van der Hart, O., & Witztum, E. (2008). Dissociative psychosis: Clinical and theoretical aspects. In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 257–270). Chichester, England: Wiley-Blackwell.

Van der Vleugel, B.M., van den Berg, D.P.G., Staring, A.B.P. (2012). Trauma, psychosis, post-traumatic stress disorder and the application of EMDR. *Supplemento Alla Rivista di Psichiatria, 47*(2)*, 33-38.

Van IJzendoorn, M.H., & Schuengel, C. (1996). The measurement of dissociation in normal and clinical populations: Meta-analytic validation of the Dissociative Experiences Scale (DES). *Clinical Psychology Review, 16*(5), 365-382.

Van Lieshout, R.J., & Goldberg, J.O. (2007). Quantifying self-reports of auditory verbal hallucinations in persons with psychosis. *Canadian Journal of Behavioural Science*, *39*(1), 73–77.

Van Nierop, M., Lataster, T., Smeets, F., Gunther, N., van Zelst, C., de Graaf, R., … van Winkel, R. (2014). Psychopathological mechanisms linking childhood traumatic experiences to risk of psychotic symptoms: Analysis of a large, representative population-based sample. *Schizophrenia Bulletin*, *40*(2), S123-S130.

Van Os, J., Delespaul, P., Wigman, J., Myin-Germeys, I., & Wichers, M. (2013). Beyond DSM and ICD: Introducing "precision diagnosis" for psychiatry using momentary assessment technology. *World Psychiatry, 12*(2), 113-117.

Van Os, J., Hanssen, M., Bijl, R. V., & Ravelli, A. (2000). Strauss (1969) revisited: A psychosis continuum in the general population? *Schizophrenia Research, 45*(1-2), 11–20.

Van Os, J., & Kapur, S. (2009). Schizophrenia. *Lancet, 374*(9690), 635–645.

Varese, F., Barkus, E., & Bentall, R.P. (2011). Dissociative and metacognitive factors in hallucination-proneness when controlling for comorbid symptoms. Cognitive Neuropsychiatry, *16*(3), 193-217.

_____. (2012b). Dissociation mediates the relationship between childhood trauma and hallucination-proneness. *Psychological Medicine*, *42*(5), 1025-1036.

Varese, F., Smeets, F., Drukker, M., Lieverse, R., Lataster, T., Viechtbauer W., … Bentall, R.P. (2012a). Childhood trauma increases the risk of psychosis: A meta-analysis of patient-control, prospective- and cross sectional cohort studies. *Schizophrenia Bulletin*, *38*(4)*,* 661-671.

Veale, J.F., Clarke, D.E., & Lomax, T.C. (2010). Biological and psychosocial correlates of adult gender-variant identities: A review. *Personality and Individual Differences, 48*(4), 357-366.

Veiga-Martínez, C., Pérez-Álvarez, M., & García-Montes, J. M. (2008). Acceptance and commitment therapy applied to treatment of auditory hallucinations. *Clinical Case Studies, 7*(2), 118 –135.

Verma, V. (2002). Comparability in multi-country survey programmes. *Journal of Statistical Planning and Inference*, *102*(1), 189-210.

Verma, V., Gagliardi, F., & Ferretti, C. (2009). *On pooling of data and measures*. Working paper no.84: Small Area Methods for Poverty and Living Conditions Estimates - European Union 7th Framework Program - Project/Contract No: EU-FP7- SSH-2007- 1.

Vermetten, E., Lanius, R., & Bremner, D. (2008). Contributions of traumatic stress studies to the neurobiology of dissociation and dissociative disorders: Implications for schizophrenia. . In A. Moskowitz, I. Schäfer, & M. J. Dorahy (Eds.), *Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology* (pp. 221– 238). Chichester, England: Wiley-Blackwell.

Vogel, M., Meier, J., Grönke, S., Waage, M., Schneider, W., Freyberger, H. J., & Klauer, T. (2011). Differential effects of childhood abuse and neglect: Mediation by posttraumatic distress in neurotic disorder and negative symptoms in schizophrenia? *Psychiatry Research, 189*(1), 121–127.

Vogel, M., Spitzer, C., Moller, B., Kuwert, P., Freyberger, H. J., & Grabe, H-J. (2009). A more proximal impact of dissociation than of trauma and posttraumatic stress disorder on schneiderian symptoms in patients diagnosed with schizophrenia. *Comprehensive Psychiatry, 50*(2), 128-134.

Von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., & Vandenbroucke, J. P.; for the STROBE Initiative. (2007). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: Guidelines for reporting observational studies. *Bulletin of the World Health Organization, 85*(11), 867–872.

Voruganti, L., Baker, L.K., & Awad, A.G. (2008). New generation antipsychotic drugs and compliance behaviour. *Current Opinion in Psychiatry, 21*(2), 133-139.

Vygotsky, L.S. (1934/1987). *The collected works of L. S. Vygotsky: Vol. 1. Problems of general psychology including the volume Thinking and Speech* (R.W. Rieber & A.S. Carton, Eds.). New York, NY: Plenum Press.

Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness: The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, *40*(8), 1543–1555.

Waldinger, R. J., Swett, C., Frank, A., & Miller, K. (1994). Levels of dissociation and histories of reported abuse among women outpatients. *Journal of Nervous & Mental Disease*, *182*(11), 625-630.

Waller, G., Hamilton, K., Elliott, P., Lewendon, J., Stopa, L., Waters, A. ... Chalkley, J. (2001). Somatoform dissociation, psychological dissociation, and specific forms of trauma. *Journal of Trauma & Dissociation, 1*(4), 81-98.

Waller, N.G., Putnam, F.W., & Carlson, E.B. (1996). Types of dissociation and dissociative types: A taxometric analysis of dissociative experiences. *Psychological Methods 1*(3), 300–321.

Waller, N.G., & Ross, C.A. (1997). The prevalence and biometric structure of pathological dissociation in the general population: Taxometric and behavior genetic findings. *Journal of Abnormal Psychology, 106*(4), 499-510.

Ward, A. (2009). The role of causal criteria in causal inferences: Bradford Hill's 'aspects of association.' *Epidemiologic Perspectives & Innovations*, *6*(2), 1-22.

Warner, M.S. (1998). A client-centred approach to therapeutic work with dissociated and fragile process. In L.S. Greenberg, J.C. Watson & G. Lietaer (Eds.), *Handbook of experiential psychotherapy* (pp.368-387). New York, NY: Guildford Press.

Waters, F., Aleman, A., Fernyhough, C., & Allen, P. (2012). Report on the inaugural meeting of the International Consortium on Hallucination Research: A clinical and research update and 16 consensus-set goals for future research. *Schizophrenia Bulletin*, *38*(2), 258–262.

Waters, F., Badcock, J.C., Maybery, M.T., & Michie, P.T. (2003). Inhibition in schizophrenia: Association with auditory hallucinations. *Schizophrenia Research, 62*(3), 275–280.

Waters, F., Woods, A., & Fernyhough, C. (2014). Report on the 2nd International Consortium on Hallucination Research: Evolving directions and top-10 "hot spots" in hallucination research. *Schizophrenia Bulletin*, *40*(1), 24-27.

Waters, F., Woodward, T., Allen, P., Aleman, A., & Sommer, I. (2012). Self-recognition deficits in schizophrenia patients with auditory hallucinations: A meta-analysis of the literature. *Schizophrenia Bulletin, 38*(4), 741-750.

Watkins, J. (2008). *Hearing voices: A common human experience.* South Yarra, Australia: Michelle Anderson Publishing.

Watson, D. (2003). Investigating the construct validity of the Dissociative Taxon: Stability analyses of normal and pathological dissociation. *Journal of Abnormal Psychology*, *112*(2), 298-305.

Watson, B., & Halford, W.K. (2010). Classes of childhood sexual abuse and women's adult couple relationships. *Violence and Victims, 25*(4), 518-535.

Weathers, F. W., & Keane, T. M. (2007). The Criterion A problem revisited: Controversies and challenges in defining and measuring psychological trauma. *Journal of Traumatic Stress*, *20*(2) 107-121.

Weingarten, K. (2004). Witnessing the effects of political violence in families: Mechanisms of intergenerational transmission and clinical interventions. *Journal of Marital and Family Therapy, 30*(1), 45-59.

Wenzel, I. S., Kieffer, W., & Strobl. R. (1999). Capgras syndrome and functional psychosis in 2 survivors of torture. *Psychopathology*, *32*(4), 203-206.

Western, D., Ludolph, P., Misle, B., Ruffins, S., & Block, J. (1990). Physical and sexual abuse in adolescent girls with borderline personality disorder. *American Journal of Orthopsychiatry, 60*(1), 55-66.

Whitfield, C.L., Dube, S.R., Felitti, V.J., & Anda, R.F. (2005). Adverse childhood experiences and hallucinations. *Child Abuse & Neglect, 29*(7), 797–810.

Widera-Wysoczańska, A., & Kuczyńska, A. (2010). Introduction. In A. Widera-Wysoczańska & A. Kuczyńska (Eds.), *Interpersonal trauma and its consequences in adulthood* (pp. 1-6). Newcastle-Upon-Tyne, England: Cambridge Scholars Publishing.

Wigman, J.T., van Os, J., Thiery, E., Derom, C., Collip, D., Jacobs, N., & Wichers, M. (2013). Psychiatric diagnosis revisited: Towards a system of staging and profiling combining nomothetic and idiographic parameters of momentary mental states. *PLoS One, 8*(3):e59559.

Wind, T.W., & Silvern, L. (1992). Type and extent of child abuse as predictors of adult functioning. *Journal of Family Violence*, *7*(4), 261–281.

Wing, J. K., Curtis, R. H., & Beevor, A. S. (1996). *HoNOS: Health of the Nation Outcome Scales: Report on research and development July 1993-December 1995*. London, England: Royal College of Psychiatrists.

Wolfe, J., & Kimerling, R. (1997). Gender issues in the assessment of posttraumatic stress disorder. In J. Wilson & T. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 565-599). New York, NY: Guilford Press.

Wolfe, J., Kimerling, R., Brown, P., Chrestman, K., & Levin, K. (1996). Psychometric review of the Life Stressor Checklist – Revised. In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 198-201). Lutherville, MD: Sidran Press.

Woods, A. (2013). The voice hearer. *Journal of Mental Health*, *22*(3): 263–270.

Woodward, T.S., Menon, M., & Whitman, J.C. (2007). Source monitoring biases and auditory hallucinations. *Cognitive Neuropsychiatry, 12*(6), 477-494.

World Health Organisation (WHO). (1999). *Report of the consultation on child abuse prevention, 29-31 March 1999, WHO, Geneva.* Geneva, Switzerland: WHO Press.

_____. (2006). *Preventing child maltreatment: A guide to taking action and generating evidence*. Geneva, Switzerland: WHO Press.

_____. (2012, April 17). *Epidemiology*. Retrieved from http://www.who.int/topics/epidemiology/en/

Wright, D.B., & Loftus, E.F. (1999). Measuring dissociation: Comparison of alternative forms of the Dissociative Experiences Scale. *American Journal of Psychology, 112*(4), 497–519.

Wunderink, L., Nieboer, R.M., Wiersma, D., Sytema, S., & Nienhuis, F.J. (2013). Recovery in remitted first-episode psychosis at 7 years of follow-up of an early dose reduction/discontinuation or maintenance treatment strategy. Long-term follow-up of a 2-Year randomized clinical trial. *JAMA Psychiatry*, *70*(9), 913-920.

Wurr, J. C., & Partridge, I. M. (1996). The prevalence of a history of childhood sexual abuse in an acute adult inpatient population. *Child Abuse & Neglect, 20*(9), 867–872.

Wyatt, G.E. (1992). The sociocultural context of African American and European women's rape. *Journal of Social Issues*, *48*(1), 77–91.

Wyatt, R.C., & Livson, N. (1994). The not so great divide? Psychologists and psychiatrists take stands on the medical and psychosocial models of mental illness. *Professional Psychology: Research and Practice*, *25*(2), 120-131.

Yoshizumi, T., Murase, S., Honjo, S., Kanedo, H., & Murakami, T. (2004). Hallucinatory experiences in a community sample of Japanese children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *43*(8), 1030-1036.

Young, A. (2004). When traumatic memory was a problem: On the historical antecedents of PTSD. In G.M. Rosen (Ed.), *Posttraumatic stress disorder: Issues and controversies* (pp.127–146). Chichester, England: John Wiley & Sons.

Young, H.F.M., Bentall, R.P., Slade, P.D., & Dewey, M.E. (1987). The role of brief instructions and suggestibility in the elicitation of auditory and visual hallucinations in normal and psychiatric subjects. *Journal of Nervous & Mental Disease*, *175*(1), 41-48.

Young, M., Read, J., Barker-Collo, S., & Harrison R. (2001). Evaluating and overcoming barriers to taking abuse histories. *Professional Psychology Research and Practice, 32*(4), 407-414.

Yu, J., Ross, C. A., Keyes, B. B., Li, Y., Dai, Y., Zhang, T., . . . Xiao, Z. (2010). Dissociative disorders among Chinese inpatients diagnosed with schizophrenia, *Journal of Trauma & Dissociation, 11*(3), 358–372.

Yule, W., Bolton, D., Udwin, O., Boyle, S., O'Ryan, D., & Nurrish, J. (2000). The long-term psychological effects of a disaster experienced in adolescence. I. The incidence and course of PTSD. *Journal of Child Psychology & Psychiatry,41*(4), 503–511.

Zammit, S., Horwood, J., Thompson, A., Thomas, K., Menezes, P., Gunnell, D., . . . Harrison, G. (2008). Investigating if psychosis-like symptoms (PLIKS) are associated with family history of schizophrenia or paternal age in the ALSPAC birth cohort. *Schizophrenia Research,104*(1–3), 279–286.

Zigler, E., & Phillips, L. (1961). Psychiatric diagnosis and symptomatology. *Journal of Abnormal and Social Psychology, 63*(1), 69-75.

Zigmond, A.S., & Snaith, R.P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, *67*(6), 361–370.

Zlotnick, C., Begin, A., Shea, M. T., Pearlstein, T., Simpson, E., & Costello, E. (1994). The relationship between characteristics of sexual abuse and dissociative experiences. *Comprehensive Psychiatry, 35*(4), 465-470.

Zubin, J. & Spring, B. (1977). Vulnerability: A new view of schizophrenia. *Journal of Abnormal Psychology, 86*(2), 103-126.

List of Abbreviations

AB	Absorption
ACT	Acceptance and Commitment Therapy
APA	American Psychiatric Association
BAVQ-R	The Revised Beliefs about Voices Questionnaire
BPD	Borderline personality disorder
BPS	British Psychological Society
CAHQ	Characteristics of Auditory Hallucinations Questionnaire
CBT	Cognitive Behavioural Therapy
CBTp	Cognitive Behavioural Therapy for Psychosis
CFT	Compassion-Focussed Therapy
CPTSD	Complex posttraumatic stress disorder
CRD	Centre for Reviews and Dissemination
CSA	Childhood sexual abuse
DA	Dissociative amnesia
DASS-21	The Depression Anxiety Stress Scales – short version
DDNOS	Dissociative disorder not otherwise specified
DES-II	The Revised Dissociative Experiences Scale
DES-T	The Dissociative Experiences Scale-Taxon
DID	Dissociative identity disorder
DP	Depersonalisation
DSM	Diagnostic and Statistical Manual of Mental Disorders
EIP	Early Intervention in Psychosis
ESEC	The Early Sexual Experiences Checklist
GATE	Graphical Appraisal Tool for Epidemiological Studies
ICD	International Statistical Classification of Diseases and Related Health Problems
LSC-R	Life Stressor Checklist – Revised
MID	The Multidimensional Inventory of Dissociation
NHS	National Health Service
NICE	National Institute of Clinical Excellence
OR	Odds ratio
PANSS	Positive and Negative Syndrome Scale for Schizophrenia
PTSD	Posttraumatic stress disorder

PSYRATS-AH	The Psychotic Symptom Rating Scale: Auditory Hallucinations Subscale
RCT	Randomised control trial
SAPS	Scale for the Assessment of Positive Symptoms
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
TAU	Treatment as usual
WHO	World Health Organisation

Glossary of Terms

Absorption: A rigid, self-conscious preoccupation with internal mental experience that sometimes leads to disconnection between the conscious mind and the outside world. Although often characterised as a dissociative process, absorption is not generally considered to be a feature of dissociative disorders.

Depersonalisation: A form of dissociation characterised by a sense of detachment and disconnection from oneself. This may manifest as feelings of unreality, as if one is in a dream or an actor in a play; observing oneself from outside the body; or not recognising oneself in the mirror.

Derealisation: A form of dissociation characterised by a sense of detachment and disconnection from the outside world (e.g., feeling as if familiar people are imposters; perceiving changes in the colours, sizes or shapes of objects; or perceiving the world through a 'fog' or a 'tunnel').

Dissociative amnesia: Profound memory loss for personally significant information, often of a traumatic or stressful nature, that cannot be explained by ordinary absent-mindedness or forgetting, and is not associated with structural or organic brain damage.

Fantasy proneness: A personality trait in which individuals experience prolonged and extensive involvement in subjective fantasy. The construct is closely related to absorption, and may include daydreaming, unusual sensory experiences, psychosomatic symptoms (i.e., experiencing imagined sensations as real), high suggestiveness to hypnosis, and an investment in paranormal or mystical experience.

Hallucinatory proneness: A tendency to experience vivid mental events, such as daydreams, auditory and/or visual hallucinations, and religious hallucinatory experiences. Such phenomena may often occur without an obvious trigger (e.g., fatigue or intoxication) yet are generally considered benign and non-pathological.

Non-victimisation adversity: Traumatic stressors that are not personally directed at the victim (e.g., natural disaster, illness, motoring accident).

Schizotypy: A dimensional continuum of personality traits and characteristics that range from normal dissociative states (e.g., a preoccupation with internal mental experience) to more extreme states associated with psychosis and schizophrenia (e.g., loss of contact with objective reality). The concept refutes the notion that psychosis is a categorical phenomenon, and is reflected by factors like paranoid ideation, unusual perceptual experiences, difficulties with social interaction, and magical thinking (i.e., attributing associations between causes and outcomes which social/scientific consensus claims do not exist).

Victimisation adversity: A form of interpersonal trauma in which physical, sexual, or emotional harm is enacted on one person by another (or others) in a premeditated, exploitative and/or violating way (e.g., bullying, rape, physical abuse).

Appendices

APPENDIX A

Graphical Appraisal Tool for Epidemiological Studies (GATE)[49]

Jackson, R., Ameratunga, S., Broad, J., Connor, J., Lethaby, A., Robb, G., Wells, S., Glasziou, P., & Heneghan, C. (2006). The GATE frame: Critical appraisal with pictures. *Evidence Based Medicine, 11*(2), 35-38.

Study design:		
Study identification:		
Guidance topic:		
Assessed by:		
Section 1: Population		
1.1 Is the source population or source area well described?		**Comments:**
1.2 Is the eligible population or area representative of the source population or area?		**Comments:**
1.3 Do the selected participants or areas represent the eligible population or area?		**Comments:**
Section 2: Method of selection of exposure (or comparison) group		
2.1 Selection of exposure (and comparison) group.		**Comments:**
2.2 Was the selection of explanatory variables based on a sound theoretical basis?		**Comments:**
2.3 Was the contamination acceptably low?		**Comments:**

---

[49] To avoid copyright infringement, only an abridged version of the framework is presented.

2.4 How well were likely confounding factors identified and controlled?		**Comments:**
2.5 Is the setting applicable to the UK?		**Comments:**
Section 3: Outcomes		
3.1 Were the outcome measures and procedures reliable?		**Comments:**
3.2 Were the outcome measurements complete?		**Comments:**
3.3 Were all the important outcomes assessed?		**Comments:**
3.4 Was there a similar follow-up time in exposure and comparison groups?		**Comments:**
3.5 Was follow-up time meaningful?		**Comments:**
Section 4: Analyses		
4.1 Was the study sufficiently powered to detect an intervention effect (if one exists)?		**Comments:**
4.2 Were multiple explanatory variables considered in the analyses?		**Comments:**
4.3 Were the analytical methods appropriate?		**Comments:**
4.6 Was the precision of association given or calculable? Is the association meaningful?		**Comments:**
Section 5: Summary		
5.1 Are the study results internally valid (i.e. unbiased)?		**Comments:**
5.2 Are the findings generalisable to the source population (i.e. externally valid)?		**Comments:**

Checklist Rating

++	Indicates that for that particular aspect of study design, the study has been designed or conducted in such a way as to minimise the risk of bias.
+	Indicates that either the answer to the checklist question is not clear from the way the study is reported, or that the study may not have addressed all potential sources of bias for that particular aspect of study design.
−	Should be reserved for those aspects of the study design in which significant sources of bias may persist.
Not reported (NR)	Should be reserved for those aspects in which the study under review fails to report how they have (or might have) been considered.
Not applicable (NA)	Should be reserved for those study design aspects that are not applicable given the study design under review (for example, allocation concealment would not be applicable for case–control studies).

APPENDIX B1

<div align="center">

DATA EXTRACTION FORM

</div>

Title:

A. Study Characteristics

Aims/objectives**:**

Design**:**

Recruitment procedure**:**

Setting**:**

Funding**:**

B. Participants

Sample size**:**

Age and gender**:**

Ethnicity**:**

Main clinical characteristics**:**

C. Results

Voice hearing measures**:**

Dissociation measures**:**

Trauma measures**:**

Analysis**:**

Main results**:**

Additional outcomes**:**

Relation to research question**:**

D. Key Quality Criteria

Research question clearly stated**:**

Variables of interest clearly defined**:**

Valid and reliable measurements**:**

Sample size justified**:**

Attempts to minimize bias described**:**

E. Bradford Hill Criteria

	Y/N	Comments
Strength		
Biological plausibility		
Biological gradient		
Temporality		
Consistency		
Specificity		
Coherence		
Analogy		
Experiment		

APPENDIX B2: Pooled study results

21 : Study

Visible: 6 of 6 Vari

	Study	N	Groups	MeasureofEffect	EffectSize	p
1	Altman et al. (1997)	38	12 VH; 26 non-VH	MANOVA	VH = 38.66(19.43); Non-VH = 16.94 (14), F(1,36) 15.40	.001
2	Anketell et al. (2010)	40	20 VH; 20 non-VH	MANOVA	VH = 47.6(19.2); Non-VH = 31.1(18.2), F (4,39) 7.80	.008
3	Brewin et al. (2010)c	158	93 PTSD; 21 pastPTSD; 44noPTSD	Correlation	VH associated with DES-T (r=.68)	.001
4	Brewin et al. (2010)d	82	30 PTSD; 13 non-patient; 39 depression	Correlation	VH correlated with DES-T (r = .65)	.001
5	Campbell & Morrison (2007)	373	None	Correlation	LSHS-R correlated with DES-II (r=.55)	.01
6	Dorahy et al. (2009)	63	29 DID; 16 SZAbuse; 18 SZnoAbuse	Regression	DID = 65.7(18.0); SZAbuse= 32.5 (21.0); SZnoAbuse = 11.8(9.9); F-Ratio = 63.13	.001
7	Glicksohn & Barrett (2003)	656	53 pathological dissociation; 196 not	Mean difference	VH item = Pathological = 29.7(1.53); Non-pathological = 11.1 (0.47), t=-15.5	.001
8	Kilcommons & Morrison (2005)	32	None	Regression	Depersonalisation predicts hallucinations; B=.41, PartialR = .40, F = 4.28	.005
9	Kilcommons et al. (2008)	80	None	Correlation	DES-II and predisposition to VH (r = .65)	.001
10	Laddis & Dell (2012b)	80	40 DID; 20 SZRelapse; 20 SZRemission	Regression	MID and voices scores = B = .438, SE =.099	.001
11	Morrison & Petersen (2003)	64	None	Correlation	VH associated with DES-II (r = .71)	.001
12	Perona-Garcelan et al. (2008)	68	17 VH; 16 remittedVH; 18 no VH; 17 con...	ANOVA	DES-II: VH: 27.50; remittedVH= 14.65; NoVH = 9.19; Controls 3.52, F(3.62) 17.332	.001
13	Perona-Garcelan et al. (2010)	37	8 pathological dissociation; 29 not	Mean difference	PANSS-H: DES-T 28.28(15.41); Not DES-T: 9.19(6.11); t(23,7) = 5.001	.001
14	Perona-Garcelan et al. (2011a)	124	27 VH; 20 noVH; 28 remitted; 22 controls	Regression	Depersonalisation predicts VH = (B = .674, t = 10.07, partialR = .674)	.001
15	Perona-Garcelan et al. (2011b)	59	37 VH; 22 no VH	Correlation	PANSS-H and depersonalisation (r = .446)	.01
16	Perona-Garcelan et al. (2012a)	71	None	Correlation	VH and depersonalisation (r = .80)	.01
17	Perona-Garcelan et al. (2012b)	318	VH proneness; 55 high; 235 med; 28 low	ANOVA	CDS-II: high=15.66(14.24-22.08); medium=7.77(6.40-8.61); low=4.09(0.51-2.35); F(2,311) = 14.09	.001
18	Varese et al (2012b)	65	15 VH; 14 remittedVH; 16 noVH; 20 cont...	ANOVA	VH=42.59(11.03); remittedVH=26.06(10.90); noVH=23.93(14.93); controls=14.86(12.28); F(3,60)=13.70	.001
19	Yoshizumi et al. (2004)	380	25 VH/Vis; 35 VH; 21 Vis; 299 control	MANOVA	A-DES = VH/Vis =42.5(18.0); VH =28.3 (18.6); Vis=32.4 (23.0); Control =20.1(15.8); F(3,364)=15.1	.001

APPENDIX C1

Researcher:	Eleanor Longden
Address:	Institute of Psychological Sciences
	University of Leeds
	Leeds, LS2 9JT
Telephone:	0782 455 3926
E-Mail:	psc3ejl@leeds.ac.uk

PARTICIPANT INFORMATION SHEET

Before you decide whether to take part in our study, we want to tell you about the project and what you can expect to happen if you decide to participate. Please read the following information carefully and discuss it with family, friends, or your Early Intervention worker, and contact us if you have any questions that are not answered by this form. Please take as much time as you need to make up your mind. Thank you for reading this.

Who is running this research?
This project has been organised as part of an educational research project (PhD) at the University of Leeds.

What is the purpose of this research project?
We are interested in understanding how events in our lives, including distressing ones, might influence mental health and emotional well-being. This study is about comparing different life experiences between people who hear voices, and those who don't, and exploring how life events might affect the voices that people hear.

Why am I being asked to take part?
You are being approached because you are currently receiving support from the Early Intervention service and we are interested in learning about the experiences of people who have gone through an episode of psychosis. This includes people who hear voices. People who don't hear voices are also an extremely important part of this project, as we want to compare their experiences to people who do hear voices and see what similarities and differences there might be.

Do I have to take part?
Not at all. You are under no obligation to participate in the study. It is completely independent from the Early Intervention Service, so whether or not you take part will have no affect on your care.

What will happen if I participate?
If you decide to take part you will be contacted by a female researcher to arrange a time and place to meet, although if you prefer the meeting can be arranged through your Early Intervention worker. It will take place wherever is most convenient for you, and could be your home or an NHS building. If you would prefer to meet at an alternative location, then we will discuss with you whether this is a safe and confidential place to conduct the research. When we meet you will be given a copy of this sheet to keep and asked to sign a consent form. You only need to sign the consent form if you decide to take part in the research. You will then be asked to complete two questionnaires asking about emotional and other experiences you might have in your daily life. You will also be asked to do two short interviews. Both of

these contain a list of life experiences, and you will be asked whether you have experienced any of them. You can respond to these questions with a simple "yes" or "no" if you prefer, although you will also have the opportunity to talk about them in more detail if you wish. It is important to tell you in advance that this will include questions about events that may have been distressing or traumatic, such as experiences of abuse in childhood. However, you are free to refuse to answer any questions, at any point, without having to give a reason why.

The interviews will take between ten minutes and half an hour, depending on how much information you wish to share. If you hear voices, you will also be asked to complete two short questionnaires about them, which should take about five to ten minutes each. In total, the meeting would probably last between 20 and 60 minutes. If is up to you whether you prefer to complete all the interviews in one meeting, or would rather meet on a few different occasions and complete them gradually. If you prefer, you can be interviewed with a friend, family member, or mental health worker present.

What if I agree to take part then change my mind?
You are free to leave the study at any point without giving a reason. No one will ask you any questions if you decide to stop. This includes during the interview itself, or while completing the questionnaires. On the other hand, if you decide you'd like to withdraw after completing the interview and questionnaires, you can contact Eleanor Longden using the email address or phone number at the top of this sheet, and all your data will be destroyed and immediately removed from the study.

Will my answers be confidential?
Yes. No personally identifiable information (e.g., your name or address) will be written down or stored with your answers. Similarly, it will not be possible to identify you in any reports or publications about the research. Your care coordinator and family doctor (your GP) will be informed that you want to take part in the study, and if you would like your results to be shared with them then we will make sure they receive a copy. However your results will <u>not be shown to anyone</u>, including your care coordinator, unless you specifically ask for them to be shared (for instance, if you felt it might be useful for your care coodinator to see them in order to support you). The only exception to this is if a situation arose where it seemed that yourself, or someone close to you, might be at risk of harm. In this instance, your care coordinator would have to be informed about these concerns. However, this would not happen without first discussing it with you.

How will my results be used?
At the end of the study, your results (but <u>not</u> your personal details) will be entered into a computer and analysed. They will ultimately be published within a research report (PhD). It is possible that these results will be submitted for publication in an academic journal. If you are interested in finding out more about this, please let us know so we can keep you informed of this process. You are also very welcome to contact us at any time if you would like to be told about the findings and conclusions of the research.

Will I receive anything for taking part?
To thank you for your time, you will be given a £5 "Love2Shop" voucher. You will still receive the voucher if you decide to leave the study halfway through, or if you contact us later to withdraw your results.

Who has reviewed this study?
The research has been approved by ethics committees at the University of Leeds and Bradford NHS.

Contact for further information

Thank you for taking the time to read this sheet. We hope that it has provided you with enough information to help you make up your mind about taking part in the study. However, if you would like to discuss anything further, or would like to make a complaint about the study, please do not hesitate to get in touch with Eleanor Longden using the details at the top of this letter. Alternatively, you can contact the academic supervisor for this study, Prof. Allan House, on 0113 343 8005 or at a.o.house@leeds.ac.uk. If you are happy to proceed with the research, please complete the reply slip at the bottom of this letter and give it to your care coordinator.

- -

Name: _____

Phone number:

_____

(If you prefer, please leave this blank and we will contact you via your care coordinator)

My care coordinator is:_____

APPENDIX C2

Researcher: Eleanor Longden

Address: Institute of Psychological Sciences
                University of Leeds
                Leeds, LS2 9JT

Telephone: 0782 455 3926
E-Mail: psc3ejl@leeds.ac.uk

Bradford District NHS
Care Trust

CONSENT FORM

Title of Project: Dissociation, Adverse Life Events, and their
                          Associations with Voice Hearing in Young Adults
                          Experiencing First-Episode Psychosis

Name of Researcher: Eleanor Longden

Please initial box

1. I confirm that I have read and understood the information sheet dated 25/05/12 explaining the above research project.

2. I have had the opportunity to ask questions about this study and have had these answered satisfactorily.

3. I understand that taking part is voluntary and that I am free to withdraw at any time without giving any reasons and without any negative consequences.

4. I understand that I am free to end the interview process at any time and am free to choose not to answer a question without having to give a reason why.

5. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymous responses. I understand that my name will not be linked with the research materials, and that I will not be identified or identifiable in the reports that result from the study.

6. I understand that my care coordinator and GP will be informed that I am participating in this study.

7. I agree to take part in the above study.

_____   _____   _____
Name of participant (block capitals)   Signature   Date

_____   _____   _____
Researcher   Signature   Date

APPENDIX C3

Risk Escalation Protocol

This protocol was designed to demonstrate the steps taken if a participant becomes a significant risk to themselves or others during the research process.

1. Suspend research activity, and explain reasons for doing so.

2. Where possible and feasible, the relevant issues will be discussed with the participant. If their care coordinator is not already present, they will be asked if they would like to arrange to see their care coordinator/identified healthcare professional, or contact other relevant organisations detailed on the *Resource Sheet: Support and Information* handout.

3. If they refuse, permission will be sought to contact (telephone) their identified healthcare professional.

4. If the participant does not grant permission, they will be informed that due to (the stated reasons for concern) the meeting can no longer remain confidential and that advice on how to proceed will now be sought by the researcher (Eleanor Longden).

5. For the researcher - speak to the clinical lead for the Early Intervention Service (Dr Anita Brewin) and/or a member of the Early Intervention Service, and/or an academic supervisor (Professor Allan House and/or Dr Mitch Waterman) to seek advice.

6. If the participant poses an imminent danger to themselves or another person, emergency services will be contacted on 999.

7. This study will respect participant confidentiality. However, each participant will be notified prior to giving their consent to take part that if they disclose that they are of significant risk to themselves or others, then this information will be communicated to relevant others.

APPENDIX C4

RESOURCE SHEET: SUPPORT & INFORMATION

Web Sites

1. Intervoice: The international network for training, education and research into hearing voices, which works across the world to spread positive and hopeful messages about voice hearing experiences. Their site has many links to other useful organisations, as well as sections on recovery, coping and a discussion board. www.intervoiceonline.org

2. HVN (Hearing Voices Network): Offers information, support and understanding to people who hear voices, their friends, and their family members. It also aims to promote awareness, tolerance and understanding of voice hearing, visions, tactile sensations and other unusual experiences. www.hearingvoices.org

3. Patient Information Centre: Offers free self-help leaflets on various aspects of mental health, including abuse, voice hearing, sleep problems, low mood, and anxiety. Many titles are available as audio downloads in addition to written leaflets www.ntw.nhs.uk/pic/?p=selfhelp

4. Jacqui Dillon: The website of Jacqui Dillon, a writer and speaker with professional and personal experience, awareness and skills in working with trauma, abuse, dissociation, hearing voices, and recovery. www.jacquidillon.org/

5. National Paranoia Network: An organization aimed at service users, professionals and family members providing guidance on how to understand and cope with paranoid feelings and beliefs. www.nationalparanoianetwork.org

6. National Self-Harm Network: Offers support, empowerment and education around the experience of self-injury. www.nshn.co.uk/

7. First Signs. A user-led voluntary organisation that raises awareness about self-injury and supports and inspires those who self-harm to work towards recovery. www.firstsigns.org.uk/

8. Many Voices: Website offering resources to people recovering from child abuse or severe trauma, including solutions to overcome flashbacks, dissociation, self-injury and other indications of a painful past. www.manyvoicespress.org/

9. HAVOCA (Help for Adult Victims of Child Abuse): Provides support, friendship and advice for any adult who has life has been affected by childhood trauma. www.havoca.org/HAVOCA_home.htm

10. Support Line: Provides guidance and resources for adult survivors of childhood abuse. www.supportline.org.uk/problems/child_abuse_survivors.php

Telephone Helplines

Coping With Traumatic Events

- **ASSIST (Assistance, Support and Self-Help In Surviving Trauma)**

A registered charity offering confidential, emotional and practical support to individuals and families affected by trauma.
Tel: 01788 560800
Opening Times: 10am-4pm , Monday-Friday

- **RASASC (Rape and Sexual Abuse Support Centre)**

Helpline for female and male survivors of rape or sexual abuse, as well as their friends, family, partners or anyone who has concerns about recent or past sexual violence.
Tel: 01483-546400
Opening Times: 7.30pm-9.30pm, Sunday-Friday

- **NAPAC (National Association for People Abused in Childhood)**

A registered UK-based charity providing support and information for survivors of childhood abuse.
Tel: 0800 085 3330
Opening Times: Monday (10am-8pm), Tuesday (10am-1pm & 6pm-9pm), Wednesday- Thursday (10am-4pm & 6pm-9pm), Friday (10am-6pm)

- **Keighley Domestic Violence Services**

A registered charity providing long-term emotional and practical support for those who have ever been affected by violence within the home.
Tel: 01535 210999
Opening Times: Monday – Friday (9am-5pm)

Helplines for Women

- **Bristol Crisis Service For Women**

Helpline for women in emotional distress, particularly women who self-injure.
Tel: 0117 925 1119
Opening Times: Fridays and Saturdays 9.00pm – 12.30am, Sundays 6pm – 9pm

Helplines for Men

- **Calm**

A confidential line offering support and advice to any men who need to discuss their problems.
Tel: 0800 58 58 58
Opening Times: 5 pm - 3 pm every day

Hearing Voices

- **The Hearing Voices Network**

A confidential helpline, run by voice hearers, which offers support and advice to anyone who experiences voices, visions or other unusual sensations.
Tel: 0845 1228642
Opening Times: 1-4 pm every Tuesday

<u>General Mental Health Support</u>

- **Guideline**

A confidential helpline providing support, befriending and information to anyone experiencing mental distress.
Tel: 01274 594594
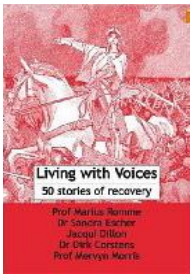**Opening Times**: 12 noon – 9 pm every day

- **The Samaritans**

Offers a confidential listening service for anyone who needs to talk about their problems.
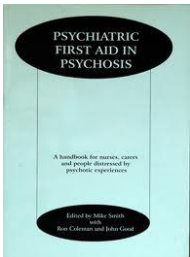**Tel**: 01274 547547 or 08457 90 90 90
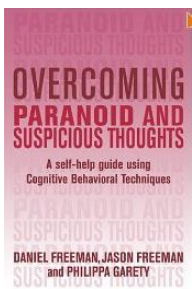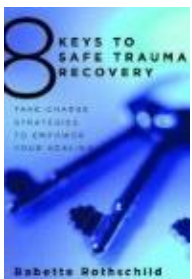**Opening Times:** 24 hours a day, 365 days a year

Books

Romme, M., Escher, S., Dillon, J., Corstens, D., & Morris, M. (2009). *Living With Voices: 50 Stories of Recovery*. Ross-on-Wye: PCCS Books
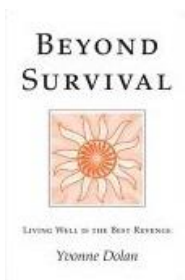
Smith, M., Coleman, R. & Goodman, J. (2003). *Psychiatric First Aid in Psychosis*. Fife: P&P Press.
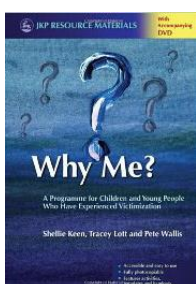
Freeman, D., Freeman, J., & Garety, P. (2008). *Overcoming Paranoid and Suspicious Thoughts*. London: Robinson Publishing.

Rothschild, B. (2010). *8 Keys to Safe Trauma Recovery: Take-Charge Strategies to Empower Your Healing*. New York: W. W. Norton.

Dolan, Y. (2000). *Beyond Survival: Living Well is the Best Revenge*. BT Press: London.

Keen, S., Lott, T., & Wallis, P. (2008). *Why me? A Programme for Children and Young People who Have Experienced Victimization*. London: Jessica Kingsley Publishers.

APPENDIX C5

Researcher: Eleanor Longden

Address: Institute of Psychological Sciences
              University of Leeds
              Leeds, LS2 9JT

Telephone: 0782 455 3926
E-Mail: psc3ejl@leeds.ac.uk

UNIVERSITY OF LEEDS

_____ 2012

RE. Dissociation, Adverse Life Events, and their Associations with Voice Hearing in Young Adults Experiencing First-Episode Psychosis

Dear _____

Thank you again for your support and assistance in this research project. Further to our previous meeting, I would like to inform you that your client _____ has agreed to take part in the study. As we discussed, this will involve them completing a copy of *The Dissociative Experiences Scale*, *The Depression Anxiety Stress Scale*, and *The Life Stressor Checklist*. If _____ identifies him/herself as a voice hearer, he/she will also be asked to complete *The Beliefs About Voices Questionnaire*, the auditory hallucinations subscale of the *PSYRATS* and *The Early Sexual Events Checklist*. The results from the study will be treated in confidence. However, if _____ requests me to share the responses to the measures, I will contact you again to arrange this. In addition, _____ has been made aware that in the event of any immediate risk issues, I will need to inform you of my concerns. All participants in this study will receive a sheet describing relevant support agencies, coping resources and recovery literature, and I have enclosed a copy of this in the event of your client wishing to discuss the content with you.

After review by The National Research Ethics Service (Yorkshire & The Humber – Leeds East), it has also been recommended that the client's GP is informed that they have participated in this project..

Thank you again for your time, and please do not hesitate to contact me if you have any further questions or comments. Alternatively, you are welcome to contact the academic supervisor for this study, Prof. Allan House, on 0113 343 8005 or at a.o.house@leeds.ac.uk.

Yours Sincerely

Eleanor Longden

APPENDIX C6

Researcher:	Eleanor Longden
Address:	Institute of Psychological Sciences University of Leeds Leeds, LS2 9JT
Telephone:	0782 455 3926
E-Mail:	psc3ejl@leeds.ac.uk

UNIVERSITY OF LEEDS

_____ 2012

RE. Dissociation, Adverse Life Events, and their Associations with Voice Hearing in Young Adults Experiencing First-Episode Psychosis

Dear Doctor _____

I am writing to inform you that _____ (DoB:_____) has agreed to participate in the above study, which is being conducted as part of a PhD qualification at the University of Leeds. The study has received full ethical approval from The National Research Ethics Service (Yorkshire & The Humber – Leeds East) and management permission from Bradford District Care Trust. In addition to _____'s consent, their care coordinator _____ was also agreeable to them taking part in the project.

Thank you for your time in reading this letter, and please don't hesitate to contact me if you have further questions. Alternatively, you are welcome to contact the academic supervisor for this study, Prof. Allan House, on 0113 343 8005 or at a.o.house@leeds.ac.uk.

Yours Sincerely

Eleanor Longden

cc.   Dr. Anita Brewin
        Clinical Lead
        Bradford and Airedale Early Intervention Service

APPENDIX D1

Researcher:	Eleanor Longden
Address:	Institute of Psychological Sciences
	University of Leeds
	Leeds, LS2 9JT
Telephone:	0782 455 3926
E-Mail:	psc3ejl@leeds.ac.uk

UNIVERSITY OF LEEDS

_____ 2013

Study Title: Dissociation, Adverse Life Events, and their Associations with Voice Hearing in Young Adults Experiencing First-Episode Psychosis

PARTICIPANT INFORMATION SHEET

Before you decide whether to take part in this study, we want to tell you about the project and what you can expect to happen if you decide to participate. Please read the following information carefully, and use the named contact at the top of this form if you have any questions that are not answered below. Please take as much time as you need to make up your mind. Thank you for reading this.

Who is running this research?
This project has been organised as part of an educational research project (PhD) at the University of Leeds.

What is the purpose of this research project?
Hallucinations are vivid sensory experiences that have no objective origin, such as visions ('seeing things'), and hearing voices when no one is there. We are interested in understanding how the content of some hallucinations may be influenced by life events, including traumatic ones like childhood abuse.

What will happen if I participate?
If you decide to take part, you will be given a questionnaire containing 38 brief descriptions of different types of hallucination. These statements have been provided by a group of young adults, some of whom have experienced sexual abuse. For each statement, you will be asked to tick a yes/no box to indicate whether you think the statement was made by a sexual abuse survivor, based on the content of the hallucination. The questionnaire will take approximately five minutes to complete. A number of the items contain explicit descriptions that some people may find distressing, and you may like to consider this when deciding whether or not to participate.

What if I agree to take part then change my mind?
You are free to leave the study at any point, or to leave some of the questions blank, without needing to give a reason. On the other hand, if you decide you'd like to withdraw after completing the questionnaire, you can contact Eleanor Longden using the email address or phone number at the top of this sheet. Each questionnaire is

labelled with a unique code, and you will be able to quote this so that your data can be identified and removed.

Will my answers be confidential?
Yes. No personally identifiable information will be written down or stored with your answers. Similarly, it will not be possible to identify you in any reports or publications about the research.

If I decide to participate, how do I return my questionnaire?
You can return the completed questionnaire to the person who gave it to you, or if you prefer to return it anonymously, you can post it to Eleanor Longden using the address at the top of this form.

How will my results be used?
At the end of the study, your anonymous responses will be analysed to determine the extent to which different people rate hallucination content to be related to sexual abuse. They will ultimately be published within a research report (PhD). It is possible that these results will be submitted for publication in an academic journal. If you are interested in finding out more about this, please let us know so we can keep you informed of this process. You are also very welcome to contact us at any time if you would like to be told about the findings and conclusions of the research.

Who has reviewed this study?
The research has been approved by the ethics committees at the University of Leeds.

Contact for further information
Thank you for taking the time to read this sheet. We hope that it has provided you with enough information to help you make up your mind about taking part in the study. However, if you would like to discuss anything further, please do not hesitate to get in touch with Eleanor Longden using the details at the top of this letter. Alternatively, you can contact the academic supervisor for this study, Prof. Allan House, on 0113 343 8005 or at a.o.house@leeds.ac.uk.

APPENDIX D2

Researcher: Eleanor Longden

Address: Institute of Psychological Sciences
                University of Leeds
                Leeds, LS2 9JT

Telephone: 0782 455 3926
E-Mail: psc3ejl@leeds.ac.uk

UNIVERSITY OF LEEDS

CONSENT FORM

Title of Project: Dissociation, Adverse Life Events, and their Associations with Voice Hearing in Young Adults Experiencing First-Episode Psychosis

Name of Researcher: Eleanor Longden

Please initial box

1. I confirm that I have read and understood the participant information sheet (version 2, dated 01/10/13) explaining the above research project. ☐

2. I have had the opportunity to ask questions about this study and have had these answered satisfactorily. ☐

3. I understand that taking part is voluntary and that I am free to withdraw at any time without needing to give a reason. ☐

4. I understand that the questionnaire contain explicit descriptions in relation to sexual abuse that may be distressing. I understand that I am free to stop answering the questionnaire at any time and am free to leave any questions blank without having to give a reason why. ☐

5. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymous responses. I understand that my name will not be linked with the research materials, and that I will not be identified or identifiable in the reports that result from the study. ☐

6. I agree to take part in the above study. ☐

_____   _____   _____
Name of participant (block capitals)   Signature   Date

_____   _____   _____
Researcher   Signature   Date

APPENDIX D3

Researcher:	Eleanor Longden
Address:	Postgraduate researcher Institute of Psychological Sciences University of Leeds Leeds, LS2 9JT
Telephone:	0782 455 3926

UNIVERSITY OF LEEDS

Dissociation, Adverse Life Events, and their Associations with Voice Hearing in Young Adults Experiencing First-Episode Psychosis

Hallucinations are vivid sensory experiences that do not have an objectively real source. For example, people may see things when there is no one there ('visual hallucinations,' 'seeing things'), hear things when there is nobody speaking ('auditory hallucinations,' 'hearing voices'), or taste, smell, or feel things that are not real. For some people, the content of hallucinations can be related to, or influenced by, things that have happened to them earlier in their lives. This can include traumatic experiences, like abuse.

This questionnaire contains descriptions from young adults who experience different types of hallucinations (visual, touch, smell, and taste). Some of them have been sexually abused in childhood, and some have not. We would like to know which of the statements you think comes from a person who has experienced sexual abuse. For each statement, please tick YES ("I think this person has experienced sexual abuse") or NO ("I do not think this person has experienced sexual abuse").

If you decide you do not want to finish the questionnaire, please feel free to stop at any time. Once you have completed it, please return it to the person who gave it to you. If you prefer to return the questionnaire anonymously, please post your responses to Eleanor Longden using the address at the top of this page.

Thank you

1) About You

Are you: Female ☐ Male ☐

Please write your age here: _____

2) Visual hallucinations

	YES	NO
"I see human shadows."		
"Every Sunday night, vampires come into my bedroom. I see their shadows coming towards me and sometimes blood on my duvet cover."		

"I see colours and sparks, like a kaleidoscope."		
"I see monsters – orcs, goblins, things like that. Once I saw the grim reaper."		
"I see floating things, a bit like cobwebs, although they're not cobwebs."		
"I sometimes see my Imam *[Muslim cleric]*, who died last year."		
"I see ghosts. They have human shadows."		
"I see a male demon and two female demons without faces…" *[participant describes demons talking to her]*.		
"I once saw puppets from the *Spitting Image* TV programme."		
"I see faces, hovering, with no bodies, and sometimes human figures."		
"I see an old man in a leather apron. He has wings."		
"People's faces change and they briefly look like monsters."		
"I see bright flashes of colour – patterns and lights."		
"Sometimes I see blood on my thighs and hands, then the next minute it's gone."		
"I see animals, especially snakes, but they sometimes have human faces."		

3) Hallucinations touch/physical sensations

	YES	NO
"I sometimes feel hands prodding the back of my head."		
"I feel myself being raped by jinn *[a type of demon]*."		
"I feel angels and saints touching me to bless me."		
"I feel fingers on my arms, like someone playing the piano."		
"My voices *[auditory hallucinations]* take human form and try to impregnate me. I feel penetration but I can't touch their bodies to make them stop."		
"I feel my voices *[auditory hallucinations]* pricking me with pins, all over my arms and back."		
"I sometimes feel weights pressing on my chest when I lie in bed, so I		

can't breathe."		
"I feel electric shocks."		
"I feel something crawling over my legs when I'm in bed."		
"I feel someone touching me but when I look round no one is there."		
"I sometimes feel something crawling over me, like insects."		
"I have sometimes felt electricity in my body."		
"I feel myself being been raped by the Devil."		
"I feel that there is something scratching and crawling underneath my skin."		

4) Hallucinations involving smells

	YES	NO
"When I leave the house, I often start to smell burning."		
"When I'm on my own I sometimes get a sewage-like smell, but not if I'm with other people."		
"I smell gas all the time. I worry about an explosion."		
"I can smell sweat on myself, even though I know it's not mine."		
"I am sure I can smell dead bodies."		
"I smell fried food, like stale grease."		
"I smell tyres being burnt before the voices [*auditory hallucinations*] start."		

5) Hallucinations involving taste

	YES	NO
"I get a metallic taste in my mouth."		
"I can taste semen, as if my mouth is being raped. I put lit matches in my mouth to get rid of it."		

Withdrawing your data

The number of this questionnaire is____. If you change your mind about participation, please contact Eleanor Longden (psc3ejl@leeds.ac.uk) any time before November 25th 2013 and quote this number so that your data can be identified and destroyed.

If you have been affected by any of the issues raised in this questionnaire, you may find the following organisations helpful:

HVN (Hearing Voices Network): Offers information, support and understanding to people who hear voices, their friends, and their family members. It also aims to promote awareness, tolerance and understanding of voice hearing, visions, tactile sensations and other unusual experiences. www.hearingvoices.org

HAVOCA (Help for Adult Victims of Child Abuse): Provides support, friendship and advice for any adult who has been affected by childhood trauma. www.havoca.org/HAVOCA_home.htm