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Hearing Voices: the impact of emotion, interpersonal relating and beliefs about voices, on people who hear voices (that other people do not hear)

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Declaration

I, Linda Hayward, declare that this thesis was written by me and that I conducted the work detailed herein. This work has not been submitted for, or accepted in, any previous degree.

Signature……Date…….
Linda Hayward August 2010

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TABLES

FIGURES

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ABSTRACT

Background

Beliefs about voices, their origin, intent and powerfulness can all impact on the voice hearer, their level of distress and their need for help. Interpersonal difficulties can exacerbate distress and be reflected in the person's relationship with their voices. Emotion regulation strategies, which may be functional or dysfunctional help the person manage their reaction. This study aims to investigate beliefs about voices, symptoms and interpersonal issues as well as how well these areas predict emotion regulation strategies

Methods

Two groups of participants (18 with low and 16 with high omnipotence scores) were recruited through their mental health workers. The participants completed six self-report measures that assessed beliefs, emotion regulation strategies, interpersonal difficulties, dimensions of voice hearing and symptoms.

Results

Omnipotence scores differentiated some of the interpersonal issues and only one symptom subscale (phobic anxiety); those who scored high on the omnipotence subscale experienced more difficulties. For the emotion regulation subscales, lower omnipotence scorers differed significantly from the higher omnipotence scorers, using more external functional and dysfunctional strategies. Regression analysis showed that 'distress'

incorporating the PSYRATS emotion subscale, the BSI grand total and the IIP-32 total predicted the use of dysfunctional emotion regulation strategies, but omnipotence beliefs did not add much to this.

Conclusions

Overall voice hearers experience a range of beliefs about their voices. Those with higher omnipotence beliefs find it difficult to socialise, be involved with other people, and are too dependent and caring with reference to other people. Omnipotent beliefs did not, in general, differentiate symptoms or emotion regulation strategies. This would suggest that beliefs may not be what determines distress and subsequent help seeking. Distress and interpersonal issues predict the use of emotion regulation strategies with little being added to the prediction by omnipotent beliefs; this suggests that there may be an alternative to the single symptom approach. Further research is required to assess the contribution made by emotion regulation to the development, maintenance and course of voice hearing. Assessment and interventions with reference to emotion regulation also require investigation.

CHAPTER 1: Introduction

1.1 Background

Hearing voices is often considered a symptom of mental illness; in particular it is often associated with distress, dysfunction, and a diagnosis of schizophrenia. Voices are often, in clinical settings, referred to as 'auditory hallucinations', which are defined as 'a sensory perception that has the compelling sense of reality of a true perception but that occurs without stimulation of the relevant sensory organ' (APA, 1994, p767). They can also be further characterised as internal cognitive events that are misattributed to an external source (Baker & Morrison, 1998; Morrison, 1998).

However, there are people with different diagnoses, and some without any mental health needs who experience voices. People with these various diagnoses may have little in common, and sometimes manifest no overlapping symptoms as others with the same diagnosis (McGovern & Turkington, 2001). This diversity results in an unpredictable course and prognosis, uncertainty about how the diagnosis will effect the functioning of the person who has been give the mental illness label and often leads to treatment which is ineffective. One solution to this is to explore a single symptom approach in the form of hearing voices.

However, even looking at a single symptom does not guarantee homogeneity. Some people who hear voices are not known to services and experience minimal distress. They may actively engage with their voices. Other people experience distress or impairment in functioning which

necessitates help seeking and initiates them into the mental health system. At this time they may receive a diagnosis. A single symptom approach therefore needs to address some of the discrepancy in help seeking behaviours and explore the mechanisms that result in impaired functioning.

Although a diverse group, voice hearers have developed beliefs about their voices, and have learned to cope with emotions, and with behaviours associated with their thoughts and experiences. Hearing voices can be a personal and powerful experience that is capable of eliciting emotional and behavioural responses (Hayward, 2003).

The similarities between voice hearers may help with the development of treatment. The differences could help to tune that treatment based on elements that suggest where the differences require an alternative approach.

Gude *et al.* (2000) suggest a 'need for a multidimensional approach in theoretically based clinical assessments and case formulations' (p297). This can also apply to experiences of voice hearing. This study therefore will explore patterns of basic symptoms, beliefs about voices, emotion regulation strategies, interpersonal domains, and the characteristics of the voice hearing experience. It will also explore the evidence for an approach that considers the person's presenting symptoms in order to develop a formulation that takes into account the multiple dimensions interacting within an individual's life, rather than trying to fit the person into their diagnostic criteria.

1.1.1 Hallucinations

Hallucinations are involved in many fields of pathology (Ohayon, 2000) and occur in many forms. These include visual hallucinations, auditory hallucinations (voices and noises), haptic hallucinations, gustatory hallucinations, hypnagogic (hallucinations experienced upon falling asleep) and hypnopompic (hallucinations experienced upon waking) hallucinations (Ohayon *et al*. 1996). Hallucinations can also be considered clinical or sub-clinical. Sub-clinical hallucinatory type experiences, such as thoughts, memories or day dreams are similar to hallucinations (they are vivid, intrusive), but different in that they are recognised as being of self origin (Paulik, Badcock & Maybery, 2006). A full review of hallucinations is beyond the scope of the present paper; however hallucinations with elements of voice hearing are discussed below and in subsequent sections.

Laroi and Van der Linden (2005) investigated hallucinatory experiences in a sample of 236 college students. They used a modified version of the Launay-Slade Hallucination Scale. The results show potentially five factors representing hallucinations: sleep-related hallucinatory items; vivid daydreams; intrusive or vivid thoughts; auditory hallucinations; and visual hallucinations. These factors were also linked to affect and perceived controllability. Participants perceived the experience as negative, when they believed they had less control with reference to stopping the hallucinations or preventing them from reappearing.

Auditory hallucinations are described in more detail in the various sections that follow, but there are other auditory hallucinatory experiences that are encountered by clinical and non-clinical populations.

Hypnagogic and hypnopompic experiences include visual and auditory hallucinations as well as the sense of an 'evil presence' and sensations such as choking, floating and flying (Cheyne, Rueffer & Newby-Clark, 1999b). These experiences are often accompanied by a sense of intense fear. Some of the experience of these sensations may be based on the interpretation of the phenomena, which has links to the person's past, possible trauma or victimisation. The associated fear could lead to increased vigilance and an increased search for information to make sense of the experience (Cheyne, Newby-Clark & Rueffer, 1999a). These hallucinations have similarities with hallucinations in other contexts (Woody & Szechtman, 2000). It is possible that 'the attention of people prone to hallucinations may be more affectively laden than those of nonhallucinators and such affective links to the anterior attentional systems direct subjects' attention to an external frame of reference and to subsequent misattributions of the source of affective arousal' (Cheyne *et al*. 1999b, p332). This suggests an attentional bias (section 1.3.3) and a contribution of emotion reaction in the hypnagogic and hypnopompic hallucinations which are also present in general voice hearing.

Ohayon (2000), using a large sample from 3 countries found that hallucinations can be triggered by a number of conditions, not solely as a result of psychosis. They also demonstrate that certain hallucinations, like

hypnagogic and hypnopompic hallucinations can be considered normal phenomena. Increased fear in the case of hypnagogic hallucinations increases the risk of associated mental disorders. Although voice hearing is only one of the possible experiences linked with hallucinations when falling asleep or waking, including hypnagogic and hypnopompic auditory hallucinations ensures that as many potential voice hearers are included. It also makes sure that the full experience of voice hearing is investigated and not only the cases where the person has a diagnosed mental health problem. Investigating hypnagogic and hypnopompic hallucinations could clarify differences in the interpretation, sense of reality and emotional consequences for between those who experience these hallucinations and those who experience more pathological hallucinations. As the current study is investigating the voice hearing experience across the diagnostic spectrum and in those who have no diagnosis, these sleep related hallucinations were not excluded.

1.1.2 Voice hearing across the spectrum

Psychotic symptoms, which include delusions and hallucinations, are present in depression (Freeman & Garety, 2003), bipolar disorder (Baethge *et al.* 2005), schizophrenia (Perona Garcelan, 2004), and personality disorder (Benvenuti *et al.* 2005). Benvenuti *et al.* (2005) suggest that narrowly defined psychotic symptoms are present in about 24% of Borderline Personality Disorder (BPD) patients, with about 75% of BPD patients experiencing paranoid ideation or stress-related dissociative symptoms.

There is evidence to suggest that one particular psychotic symptom, namely voice hearing, is experienced across diagnostic categories.

Many patients diagnosed with schizophrenia (about 75%) experience voices (Bentall 2003), possibly suggesting that hearing voices is unique in schizophrenia. Alternatively, psychiatrists faced with a voice hearer may be primed to locate their diagnosis on the schizophrenia spectrum. But there is evidence that voice hearing occurs within other diagnostic categories.

Bipolar disorder, although considered a mood disorder, has symptoms that include psychotic features, such as hallucinations and delusions (Baethge *et al.* 2005). Relatively little is known about hallucinations in bipolar disorder and any differences in their hallucinatory experience in relation to other diagnoses.

Baethge *et al.* (2005) researched 4972 hospitalised patients to investigate hallucinations. The prevalence of hallucinations among bipolar patients was 11.8%, and auditory hallucinations were the most prevalent type. As 'psychotic features, in general, are associated with a less favourable course and outcome' in bipolar disorder (Baethge *et al.* 2005, p143), this may be the case in other disorders. This study, addressing some of the limitations of previous studies, suggests that the hallucinations are less severe for those with bipolar disorder. It highlights the characteristics of hallucinations in bipolar disorder, schizophrenia, and depression. However, the results are for patients who are hospitalised. Many patients who hear voices are not

hospitalised, but manage to cope with their voices. Therefore, identifying contributory factors and coping strategies could help identify which course of action could alleviate some of the early distress and reduce the impact of these symptoms.

Suzuki *et al.* (1998) demonstrated that delusions and hallucinations occurred in patients with BPD and lasted from days to a year. In addition, these symptoms recurred. Where auditory hallucinations occurred, this happened when the person was isolated and did not communicate with others. All their patients had problems coping with their environment and relationships. Although the number of participants in the Suzuki *et al.* (1998) study was small, their results accord with other research described in their article. When the patients experienced their hallucinations, they also experienced anxiety and fear and avoided interpersonal relationships. If the experience of interpersonal difficulties, anxiety and fear are present for the participants in this study, it may be the case for other people who hear voices.

Depression has been implicated in the reaction to psychosis (Birchwood *et al.* 2000), however, depression may occur after recovery from an acute schizophrenic episode and occur independently of the schizophrenic symptoms. It may be the case that depression (which can be present before symptoms, while they are at their most distressing, after recovery, and prior to relapse (Freeman & Garety, 2003)) could be associated with inappropriate or dysfunctional emotion regulation strategies.

Hustig and Hafner (1990) found that depression was linked with voices that were more intrusive and distressing. The results of the Soppitt and Birchwood (1997) study show that derogatory voice content is associated with depression, with higher levels of depression being evident in those with malevolent hallucinations. The evidence suggests that beliefs about voices are connected with depression. They also demonstrate a link between elements of the voice, beliefs and attempts to cope. They suggest that 'subjects with malevolent beliefs and/or resistance coping strategies were significantly more depressed than those with benevolent and/or engagement behaviours' (p529).

Anxiety may also been implicated in the development and maintenance of psychosis (Morrison & Wells, 2007). Paulik *et al*. (2006) suggest that anxiety may be related to predisposition to hallucinate. Allen *et al*. (2005), in their study found that anxiety was the strongest predictor of hallucinatory experiences. Some of the behaviours and processes related to anxiety are also present in the experience of hallucinations (Morrison & Wells, 2007) and in healthy individuals predisposed to hallucinations (Paulik *et al*. 2006). This has implications for treatment as it may be necessary to address anxiety as well as the hallucinations (Paulik *et al*. 2006).

Many of the studies focus on diagnostic categories, but voices seem to be a symptom that is not restricted to the psychiatric population.

1.1.3 Summary

Voice hearing 'may be experienced in a range of mental disorders such as schizophrenia, depression, mania, post-traumatic stress disorder as well as drug withdrawal or intoxication, metabolic disorders, and during periods of high stress, deprivation of sleep or sensory stimulation' (Lakeman, 2001, p523-524). Not all who experience voice hearing have contact with psychiatric services (Johns & van Os, 2001). Voice hearing also occurs against the background of beliefs, interpersonal interactions and emotional reactions. These elements seem to be integral in the different stages of the voice hearing experience.

1.2 Dimension or continuum of symptoms

'The symptoms of psychosis have been found to be on a dimension with normality and to occur in non-clinical populations' (Freeman & Garety, 2003, p925). According to Moritz and Laroi (2008) auditory hallucinations cannot be equated with severe mental illness. The results of their study report that up to 15% of their healthy participants heard voices, and about the same rate was reported in those with obsessive compulsive disorder. Rössler *et al.* (2007) found high rates of psychotic symptoms in their population study.

Bentall (2003) and Read, Mosher and Bentall (2004) have amalgamated evidence regarding the 'failed category' of schizophrenia. They discuss the lack of reliability and validity of the category. They also demonstrate that the symptoms of the disorder overlap and therefore discrimination between the symptoms of various disorders is lacking. It is also difficult to predict the

outcome, course, response to treatment or the aetiology of those diagnosed with schizophrenia. Boyle (2007) proposes that 'people's actual behaviour and emotions do not easily fit diagnostic categories' (p290). Bentall (2006) suggests a 'complaint-oriented' approach that considers the specific symptoms with which patients request help.

Johns *et al.* (2004) surveyed 8580 people and found that 5.5% of the British population experienced items on the Psychosis Screening Questionnaire (PSQ). An important adjunct to this study was that those from the general population who reported one or more items from the PSQ had some demographic and clinical similarities to those experiencing psychosis. This included substance misuse, victimisation and recent stressful life events. This highlights the similarities between clinical and non-clinical populations and supports the proposal that pathology is represented on a continuum.

There is also evidence to suggest that between 10 and 37% of people in normal populations experience auditory hallucinations (Davies, Griffin & Vice, 2001: Morrison, Wells & Northard, 2000), and in the absence of psychiatric illness, people still hear voices (Romme & Pennings, 1994; Tien, 1991). These voices do not always lead to distress and can have a positive functional effect.

There are also areas where there are diagnostic conundrums (Morgan & Fisher, 2007). For example, some psychotic symptoms can be present in people with a diagnosis of PTSD, but there is also evidence of PTSD in

patients diagnosed with psychotic disorder. This suggests that the diagnostic categories overlap (McGovern & Turkington, 2001) and do not distinguish pure disorders. Added to this, not all who hear voices are distressed by them.

1.2.1 Positive experiences of voice hearing

The voices that patients describe may not always be negative, rather they may have a positive quality and the patient may not want these voices to be alleviated with treatment (Bentall, 2003). In some cases the voices are experienced as protective, non-threatening and controllable (Yee *et al.*, 2005). For some patients the voices may fill the gap in impoverished social networks.

The distress attached to hearing voices is to some extent influenced by cultural beliefs (Lakeman, 2001). Some cultures revere hallucinations whereas western culture associates hearing voices with mental illness (Jones, Guy & Ormrod, 2003) and something that is distressing and debilitating worthy of medical intervention. The conceptualisation of voices as part of a biomedical symptom, conveys the impression that the voices are inherently meaningless. However, this is not the case for those cultures where hearing voices has meaning and can have divine implications. The results from the Davies *et al.* (2001) study demonstrate that auditory hallucinations can be viewed positively, especially within religious groups.

1.2.2 Summary

It therefore appears that it is difficult to associate voice hearing with mental illness. Rather voice hearing lies on a continuum, and similarly to disorders of anxiety and mood, clinical help is necessary when the symptom interferes with functioning or causes distress. The distress and help-seeking behaviour seems to be influenced by the person's interpretation of the phenomena they experience.

Bentall (2003) points out that 'it is not necessary to assume that everyone who experiences a hallucination is suffering from an illness' (p353). There are many people who experience hallucinations at some time in their lives (Johns & van Os, 2001), and the reports of voice hearing are not linked to psychopathology. Furthermore, it seems that the rate of voice hearing causing distress or loss of function was lower than the reported rates of impairment or distress (Johns & van Os, 2001).

1.3 The phenomenon of voice hearing

Auditory hallucinations (of which voice hearing is part) are a diverse phenomena and 'involve single and/or multiple voices, who may be known and/or unknown, speaking sequentially and/or simultaneously, in the first, second, and/or third person and which may give commands, comments, insults, or encouragement' (Jones, 2010, p566). Voice hearers may have relationships with their voices that change over time (Vaughan & Fowler, 2004).

If we accept the suggestion that instances of auditory hallucinations may be withheld from notes as people fear they will receive a diagnosis of schizophrenia, then it is possible that the estimates for borderline patients (Yee *et al.* 2005) and other diagnoses may be much higher than those reported.

There is therefore a significant number of people with various diagnoses that hear voices, however, much of the research focuses on voice hearing in schizophrenia. Few studies investigate voices across the spectrum, although some do compare schizophrenic voice hearers with voice hearing in a community sample. The large effect sizes demonstrate differences between schizophrenia and voice hearers who have not been so distressed by their voices that they have needed to seek help. It remains to be established if there are substantial differences in voices hearers who have sought help and who have obtained a diagnosis.

1.3.1 Development and maintenance of voices

Garety *et al.* (2001) discuss their cognitive model of the positive symptoms of psychosis; these positive symptoms include voice hearing and delusions. This model incorporates a biopsychosocial origin with an interaction of early life events, emotional changes, disruptions in cognitive processes, perceptions and judgements, which lead to symptoms.

In their Cognitive model of the positive symptoms of psychosis, Kuipers *et al.* (2006) incorporate neurobiological, psychological and social levels to explain pathways in the development and maintenance of the symptoms. They further recognise the central role of emotion. People can develop a vulnerability to voices through a biological predisposition, which is triggered when there are other sufficient conditions that are met.

These conditions can be a combination of a disruption in cognitive processes, sensory anomalies, memory irregularities, difficulties with monitoring of attention, emotional changes and interpersonal issues and isolation. These can interact with early adverse experiences that leave the person with maladaptive regulation and coping strategies. Beliefs about events are developed and maintained by the combination of processes, leaving the person vulnerable during times of adverse stress or emotional distress. This suggests that it is a person's appraisal of an experience as 'unusual' that leads to symptoms. This appraisal has roots in combinations of the person's biological make-up, their early and current social environment as well as cognitive dysfunctions. Elements of this process are detailed below.

1.3.2 Cognitive disturbances

Baker and Morrison (1998) suggest that there is consensus regarding voices being internal events that are misattributed to an external source, however

there is debate around voices being due to either a cognitive deficit or a cognitive bias.

1.3.2.1 Cognitive deficits

Bottom-up characteristics are based on the assumptions that there is physiological dysfunction, or damage to areas of the brain that facilitate identification of agency (Stirling, Barkus & Lewis, 2007). According to one view discussed in Moritz and Laroi (2008) hallucinations arise through some form of sensory dysfunction. Neuropsychological models assume that the brain processes information similarly to a computer (Frith, 1992). These models integrate neurological and cognitive explanations.

There is some evidence that hearing voices may be associated with problems in inner speech (Stip & Letourneau, 2009). Lakeman (2001) discusses evidence for information transfer errors between the hemispheres of the brain. He also presents research investigating the process of speech production, which supports the notion that hallucinations are a type of inner speech that is misattributed to an external source. Treatments that interfere with the internal speech process have been shown to successfully reduce the intensity of hallucinations for many people (Morrison *et al.* 2008).

Neuroimaging data support the hypothesis that patients voices arise when inner speech is misattributed to a source that is external to the self (Bentall, 2007). This suggests either inner speech discrimination difficulties and / or

impairment in source monitoring. This also fits with metacognitive beliefs leading to poor self-monitoring.

However, some patients hear accents from their voices. Added to this, studies have not found differences between those who experience voices and those who do not, with regards the pragmatics of inner speech. In response to this criticism, various models have been proposed that focus on rumination, which can be perceived to be inner speech. Moritz and Laroi (2008) found that voice hearing is more than a disorder of input; many of the participants in their study described the voices as quieter than an external voice.

Brain activation in sensory areas is only evident in a subgroup of patients. In addition, hallucinations can be personally and emotionally salient; therefore they are more than random phenomena. There also appears to be some evidence that the brain activation may be a consequence, rather than a cause of hallucinations. One neurological model suggests that language processes function hyperactively which results in strong perceptual representations of auditory images (Brebion *et al.* 2007). This accounts for some experiences of voice hearing, such as their unpredictability. Unfortunately there are gaps in the explanation as to the everyday focus of the voices or the reason for the voice often being directed at the individual.

The evidence would suggest that there are other aspects to hallucinations, in other domains, not accounted for in neurological models. Another explanation centres on biases in beliefs and reasoning.

1.3.2.2 Cognitive Bias

The top-down approach considers that beliefs and expectations can result in biases that lead to misinterpretation of ambiguous experiences (Stirling et al, 2007). One view of hallucinations focuses on 'faulty reasoning and metacognitive beliefs, rather than abnormalities in perceptual processing' (Moritz & Laroi, 2008, p97).

There are various theorists who have speculated about these misattributions. Some suggest that there is a deficit in aspects of cognitive functioning, while others consider there to be a bias in normal functioning. The first hypothesis proposes disruption in language production processes (David, 1994) or deficits in internal monitoring (Frith, 1992). The second explanation focuses on beliefs and expectations the person has about events leading them to misclassify internally generated events (thoughts) as externally generated (Bentall, 1990; Jones, 2010). This second account goes some way in explaining cultural differences in the experience of hallucinations (Morrison, 1998).

Having reviewed evidence from experimental designs, Morrison (1998) concludes that auditory hallucination may result from a bias in information processing. The biases in reasoning processes include jumping to

conclusions (Garety *et al.* 2001). This proposition follows from many people holding beliefs in ideas that are not based on evidence (telepathy, aliens). Once a belief is held, alternatives are often ignored. For those with psychosis, they tend to require less evidence before making a decision (Kuipers *et al.* 2006). Therefore voices are attributed to external events and information contrary to this is ignored. This process is made worse when these biased appraisal processes interact with negative emotional states.

The results of the Baker and Morrison (1998) study support the cognitive bias model, but not that of the cognitive deficits model. The groups (one group with a diagnosis of schizophrenia experiencing hallucinations; a second group with non-hallucinating schizophrenia: and non psychiatric control participants) did not score similarly on source monitoring tasks, which would have been expected if there were global deficits. However bottom-up influences could influence the biases. For all groups in the study, biases were magnified by emotionally salient stimuli.

According to Bentall (2006) ‘auditory hallucinations are the consequence of two processes: first, dysfunctional cognitive control strategies cause the hallucinating person to experience an intrusive and uncontrollable flood of inner speech; second, source-monitoring deficits cause this inner speech to be attributed externally’ (p224). It seems that this is one aspect of voice hearing, but there are other elements that interact in the voice hearing experience.

1.3.2.3 Memories and early experiences

Hearing voices has been proposed to be the result of memories being activated, or a problem with preventing memories of prior events. These difficulties result in intrusive thoughts. These intrusive thoughts occur in those with schizophrenia and in those who have no mental health issues. Waters *et al.* (2006) therefore suggest that there needs to be an added element that contributes to voice hearing. This involves confusing the context of the memory with current reality. These deficits are not evident in all hallucinating patients, but seem to be associated, with additional factors in those who hear voices (Jones, 2010).

The evidence that voices may be memories is available from the voice hearers of those who experience their voices as that of an abuser. Many patients who experience voices have a history of trauma and there is an increased rate of childhood sexual abuse in many psychiatric disorders (Friedman & Tin, 2007). Some of the connection between the voices and the trauma are not clear-cut, but are thematic. Some people who experience voices are not aware of connections between their voices and their past trauma (Jones, 2010).

Hearing voices may be a way of dealing with 'undigested events related to relationships and life events' (Jones *et al.* 2003, p190). It may also be that 'childhood sexual abuse and other early traumas increase the risk that individuals experience positive symptoms, and especially hallucinations' (Hammersley *et al.* 2003, p545). In bipolar affective disorder, childhood

sexual abuse (CSA) may have an impact on the profile of patients, increasing their vulnerability to hearing voices. However, CSA is not the only factor that results in vulnerability to voice hearing.

It may be that a certain type of voice hearing may be associated with trauma (Jones, 2010). If voices are critical or comment about current experiences, these may be the result of intrusions from the past. Therefore those voices that do not follow this pattern may have a different cause and implication for the person who hears them.

Some voices are dynamic and can be interacted with, answering questions. This does not suggest a simple memory. The memory explanation can account for some voices, but there are gaps in the theory, which suggest there are alternative explanations.

1.3.2.4 Thoughts

Some voices have differences with regards their perceived degree of reality (Moritz & Laroi, 2008). A number are considered pseudo-hallucinations and others can be viewed as ‘thoughts’. Several people also acknowledge that they have some control over their voices, which suggests that the voices may not all be alien or autonomous. Individuals also describe the voices as less clear than real voices; this weakens the idea that the voices are external input, and questions the reasons they are perceived as being authentic.

Another issue concerns the difference between thoughts, intrusions and voice hearing. It may be appropriate to include people who consider their 'voices' to be thoughts in research to establish any differences in their experiences.

Freud suggested that voices were the result of intra-psychic conflict (Jones *et al.* 2003). This conveys the role of meaning in voice hearing and the role they may play in expressing trauma, unacceptable motivations, or overwhelming emotions. This idea that voices may function as defences is incorporated in the cognitive idea of the voices being externalised mental events that would otherwise be perceived as a threat to the self.

The role of attachment is also important in the development of cognitive and emotional functionality (Bentall, 2006). It has been suggested that depression may be linked to parental criticism, neglect and abuse. This can result in negative beliefs about the self and the external environment.

1.3.2.5 Social interaction

When a person experiences voices, a relationship is established and this may take on the characteristics of other social relationships (Perona Garcelan, 2004) (discussed in section 1.8). This relationship consolidates the beliefs about the voices and the perceived power and controllability (discussed in section 1.5). The voices also evoke emotional responses (discussed in section 1.6) and reinforce the process.

Hoffman (2007) incorporates social isolation into his model. As a result of being deprived of normal conversation, the detection of complex verbal meaning is increased in the language detection system. The result is a filling in of the gaps. This model explains the relationships voice hearers have with their voices and can reflect the relationships they have with people in their social environment. The voices play a role in 'the personal and social network of the patient' (Perona Garcelan, 2004, p144).

The social isolation model does not go far enough in explaining the similarity between thoughts and some voices (Jones, 2010). Researchers have also found a relationship between hallucinations and neuroticism and point out the emotional instability experienced by voice hearers (Barrett & Etheridge,1994; Ramathan, 1986). These variables increase susceptibility when the individual encounters situations that are threatening, stressful or traumatic (Perona Garcelan, 2004).

1.3.3 Cognitive models

Many of the above ideas are incorporated in the cognitive models (Garety *et al.* 2001; Morrison, 1998) and in the formulation and consolidation process of hallucinations (Perona Garcelan, 2004). These models incorporate vulnerabilities from early experiences, triggers, stress and basic cognitive dysfunctions. These basic processes then feed into appraisals and biases that develop and maintain hallucinations. They also allow for the consideration of safety behaviours and the emotional responses.

The Self-Regulatory Executive Function (S-REF) model (Wells & Matthews, 1994) suggests that vulnerability to, and maintenance of, psychological disorders are associated with a cognitive-attentional syndrome. This syndrome is guided by metacognitive beliefs that direct attention, monitor threat, activate dysfunctional beliefs and fail to change maladaptive information (Morrison & Wells, 2003). Metacognitive beliefs are involved in vulnerability to mental health issues and implicated in the maintenance of the disorder. The same process could be operating for voice hearers. Beliefs about the uncontrollability and danger associated with thoughts have been found to be high in patients experiencing voices (Baker & Morrison, 1998).

Morrison and Wells (2003) investigated metacognitions as measured by the Metacognitions Questionnaire (MCQ) (Cartwright-Hatton & Wells, 1997) in three patient groups and one control group. Voice hearers with a diagnosis of schizophrenia, schizoaffective or schizophreniform disorder scored significantly higher than two of the three patient groups on positive beliefs about worry as well as negative beliefs about uncontrollability and danger, superstition, punishment and responsibility. The results add support to the claim that metacognitive concepts are evident in the development of auditory hallucinations.

Emotion has also been implicated in the development and maintenance of voice hearing. There seems to be a difference of opinion in recent theories regarding emotion and psychosis. Smith *et al.* (2006) suggest a difference of opinion where persecutory delusions are seen as a result of a psychological

defence against negative emotions; whereas other researchers claim that these negative emotions have a central, normal and direct role in the development of symptoms.

Within the cognitive models, there is acknowledgement of early adverse experiences, which can confer an enduring cognitive vulnerability as the person develops negative beliefs about themselves, others, and the world (Garety *et al.* 2001). These childhood experiences can lead to negative schema regarding subordination which can contribute to increased likelihood of voice hearing.

Smith *et al.* (2006) investigated the role that negative beliefs and emotion play in psychosis. Their findings suggest that low mood and negative schematic beliefs can lead to the development of psychotic symptoms. In their study, those with more depression and lower self-esteem experienced more severe auditory hallucinations and were more distressed by them.

Cognitive models also identify areas where treatment may be targeted (McGovern & Turkington, 2001). There is growing evidence that Cognitive Behaviour Therapy (CBT) may be useful in reducing negative beliefs about voices, reducing the distress, especially for people early in their psychotic experiences, reducing overall symptoms and improving social functioning (Penn *et al.* 2009). CBT would therefore help people cope with the emotional and behavioural consequences of the voice hearing experience.

These cognitive models allow for a focus on single symptoms, and demonstrate how these symptoms can be found in the general population and in those with psychiatric problems. They help to normalise the often distressing experiences encountered when voices are heard or when delusions are created. In this way they create an environment where the person who is vulnerable to the anomalous experiences can understand their symptoms within a continuum, and then identify which treatments will help them cope with their symptoms. It also allows families to understand the development and maintenance of the voice hearing within the context of a symptom that can occur under many circumstances and does not necessarily accord blame to the person or their family. In this way families, carers and the patient can work together to improve the functioning of the whole system.

1.3.4 Summary

The cognitive model is a useful way of formulating voice hearing. It recognises the multi-dimensional range of the contributing factors. The model recognises the interaction of biological, emotional and social factors that are evident in the voice hearing experience. This model moves away from the medical model that focuses on symptoms and toward viewing:

> 'the psychotic experiences as a product of an interaction of several psychological process dimensions. Further, most of these process dimensions, which include external attributions, threat appraisal, resistance to thoughts coupled with low self-esteem, and fluctuations in affective states, if taken separately, constitute also processes present in different degrees in nonclinical populations' (O'Connor, 2009).

What has been consistently observed is that there are cognitive abnormalities found in patients with a wide range of diagnoses (Bentall *et al.* 2007). What has become clearer is that positive symptoms, including voices are associated with emotion or emotion related psychological processes.

The cognitive model suggests that it is the beliefs about voices that lead to emotional and behavioural consequences (Andrew, Gray & Snowden, 2008) rather than the voices themselves (Lucas & Wade, 2001). Morrison *et al.* (2008) further suggest that what distinguishes clinical from non-clinical populations is how the thoughts are interpreted. Andrew *et al.* (2008) suggest that 'life events, particularly traumatic life events, could represent a mediating, or contributory factor in the development of beliefs about voices' (p1409). This could, in part, account for voices being heard in the general population as well as in psychiatric patients as many people experience traumatic events.

Where there seems to be a gap in the models is the consideration of emotion regulation strategies and their impact on the process of voice hearing. People, in general, experience a wide range of emotions, as do voice hearers. If excessive emotional reaction is experienced, individuals can develop strategies to cope with this. Their ability to function is a result of the success of that coping strategy used to regulate the excess of emotion. It would therefore seem that it is not the emotional experience itself that is completely responsible for the outcome, but the emotion regulation strategy that is employed. The current study aims to investigate emotion regulation in

voice hearers in order to provide some information about these strategies in relation to the cognitive models of voice hearing. It also aims to confirm cognitive models of the impact of beliefs and interpersonal difficulties in the light of the voice hearing experience.

1.4 Symptoms or diagnostic categories

The suggestion for using a symptom specific approach as opposed to diagnostic categories is based on the former resolving some of the criticisms levelled at the latter. However the focus on symptoms may itself have flaws (Mojtabai & Rieder, 1998).

Read *et al*. (2004) discuss the concept of reliability and validity of schizophrenia and the idea of discrete categories of mental illness. They criticise the diagnostic manuals as they do not lead to a reliable diagnosis as clinicians do not always agree with the diagnosis. Mullen (2007) comments that when clinicians get to know their patients better, more information becomes available that results in problems fitting them into specific diagnostic categories. A complaint-oriented approach is proposed to address these shortcomings (Bentall, 2003). However, Mojtabai and Rieder (1998) argue that there are inter-rater reliability issues in connection with specific symptoms. Having reviewed three studies, they conclude that 'the mean reliability of symptoms was lower than for the corresponding diagnosis' (p198). With the introduction of semi-structured interviews reliability for categories is improving.

The two major diagnostic systems (DSM and ICD) themselves do not agree on all the symptoms or dimensions of a diagnostic category. Patients are often assigned to a different diagnosis over the course of their contact with services (Bentall, 1990). But there can also be disagreement about the definition and concept of symptoms (Mojtabai & Rieder, 1998). The definition of auditory hallucinations can be problematic as there are pseudo-hallucinations, nonclinical hallucinations, voices that are closer to 'thoughts' and voices that are interpreted as internally generated. This does little to clarify what is being investigated.

The symptom of auditory hallucinations can also be variable between people. Some may hear noises, which may be frequent, intermittent, loud or soft. Others may hear voices; these could be familiar voices, strangers, come from internal or external sources, and be one voice or many voices. In addition the experience of hallucinations does not necessarily help with determining pathology. Costello (1993) admits that 'symptoms are quite complex and therefore their assessment is not likely to be a straightforward and noncontroversial matter' (p199). Therefore the focus on one specific symptom may not simplify or address the heterogeneity of syndromes, but rather add another layer. But, if the specific symptom is so complex, then the amalgamation of a number of symptoms within a diagnostic category may exponentially complicate the syndrome itself.

Mullen (2007) suggests that DSM and ICD can offer layers of complexity which take into account the dynamic interactions between 'social context,

personality, substance abuse, disability, and abnormalities of mental function' (p115). Focusing on one aspect of a person's presentation may result in a simplistic picture, which could lead to a failure to treat appropriately.

The diagnostic categories are also not robust in grouping together patients with similar complaints with similar causes, and they fail to predict the course of the diagnosis, or which treatments will be most effective (Bentall, 2006). The single-symptom approach may not fully address the above. For those patients who consider their voice hearing a pleasurable experience voices are non-threatening. This could mean that they do not need treatment and potentially do not have comorbid anxieties, depression or other symptoms. Thus people who hear voices may hear them as a result of difference causes, may experience a different course and some may not require any treatment.

Treating single-symptoms may result in fragmentation and simplification, unless the symptom is embedded within a thorough formulation. Treatment may be more difficult for some voice hearers if their complaints are a combination of symptoms that point to a diagnostic category.

An assumption of the single-symptom approach is that it will help to explain the causes and development of a disorder. This makes a number of assumptions about the underlying processes and links between symptoms and syndromes (Mojtabai & Rieder, 1998). However, it may not be the case that symptoms precede syndromes, or that the underlying theories of these

constructs are similar. The study of symptoms may be inadequate in contributing to a clearer picture of a person's mental health.

Focusing on specific symptoms could interfere with identifying patterns or relationships amongst symptoms as the research and conclusions may be so specific as to miss appropriate and significant connections. This could result in a distorted picture of the person's functioning. Boyle (2007) criticises the ideas of dual diagnosis or comorbidity, but in some cases people experience not only auditory hallucinations, but also other types of hallucinations, delusions, anxieties, low mood and other 'symptoms'. Ignoring these could prevent accurate hypotheses about the course and treatment that may be effective for the person.

1.4.1 Summary

The diagnostic categories have resulted in more questions than answers regarding the development, course, prognosis and treatment of those who are given a psychiatric label. An alternative suggestion is the single-symptom approach, which itself is not without criticism, but this alternative approach is useful for research as it allows for specific questions to be answered. Perhaps if clearer descriptions of symptoms can be defined, this can contribute to more valid and reliable diagnoses, or as Bentall (2007) suggests, 'if we get to the bottom of the symptoms, there is no 'disorder' left to explain' (p293). So clarity regarding symptoms may be enough to prevent or treat any aspects that are problematic for the person without them having

to be part of the psychiatric system. To incorporate people's experience of more than one symptom, formulations would be helpful and potentially crucial. Formulations allow for links to be drawn between a person's past and their present symptoms as well as between symptoms. Formulations also introduce clarity with reference to treatment options. Therefore an alternative to diagnosis and categories may not be a single symptom approach, but an approach that is more in line with psychological formulations.

1.5 Beliefs

Many of us hold beliefs about non-scientific phenomena (McGovern & Turkington, 2002) without basis in evidence, such as beliefs in aliens or ghosts. Once beliefs are held, they are difficult to challenge due to 'confirmatory bias' (Kuipers *et al.* 2006). This is where alternative explanations are dismissed and corroborating evidence is sought which reinforces the belief. Reasoning biases (section 1.3.2) have been identified in people experiencing delusions and hallucinations (Bentall, Kinderman & Kaney, 1994; Garety *et al.*, 2005).

Once a person starts to hear voices, they will construct a set of beliefs about them. This will contain views about the identity, malevolence or benevolence and helpfulness of the voices (van der Gaag, Hageman & Birchwood, 2003). Some of these beliefs, for example the power of the voice, may trigger anxiety and depression or increase distress (Garety *et al.* 2001). These emotions can serve a dual function in being a result of the beliefs or serve to

trigger the hallucinations. It is possible that the meaning given to the psychotic experience can influence beliefs about voices and shape the emotional and behavioural responses (Fowler, Garety & Kuipers, 1998).

> '[I]t has been reported that individuals who hear voices hold the kinds of meta-cognitive beliefs about the uncontrollability of thoughts and corresponding danger that, it could be argued, may make them vulnerable to generating threatening interpretations of voices' (Freeman & Garety, 2003, p939).

These threatening interpretations contribute to the responses, both behavioural and emotional of the person experiencing the voices (Csipke & Kinderman, 2006). Safety seeking behaviours, like thought suppression and selective attention may also be elicited in response to voices, but may also serve to maintain the hallucinations (O'Connor, 2009) as they prevent disconfirmation of the beliefs. These concepts fit with the cognitive model of voice hearing and similar processes have been evidenced in models of panic and anxiety (Morrison, 1998).

In their research Csipke and Kinderman (2006) found that beliefs about voices did not change, even when psychopathological symptoms decreased. The experience of voice hearing changed over time (for example, the frequency of the voices and the severity) but distress did not change. This has theoretical implications in implying that beliefs could serve as a stable vulnerability factor, even when symptoms improve. Beliefs were not affected by changes in the frequency of voices. Treatment of the dysfunctional beliefs and thoughts could take place even if the person is non-symptomatic as the belief system will still be operating. This could have implications for early intervention programmes as well as for relapse prevention. Assessing the

beliefs would be an important starting point; the current study investigates two questionnaires that have potential utility in the assessment process with reference to beliefs about voices.

The emotional consequences of voices may be linked to the beliefs about the voices (Chadwick, Birchwood & Trower, 1996), in particular beliefs about their origin, identity and purpose (Chadwick & Birchwood, 1996). Van der Gaag *et al.* (2003) show that 'the appraisal of the voice (its meaning, identity, and supposed malevolent intention) was closely linked to distress' (p544). They suggest distress could be diminished through altering the patient's beliefs about their voices, even if there is continuing negative content. For the patient this means that a difference can be made to their emotional reaction to the voices by changing beliefs about the voices.

The resistance coping strategies were linked with voices that were rated as malevolent and powerful, whereas benevolent voices were linked with engagement strategies (Birchwood *et al.* 2004). In their study Soppitt and Birchwood (1997) found that beliefs and coping strategies had an impact on the emotional response (depression) to voices. Participants with resistant coping strategies and malevolent beliefs were more depressed than participants with engagement behaviours and benevolent beliefs. Lucas and Wade (2001) also found that voices considered to have more power and malevolence were resisted, this resulted in higher levels of depression and psychiatric symptomatology. It would therefore seem appropriate to combine

beliefs and elements of emotional coping in studies, as they appear to be intricately linked.

Andrew *et al*. (2008) demonstrated that voice hearers with a psychiatric diagnosis believed their voices were more malevolent, omnipotent, and therefore used more resistant coping behaviours than the non-psychiatric voice hearers in their study. The psychiatric voice hearers also heard voices more often, for longer periods, experienced less control and more distress from their voices and the voices had more negative content. Their results indicated that beliefs about voices might be related to the psychological effects of unresolved trauma. The Andrew *et al.* (2008) study and other studies investigating voices and emotion, measure for anxiety and depression to investigate distress. This results in a restricted view of emotional reactions as it omits other negative emotions and fails to consider positive emotional reactions. In addition, it does not consider the ability of people to develop functional and, or, dysfunctional strategies to cope with their emotions and beliefs about their voices.

It has been suggested that beliefs about voice malevolence is a superior predictor of depression over and above trauma, voice content and the frequency of voices. Therefore, beliefs may be a key contributor to distress (Andrew *et al.* 2008). Soppitt and Birchwood (1997) discuss research that found that voices considered more intrusive and distressing resulted in patients who were more depressed. However, they also point out alternative findings that voice content may be less important than beliefs and emotional

responses. It may be that a combination of these factors contribute to or maintain the response to hallucinations.

1.5.1 Metacognitions

Morrison and Wells (2003) suggest that psychological disorders may be the result of a general vulnerability factor, namely, metacognitions. 'Metacognition refers to beliefs and appraisals about one's thinking and the ability to monitor and regulate emotion' (Papageorgiou & Wells, 2001, p160). 'It refers to an individuals knowledge about, and awareness of, their own cognitive processes in relation to intentions, actions or evaluation' (Stirling *et al.* 2007, p1401).

Perona Garcelan (2004) reviewed research on misattributions about thoughts being influenced by metacognitive beliefs. Some research indicates that hallucinators score higher on beliefs concerned with uncontrollability and danger associated with their thoughts. Other research discovered that hallucinations were related to metacognitive beliefs concerning low self-confidence in one's own judgement and the logic of one's own thoughts. Added to this hallucinators were influenced by suggestion and emotional instability.

It has been suggested by Morrison (2001) that interpretations of the voices may be governed by the patients more general beliefs about the mind. Therefore if that patient was worried about the consequences of losing

control of their thoughts, or losing their mind, they may be more distressed by their voices, become caught in a feedback loop that exacerbates the negative experience of hearing voices.

Morrison and Wells (2003) predicted that schizophrenic patients who hear voices would score higher on a measure of metacognitions than patients with delusions or panic, and a control group. Their results suggested that those patients who hear voices and therefore demonstrate cognitive dysregulation, demonstrated higher levels of dysfunctional metacognitions than the other groups. This supports the view that metacognitive concepts are useful for understanding the development of voice hearing. However, a specific relationship between metacognitive dimensions and particular disorders remains to be explored.

Beliefs about voices are often based on the person's past experiences, their current circumstances and their interpersonal relationships. These core cognitive schema result in voices being interpreted as malevolent, benevolent, powerful or benign (Chadwick & Birchwood, 1994). In addition, responses, both emotional and behavioural, may be mediated by the beliefs the person has about their voice(s) (Vaughan & Fowler, 2004). These beliefs about their voices have an impact on how people cope with their voices and coping with the voices could also determine the impact they have on the person's mental health.

1.5.2 The appraisal of voices

Beliefs about voices are not straightforward in their impact on the person hearing the voices. Some people are ambivalent about their voices, seeing them as both harmful and kind (Vaughan & Fowler, 2004). A further complication arises in that, for some people, their voices are their way of coping, and this can be functional. It is only when they are appraised as uncontrollable, dangerous or lead to problems with functioning that they become an obstacle (Morrison *et al.* 2005). This has implications for the development of the voices and catastrophic misinterpretations can lead to the maintenance of the voices (Freeman & Garety, 2003).

Life events and early relationships can result in people perceiving they have little control over their voices and also lead to how the voices are interpreted (Andrew *et al.* 2008). Although people in the general population hear voices, many are able to cope with these experiences as a result of their positive beliefs about the voices they hear.

Jones *et al.* (2003) used q-methodology to obtain the views of service users, non-service users and spiritual people, about their voices. Their results indicate that service users found their voices more frightening and viewed them more negatively than non-service users. For those in the study who conceived their voices as part of normal spiritual development, none felt enough distress to seek psychiatric help.

Depressed and anxious emotions can be associated with negative appraisals. If the person who hears voices is concerned about their thinking, this could result in, or be the result of, emotional processes. Rumination, which involves dwelling or brooding can be used as a coping technique, but there can be negative repercussions. Rumination can lead to negative beliefs about the self, beliefs about uncontrollability, and precipitate depression (Papageorgiou & Wells, 2001).

Morrison *et al.* (2004) discuss higher levels of negative beliefs about voices differentiating patients and non-patients. The findings of their research concur with models that suggest that distress resulting from voices is cognitively mediated. However, there are other factors that also interact (frequency, duration, loudness) to determine the emotional impact of the voice. This study acknowledges the support for the continuum model of psychosis, and uses this idea to support their inclusion of non-patients with a disposition to voice hearing. However, they still targeted their recruitment at people diagnosed with schizophrenia and its derivatives. It may have been more clinically relevant to include voice hearers across the diagnostic spectrum. The current study aims to include voice hearers from a range of 'traditional' diagnostic categories as well as voice hearers who have no diagnosis.

Those who experience auditory hallucinations are also predicted to hold some beliefs more strongly than others, especially beliefs about their own thought processes (metacognitive beliefs) (Baker & Morrison, 1998). With

reference to metacognitive features such as beliefs about controllability and positive beliefs about worry, those who heard voices scored significantly higher than the two other groups in the study.

1.5.3 Summary

Beliefs about the self, other people and the world develop in childhood and lay the foundation for dysfunctional schemas. When presented with an anomalous experience, these schemas will help with the interpretation of the event. The experience of hearing voices may not lead to mental illness, but interpreting and attributing the voice to an external malevolent source and giving it personal meaning can cause distress and lead to help seeking behaviour (Krabbendam, Myin-Germeys & van Os, 2004). The emotional consequences of the beliefs and the way that people cope with these responses can have an important impact on their voice hearing experience.

Beliefs about voices have been studied in relation to voice hearers with a diagnosis of psychosis in general and in those who are non patients. Few studies have investigated the beliefs voice hearers hold across diagnoses. Fewer studies have investigated differences in beliefs between voice hearers who have different diagnoses. The current study will therefore investigate beliefs about voices and metacognitive beliefs to establish similarities and difference between individuals whose common symptom is voice hearing.

1.6 Emotion

As discussed above, many people hear voices and this is evident in clinical and nonclinical groups. The factor that seems to differentiate access to services is reported to be the distress experienced by the person (Kuipers *et al.*, 2006). Distress can be viewed as the emotional experience mediated by the persons coping resources. This highlights the importance of how the event is experienced as well as how the person reacts to the event, and which coping strategies they consider appropriate to manage the consequences.

Psychosis and neurosis have a long history of being viewed as distinctive dimensions (Bentall, 2003: Freeman & Garety, 2003). Yet, emotional dysfunction, including depression (Birchwood, Iqbal & Upthegrove, 2005) and anxiety (Karatzias *et al.* 2007), shame and fear (Suslow *et al.* 2003) are often co-morbid in schizophrenia and other disorders. Dernovsek and Sprah (2009) suggest that 'it is not uncommon to see psychotic symptoms in patients diagnosed with mood disorders or to see mood related symptoms in patients diagnosed with schizophrenia' (p43).

As emotions are evident and necessary in day-to-day functioning, their impact needs to be acknowledged and understood in people who hear voices in order to inform models and refine treatment strategies. Emotions seem to be involved in many areas of functioning potentially influencing beliefs, interpersonal disturbances and disorganised behaviour.

Emotions have been viewed as disturbing rational thought and behaviour, shaping personality and psychopathology and organising human functioning (Cole, Michel & Teti, 1994). Emotions play an important role in decision making, influencing judgements and behaviours (Serper & Berenbaum, 2008), attention and memory (Berenbaum *et al.* 2006) and have a regulatory role in processes such as communicating with others (Cole *et al.* 1994).

Emotion is increasingly being conceptualised in the development and maintenance of psychosis (Smith *et al.* 2006) and they may also be related to predisposition to hallucinate (Paulik *et al*. 2006). There may be distinctive pathways to emotional aspects for voice hearers. Emotion functions as part of the voice hearing diathesis, as a psychological reaction, or as a result of childhood trauma (Birchwood *et al.* 2005).

Emotional functioning seems to be experienced on a continuum, with all of us experiencing a variety of levels dependent on a number of factors. The emotional experience can include positive and negative feelings (happiness, sadness, anger). Patients with psychosis may encounter all of these emotions, but they may have issues with regulating their experience.

If the general prevalence of anxiety is 16% in the general population (Hawton *et al.* 1989), then there will potentially be at least this level of anxiety in those who experience voices. Therefore even without the added contribution of a diagnostic label, stigmatisation and distress, some of those who hear voices may have emotional issues.

According to Berenbaum and colleagues (2006), some facets of emotion, such as attention to emotion, could be associated with different dimensions of psychopathology. Their study proposes that increased attention to emotion may predispose people to 'errors in thinking'. This increased attention to the self may also contribute to vulnerability to relapse. However, increased attention to emotions was also found to be associated with fewer interpersonal symptoms. Thus there are advantages, and perhaps with treatment helping to reconcile the balance, people who hear voices could enjoy the advantages as well as minimise the disadvantages.

Power and Tarsia (2007) investigated profiles of emotional states across 'neurotic' diagnostic groups, and the results showed patterns of differences and similarities between those who had depression, or anxiety, or a mixture of anxiety and depression and a control group. These scores differentiated the diagnostic groups from controls, and showed different levels of these emotions between the diagnostic groups. The mixed and depressed groups scored higher in specific emotions (sadness and disgust) supporting the proposal that a coupling of sadness and disgust may contribute to depression. In this study, shame was an important emotion in depression. This has implications for the voice hearing experience and the sadness that could be associated with loss of status, the shame of experiencing the stigma and the resultant emotional consequences of receiving a diagnosis. The level of emotions in most cases differentiated the diagnostic groups from the

controls, lending support to the proposal that emotions contribute to service contact and use.

Suslow *et al.* (2003) propose that patients with schizophrenia could feel shame or guilt as a result of their symptoms, loss of abilities and / or, social dependency. If there is shame associated with receiving a psychiatric diagnosis, this could account for some of the depression witnessed in post-psychotic depression.

Freeman and Garety (2003) discuss the consensus 'that in a majority of cases (60-80%) symptoms of anxiety, depression, and irritability precede by two to four weeks the appearance of positive symptoms, often accompanied by subtle cognitive changes and, later, by low-level psychotic phenomena' (p927). It therefore seems likely that emotion will play a part in the development of the voice hearing experience and in relapses. If these symptoms could be identified at an early stage and appropriate emotion regulation strategies developed, this could potentially delay or prevent the need for psychiatric intervention. If this was integrated with challenging beliefs and strategies to target social withdrawal, voice hearing could be de-catastrophised, normalised and coped with in a functional manner.

Baethge *et al.* (2005) in their study of bipolar disorder suggest the multiple contribution emotions can make to the illness. In particular anxiety may be an indication of the severity of the illness, a consequence of experiencing voices, or be a contributory factor to the underlying condition. Therefore,

assessing a person's emotional coping could be of use before, during and after the experience of hearing voices.

It has been demonstrated that 'depression was linked to both derogatory voice content and malevolent beliefs and/or resistant coping strategies' (Sayer, Ritter & Gournay, 2000, p1200). Post psychotic depression was found by Iqbal *et al.* (2000) to be associated with beliefs about the controllability of relapse and the person's awareness of psychosis.

There is a high incidence of depression associated with psychosis. Further, recent factor analytic studies identified depression as a distinct dimension of psychosis (Stefanis et al. 2002). Depression can be a precursor or the result of the experience of psychotic symptoms. Depression as a result of psychosis can be persistent over time. So too can concerns about not being able to control relapse and levels of self-blame, with those who were depressed feeling greater loss from their psychosis (Gumley & Schwannauer, 2006).

Research suggests that anxiety, including obsessive or compulsive symptoms, panic, and social anxiety, may be experienced by those who have schizophrenia (Lysaker & Salyers, 2007). Anxiety may also affect functioning. But there are various options as to how anxiety is related to schizophrenia. Anxiety may represent a comorbid process, where positive and negative symptoms are exacerbated and function impeded in people

with schizophrenia. There may also be a subtype of schizophrenia where anxiety is particularly severe.

Tamam and Ozpoyraz (2002) found that bipolar 1 patients have comorbid anxiety disorders, in particular obsessive-compulsive disorder (OCD), simple phobia and social phobia.

Evidence indicates that different anxiety disorders influence the patterns of clinical symptoms and functional deficits (Lysaker & Salyers, 2007). Patients with bipolar disorder often have greater symptom severity and are more treatment resistant if they have comorbid anxiety disorders (Gaudiano & Miller, 2005).

Social phobia may be associated with psychotic features (Dernovsek & Sprah, 2009). This can have an impact on social functioning and interpersonal coping. Patients with psychosis and social phobia have lower social adjustment compared to psychotic patients without social phobia. Therefore careful assessment of emotional features can help with targeting effective treatment. Panic attacks are also evident in individuals with schizophrenia (Hofmann, 1999). Patients with panic attacks use more health resources, have increased risk for substance use, can have more depressive symptoms and lower levels of functioning (Dernovsek & Sprah, 2009). Post-traumatic stress is also evident in patients with psychosis. This could be the result of a history of traumatic incidents or as a result of hospitalisations adding to their traumatisation.

Lysaker and Salyers (2007) report that high levels of comorbid anxiety disorders are associated with greater hallucinations, more negative emotions and poorer functioning. In addition, anxiety can influence a person's beliefs, which can become more dysfunctional if comorbid with other symptoms. It is important to consider these beliefs in the context of a person's history, their coping strategies, the development of their anxieties and other symptoms (Dernovsek & Sprah, 2009).

Personality may also have an impact on the reaction toward hallucinations with neuroticism being linked to increased risk for schizophrenia and forms of avoidant coping (Lung, Shu & Chen, 2009). Personality factors such as neuroticism and extraversion may influence the outcome of schizophrenia with higher levels of neuroticism and lower levels of extraversion beingrelated to more positive psychotic symptoms (Lysaker *et al*. 2003). Lung *et al*. (2009) investigated the effect that personality has on experience of hallucinations. Their causal pathway found 'that personality had an effect on beliefs about the hallucination, which then affected the reaction of patients toward these voices. This then affected the anxiety and depression of the patients.' (p473). Further, those with neuroticism were more likely to resist their voices and feel anxious as they viewed their voices as more malevolent.

Lysaker *et al*. (2003) report that the more avoidant coping used by those with higher levels of neuroticism may make these people more prone to experience more stress and therefore more prone to relapse. However, it is

not entirely clear if these coping strategies are evident prior to the development of schizophrenia, or as a result of experiencing schizophrenic symptoms. As voice hearing is distributed throughout the population, it may be that those predisposed to hearing voices have higher levels of neuroticism. Future research may be able to clarify the nature of neuroticism in the development and course, as well as the different responses people have, in the experience of hearing voices.

1.6.1 Summary

Anxiety, depression and personality factors are evident in people who experience psychotic symptoms. These factors can influence the reaction to the psychotic symptoms if they are evident prior to these symptoms appearing, or they can be the result of the experience of the psychosis itself. Irrespective of the order of the comorbidity, the impact on functioning, subsequent coping and response to treatment is affected. It is therefore an important area to be explored and incorporated in to the formulation of the patient's experience.

1.6.2 Emotion in voice hearers

Freeman and Garety (2003) reviewed the evidence regarding the direct role of emotion in forming and maintaining hallucinations. Depression, anxiety and anger are all reported to be implicated in psychosis immediately preceding hallucinations (Freeman & Garety, 2003). Smith *et al.* (2006) suggest that the development of psychotic symptoms can be attributed to low

mood, low self-esteem and negative schematic beliefs. These ideas suggest that the person has extreme negative evaluations of themselves and others (Kuipers *et al.* 2006) that can have consequences for interpersonal relationships as well as how they adjust their emotional reactions.

Smith *et al.*'s (2006) results suggested that auditory hallucinations were 'strongly associated with both depression and low self-esteem' (p185). They further discovered that those who were more depressed and had lower self-esteem as well as more negative evaluative beliefs, were also distressed by their auditory hallucinations, considered them less controllable and experienced hallucinations of greater severity. These factors operate in a vicious cycle, with voices impacting on mood, which in turn makes the person more vulnerable to further hallucinations.

The view of the voice as powerful or benevolent could be influenced by the person's past (trauma, parenting) and current experiences (interpersonal relationships) (Birchwood *et al.* 2000a). It may also be the case that negative appraisals of hallucinations are triggered by critical life events, which then leads to symptoms of depression (Soppitt & Birchwood, 1997).

Birchwood *et al.* (2000a) hypothesise that those who will be more depressed are those who perceive they are lower in rank to their voices and feel more entrapped.

These processes can be seen in those diagnosed with schizophrenia. Those who developed post-psychotic depression (PPD) tended to blame themselves

for their diagnosis and felt greater loss of independence and status, than those who did not develop PPD (Birchwood *et al.* 2000).

The distress attributed to voices in the Birchwood *et al.* (2004) study was as a result of those hearing the voices appraising them as having higher power and rank. The more powerful the voice was rated, the more it was perceived to have the capacity to shame. The patients who attributed greater power and rank to the voice than to themselves were more depressed. A lower degree of control over voices is related to more negative affect (Laroi & Van der Linden, 2005)

As Gumley and Schwannauer (2006) suggest, psychosis, through its negative social and interpersonal implications can trigger depression. Those who develop PPD appraise their future more negatively and perceive disadvantage to social roles as they have persistent symptoms or as a result of worrying about relapse. Karatzias *et al.* (2007) suggest that '[t]here is now growing evidence that anxiety and depression may occur in response to patient's appraisals of their illness as being persistent and uncontrollable, socially stigmatising and embarrassing resulting in feelings of defeat and alienation' (p371).

Iqbal *et al.* (2000) consider the appraisals of loss, humiliation and entrapment (control over illness) in psychosis. The awareness of illness, vulnerability to depression and self-appraisal distinguish those patients who develop post-psychotic depression.

Some studies have demonstrated that higher levels of anxiety are present preceding relapse (Lakeman, 2003). The anxiety symptoms included physiological signs such as butterfly sensations in the stomach, while emotional triggers included sadness, fear and anger.

Bak *et al.* (2005) indicate an important mediating role of distress in some psychotic symptoms. However, this was not supported for auditory hallucinations. They propose that hearing voices may not be too distressing, even in those who have a need for care, or other factors may contribute to the lack of mediation by distress, especially for those who hear voices.

From the Iqbal *et al.* (2000) study, it seems possible to extrapolate the results to suggest that what distinguishes those who seek help from those that are able to cope with their voices, seems to be not only 'distress', but other factors. Attributions of the 'illness' to themselves, perception of greater loss of autonomy, more humiliation, evaluations of their future roles as 'low status', all seem to contribute to feelings of depression associated with symptoms. The level of these factors also seem to differentiate those who seek help and become depressed from those who seek help and do not become depressed.

1.6.3 Summary

Many of the above studies investigating emotion focus on diagnostic categories shown to be flawed (Bentall, 2003, 2006: Read et al, 2004). Added to this the results of many of the studies point to factors that are obvious; people with a diagnosis experience emotion, which in some way differs from the experience of those who do not have a diagnosis. People experience emotions, but not all learn to develop appropriate or functional emotion regulations strategies. Investigating these may prove more useful in determining the course and progress of particular symptoms, as well as indicating the treatment requirements to enhance regulation, rather than pointing out that people have emotions.

In their book addressing relapse prevention, Gumley and Schwannauer (2006) discuss the emotional precursors to relapse and the role of stress and feelings of fear, threat, anxiety and nervousness that are present prior to experiencing psychosis. There are also emotions that could present as depression, as well as rage and panic that precede the active phase of psychosis. They suggest as demonstrated by research that 'relapse is characterised by the progression of increasing non-psychotic symptoms, through increased emotional distress, affective dysregulation, psychological fragmentation, and feelings of loss of control, culminating in the evolution of psychosis' (p19). Other research confirms this. This implicates emotion, coping and beliefs about control in the triggering of psychotic symptoms, which has implications for treatment.

1.7 The regulation of emotions

As discussed above, emotions seem to be implicated in aspects of psychopathology. Emotions can be adaptive or maladaptive, and appropriate in different situations. Negative emotions are not inherently maladaptive, but have their place depending on context (Cole *et al.* 1994). Positive emotions can be inappropriate, again depending on the situation. What helps people to cope with their emotions is their ability to regulate them.

Emotion regulation models have been comprehensively discussed in numerous reviews (Gross, 1998b; 1999; Gross & Thompson, 2007). The definition of the terms that are linked with emotion, such as, affect, feelings, mood and what signifies emotion regulation are also reviewed elsewhere (Gross, 1999; Livingstone, 2006). Therefore salient concepts relevant to the current study will be discussed below. For the purposes of the study emotion regulation refers to processes that are automatic or controlled, conscious or unconscious, involve low or high levels of emotion, and occur in behavioural, experiential or physiological domains (Gross & Thompson, 2007).

There have been studies that have investigated the strategies people use to cope with their voices. Most of these have considered behavioural techniques such as listening to music, reading, exercise and similar strategies (Carter, MacKinnon & Copolov, 1996). These have been investigated within the broader coping literature. Few studies have looked at the coping strategies utilised in relation to the emotional responses people experience in relation to their voice hearing.

Emotion has been implicated in shaping personality and psychopathology; organising human functioning; each emotion serves specific functions (Cole *et al.* 1994). It also has a regulatory influence on processes such as focusing attention and communicating with others. Emotion regulation is a normal feature in everyday life (Gross, 1998a).

'Emotion regulation involves the ability to respond emotionally and to attune one's emotion experience and expression to the ebb and flow of life's moment-to-moment situations' (Cole *et al.* 1994). This view takes into account the contextual demands placed on the person in certain situations, in conjunction with the person's vulnerabilities, their coping capacity and their emotional style, which can lead to patterns that interfere with functioning, social relations and a failure to flexibly regulate emotions (Cole *et al.* 1994).

Emotion regulation is considered to develop in childhood, influenced by personality characteristics, caregiver response and attachment relationships (Gross & Thompson, 2007). This incorporates internal factors (neuroregulatory systems and cognitive style) (Livingstone, 2006) and external factors (parenting style, later social relationships). Phillips and Power (2007) emphasis the importance of the functionality of the strategies. Negative emotions can be functional in certain situations, for example anxiety can alert the person to danger. Positive emotions can be dysfunctional in other contexts (laughing during a funeral service). In addition if the strategy blocks the experience of emotion, this can prevent the development of

tolerance to that emotion, resulting in secondary emotions (e.g. feeling guilty about being anxious).

Emotion dysregulation can develop where the emotional demands exceed the resources and abilities of the person to self regulate (Livingstone, 2006). This lays the foundation for vulnerability to psychopathology.

It has been suggested that in many of the psychiatric disorders, dysfunctional emotion regulation is implicated (Gross, 1999; Phillips & Power, 2007), however, subtle differences between disorders, for those who hear voices, have not been fully investigated.

Emotion does not refer to a single process, but incorporates affective, cognitive and behavioural aspects (Bentall, 2003). The regulation of emotion is not confined to one modality (i.e. cognition) and there are a number of theories that attempt to explain its development (Gross, 1999) and use as a strategy (John & Gross, 2004).

Emotional dysfunction is prevalent in non-affective psychosis (Birchwood, 2003). It can be linked to the prodromal stage or as a reaction to the experience of symptoms. Making diagnostic distinctions between emotional disorders is difficult even in people who do not experience psychotic symptoms as some people can, for example, experience an overlap between trauma and depression.

Borderline personality disorder (BPD) can be characterised by instability in emotion regulation, interpersonal relationships, self-esteem and impulse control (Benvenuti *et al.*, 2005). There also appears to be a high incidence of depression among BPD patients. Benvenuti *et al.* (2005) conclude that '*lifetime* manic-hypomanic mood dysregulations are correlated with psychotic spectrum features in borderline patients, even in the absence of lifetime mood disorders' (p342).

Research reviewed in Serper and Berenbaum (2008) demonstrated that individuals with schizophrenia have greater difficulty identifying their emotions and have a more externally oriented thinking style. Therefore they pay less attention to emotions. The results of the research indicate that lower levels of emotional clarity were associated with more severe hallucinations.

Emotions can be both regulatory and dysregulatory as they can be protective and communicative, even if they are interfering with adaptive functioning (Cole *et al.* 1994). They may have served a protective function during times of childhood sexual abuse, but have become problematic in later interactions with other people. The context in which the emotion surfaces determines the degree of regulation or dysregulation. In addition, having access to the full range of emotions, with an array of intensity levels and variety in the duration of sustainability of the emotion helps the individual to adapt to different situations and respond appropriately. Without this range, the person is at risk of presenting with particular 'symptoms'.

Managing emotions, and the ability to evaluate emotional reaction to the emotion is functional (Cole *et al.* 1994). What would be optimal for the development of functional patterns of emotion regulation is exposure to manageable distress within a responsive and supportive world (Cole *et al.* 1994).

There are emotion regulation strategies that utilise primarily internal (personal) resources and those that use environmental or external resources (Phillips & Power, 2007). These resources could also be considered functional or dysfunctional depending on the circumstance. This view of strategies amalgamates much of the research and allows for the exploration of a wide range of strategies. Frequent use of dysfunctional emotion regulation strategies could impact on the mental health of the individual.

Phillips and Power (2007) investigated emotion regulation strategies in a group of adolescents. Those who used more dysfunctional strategies exhibited more emotional and behavioural problems, as reported by their parents. The results suggest that many psychiatric diagnoses may have dysfunctional regulation strategies associated with them. This could be the case for those who hear voices.

It has also been proposed that poor emotion regulation may result in poor peer relationships (Phillips and Power, 2007). This is measured to some extent in the external functional subscale of the REQ. It would be helpful to

investigate if social support and interactions differentiate diagnoses and if those who hear voices in different disorders can be identified through their emotion regulation and interpersonal strategies.

1.7.1 Summary

'Individual differences in capacities and strategies for emotion regulation carry over into adulthood, where they influence coping styles, problem solving, social support processes, relationship quality, and mental and physical health' (Diamond & Aspinwall, 2003, p126). These regulation strategies therefore impact on numerous aspects of individual health. Difficulty with appropriate regulation strategies can be developed in childhood, affect development of beliefs about the self and others, influence relations with other people and potentially interact with these other factors to increase vulnerability to misinterpreting anomalous experiences. This supports the multifaceted contributions that result in voice hearing experiences and the understandable consequences the experience generates.

Little has been written about the experience of emotion regulation in psychosis, and even less investigating this in those who hear voices across the diagnostic spectrum. The current study therefore seeks to explore emotion regulation strategies and further understand this process and its interaction with other symptoms, interpersonal issues, as well as beliefs about the voice hearing experience itself.

1.8 Interpersonal interactions

In order to improve the experience for those who have negative responses to their mental health symptoms, including voices, it is important to acknowledge and be able to target different domains, not only the symptoms. Therefore interpersonal aspects are an important domain that needs to be included in research (Hughes & Barkham, 2005). According to cognitive models, core cognitive schemas are believed to be related to the person's past and current life experiences as well as interpersonal relationships (Chadwick & Birchwood 1994). Few studies have investigated the interpersonal aspect of voice hearing.

Interruptions in interpersonal relationships and social activities are evident in many mental health difficulties. The best overall markers of personality disorders are difficulty with interpersonal management (Gude *et al.* 2000). In schizophrenia, social avoidance is evident, and relationships with peers and family may be strained (Bentall, 2006). Avoidance of situations and people can be evident in anxiety (Greenburg & Padesky, 1995; Williams, 2003), and social withdrawal in depression can maintain the symptoms (Carr & McNulty, 2006).

Interpersonal relating, according to attachment theorists, begins in early childhood. Relationships with early caregivers provide the prototype for later interactions. Early interactions influence the child's perceptions of trust, security, autonomy, and appropriate emotional expression. These early

interactions allow the child to develop a sense of themselves and of other people (Horowitz, 1996).

If a child does not have access to appropriate role models, they may struggle to acquire strategies to cope with emotion, communicate with other people, or to be flexible in relationships. This can result in isolation, dysfunctional beliefs and thinking styles, low self-esteem and low tolerance for stress and emotion which can make them more susceptible to developing mental health problems. They may also have fewer resources to deal with the problems they have (Gumley & Schwannauer, 2006).

The quality of adolescent peer attachments and use of social supports can influence the outcome to psychosis (Gumley & Schwannauer, 2006). Therefore interpersonal aspects are important in determining the course of psychosis.

According to interpersonal theorists, patterns of relating are repeated to maintain 'a psychological tie to an earlier attachment figure' (Horowitz, 1996, p284). Added to this, two people 'reciprocally influence each others behaviour as they interact' (p284). Behaviour also seems to operate along axes, namely the submissive-dominant dimension. This can be seen to operate where friendly submissive behaviour results in advice and support. This then reinforces the original submissive behaviour. However, the reverse is also applicable. People can become trapped in these vicious circles and this can have an impact on mental health. Some of these patterns and ideas

are incorporated in the Revised Beliefs about Voices Questionnaire (Chadwick, Lees & Birchwood, 2000).

In Perona Garcelon (2004), there is a discussion about hallucinators relationships with their voices. Some researchers propose that voices are incorporated into voice hearers' daily lives and the social relationship established has an adaptive function. There is also the possibility that the relationship established with the voices imitates relationships in the voice hearer's social world (Bentall, 2003; Vaughan & Fowler, 2004). It is possible that reciprocal relationships exist between the voice hearer and the voices, and voice hearers may develop interpersonal relationships with their voices. It is also possible that 'different diagnostic groups may have qualitatively different relationships with their voices' (Vaughan & Fowler, 2004, p144).

There are various factors that have an impact on interpersonal interactions. These factors include power, proximity, distancing and closeness, which are all considered to operate in relation to other people (Vaughan & Fowler, 2004). It is important to consider different dimensions such as assertiveness and bullying as well as affection and withdrawal. Research suggests that the problems people have with relationships may be reflected in their relationships with their voice(s).

1.8.1 Social rank

The appraisals about the powerfulness of the voices reflect the patient's view of their social rank (Bentall, 2003). Consideration of the powerfulness or benevolence of the voice is based on interpersonal cognitive schemata, which integrate the perception the individual has of previous and current interpersonal relationships. The Birchwood *et al.* (2004) study demonstrated that 'the role relationships a person has with others (for example, experiences of interpersonal powerlessness / subordination) are mirrored in the inner experiences with voices' (p1577). It therefore seems that it is the person's relationship with the voice that is important and therefore a potential target for therapy.

Coping strategies can impact on functioning, being adaptive in some situations, but dysfunctional in other contexts (Phillips & Power, 2007). Some of the strategies may be helpful short-term, but be detrimental over a longer period. For example, withdrawing socially could reduce stress and over-stimulation, but in the longer term could result in social isolation, prevent disconfirmation of thoughts, and limit help-seeking opportunities. It can also reduce access to alternative explanations (Garety *et al.* 2001). Social withdrawal could also increase interpersonal sensitivity, distress and suicidality (Gumley & Schwannauer, 2006).

Iqbal *et al.* (2000) discuss social ranking theory and power. They argue that psychosis can be considered a major life event, which may confer feelings of loss, humiliation and entrapment on the person, therefore resulting in limited

interpersonal activity, loss of goals and possibly inability to assert an identity. For voice hearers, the symptom and diagnostic label may also result in similar feelings. The extent of these feelings, disruptions in interpersonal interactions and beliefs about their voices may differ depending on their diagnosis.

Escher *et al.* (2003) found that as has been proposed in other studies and reflected in their results 'the individual's underlying schema of social subordination and, by implication, the tendency to feel overwhelmed by the psychotic experiences, fuels feelings of distress associated with the experiences' (p96).

1.8.2 Interpersonal issues in psychosis

The Startup (1998) study demonstrated that compared to the general population, people with long-term schizophrenia lack assertiveness, have small social networks and have difficulty forming intimate relationships. But, positive symptoms and hospital admission are evidenced to be reduced in supportive social environments that include family support (Norman *et al.*, 2005). Therefore improving social environments and how people who hear voices relate in their social environment could impact on the course of their symptoms and relapse. Finding out which interpersonal dimensions are difficult for sub-groups of voice hearers could help inform treatment.

If ‘it is known that patients perceive themselves to be shamed and socially subordinated by others because of their psychosis and patient status’ (Birchwood, 2003, p373), then their interpersonal interactions and relationships may be impoverished, or compensated for through their interactions with their voices. Social avoidance may also be the result of humiliation and fear of criticism. Prior to their patient status, the fear may have been driven by perceived threats from others (voices), they therefore avoid social interactions and therefore their fears are not disconfirmed.

1.8.3 Interpersonal issues in voice hearing

Birchwood *et al.* (2000a) propose that ‘the distress arising from the activity of voices can be understood by reference to the individual’s relationship with the voice, rather than voice content, topography or illness characteristics alone’ (p338). If the relationship is one of subordination to a voice characterised as powerful and omnipotent, then self-protective defences may be activated. This could be submissive or resistant behaviour. If this relationship is echoed in the person’s social environment, it could be important to assess their difficulties. However there are few measures that can do this.

Lakeman (2001) suggests that people can develop a relationship with their voices, which meets certain needs, is based on beliefs about the relationship and can be valued to some degree. These beliefs can be explored and

changed. It is therefore important to assess the person's interpersonal interactions with a view to investigating patterns.

If a relationship exists between the hearer and the voices, it is important to establish the impact of this relationship on the emotional and behavioural reaction of the hearer. Questionnaires have been developed to measure maladaptive relating patterns in couples (Birtchnell, 1994). Some of these elements have been incorporated in questionnaires aimed at assessing voice hearers' perceptions of their relationships with their voices (Chadwick, Lees & Birchwood, 2000).

Birchwood and Chadwick (1997) suggest that past experiences of interpersonal relationships as well as attributes of the voices (i.e. content, malevolence, power), contribute to the response to the voices.

In their study, Vaughan and Fowler (2004) suggest that 'different styles of relating between voice and voice hearer are associated with differing emotional responses to voices' (p150). Various aspects of the relationship with the voices accounted for variance in the distress experienced. These aspects included: beliefs about the voices malevolence or benevolence; depression; and styles of relating to the voice (closeness, distance). These factors were correlated with distress and with each other. The power structures between the hearer and the voices were found to be important. This has implications for treatment.

Vaughan and Fowler (2004) included participants across diagnoses, although the majority were schizophrenic. They used a questionnaire based on couples relating to each other, which was amended and included a variety of domains. In order to assess emotional responses to voice hearing, the study utilised a single question to indicate the 'distress' experienced by the voice hearer. It is not clear that 'distress' was defined. Including a range of emotions or emotion regulation strategies could have increased the clinical implication of the outcomes. However, they contribute some interesting findings regarding distressing voices being appraised as relationships with other people in their social environment.

If, as stated by Hayward (2003), voice hearing reflects 'an individuals experience of interpersonal relationships in the 'real' world' (p370), then this can provide clues to the persons style of relating as well as possible experiences from their past that may maintain the voices. Using an impressive array of measures Hayward (2003) found that an individuals relating to their voice did reflect a pattern of their usual social relating. Although the measure concerned with relating assessed positive and negative aspects incorporating closeness, upperness, distance and lowerness, these constructs are abstract. They do not seem to map easily onto treatment domains.

1.8.4 Summary

Research is demonstrating that many people with psychotic symptoms including voices, have experienced problematic early relationships. These could be the result of loss or abuse. Other people who do not go on to hear voices may experience this loss or abuse. However, the person's biological vulnerability, their personality and perception of their early relationships, together with subsequent interactions could be the factors that determine their voice hearing (Gumley & Schwannauer, 2006).

Identification of interpersonal schemata could point the way to effective interventions. Group work, assertiveness training and problem solving (Hayward, 2003) techniques could improve the individual's social status or position and enable them to deal with the voices from a stronger position. Focus on the development of social resources could lessen distress through integrating the person in the community and allowing them to witness alternative explanations for anomalous experiences.

Interpersonal relating has implications for distress and emotional aspects of voice hearing. Low feelings of self-worth can be reinforced if the voice hearer is rejected or subjected to thinking they are of a lower status than other people. Acting in an unassertive, hostile, impulsive manner can engender certain responses that can add to distress as well as isolate the person from disconfirming their perceptions of unusual experiences.

Investigating domains of interpersonal relating could help with targeting treatment and prevent relapse by improving social interactions and support. Another alternative would be to explore and improve the relationship with the voice. New narratives could then be constructed around the traumatic event or relationship (Hayward, 2003).

1.9 Rationale for the present study

Important to the evolution of vulnerability to psychosis is the individual's attachment organisation, their interpersonal environment, their wider social environment including life events, their interpersonal strategies and their appraisal of and affective response to the experience of acute psychosis' (Gumley & Schwannauer, 2006, p48). If these factors are important to psychosis, then they may have an influence on voice hearers. Therefore identifying beliefs, emotion regulation strategies and interpersonal relating styles could be important in determining the experience of the person hearing voices and potential treatment strategies.

Many of the previous studies have compared voice hearers or psychotic patients with non-patient control groups. This study aims to consider the experience of voice hearing from a single symptom approach, irrespective of diagnosis.

The symptoms of voice hearing may vary with reference to the frequency, degree of conviction, how much of their time is taken up with voices, and the associated distress. Personal and cultural factors, such as coping and illness

behaviour also need to be considered (van Os *et al.* 2009). All these factors are important in contributing to illness and determining help-seeking behaviour (Johns & van Os, 2001). If people without a mental illness hear voices, one explanation for their not seeking help for the hallucinations, could be their coping abilities, their beliefs about their voices, or the social support they have to help them deal with the experience.

People experience subclinical psychotic symptoms, some of whom become psychiatric 'cases' (Bak *et al.* 2005). It is important for prevention, early identification and treatment to understand what causes some individuals who have psychotic experiences to develop a need for care. Factors that contribute to the need for care include general functioning, self-esteem and affective aspects. The degree of distress associated with hearing voices also contributes, as do previous experiences of similar symptoms.

Yee *et al.* (2005) suggest that experiences of auditory hallucinations are often withheld because of fear that disclosing this could result in a diagnosis of schizophrenia. This would suggest that schizophrenia would be a worse diagnosis than other diagnoses. Investigating symptoms could help alleviate some of the stigma associated with a diagnosis. Cognitive models can encourage normalisation of symptoms as a result of acknowledging that voice hearing exists on a continuum. This normalisation can contribute to reducing stigma and distress.

Morrison *et al.* (2006) discuss several clinical implications of their study. They highlight the 'necessity to assess metacognition, self-perception and beliefs about the self and others when working therapeutically with people with psychosis' (p1403).

The results of the van der Gaag *et al.* (2003) study support the link between voices and distress. The beliefs about the meaning, identity and malevolent intention of the voice was linked to distress. It would be interesting to find out if similar links exist between appraisals and emotion regulations strategies. This could have implications for intervention strategies to help the person improve their emotion regulation.

Some of the treatments are targeting elements of the hallucinations, like beliefs, emotional impact, coping strategies, as well as implementing alternative interactions to reduce stress levels. In order to further inform this treatment, it is important to establish the scale of the issues. Therefore this study has attempted to report on the emotion regulation strategies involved for those who hear voices, the beliefs they have about their voices, their coping, and their interpersonal relationship styles. The results have looked at hearing voices across diagnoses, based on a single symptom of voice hearing that is considered a 'normal' phenomena occurring on a continuum in the general population.

1.10 Research questions and hypotheses

People's beliefs and thoughts about their voice(s) will influence the level of distress associated with hearing voices and as a result the regulation strategies they use as well as the social problems they experience. The Inventory of Interpersonal Problems (IIP32), The Revised Beliefs about Voices Questionnaire (BAVQ-R), Beliefs about Voices Scale (BAVS), Brief Symptom Inventory (BSI) and the Psychotic Symptom Rating Scales (PSYRATS) and the Regulation of Emotions Questionnaire (REQ) will be used to find out the relationship between the above variables and the distress the person experiences in relation to their voices.

The primary research questions will explore the relationship between beliefs about voices, interpersonal difficulties and symptoms experienced by those who hear voices. Distress associated with the voice hearing experience, as well as beliefs about voices will predict the emotion regulation strategies used.

It is predicted that those who experience their voices as more omnipotent will have more dysfunctional emotion regulations strategies, an increased rate of interpersonal issues as well as an increased rate of a variety of symptoms. There will also be an exploration of the association between beliefs as measured by the BAVQ-R and the BAVS. The following hypotheses will be explored:

Hypothesis 1

There will be an association between the malevolence, benevolence and omnipotence of the voice, the engagement and resistance coping strategies (measured by the BAVQ-R) and negative beliefs, positive beliefs, survival strategy beliefs and normalising beliefs (measured by the BAVS).

Hypothesis 2

Those who score high on the omnipotent thoughts subscale will experience greater difficulty with interpersonal interactions than those whose scores are lower on the omnipotence subscale.

Hypothesis 3

3a). Participants with higher omnipotence subscale scores will experience more distress as measured by the BSI subscales

3b). Participants will also use more dysfunctional emotion regulation strategies if their omnipotence scores are high (as measured by higher scores on the REQ subscales).

3c). Increased levels of distress (as measured by the PSYRATS emotional subscale and the BSI grand total) and increased interpersonal problems will predict the use of dysfunctional emotion regulations strategies.

CHAPTER 2: Methodology

2.1 Design

The research recruited participants from psychiatry, psychology, community mental health teams, inpatient wards, occupational therapy and voluntary groups. Recruitment took place within Highland, Grampian and Fife. Individuals were allocated to a group on the basis of the scores obtained on the omnipotence subscale of the BAVQ-R questionnaires. Mann-Whitney U tests were calculated for between group differences and Spearman's rho was used to investigate between variables when parametric tests were not available.

2.2 Power analysis

The number of participants required for the study was established through the use of a prospective power analysis (Clark-Carter, 2004). There was no indication of the potential effect size as few previous studies have investigated the identified measures in a patient sample. Many of the studies of the measures have been conducted with non-patients, or have comparisons between patients and non-patients. However, we anticipate that to be clinically useful, the effect size would not be small. Based on a medium effect size of 0.4 in a simple correlational design with power of 0.8 and an alpha of 0.05 a total sample size of 34 is needed. For the between groups comparisons, estimating an effect size of 0.7 with power of 0.8 and an alpha of 0.05, a total sample size of 52 is required.

2.3 Participants

The participants were referred to the study by their mental health workers (psychiatrists, psychologists, CPN's), or by workers in the mental health voluntary setting (Users groups). The participants needed to meet the following inclusion criteria:

Experience of hearing a voice in the past 6 months

Aged over 16 years

Participants were excluded if they had

organic brain dysfunction or

a severe learning disability.

Participants could be referred irrespective of diagnosis. The diagnosis of the participants was not confirmed as the experience of a single symptom, namely, hearing voices was considered more important than a specific diagnosis.

The participants were given a Patient Information Sheet and consent form (Appendix 1), which was completed and returned to the researcher.

2.4 Measures

A self-report methodology was adopted for this study. This study aimed to capture the experiences of voice hearers throughout the Highlands. Due to logistical issues with time and distance, the study was conducted through postal distribution rather than face-to-face interviews. Huppert, Smith and Apfeldorf (2002) found that individuals diagnosed with psychosis could

provide valid and reliable self-reports of anxiety and depression. Preston & Harrison (2003) suggest that those who experience psychosis can report symptom dimensions that agree with those of their carers. It therefore seemed appropriate to transfer this to voice hearers reporting on a number of aspects.

Demographic information (Appendix 2) regarding the participants general psychiatric contact, their diagnosis and information about voices was requested .

2.4.1 The Regulation of Emotions Questionnaire (REQ) (Phillips & Power 2007)

The REQ (Appendix 3) was originally developed to measure emotion regulation in children and adolescents. This measure takes into account both adaptive and non-adaptive strategies, including cognitive and behavioural strategies. It assesses 'Internal-Dysfunctional' 'Internal-Functional' 'External-Dysfunctional' and 'External-Functional' subscales. The measure is based on the literature regarding emotion and emotion regulation, as well as expert consultancy on the validity of the individual items in the questionnaire. A 19-item questionnaire was derived from MAP analysis and factor analysis of responses from 225 adolescents.

The adolescent sample demonstrated good internal reliability (α range from 0.66 to 0.76). In order to improve the internal reliability of the 'External-

Functional' scale, two further items were included, resulting in a 21-item REQ questionnaire. The REQ assesses responses on a 5-point scale ranging from 'never' to 'always'.

The 'Internal-Dysfunctional' subscale asks for responses to questions such as 'I harm or punish myself in some way'; 'I keep the feelings locked up inside'. The 'Internal-Functional' elements include questions like 'I concentrate on a pleasant activity'; 'I review (re-think) my thoughts or beliefs'. 'External-Dysfunctional' questions include: 'I bully other people (e.g. saying nasty things to them, hitting them'; 'I take my feelings out on other people verbally (e.g. shouting, arguing)'. Questions used in the 'External-Functional' subscale include: 'I talk to someone about how I feel'; 'I telephone friends or family' (new item); I go out and do something nice (e.g. cinema, shopping, go for a meal, meet people' (new item).

To assess the construct validity of the REQ, Phillips and Power (2007), compared the REQ scores with those of existing child and adolescent emotional and behavioural functioning measures. The results provide support for the validity of the REQ.

Livingstone (2006) used the REQ in a study investigating emotion regulation in three groups (psychosis, mood disorders and healthy controls). Her results suggest that the REQ is useful in differentiating some emotion regulation strategies in an adult population. The main findings were that clinical groups differed significantly to healthy controls on the 'Internal-

Dysfunctional' and 'Internal-Functional' strategies. Clinical groups used more maladaptive emotion regulation strategies as well as fewer adaptive emotion regulation strategies than the group of health volunteers.

This provides initial support for the utility of this measure in a clinical adult population.

2.4.2 The Psychotic Symptom Rating Scales (PSYRATS) (Haddock *et al.* 1999).

The PSYRATS (Appendix 4) assesses subjective characteristics of both hallucinations and delusions on two sub-scales (Haddock *et al.*, 1999). However, the hallucination subscale was selected for the current study investigating auditory hallucinations. This measure has shown to be valid and reliable for psychotic patients (Drake *et al*. 2007).

The auditory hallucination subscale has 11 items. All items are scored 0-4 and according to a detailed anchor point (See Appendix 4). Higher scores indicate more severe phenomena. This was developed as a clinician administered semi-structured interview, however, in this study, the PSYRATS was administered as a self-report measure. The PSYRATS assesses dimension of hallucinations and although each question has a specific scale, these are based on general criteria:

0 No problem
1 Minimal or occasional
2 Minor or moderate
3 Major

4 Maximum severity

The items assess: frequency, duration, preoccupation, location, controllability, loudness, conviction, amount of unpleasant content, severity of unpleasant content, amount of distress, intensity of distress, degree of impairment and control. Dimensional scores can be inferred for: emotional characteristics, physical characteristics (i.e. frequency, location, loudness), and cognitive interpretation. Unbiased estimates of reliability are available for nine of the eleven items, indicating excellent inter-rater agreement (Morrison & Wells, 2007).

The scale has good validity and inter-rater reliability for people with chronic schizophrenia (Haddock *et al.* 1999) and for first episode samples (Drake *et al.* 2007). In addition the test-retest reliability is also high (Drake *et al.* 2007).

2.4.3 The Brief Symptom Inventory (BSI) (Derogatis, 1975; Derogatis & Melisoratos, 1983)

The BSI (Appendix 5) is a self-report symptom measure which consists of 53 items that describe a variety of problems. The items are rated on a 5-point scale (0-4), ranging from *not at all* to *extremely* in levels of distress. The inventory takes about 10 minutes to complete. There are nine dimensions of symptoms that are obtained from the scores (Somatisation (SOM), Obsessive-compulsive (OC), Interpersonal Sensitivity (INT), Depression (DEP), Anxiety (ANX), Phobic Anxiety (PHOB), Hostility (HOS), Paranoid Ideation (PAR), and Psychoticism (PSY)) (Boulet & Boss, 1991).

The BSI is based on the SCL-R-90, selecting the highest loading items on each of the dimensions.

The BSI also allows for calculations to be obtained in three global indices. These are the:

- Global Severity index (GSI), which indicates the respondent's distress level and information about the number of symptoms and the intensity of distress. (Scores of 63+ are considered 'cases').
- Positive Symptom total (PST), which reveals the number of symptoms experienced
- Positive Symptom Distress Index (PSDI). This reveals the average level of distress experienced.

Good internal reliability (.71-.85) is reported for the nine dimensions. Test-retest reliability ranges from .68 to .91 for the dimensions and between .87 & .90 for the Global Indices. The measure is reliable over time and the internal consistency for outpatients is reported to be good (Boulet & Boss, 1991).

The measure has been normed for psychiatric outpatients, psychiatric inpatients and for a non-patient sample (Derogatis & Melisaratoris, 1983).

The measure will help to establish levels of distress experienced by the person. It is proposed that the level of distress will correlate with beliefs about

voices, interpersonal issues, diagnosis, and emotion. Profiles of distress and diagnosis will also be explored to establish any patterns.

2.4.4 The revised Beliefs about Voices Questionnaire (BAVQ−R) (Chadwick et al. 2000)

The BAVQ-R (Appendix 6) is a modification of the Beliefs About Voices Questionnaire (BAVQ; Chadwick & Birchwood, 1995), with the addition of some specific questions regarding omnipotence. The questionnaire measures beliefs, feelings and behaviours associated with hearing voices.

The BAVQ-R is a 35 item questionnaire that generates five subscales. There are three subscales relating to beliefs: beliefs about malevolence (six items), benevolence (six items) and omnipotence (six items) as well as two dimensions of coping. Resistance has five items on emotion and four on behaviour, while engagement had four items on emotion and four on behaviour. Each item is rated on a four-point scale. The scale takes less than 10 minutes to complete and Chadwick and Birchwood (1995) reported that no one displayed any distress while completing the original BAVQ.

The scales have sound psychometric properties (Cronbach's Alpha 0.74-0.88; 1 week retest reliability 0.88-0.96). The content validity has also been established in a number of studies (Chadwick *et al.* 2000a; Sayer *et al.* 2000; van der Gaag *et al.* 2003).

2.4.5 The Beliefs About Voices Scale (BAVS) (Adapted from The Beliefs about Paranoia Scale, Morrison *et al.* 2005)

The Beliefs about Paranoia Scale (BAPS) (Appendix 7), was originally developed to assess beliefs about paranoia in non-patients. Paranoia, like hallucinations occurs across disorders and is not unique to clinical populations (Morrison *et al.* 2005). It is connected to interpersonal behaviours and functioning. It is also, in a similar way to hearing voices, associated with attentional bias, negative thoughts, and attributional biases.

The BAPS has 31-items, which includes positive and negative interpretations. Items are scored on a 4-point scale. The reliability (internal consistency) of the BAPS was acceptable (0.93). It measures four factors, namely, negative beliefs about paranoia, beliefs about paranoia as a survival strategy, general positive beliefs about paranoia, and normalizing beliefs about paranoia. The findings of the Morrison *et al.* (2005) study suggest that: people hold both positive and negative beliefs about paranoia; that these beliefs predict the experience of paranoia and; that negative beliefs were predictive of distress, fit with the S-REF model and the metacognitive model of psychosis.

The questions have been altered from referring to paranoia, to referring to voice hearing. This necessitated changing the nature of some of the questions and omitting 2 questions from the scale. The current study will explore similar factors with reference to voice hearing. It is also hoped it will contribute towards predicting subgroups for those who experience voices.

The adapted version will be investigated to establish its psychometric properties. It will also be used to assess strategies used by the different diagnostic groups.

2.4.6 Inventory of Interpersonal Problems (IIP−32) (Barkham & Hardy, 1996).

The IIP-32 (Appendix 8) provides a measure of under and overdeveloped interpersonal strategies. Twenty questions measure aspects that are difficult for the person to do. The phrase 'It is hard for me to' is followed by, for example, 'say no to other people' or 'show affection to other people'. A further 12 questions follow the phrase 'The following are things that you do too much'; examples include 'I open up to people too much' or 'I want to be noticed too much'. A five-point response format is utilized starting at (O), 'not at all', (1) 'a little bit', (2) 'moderately', (3) 'quite a bit', to (4) 'extremely'. A full-scale score can be calculated with higher scores indicating more severe interpersonal problems. Eight subscale scores can also be calculated for the following factors, 'Hard to be assertive', 'Hard to be sociable', 'Hard to be supportive', 'Too caring', 'Too dependent', 'Too aggressive', 'Hard to be involved' and 'Too open'.

This scale will be used to establish interpersonal relating profiles and possible errors prevalent in relationships that may be replicated in interactions with voices. More interpersonal problems could indicate more negative results from hearing voices and contribute to distress.

This scale was developed from a longer Horowitz *et al.* (1998) version that contained 127 items. The shorter version was developed as the longer version was a burden in routine clinical settings and the shorter version provided and 'good enough' measure of the information required to assess interpersonal domains (Hughes & Barkham, 2005).

2.5 Procedure

Psychiatrists, Psychologists, CPN's, ward charge nurses, managers of day centres and voluntary sector users groups were contacted by e-mail, telephone and face-to-face with an outline of the study and were supplied with a patient information sheet and consent form (Appendix 1). The mental health workers were asked to identify any patients, with reference to the inclusion and exclusion criteria, they thought would be appropriate for the study. The workers asked the person if they would be prepared to take part in the research project. Potential participants were then given the patient information sheet and a consent form. This form was completed and returned to the researcher who then forwarded the questionnaires to the address supplied by the participant.

Participants were given contact details for the researcher should they need any help with the questionnaires or if the process of completing the study was distressing. A small number of participants required help completing the questionnaires. There were no reports of distress in connection with the completion of the questionnaires.

All statistical analysis was conducted using SPSS – 16.

2.6 Ethical issues

There were several potential ethical considerations that were addressed in the planning of the study.

The chief investigator had access to the personal information of the participants. This information is securely stored and there is restricted access to this information. This personal information was available once the consent form has been completed and the patient had agreed to participate.

All information is anonymous and confidential. There is no information on the questionnaires or the resulting databases that can match the participants with their consent forms.

The patients may experience distress with elements of the questionnaires, and their voices may become worse, however, their key workers will be aware that they have been invited to take part and the participant will have details of who to contact should they require it. Alternatively, they will have the information on how to contact the chief investigator. The supervised clinician in training carries a caseload and therefore could address any adverse reaction to completion of the questionnaires.

The study proposal was reviewed and approved by the North of Scotland Research and Ethics Committee (Appendix 9).

CHAPTER 3: Results

3.1 Preliminary analysis

In order to establish if the data met the assumptions for normality and homogeneity of variance required for the undertaking of parametric tests, preliminary data analysis was conducted. The data from the questionnaires are ordinal level data. In the present study, several of the subscales were not normally distributed as assessed by examining histograms as well as the skewness and kurtosis of the distribution of the scores. Homogeneity of variance was assessed by way of Levene's test. Levene's test was significant for some of the subscales therefore equal variance cannot be assumed. Some data did not meet the criteria for parametric testing (details of the tests of normality and Levene's tests are presented in Appendix 10).

One option for addressing non-normality and unequal variances is to transform the data (Field, 2009). Both Log and square root transformations were carried out on the data, however the transformed variables did not demonstrate significant improvement in normality. As there were issues with the assumptions required to undertake parametric analysis, non-parametric tests were considered more appropriate and have been carried out where possible in the analysis of the data. When investigating statistical differences Mann-Whitney U tests were carried out. Bivariate correlations are reported as Spearman rho. For the analyses involving partial correlations and regressions parametric tests were utilised. Regression analysis is viewed as

robust, if few assumptions are violated (Field, 2009). Even if assumptions are violated, conclusions can still be made about the sample. However there may be limitations to generalising beyond the sample.

3.1.1 Sample characteristics

The overall mean age of the participants for this study is 38.71 years (SD=9.64). The sample was separated into two groups based on their omnipotence scores as measured by the BAVQ-R. They were separated based on a median split (median = 15). This resulted in 18 participants who scored15 or less being assigned to the low omnipotence group and 16 voice hearers who scored more than 15 being assigned to the high omnipotence group. There were a mixture of ages and gender in each group. A Mann-Whitney U test revealed no significant difference in age between the two groups (low omnipotence and high omnipotence), U=139, p=0.878. Table 3.1 outlines descriptive statistics of the sample.

Seven of the participants are married, two are separated, six are divorced, 18 are single and one participant did not indicate their relationship status. Five participants are employed. All the participants have received psychiatric support at some point. In addition to psychiatric support, many of the participants have multiple health workers involved in their care. The additional support includes: Community Psychiatric Nurses, psychological support and support workers).

Table 3.1: Descriptive statistics of sample characteristics

		Number of participants	Mean	SD	Range
Gender	Female	21			
	Male	13			
Age (years)		34	38.71	9.64	19-57
How many voices		32	3.25	1.92	1-10
Psychiatric treatment?		34			
On medication		32			
Diagnosis	Schizophrenia*	18			
	Other**	16			

*The diagnosis of 'schizophrenia' includes schizophrenia (13), schizoaffective (4) and schizophrenia and depression (1). **The diagnosis of other includes BPD (8), Depression (1), complex PTSD (1), Bipolar (2) and no diagnosis (4).

Many of the participants were previous inpatients with three being inpatients at the time of completing the study questionnaires. Six participants did not indicate how long they had heard voices. Twenty-eight have heard voices for between 4 and 480 months, and of those who indicated the number of voices they hear (32 participants), they hear between one and ten voices.

Twelve of the 13 males and six of the 21 females in the study received a diagnosis of schizophrenia, schizoaffective disorder or schizophrenia with depression. Four females had no formal diagnosis, eight were diagnosed with borderline personality disorder, one with bipolar affective disorder, one with depression and one with complex post-traumatic stress disorder. One male participant received a diagnosis of bipolar affective disorder. The information for the two groups (low omnipotence and high omnipotence) is presented in table 3.2.

Those in the low omnipotence group who were not diagnosed with schizophrenia, had the following diagnoses: no diagnosis (4); borderline

personality disorder (BP) (3) and; depression (1). For those in the high omnipotence group their 'other' diagnoses included: BPD (5); complex post traumatic stress disorder (1) and; bipolar affective disorder (2).

Table 3.2: Group characteristics

Group	Gender		Marital status					Diagnosis	
	Male	Female	Married	Divorced	Separated	Single	No info	Schizophrenia	other
Low omnipotence	6	12	6	2	2	8		10	8
High omnipotence	7	9	1	4		10	1	8	8

In order to establish the subjective experience with reference to the voices they hear, the PSYRATS was completed. Table 3.3 illustrates the descriptive statistics for the PSYRATS questionnaire (complete descriptive statistics for all questionnaires are presented in Appendix 11). The scores indicate that the participants' experience of their voices are minor to moderate, with median scores all being greater than one and with ten of the eleven questions having medians above two. The question regarding the controllability of the voices demonstrates a major problem for participants with a median score of 3.00 (question 11). The participants in general consider that they have control content (question 7) and the intensity of distress indicate occasionally, but for the majority of the time they experience voices that are uncontrollable.

Table 3.3 Descriptive statistics for the PSYRATS subscales

N = 34	Mean	Std. Deviation	Median	Range	Minimum	Maximum
PSYRATS emotion	10.82	4.20	12.00	13.00	3.00	16.00
PSYRATS physical	9.56	2.63	10.00	10.00	4.00	14.00
PSYRATS cognitive	7.18	2.24	7.00	9.00	3.00	12.00
PSYRATS total	27.56	7.30	27.50	26.00	14.00	40.00

Note: Medians and means are reported as when there was no option for non-parametric tests parametric tests were used

Median scores for the duration of the voices (question 2), amount of negative content of voices (question 6), the degree of negative that these areas are a major problem. The median score for question 8, which assesses the amount of distress, is 4.00. This suggests that for the majority of voice hearers in the study their voices are always distressing.

3.2 Hypothesis testing

3.2.1 Hypothesis 1

There will be an association between the malevolence, benevolence and omnipotence of the voice, the engagement and resistance coping strategies (measured by the BAVQ-R) and negative beliefs, positive beliefs, survival strategy beliefs and normalising beliefs (measured by the BAVS).

To assess this hypothesis, the BAVQ-R and the BAVS questionnaires will be used. Descriptive statistics for both questionnaires are presented in Table 3.4.

Table 3.4: Descriptive statistics for the BAVQ-R and BAVS questionnaires

N = 34	Mean	Std. Deviation	Minimum	Maximum
BAVQ-R Omnipotence	15.71	3.69	10.00	24.00
BAVQ-R Malevolence	16.44	4.78	8.00	24.00
BAVQ-R Benevolence	10.29	6.05	6.00	23.00
BAVQ-R Engagement	12.38	5.53	8.00	26.00
BAVQ-R Resistance	26.12	6.09	13.00	36.00
BAVS Negative beliefs	30.03	6.71	20.00	43.00
BAVS Survival beliefs	14.38	5.17	10.00	30.00
BAVS Positive beliefs	5.76	2.83	4.00	14.00
BAVS Normalizing beliefs	6.56	2.88	3.00	12.00

The BAVS measures the voice hearer's experience of their voices on four subscales namely, Negative beliefs, Survival strategy beliefs, General positive beliefs and Normalising beliefs, which are all scored on a four-point scale. For the current study, the BAVS is an adaptation of Beliefs about Paranoia Scale replacing references to paranoia with references to voice hearing for most of the original questions. Two statements could not be appropriately amended and were therefore omitted from the present studies questionnaire. As a result only 29 of the 31 statements were included. The BAVS has not been used for voice hearers and as such there is no information about its relationship with other measures. This hypothesis therefore is exploring the utility of the questionnaire in connection with voices rather than paranoia

The Negative beliefs subscale consists of 12 questions, the Survival strategy beliefs are based on 10 questions, the General positive beliefs are based on 4 questions, and the Normalising beliefs are based on three statements.

The descriptive statistics for the BAVQ-R suggest that for many of the voice hearers in this study they 'agree slightly' or 'agree strongly' that their voices are omnipotent and malevolent. The participants also have a large number of negative beliefs with the mean reflecting scores of having difficulties 'moderately so' or 'very much', whereas the positive and normalising beliefs are endorsed 'not at all' or 'somewhat' as reflected by the mean scores at or below the average across the questions. A correlation table (Table 3.5) follows which details the correlation between BAVS and the BAVQ-R.

Table 3.5: Correlations between subscales of the BAVS and the BAVQ-R: controlling for level of distress

N = 34			Omnipotence	Malevolence	Benevolence	Engagement	Resistance
PSYRATS emotional and BSI grand total	Negative beliefs	Correlation Coefficient	**.444***	**.515****	-.095	-.192	.331
		Sig. (2-tailed)	**.012**	**.003**	.613	.300	.069
	Survival strategies	Correlation Coefficient	.034	-.275	**.635****	**.492****	.266
		Sig. (2-tailed)	.855	.134	**.000**	**.005**	.148
	Positive beliefs	Correlation Coefficient	.229	.211	.329	**.369***	.091
		Sig. (2-tailed)	.216	.254	.070	**.041**	.627
	Normalising	Correlation Coefficient	.112	-.109	**.443***	.235	.340
		Sig. (2-tailed)	.549	.559	**.013**	.203	.061

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

It has been found that level of distress may be implicated in beliefs about voices and the strategies used to cope with the voice hearing. Therefore levels of distress as measured by the grand total of the BSI subscale and the PSYRATS emotional subscale were controlled for in the correlation. There is a significant correlation between negative beliefs (e.g., 'I get upset when I hear voices'), omnipotence (e.g., 'my voice is very powerful) and malevolence (e.g., 'my voice wants to harm me'). Significant correlations are evident for survival strategies (e.g., 'my voices are useful for avoiding trouble'), benevolence (e.g., 'I am grateful for my voice') and engagement (e.g., 'My voice makes me happy'). Normalising beliefs (e.g., 'hearing voices is just human nature') are correlated with benevolence.

3.2.2 Implications of analysis of Hypothesis 1

Significant correlations were found several of the subscales of the BAVS and the BAVQ-R; this is the case even when level of distress is controlled. Therefore hypothesis 1, which predicts an association between the subscales of the BAVS and the BAVQ-R, is supported.

3.3.1 Hypothesis 2

Those who score high on the omnipotent thoughts subscale will experience difficulties with interpersonal problems. The subscales of the IIP-32 will be used to address this hypothesis. Descriptive statistics for the subscales of the IIP-32 are presented in Table 3.3.

The IIP-32 categorises interpersonal issues into eight subscales that are based on summing data from four statements for each subscale. The range of the scale is 0-16, with higher scores indicating more interpersonal problems.

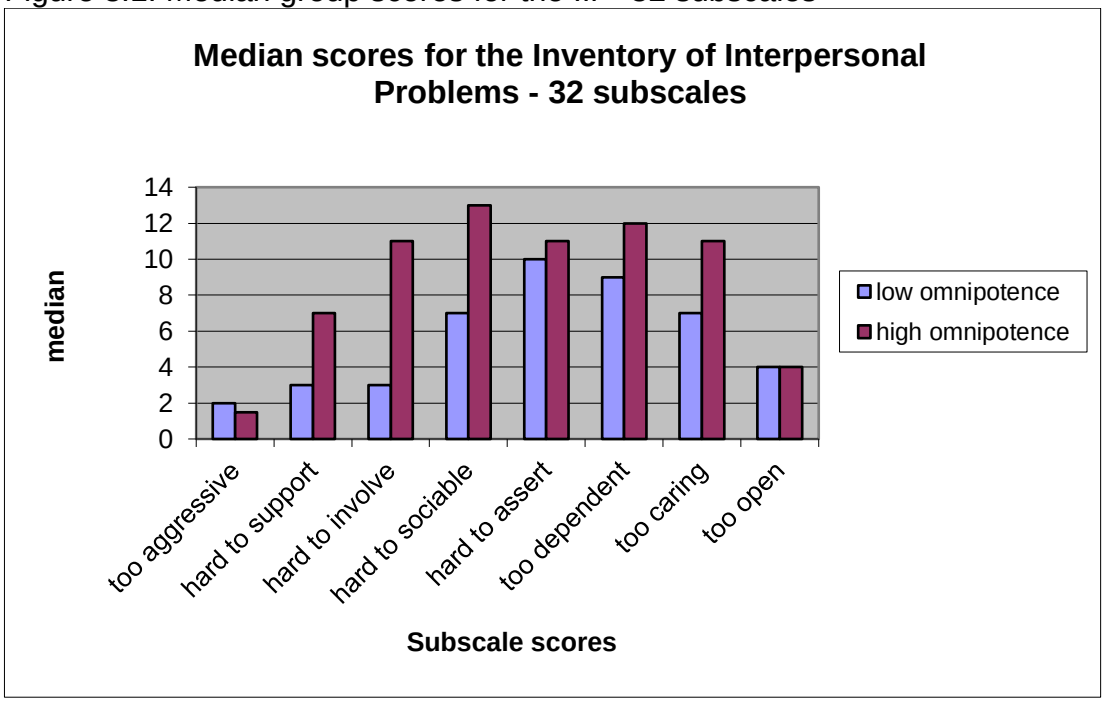
Table 3.6: Descriptive statistics for the IIP-32 questionnaire

N = 34	Mean	Std. Deviation	Median	Range	Minimum	Maximum
IIP-32 Too aggressive	2.85	2.94	2.00	10.00	.00	10.00
IIP-32 Hard to be supportive	5.65	4.96	3.500	15.00	1.00	16.00
IIP-32 Hard to be involved	7.74	5.32	7.00	16.00	.00	16.00
IIP-32 Hard to be sociable	9.85	3.90	9.00	12.00	4.00	16.00
IIP-32 Hard to be assertive	10.00	3.68	11.00	15.00	1.00	16.00
IIP-32 Too dependent	10.03	2.72	10.50	10.00	4.00	14.00
IIP-32 Too caring	9.47	3.31	10.00	11.00	4.00	15.00
IIP-32 Too open	5.09	4.17	4.00	16.00	.00	16.00
IIP-32 total	60.68	20.67	60.00	70.00	32.00	102.00

Note: Medians and means are reported as when there was no option for non-parametric tests parametric tests were used

The descriptives of the IIP-32 (table 3.6) questionnaire suggest that, in general, as reflected by mean scores above the midpoint, the participants have difficulties with being sociable and assertive as well as being too dependent and caring. This pattern suggests difficulty with asserting their own needs and potentially being taken advantage of by other people.

Figure 3.1: Median group scores for the IIP–32 subscales



As illustrated in figure 3.1 the median scores show a difference in the predicted direction for most of the IIP-32 subscales, with the exception of the 'Too Aggressive'(e.g.,' I try to control other people too much') subscale, but the median scores are close to minimum. In the main, those with higher omnipotence scores experience more interpersonal problems.

Table 3.7: Mann-Whitney U tests for IIP-32 subscales

Subscale N = 34	Group	N	Mean rank	U	p	Effect sizes
Too aggressive	Low omnipotence High omnipotence	18 16	18.44 16.44	127	0.574	z=-.60 r=0.10
Hard to be supportive	Low omnipotence High omnipotence	18 16	15.69 19.53	111.5	0.266	z=-1.13 r=0.19
Hard to be involved	**Low omnipotence High omnipotence**	**18 16**	**14.33 21.06**	**87**	**0.050**	**z=-1.98 r=0.34**
Hard to be sociable	**Low omnipotence High omnipotence**	**18 16**	**11.97 23.72**	**44.5**	**0.000**	**z=-3.46 r=0.59**
Hard to be assertive	Low omnipotence High omnipotence	18 16	16.83 18.25	132	0.695	z=-.42 r=0.07
Too dependant	**Low omnipotence High omnipotence**	**18 16**	**14.08 21.34**	**82.5**	**0.033**	**z=-2.15 r=0.37**
Too caring	**Low omnipotence High omnipotence**	**18 16**	**14.11 21.31**	**83**	**0.036**	**z=-2.12 r=0.36**
Too open	Low omnipotence High omnipotence	18 16	17.86 17.09	137.5	0.825	z=-.22 r=0.04
IIP-32 total	**Low omnipotence High omnipotence**	**18 16**	**13.81 21.66**	**77.5**	**0.020**	z=-2.31 r=0.40

A significant difference was found for the 'Hard to be involved'(e.g., 'It is hard for me to show affection to other people') (U=87, p=0.050) 'Hard to be sociable' (e.g., 'It is hard for me to: join in on groups')(U=45.5, p<.001), 'Too dependent'(' I let other people take advantage of me too much') (U=82.5, p=0.033), 'Too caring'(e.g., 'I am affected by another person's misery too much') (U=63, p=0.036) subscales, and for the IIP-32 total U=77.5, p=0.020. Those with higher omnipotence scores have problems with the interpersonal problems included in these subscales. Effect sizes, which are calculated as

$$r = \frac{z}{\sqrt{N}}$$

for each of the subscales, as described by Field (2006) were calculated. The effect sizes for these subscales are generally small to medium, although the 'Hard to be sociable' subscale shows a large effect size (referring to

Cohen's benchmarks: r = .10 (small effect); r = .30 (medium effect); r = .50 (large effect) (Field, 2009, p57)). Table 3.7 shows the information for all the subscales.

3.3.2 Implications of Hypothesis 2

Some of the subscales on the IIP-32 show significant differences between those who scored higher on omnipotence and those with lower omnipotence scores. The differences between the groups suggest that those with powerful and controlling voices have little social interaction however also depend on other people and meet other people's needs, while not being able to have their needs met. The results of the IIP-32 subscales offer partial support for the hypothesis that the two groups of participants will differ in their interpersonal issues.

3.3.1 Hypothesis 3

3a). Participants with higher omnipotence subscale scores will experience more distress as measured by the BSI subscales.

3b). Participants will also use more dysfunctional emotion regulation strategies if their omnipotence scores are high (as measured by higher scores on the REQ subscales.

3c). Increased levels of distress (as measured by the PSYRATS emotional subscale and the BSI grand total) and increased interpersonal problems will predict the use of dysfunctional emotion regulations strategies.

Two separate non-parametric tests will assess hypotheses 3a and 3b, with the BSI subscales being used in the first analysis and the REQ subscales assessed in the second analysis. Regression analysis will used to assess prediction of dysfunctional emotion regulation strategies

3.3.2 Brief Symptom Inventory

The Brief Symptom Inventory measures a range of symptoms that have distressed or bothered the person during the past seven days. The BSI has 9 subscales measuring somatic, obsessive compulsive, interpersonal, depressive, anxiety, hostility, phobic anxiety, paranoid and psychotic problems. Each item is ranked on a scale from 0 (not at all) to 4 (extremely). Four items are not factored in any of the subscales, but as they are considered clinically important, they are included in the grand total (Derogatis, 1975).

The mean subscale scores (table 3.8) for the depression and anxiety subscales suggest that the participants were ‘moderately’ bothered by these symptoms in the past week. For obsessive compulsive, interpersonal, phobic anxiety, paranoid and psychotic symptoms, the means are above the midpoint, suggesting that the participants are bothered ‘moderately’ or ‘quite

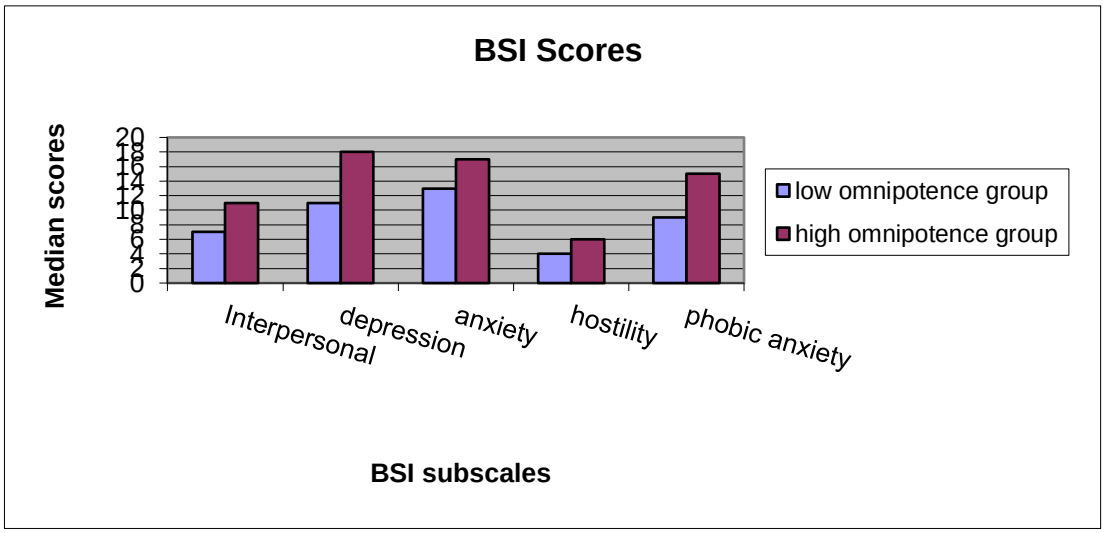
a bit' by these symptoms. However the participants are only bothered 'not at all' or 'a little bit' by somatic and hostility symptoms.

Table 3.8: Descriptive statistics for the BSI questionnaire

N=33 for BSI questionnaire	Mean	Std. Deviation	Median	Range	Minimum	Maximum
BSI somatic	8.52	6.65	7.00	25.00	.00	25.00
BSI obsessive compulsive	14.18	5.10	15.00	18.00	5.00	23.00
BSI Interpersonal	9.70	4.00	10.00	13.00	3.00	16.00
BSI Depression	13.79	6.92	12.00	23.00	1.00	24.00
BSI anxiety	13.85	5.39	15.00	21.00	1.00	22.00
BSI hostility	6.55	5.56	4.00	20.00	.00	20.00
BSI phobic anxiety	10.39	5.93	11.00	18.00	2.00	20.00
BSI paranoid	10.18	4.76	10.00	16.00	2.00	18.00
BSI psychotic	10.30	5.12	10.00	18.00	1.00	19.00
BSI Grand total	105.94	41.66	114.00	146.00	32.00	178.00

Note: Means and median are reported as when there was no option for non-parametric tests, parametric tests were used

Figure 3.2: Median group scores for the BSI subscales



It was not anticipated that the participants answering the BSI would experience differences in somatic or obsessive compulsive complaints; therefore these two subscales were omitted from further analysis. The psychosis and paranoia subscales were also excluded because of a

conceptual overlap with voice hearing. The study does not aim to confirm an association between psychosis and voice hearing, but is interested in distress

Table 3.9: Mann-Whitney U tests for BSI subscales

Subscale	Group	N	Mean rank	U	p	Effect sizes
Interpersonal	Low omnipotence High omnipotence	18 15	15.17 19.2	102.00	0.244	z=-1.20 r=-0.21
Depression	Low omnipotence High omnipotence	18 15	14.94 19.47	98.00	0.190	z=-1.30 r=-0.21
Anxiety	Low omnipotence High omnipotence	18 15	16.00 18.2	117.00	0.532	z=-0.65 r=-0.11
Hostility	Low omnipotence High omnipotence	18 15	16.03 18.17	117.5	0.532	z=-0.64 r=-0.11
Phobic anxiety	**Low omnipotence High omnipotence**	**18 15**	**13.86 20.77**	**78.5**	**0.040**	**z=-2.05 r=-0.36**
Grand total	Low omnipotence High omnipotence	18 15	15.67 18.60	111.00	0.401	z=-0.87 r=-0.15

and interpersonal problems; therefore the paranoia and psychosis subscales were omitted. However as a general indicator of distress the BSI grand total will be used. Descriptive statistics for subscales and grand total are presented in Table 3.8. One person did not complete the BSI, therefore all results are based on 33 participants. As illustrated in Figure 3.2, the median scores show a difference in the predicted directions for all the subscales, with those with higher omnipotence experiencing more symptoms during the week in which they completed the questionnaire. Mann-Whitney U scores are presented in table 3.9. The only significant difference between the two groups is for the phobic anxiety subscale (e.g., 'Feeling afraid to travel on buses, subways, or trains') (U=78.5, p=.04). The effect sizes are small, with only the phobic anxiety subscale effect size being medium.

3.3.3 Regulation of Emotion Questionnaire

The REQ questionnaire categorises emotion regulation strategies as either functional or dysfunctional and as internally or externally regulated. The scores for the subscales for Internal-Dysfunctional, External-Dysfunctional and the Internal-Functional are based on the sum of 5 items for each subscale. The resultant range is between 5 and 25. For the External-Functional subscale six items are summed with a possible range from 6 to 30.

The descriptive statistics demonstrate that the participants in general use the External-Functional, Internal Functional, and Internal-Dysfunctional emotion regulation strategies 'often', whereas Internal-Dysfunctional regulation strategies are used 'seldom'. This pattern is different to the results reported in Phillips and Power (2007); their highest mean was for the Internal-Functional subscale followed by the External-Functional subscale. In the current study the highest means are for the Internal-Dysfunctional and External-Functional subscales. The lowest mean for the current study is for the External-Dysfunctional subscale, which is congruent with the Phillips and Power (2007) study and the Livingstone *et al*. (2009) study.

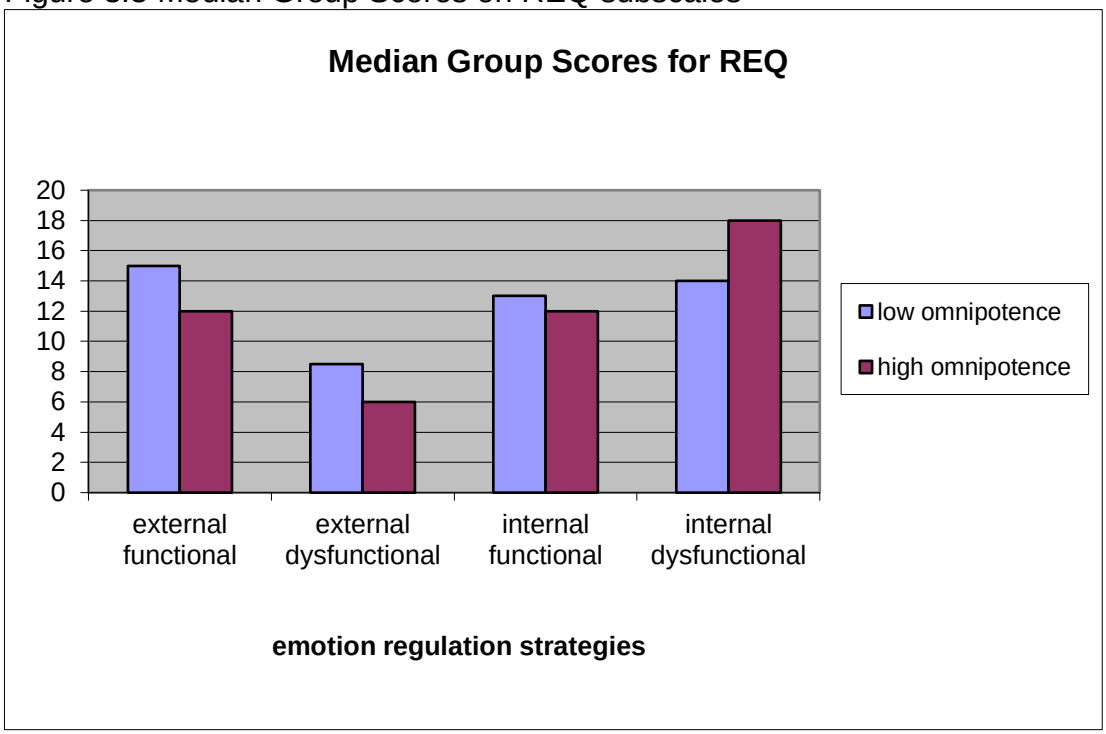
For all the subscales, higher scores indicate a greater use of the strategy. Descriptive statistics for all subscales of the REQ are included in Table 3.10. Table 3.7 illustrates the rank mean scores as well as the outcome of the Mann-Whitney U tests. Figure 3.3 demonstrates the median omnipotence group scores for the REQ subscales.

Table 3.10: Descriptive Statistics for the REQ subscales

N = 34	Mean	Std. Deviation	Median	Range	Minimum	Maximum
REQ External-functional	14.65	4.73	15.00	22.00	7.00	29.00
REQ External-Dysfunctional	8.44	4.66	7.00	20.00	5.00	25.00
REQ Internal-Functional	12.29	3.12	12.00	18.00	6.00	24.00
REQ Internal-Dysfunctional	16.03	3.73	16.00	15.00	8.00	23.00

Note: Medians and means are reported as when there was no option for non-parametric tests parametric tests were used

Figure 3.3 Median Group Scores on REQ subscales



A Mann-Whitney U revealed a significant effect for the External-Functional subscale (e.g., 'I telephone friends or family'), U=75, p=0.017. The rank scores indicate that those with lower omnipotence scores (N=18, mean rank 21.33) used more of these strategies than those with higher omnipotence scores (N=16, mean rank 13.19).

As Table 3.11 illustrates, there was a significant difference in the rank scores for the External-Dysfunctional subscale (U=73, p=.014), although not in the predicted direction. Those with low omnipotence (rank score 21.44) scores

use more External-Dysfunctional strategies than those whose omnipotence scores are higher (rank score 13.06). As illustrated in Figure 3.3, median values for those with higher omnipotence scores suggest that they use more Internal-Dysfunctional strategies, but the result approaches statistical significance.

Table 3.11: Mann-Whitney U tests for the REQ subscale

Subscale	Group	N	Mean rank	U	p	Effect size r
External-Functional	**Low omnipotence** **High omnipotence**	**18** **16**	**21.33** **13.19**	**75**	**0.017**	**z=-2.41** **r=-0.41**
External-Dysfunctional	**Low omnipotence** **High omnipotence**	**18** **16**	**21.44** **13.06**	**73**	**0.014**	**z=-2.50** **r=-0.43**
Internal-Functional	Low omnipotence High omnipotence	18 16	19.17 15.62	114	0.313	z=-1.07 r=-0.18
Internal-Dysfunctional	Low omnipotence High omnipotence	18 16	14.44 20.94	89	0.059	z=-.1.92 r=-0.33

3.3.4 Implications of the analysis for Hypotheses 3a and 3b

Those people with lower omnipotence scores were found to use significantly more External-Functional emotion regulation strategies (such as talking to someone about how they are feeling). This would be what is expected as these strategies are appropriate and adaptive. However, the results also indicate that those who have lower scores with reference to viewing their voices as powerful and controlling, also use significantly more External-Dysfunctional strategies. This is not in the predicted direction. With reference to Internal-Dysfunctional strategies, this result is in the predicted direction, but failed to reach significance.

The BSI phobic anxiety subscale shows significant results. Participants with higher omnipotence scores experience more problems with phobic anxiety.

The effect sizes represent small effect sizes, which tells us that the effect of omnipotence levels on the BSI subscales is a minimal effect.

Hypothesis 3a is therefore not supported with reference to dysfunctional emotion regulations strategies and hypothesis 3b is only partially supported for one subscale of the BSI questionnaire.

3.3.5 Predictor Analysis

As demonstrated above, interpersonal difficulties are apparent in people who hear voices, and particularly problematic for those who experience their voices as more omnipotent than others. Research suggests that the voice hearing experience may be influenced by beliefs and levels of distress. But, high levels of distress are experienced by many people who do not go on to experience voices, thus emotion regulation may be one of the factors that mediate the outcome of the experience. In this study one element of a person's belief about their voices (namely, beliefs about omnipotence) is not clearly a distinguishing symptoms. Therefore there may be a different approach that can be used to differentiate the experience of voice hearers. Emotion regulation strategies may be the outcome that differentiates the experience.

Table 3.12 presents the correlation between the predictor variables and the outcome variables. There are no significant correlations between the three distress subscales used in the first step of the analyses; these subscales are

measuring different aspects of distress. However all three distress subscales correlate with the omnipotence score, thus they may be overlap in the areas they are measuring. The PSYRATS emotion subscale and the Omnipotence subscale correlate negatively with the REQ Eternal-Dysfunctional strategies. For the REQ Internal-Dysfunctional strategies, only the PSYRATS emotional subscale is not correlated.

Table 3.12: Correlation between distress, omnipotence, and dysfunctional emotion regulation strategies

N = 33 for BSI grand total; N = 34 for other subscales			BSI grand total	PSYRATS emotion	IIP-32 total	Omnipotence
Spearman's rho	REQ External-Dysfunctional	Correlation Coefficient	.052	**-.433***	-.232	**-.376***
		Sig. (2-tailed)	.774	**.011**	.187	**.029**
	REQ Internal-Dysfunctional	Correlation Coefficient	**.753****	.297	**.455****	**.455****
		Sig. (2-tailed)	**.000**	.089	**.007**	**.007**
	BSI grand total	Correlation Coefficient	1.000	.234	.340	**.361***
		Sig. (2-tailed)	.	.189	.053	**.039**
	PSYRATS emotion	Correlation Coefficient		1.000	.177	**.468****
		Sig. (2-tailed)		.	.316	**.005**
	IIP-32 total	Correlation Coefficient			1.000	**.461****
		Sig. (2-tailed)			.	**.006**
	Omnipotence	Correlation Coefficient				1.000
		Sig. (2-tailed)				.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Two multiple linear regressions were employed to help determine the unique contribution of distress measured by the BSI, IIP-32 and PSYRATS emotion subscales, with the addition of beliefs about the omnipotence of the voice to the predicted use of dysfunctional emotion regulation strategies in the current

sample of voice hearers. The totals for the BSI and PSYRATS emotional subscale and the IIP-32 total were chosen as they represented the general measures of distress, both emotional and interpersonal. It is suggested that for every predictor in the model there should be between 10 and 15 cases of data (Field, 2009). As there were 34 participants in the study, three predictors would be the most appropriate number to include if the lower limit of 10 was utilised, but beliefs are reported to be important in the voice hearing experience and therefore an additional predictor was added. To assess the contribution of distress and omnipotence to the dependent variable (REQ External-Dysfunctional and Internal-Dysfunctional emotion regulation strategies), the BSI grand total, the PSYRATS emotion subscale and the IIP-32 total were entered in the first step. Omnipotence was then entered in step 2.

Three extreme multivariate outliers were identified using Mahalanobois distance, but upon examination these cases had a reasonable and logical range of responses and were therefore not deleted from the subsequent analysis.

For fuller information on the regression analysis refer to Appendix 12. The data were analysed to establish if the assumptions for regression were met. If met this would result in the model being generalisable beyond the current sample. For the current models, the tolerance and VIF values indicate that there is no reason for concern about the collinearity within our data (VIF<10, tolerance >.2, Field, 2009)) (see appendix 12 for details). Histograms and

plots of the residual are included in Appendix 12. These suggest that there is some violation of the assumptions of heteroscedasticity, although this does not seem to be extreme. However it does suggest that generalisation of the model from the present sample to the population is limited. The Durbin-Watson statistic tells us whether the assumption of independent errors is tenable. The closer to 2 that the value is, the better, and for both regression models the figure is close to 2 (External-Dysfunctional = 2.06 and Internal-Dysfunctional = 2.21); therefore the assumption is met.

The model summary for each of the outcome variables is presented in Appendix 12, with relevant data presented in tables 3.13 and 3.14. For the External-Dysfunctional scale, the distress subscales explain 39.1% ($R = .63$, $R^2 = .39$, adjusted $R^2 = .33$ for step 1, $p = .002$) of the variance in the use of External-Dysfunctional emotion regulation strategies and is statistically significant ($F(3,29) = 6.22$, $p = .002$. Adding the omnipotence score does not add much to the total (an increase of 0.03%) ($R = .63$, $R^2 = .39$, adjusted $R^2 = .31$ for step 2, $p = .740$), but the model is significant ($F4,28) = 4.55$, $p = .006$). For the Internal-Dysfunctional outcome variable, distress explains 62.6% ($R=.79$; $R^2=.63$ for step 1, adjusted $R^2=.59$, $p<.001$) of the variance, which is statistically significant ($F(3,29) = 16.15$, $p < .001$) and the variance explained increases to 63.8% ($R=.80$, $R^2=.64$, adjusted $R^2=.59$, for step 2, $p=.339$) also statistically significant ($F(4,28) = 12.33$, $p<.001$) when the omnipotence subscale is entered. The distress variables are the best predictors of the outcome for both dysfunctional emotion regulations strategies, with little being added by the inclusion of the beliefs about omnipotence.

Table 3.13: Regression summary statistics for Internal-Dysfunctional emotion regulation strategies

Internal-Dysfunctional	B	SE B	β	t	p
Step 1					
Constant	6.14	1.77		3.47	.002
PSYRATS emotion	.11	.11	.33	1.00	.325
BSI grand total	**.06**	**.01**	**.66**	**5.38**	**.000**
IIP-32	.04	.02	.22	1.78	.085
Step 2					
Constant	5.05	2.09		2.41	.023
PSYRATS emotion	.05	.11	.05	.44	.664
BSI grand total	**.05**	**.01**	**.63**	**4.95**	**.000**
IIP-32 total	.03	.02	.17	1.37	.183
$R^2\Delta$ = .04, F(1,29) = 3.18, p = .09 ns.					

Table 3.14: Regression summary statistics for External-Dysfunctional emotion regulation strategies

External-Dysfunctional	B	SE B	β	t	p
Step 1					
Constant	14.53	2.81		5.19	.000
PSYRATS emotion	**-.60**	**.17**	**-.53**	**-3.56**	**.001**
IIP-32	**-.08**	**.04**	**-.35**	**-2.27**	**.031**
BSI grand total	**.05**	**.02**	**.43**	**2.72**	**.011**
Step 2					
Constant	13.93	3.37		4.13	.000
PSYRATS emotion	**-.62**	**.19**	**-.56**	**-3.27**	**.003**
BSI grand total	**.05**	**.02**	**.41**	**2.51**	**.018**
IIP-32 total	**-.08**	**.04**	**-.37**	**-2.22**	**.035**
Omnipotence	.09	.26	.06	.34	.740
$R^2\Delta$ = .11, F (1,29) = 5.14, p=.03					

For the External-Dysfunctional outcome, all the distress subscales are making a significant contribution to the first model; for the second model all three predictors are influencing the use of External-dysfunctional emotion regulation strategies, but omnipotence beliefs are not making a significant contribution. When looking at Internal-Dysfunctional strategies, only the BSI grand total is making a contribution to the outcome in both models.

3.3.6. Implications of Hypothesis 3c

The regressions show that distress and interpersonal difficulties contribute to the use of dysfunctional emotion regulation strategies. However, beliefs about the omnipotence of the voices does not add to the use of dysfunctional emotion regulation strategies.

CHAPTER 4: Discussion

4.1 The sample

The aims of the current study were to explore the experience of the voice hearing for those who hear voices, irrespective of their diagnosis. The specific experiences that were investigated include emotion regulation strategies, beliefs about voices, interpersonal difficulties and other potential symptoms (like anxiety, depression, phobic anxiety, hostility and aggression) that the person endures. Thirty-four voice hearers completed the questionnaires. The sample were, in terms of the inclusion criteria, relatively unselected.

The participants' experience of mental health professionals was varied, although all had been in contact with psychiatric services in the past. This would suggest that their voice hearing experiences were intrusive enough for them to seek help. Therefore the results reflected in this study may not be reflective of 'voice hearers', as not all voice hearers are distressed or view their voices as unpleasant. Rather this study may reflect the views of those voice hearers whose experience of voices, at some point, resulted in contact with services. The results of the PSYRATS questionnaire also support the severity of the voice hearing experience for the participants in the current study. This could be the result of the design of the study as a majority of the participants were identified and invited to take part by their mental health workers. Therefore the bias may have been toward those who were still

being distressed by their experience of voices and are therefore receiving psychiatric, psychological and CPN support.

The amount of time the participants had experience of hearing voices was also varied. This was not accounted for in the analyses of the questionnaires and therefore could be a confounding variable.

The diagnoses given to the participants seem to follow the perceived diagnostic bias. All but one male were placed in the 'schizophrenia' category, whereas for females six (of the 21 female participants) were placed in the 'schizophrenia' category. All the participants heard voices, which is often associated with schizophrenia, yet more males received the diagnosis. There were a variety of diagnoses given to the participants, with a common feature being the experience of voice hearing. This offers support for the continuum approach to symptoms. The profile of the participants in the current study is different from some of the research looking at voice hearing in patients diagnosed with psychosis or schizophrenia. In these studies there are often more male participants in the voice hearing group (Karatzias *et al*. 2007; Morrison *et al*. 2004). This seems to be the result of the diagnostic bias where males who hear voices are given a schizophrenia diagnosis. If this study has differentiated the groups according to diagnosis, this would have been the case. However the current study used a different method of differentiating voice hearers and therefore the spread of gender was more equitable. But this may make the comparison and interpretation of the results more problematic.

Despite psychiatric support and medication, the PSYRATS scores indicate that for the current sample, voices are still causing problems with their mental health, specifically distress: in particular participants report having little control over their voices and being affected by the duration of the voices, the amount and degree of negative content and the intensity and amount of distress experienced as a result of hearing voices. This could link in to the strong association with emotional distress. According to Hanssen *et al.* (2005), feelings of uncontrollability are associated with emotional states and can contribute to the onset of delusions. Birchwood *et al.* (2004) found that distress and depression are linked with people appraising their voice as having more power than themselves. Similar processes could also be operating in voice hearing, leading to emotional, cognitive and physical signs of distress.

The PSYRATS scores were similar to those of Haddock *et al.* (1999) in their study assessing the reliability and validity of the questionnaire for schizophrenic and schizoaffective patients. They also reflect, in general, the scores obtained by Sanjuan *et al.* (2004) from their psychotic patients. Therefore voice hearers in the current study are experiencing difficulties with aspects of their voice hearing that is similar to other larger samples. The study did not include the additional question regarding pleasurable perceptions of voices that was included in the Sanjaun *et al*. (2004) study, which may have demonstrated additional differences between the two groups of voice hearers. For participants in Sanjuan *et al*. (2004) whose voices are

pleasurable, their general scores were lower although they experienced similar numbers of hallucinations. Including these items could help differentiate subgroups of voice hearers.

Evidence regarding the length of time participants had heard voices was not investigated as the information was not available for all participants and the accuracy could not be confirmed. However many of the participants indicated that they had heard voices for longer than 10 years. Sanjuan *et al*. (2004) suggest that those who have more lifetime exposure to hallucinations may develop more adaptive coping mechanisms. It would therefore be interesting to establish if this is the case for voice hearers with similar levels of distress to the participants in the current study.

Evidence is accumulating about the questionable utility of the diagnostic category of schizophrenia (Bentall, 2006); in addition to the amassing evidence for the continuum conception of symptoms, it was considered appropriate to consider differentiating participants, not based on their diagnosis, but according to aspects of their 'complaints' or symptoms. The participants in the current study were separated based on an area that is receiving support with reference to the distress associated with voices.

Omnipotence has been linked with distress and depression (Birchwood *et al.* 2000a; Chadwick & Birchwood, 1995), and therefore prior to analysis was perceived to be the most appropriate way to differentiate the two groups of voice hearers. It has also been suggested that 'the perceived power of the

voices may contribute to deterioration in mental functioning in psychosis' (Lucas & Wade, 2001, p55). This could be similar for voice hearers. Splitting the omnipotence scores could identify groups with different levels of functioning. Separating the participants in this way overcomes the limitation of categorical diagnostic criteria. Unfortunately it was beyond the scope of the present study to investigate the most appropriate differentiating variable. This requires future research.

The current research supports the occurrence of voice hearing across diagnoses. It also suggests that voice hearing can be distressing for voice hearers, irrespective of diagnosis.

4.2 Beliefs

It was hypothesised that there would be an association between the two voice belief scales. Correlations cannot distinguish cause and effect, however they demonstrate that variables have shared variance. In the current study several variables are correlated. The participants held both positive and negative beliefs about their voice hearing experience.

Negative beliefs are significantly associated with omnipotent and malevolent beliefs. This association with malevolence and omnipotence has been found in other studies (Chadwick & Birchwood, 1995; Morrison *et al.* 2004) and offer initial support for the appropriateness of the BAVS in identifying aspects of voice hearing. Negative beliefs about voices may have a profound impact on the distress associated with voice hearing, especially anxiety and

depression (van der Gaag *et al.* (2003), and on the techniques developed and used to deal with the experience itself or the distress (Morrison, 1998). Alternatively, these beliefs may be the result of the actual voice hearing experience. These thoughts about voices are therefore crucial in the potential development and subsequent maintenance of the reaction to the voices. The significant correlations were present even when level of distress was controlled. This suggests that there are factors other than distress that are impacting on the association between these metacognitive beliefs about voice hearing. 'Morrison *et al*. (2000) suggest that it may be the development of negative beliefs about hallucinations that underlies the transition from normal to pathological hallucinatory experiences' (Morrison *et al*. 2005, p155). Therefore the assessment and formulation of negative beliefs is important, not only for understanding the stance of the person who hears voices, but also for identification of intervention strategies. In addition understanding these beliefs could contribute to theoretical ideas about the development and course of the voice hearing experience.

Csipke and Kinderman (2006) discovered that beliefs about voices do not change even when the frequency and severity of the voices decline. Establishing the beliefs people hold will therefore be important for effective treatment. In addition they will also be important in assessing potential relapse, as people may be functioning appropriately, but their negative beliefs and their resistive coping techniques may make them vulnerable to distress and symptom exacerbation.

Many of the questionnaires that are used to assess the experience of those who hear voices are skewed toward the negative. The BAPS addresses this by incorporating positive and normalising beliefs. If similar elements could be added to measures already in use, then a clearer picture of the voice hearing experience may emerge; this could be useful in clinical practice. Normalising beliefs were significantly associated with a benevolent view of voices. The degree to which voices are considered normal have been reported to distinguish service use (Jones *et al.* 2003). This has implications for potential treatment techniques. It has been suggested that a benevolent view of voices, including positive and optimistic beliefs may protect against distress and the need for care (Jones *et al.* 2003). If in some way normalising the experience can encourage benevolence, then for some people who hear voices, normalising can have a positive impact on their mental health.

Survival strategies were correlated with benevolence; survival and positive beliefs were correlated with engagement. Benevolence and engagement are often correlated in research as (Sayer *et al.* 2000), when voices are seen as 'kindly' are engaged. Therefore the view of voices as a survival strategy could be encouraging people to engage with their voices. Thus, if changing beliefs is difficult, there may be advantages to changing the way the person conceptualises and relates to the voice. In addition, encouraging more adaptive coping strategies such as engagement could help with changing the emotional reaction and beliefs about the intention and powerfulness of the voices.

It is possible that people have an ambiguous view of their voices and may have some that are benevolent and others that are malevolent (Sayer *et al.* 2000). The current study did not ask for information on specific voices (but participants did hear multiple voices) and therefore no conclusion can be made about which participants experience positive and negative voices and if this impacts on their beliefs depending in which voice is more dominant. Although the extent of distress as indicated by the PSYRATS would suggest that, in general, the participants have more negative interactions. A balance will need to achieved in reinforcing the positive qualities of voices, while diminishing the negative impact of other voices.

The current study did not investigate the persons beliefs in general; this may have given insight into the participants thought processes in general which could have an impact on their beliefs about voices. Baker and Morrison (1998) suggest that beliefs about thought processes, the advantages and disadvantages of various types of thinking and beliefs about the content of thoughts may be implicated as vulnerability factors in emotional dysfunction. Therefore assessing general beliefs may be important, as treating beliefs about voices may not address the underlying vulnerability, as this may be only a part of the overall picture.

What the current study adds to the existing evidence

The BAVS subscale has not previously been used for assessing voice hearing experiences. However the correlations suggest it may be measuring aspects of the voice hearing experience, especially thoughts regarding the

negative aspects of voice hearing, as well as showing a connection between normalising beliefs and the potential relationship with views about the voice's benevolence and way of managing the voices through engagement.

It would be interesting with a large data set to explore which factors regarding voice hearing are captured and if these reflect beliefs about paranoia. Perhaps an amalgamation of the BAVQ-R and the BAVS could capture specific beliefs (malevolence, benevolence, omnipotence) as well as more general thoughts about voices (negative beliefs, beliefs about voices as a survival strategy and positive beliefs). This could help with assessing which beliefs could be detrimental to the person's functioning and where intervention may need to be targeted. Perhaps including more positive and adaptive beliefs could also help establish what is helpful to voice hearers who do not seek help, thus informing intervention procedures. The median scores for normalising, positive beliefs and beliefs as a survival strategies are proportionately lower than for the negative beliefs. Interventions may need to re-balance the experience of beliefs. The BAVS may be an appropriate tool to asses the imbalance.

Investigating beliefs about voices for people who have pleasurable experiences of voices within the psychiatric population could be an interesting area of research. The differences between their pleasurable and distressing voices could help target treatment for that person and inform strategies to help those with negative beliefs change their perceptions of their voices.

The current study suggests a link between negative beliefs, malevolence and resistant coping strategies in a group of voice hearers which has not previously been investigated. As negative beliefs as well as beliefs about the intention of the voices and the person's coping strategies can add to the distress and to subsequent relapse, this link could add to the knowledge and potential development of targeted effective intervention strategies.

4.3 Interpersonal problems

One of the aims of the study was to identify interpersonal issues those who hear voices may experience. Evidence has shown that voice hearers often isolate themselves from other people, are affected by family stress and relationships, and that these difficulties could be reflected in their relationship with their voices (Sorrell, Hayward & Meddings, 2010). Investigating interpersonal difficulties could help identify where skills may be lacking, which areas need improvement and also highlight areas which could be used to change the person's social relationships as well as their relationship with their voices.

It was hypothesised that those who consider their voices as powerful and controlling would experience more difficulties with relationships and relating to others than those whose perceptions of omnipotence were lower. The results from the current study suggest that those with higher omnipotence scores find it particularly hard to be involved, hard to be sociable and consider themselves as too dependent as well as too caring. Overall the

participants in the higher omnipotence groups have general difficulties with interpersonal problems as reflected by the significant difference in IIP-32 total score. With reference to the content of some of the questions, those with higher omnipotence scores find it harder show affection for, get along with, feel close to or experience a feeling of love for other people. They have difficulty joining in groups, introducing themselves to new people, socialising with others and asking other people to get together socially with them. They put other people's needs before their own, try to please other people too much, are overly generous to other people and are affected by another person's misery too much. In addition, those with higher omnipotence scores differ significantly from those with lower scores on the omnipotence subscale in finding it hard to say no to other people, letting others know that they are angry, being assertive without worrying about hurting the other person's feelings and they let other people take advantage of them too much.

Finding it hard to socialise irrespective of whether this precedes or post dates voice hearing has implications for maintaining dysfunctional beliefs and distress. If people are isolated they are not able to disconfirm their maladaptive beliefs (Garety *et al.* 2001). For some voice hearers this isolation results in a worsening of voice hearing and increases their distress. Not being able to make new friends or socialise with people can mean that new coping strategies are not witnessed and old maladaptive strategies are reinforced.

Morrison *et al*. (2006) demonstrate in their study that people with a high risk of developing psychosis had higher negative meta-cognitive beliefs and beliefs about rejection and criticism from others than a non-patient sample. Birchwood (2003) suggests that patients feel shamed and socially subordinated because of their psychosis; the results from the present study support this with reference to voice hearers. The results from the present study suggest that the participants with higher omnipotence scores find it hard to be close to other people and try to please them perhaps in an attempt to prevent criticism and rejection from other people. The median scores for both groups regarding the too caring question were high, indicating that participants, in general are quite a bit or extremely 'too caring'.

The current research did not ask respondents to reply to the IIP-32 questions with reference to their voices, but with reference to general relationships in their lives. No definitive conclusion can be drawn about the similarity of social interaction and interacting with voices, although the results of the Birchwood *et al*. (2004) study indicate that those with lower social status in relation to other people perceived themselves to be more powerless and if they saw themselves as having a lower social status; this was mirrored in their relationship with their voices. In addition, if the voices had more power, they were more distressed.

An individual's interpersonal difficulties overlap with their difficulties to relate to internal events and to regulate negative emotions (Birchwood *et al.* 2004) not necessarily in a straightforward association between their relationship to

their voices and their relationships in their interpersonal world. Being too caring includes ideas about putting other people's needs before your own, trying to please others, being too generous and being affected by other people's misery. It would be interesting to investigate if this is replicated in the person's relationship with their voices, making them vulnerable to being affected by the misery expressed by the voices or if it translates into them being encouraged to act on the instructions of the voices. This coupled with difficulties with socialising could create multiple problems for the voice hearer.

If these interpersonal difficulties are identified, interventions can be developed to enhance social skills. Developing a caring attitude towards yourself can also be encouraged, and may be therapeutic (Birchwood *et al.* 2004). The voice hearer may already have the skills to do this as they have indicated that they are too caring of others. This skill can then be amended to refer to the self. If interpersonal difficulties are the most difficult aspect for some voice hearers, a two-pronged approach incorporating Cognitive Behaviour Therapy with Interpersonal Therapy could help lessen the negative impact of voice hearing.

Interpersonal problems offer one avenue in addressing the experience of voice hearing. Clinically distress could be reduces with the development of less maladaptive relationships between the voices and the voice hearer (Sorrell *et al*. 2010). It would be interesting to find out if there is a link between interpersonal difficulties and emotion regulations strategies. Using

appropriate emotion regulation strategies could help with interpersonal interactions, which in turn could expose the person to alternative appropriate responses. The IIP-32 results demonstrate that those who feel less powerful (with higher omnipotence scores) have more problems with relationships. These can be transferred to the person's inner experience with their voices (Birchwood *et al*. 2004).

The contribution of the current study

The IIP-32 is used to identify problems in interpersonal relationships, but is not routinely part of assessment in psychiatric diagnoses, and is not commonly used in the voice hearing population. But interpersonal problems and in particular social interactions can be problematic for people who hear voices, and in this study, this concept has been supported. This study is consistent with research showing that people with schizophrenia have difficulties with interpersonal problems (Startup, 1998). In the Startup (1998) study, patients rated their interpersonal problems, with regards deificits as less severe than their keyworkers rated them, but 'overestimate the degree to which they put other people's needs before their own (Too Caring subscale) (p305). Therefore the problems may be much worse than indicated in the current study. Birchwood *et al.* (2000) suggest that difficult childhood experiences can result in negative schemas, especially those based on social humiliation and subordination, and these can trigger and contribute towards the maintenance of voices and paranoia. In the current study many of the participants felt their voices were omnipotent and malevolent and experienced social interaction problems.

It would also be interesting for future research to establish if there are patterns of interpersonal problems that exist for voice hearers, and if these patterns identify subgroups of voices hearers.

The lack of significant results, with reference to the current study for the other subscales, could be the result of a number of factors (some of which are discussed below in section 4.5). As Startup (1998) discovered in his study, the patients rated their problems as less severe than ratings from their key workers. The schizophrenic patients considered themselves to have fewer deficits than the general population and outpatients. The current study did not consider diagnosis in group assignment and therefore it may be that the presence of schizophrenic and other diagnoses in both groups could be affecting the results as some of the group members may be under reporting deficits.

If interpersonal problems are an issue, they could be assessed to establish groups of patients who exhibit similar problems. In order to alleviate some of the social difficulties, support groups and groups that are run along the lines of the Hearing Voices Network could be more frequently utilised and encouraged. Group interventions and Social skills groups have been around for many years, but subgroups of individuals with differing beliefs about their voices, different interpersonal difficulties and who utilise specific emotion regulation strategies may benefit from different aspects of these groups. It may be that the groups need to be tailored to the specific subgroup of voice hearers. Including voice hearers from different diagnostic categories and

those without diagnosis could reduce some of the stigma associated with voice hearing, as there may be similarities in problems with patients who are depressed, anxious or have a personality disorder; what would be common would be their voice hearing and their interpersonal issues.

4.4 Symptoms and voice hearing

The voice hearers in the current study have all received psychiatric help at some time in their mental ill health journey. As such, it is presumed that some form of 'distress' have prompted the help seeking behaviour. People with more severe diagnoses and with greater ill health are normally those with more extreme symptoms. As a result it is hypothesised that those with higher levels of omnipotence will experience a higher level of various symptoms.

There was one BSI subscale that suggests a significant difference between the two groups. Those with higher omnipotence scores scored higher on the phobic anxiety subscale. None of the other subscales showed significant differences, but the scores were in the predicted direction with those in the higher omnipotence group experiencing more symptoms on all subscales compared with those who have lower omnipotence scores. Allen *et al*. (2005) found that depression and stress, in a regression analysis, did not predict hallucinatory predisposition within their sample; anxiety however was a predictor, although only a modest amount of variance was accounted through the inclusion of a number of predictors. The current study

demonstrates that emotion is experienced, but omnipotent beliefs do not differentiate levels of these emotions and symptoms. Therefore as with the Allen *et al*. (2005) study, there may be other aspects of voice hearing that influence the impact of emotion in the hallucinatory process.

The BSI, with its focus on symptoms does not consider more positive emotions, which could shed light on the level of general emotional experience for those who hear voices. Chadwick *et al.* (2000) found a relationship between omnipotence and depression and anxiety, however some of the participants also reported positive beliefs, thus voices can be perceived as problematic and a source of distress, even though some aspects are positive.

The phobic anxiety subscale includes statements about feeling afraid of open spaces, travelling on buses, avoiding things because they are frightening, feeling uneasy in crowds and feeling nervous when left alone. This subscale could point to a difference between voice hearers with regard their level of fear. Those with more powerful and controlling voices experience higher levels of fear symptoms. Patient groups in the Suslow *et al*. (2003) study demonstrated higher fear scores than compared with healthy controls.

Some of the questions in the phobic anxiety subscale also deal with being out publicly and the difference reinforces aspects of the differences evident in the IIP-32 subscales. A suggestion made by Berenbaum *et al*. (2006) that avoidant coping style may contribute to diminished attention to emotion,

which may be happening for the participants in the current study. If they are avoiding situations and are not going out in public, then this may point to their having developed avoidant coping strategies and therefore they may not be noticing their anxiety symptoms, depression or obsessive-compulsive symptoms. As a consequence the results are not significantly different. When voices are malevolent, they are resisted, but it would be interesting to see if when voices are regarded as highly omnipotent, if more specific avoidant strategies are evident. Benevolent voices are engaged, not avoided, and benevolence may be negatively associated with omnipotence, therefore it is possible that avoidant strategies may be linked to beliefs about omnipotence.

Both groups in the current study are experiencing symptoms, but there may be a more appropriate way of differentiating subgroups of voice hearers, rather than omnipotence scores.

The voice hearers in the current study all experience a high level of distress with reference to their voices, this increased level may be masking differences between voice hearers. A larger sample with voice hearers with low levels of omnipotent beliefs who have more positive experiences of hearing voices may clarify the extent to which voice hearers differ in their experience of a variety of symptoms. If as suggested by Suslow *et al*. (2003) patients with schizophrenia exhibit a diminished experience of positive emotions, and an enhanced experience of negative emotions, this may be

true of some voice hearers, and seems to be the case for the present participants.

Although the BSI covers a range of symptoms, there is no obvious measure of guilt or shame which has been documented to occur in voice hearers. Future research differentiating voice hearers and including guilt and shame in the analysis could help pinpoint which symptoms are important within different groups; this would then inform treatment.

The contribution of the current study

Anxiety is present in children who later go on to develop schizophrenia. Anxiety and depression occur in the schizophrenia prodrome, and these symptoms are comorbid with schizophrenia (Freeman & Garety, 2003). The participants in the current study experience a variety of symptoms, but there was no difference between the two groups on many of the symptoms.

4.5 Emotion Regulation

The voice hearers in the current study utilise a range of internal and external, functional and dysfunctional categories in order to regulate their emotions. It was hypothesised that voice hearers who considered their voices to be more omnipotent would use more dysfunctional emotion regulation strategies. The results indicate that those with higher omnipotence scores used significantly fewer external emotion regulation strategies, both functional and dysfunctional. There was a trend for those with higher omnipotence scores

to use Internal-Dysfunctional strategies, but this missed significance. The use of functional strategies would be expected for those whose omnipotence scores are lower as they are perceived to be coping more effectively. It has been suggested that dysfunctional coping strategies may be increased in those whose pathology is greater (Phillips and Power, 2007). However, the use of External-Dysfunctional strategies in those with lower omnipotence scores is unexpected.

In the Phillips and Power (2007) study, adolescents who reported using dysfunctional strategies more often exhibited more emotional and behavioural problems. The literature suggests that those who view their voices as powerful and controlling experience more emotional difficulties (Chadwick *et al*. 2000). Therefore those with higher omnipotence scores would be expected to use more dysfunctional strategies. The current study does not reflect this. The Phillips and Power (2007) study researched adolescents, who did not necessarily have any mental health diagnosis. Therefore the results from the current study may differ as the participants have received psychiatric care. In addition the average age of the current participants is double that of the maximum age of the Phillips and Power (2007) study. Therefore strategies developed in relation to voice hearing and as a result of exposure to psychiatric services and with age could result in different outcomes to those of adolescents.

Livingstone (2006) investigated emotion regulation strategies across three groups, two clinical (psychotic and anxious) and a healthy control group. Her

results indicated that the clinical groups used significantly more Internal-Dysfunctional strategies and the healthy controls used more Internal-Functional emotion regulation strategies. The results from the Livingstone (2006) also indicate that the scores for the External-Dysfunctional scale are not in the predicted direction; the current study also demonstrate this pattern. Results from the current study suggest that those with lower omnipotence scores use significantly more External-Functional strategies and External-Dysfunctional strategies whereas those with higher omnipotence scores use more Internal-Dysfunctional strategies (although not significant). This could indicate that those with lower omnipotence scores may be managing the emotional impact of their voices through turning to other people for support, rather than relying on their internal coping which could be viewed with doubt as they hear internal voices and 'question their own sanity' (Karlsson, 2007, p365). They are also expressing their emotions in dysfunctional ways by taking their feelings out on others and objects around them.

Using External-Functional strategies could be a way of controlling the presence of voices. Karlsson (2007) reported that for the participants in his study 'voices disappeared when the person left his/her home or spent time in the company of other people' (p367). It may be that the voice hearers in the low omnipotence group have used this strategy and therefore consider their voices as less controlling and powerful.

On the other hand, they may as a result of their voices being less powerful, have more opportunity to engage in social activities which improves their

interpersonal relationships and allows them to learn adaptive coping strategies. It is possible that this increased contact with other people also means that they have more opportunity to become irritated with other people and take these frustrations out on others and a possible explanation as to the reason those with lower omnipotence scores reported using more External-Dysfunctional strategies. This exposure to strategies may be learned from other people, but if hallucinators have 'difficulty learning from their attempts at coping' (Farhall, Greenwood & Jackson, 2007, p480) then these new strategies may be used, but not seen as dysfunctional and therefore they are not learning from the consequences. The higher omnipotence group may have less opportunity to be in the company of other people, which has support from the IIP-32 subscale scores, and this may be the reason they use fewer External-Dysfunctional strategies.

The results of the current study differ to those of the Livingston (2006) study in that she found no statistical difference between the clinical and non-clinical groups with regards external strategies. The scores for the External-Dysfunctional scale in the current study were not in the predicted direction. There could be several explanations for these differences. The current study differentiated the voice hearers into two groups based on their replies to questions regarding their beliefs about the powerfulness of their voices and their control over their voices. In order to capture differences in emotion regulation strategies there may a more appropriate differentiation. Livingston (2006) differentiated between two clinical groups and a control group, but did not differentiate the psychosis group in any way.

Another alternative explanation could be that those with lower omnipotence scores have more insight and are more willing to admit to the use of External-Dysfunctional strategies. Suslow *et al.* (2003) suggest that schizophrenic patients feel more negative emotions and less intense positive emotions. If this is the same for patients who hear voices then their emotion regulation strategies could be a response to a barrage of negative emotions. Suslow *et al*. (2003) further reports that what may be considered negative affect may be the schizophrenic patients attempt to dampen the intensity of their emotional experience. Voice hearers who have lower omnipotence scores may have received treatment that has allowed them to manage some of their emotions in connection with their voices. Therefore their current emotions may be more apparent to them, as is their insight into the effect they have on other people. This could lead to acknowledgement of External-Dysfunctional emotion regulations strategies.

As a result of the negative emotions, Internal-Dysfunctional strategies may be easier to learn and have better results for them in the short-term in managing the consequences of their negative emotions. There is evidence that many voice hearers experience abuse in their childhood (Andrew *et al*. 2008; Hammersley *et al*. 2003). They therefore may never have had functional strategies modelled for them, and using dysfunctional emotion regulation strategies may have been adaptive. Keeping things locked up inside may have served as a protective strategy during these times. As voices became less powerful the opportunity to witness and have the opportunity to use External-Dysfunctional strategies may have developed. It

may be that the expression of these External-Dysfunctional strategies may have highlighted the need for intervention, which may have helped to reduce the omnipotence of voices. These strategies then become the learned behaviours that keep the voices manageable.

The contribution made by the current study

The differences between the results from the Livingstone (2006) study and the current research could be due to a number of factors. The current study focuses on voice hearers, while the Livingstone (2006) study investigated psychosis. The difference in samples could suggest that there are differences between those who hear voices and those with psychotic disorders. The inclusion of participants with BPD could also have created different results as their experience may be different to those diagnosed as psychotic, anxious or those in the general population. In addition the number of participants was smaller in the current study and with the use of nonparametric it is possible that some positive differences were missed, as well as some anomalous results being obtained.

It would be interesting for future research to establish if voice hearers who are more impulsive use more of these strategies, to determine which of these strategies are functional, as these ideas may inform intervention approaches which could help the voice hearer deal more appropriately with the emotional impact of their voices. Personality factors may also be implicated in the use of emotion regulation strategies, but the current study did not assess specific personality characteristics, but this may reveal different subgroups.

It may be that the Internal-Dysfunctional strategies keep the voices active by isolating the person and focusing the person on negative thoughts and ideas. Therefore enhancing more adaptive responses and learning more functional regulation strategies could help the person cope with the experiences of their voices.

The current research suggests that people who hear voices access a range of emotion regulation strategies, however when their voices are appraised as more omnipotent, they use fewer External-Dysfunctional strategies. It is possible that these strategies are considered as active coping which is associated with perceived control (Farhall *et al*. 2007). The use of these external strategies by the low omnipotence groups could have been effective as they distract them from their voices, and this distraction has maintained their use.

The processes associated with anxiety, such as attentional bias, self-focus and safety behaviours (Freeman & Garety, 2003), may lead to regulation strategies that are internal and dysfunctional, but there was no significant difference between the groups on the anxiety subscale of the BSI and this may be a reason there was not a significant difference in the use of the Internal-Dysfunctional emotion regulation strategies.

Distress may be increased if feelings of inferiority are reinforced by voices in those who score highly on omnipotence. Therefore it may be expected that

those with higher omnipotence scores, if their social relationships are recreated with their voices, would have feelings of inferiority with others, as they do with their voices.

The median scores of the BSI depression subscale for those with high omnipotence scores are close to the maximum. This suggests that for the participants in this study, depression is a problem especially when voices are perceived as powerful.

Phobic Anxiety is also particularly problematic for voice hearers with higher omnipotence scores. The effect size is also large indicating a substantive effect of group on the anxiety scores. The BSI, with its focus on symptoms does not consider more positive emotions, which could shed light on the level of general emotional experience for those who hear voices. Chadwick *et al.* (2000) found a relationship between omnipotence and depression and anxiety, however some of the participants also reported positive beliefs, thus voices can be perceived as problematic and a source of distress, even though some aspects are positive.

Although the results of the current study are tentative, the trends support the Morrison model with reference to people having beliefs about voices, and these influencing emotional reactions, although not as predicted in the present study. Voice hearers also hold beliefs about the uncontrollability and powerfulness of voices, which can increase thoughts of danger and thereby trigger anxiety (Freeman & Garety, 2003). Treating the anxiety could reduce

the impact of voice hearing. This could be through anxiety management, or through the development of emotion regulation strategies that increase functional emotion regulation.

4.6 Distress, Beliefs and Emotion regulation strategies

Distress, in this study is a predictor of the use of Dysfunctional emotional regulations strategies, both internal and external. However Omnipotence scores did not add too much to the prediction, suggesting that beliefs may not be important in the development and use of strategies to regulate emotions, in a sample of voice hearers. This may point to an alternative route for the use of functional and dysfunctional strategies based on emotion, symptoms and interpersonal difficulties.

The BSI grand total score was the significant predictor for the use of Internal-Dysfunctional strategies. The BSI covers a range of symptoms and the higher the score, the more the dysfunctional strategies are used in this group of voice hearers. The results of the study by Allen *et al*. (2005) suggests the importance of emotional processes to hallucinatory experiences. The current study adds an element where emotional processes are implicated in the emotion regulation strategies.

'Chadwick and Birchwood (1994) conclude that behavioural responses chosen by patients experiencing hallucinations (particularly engagement and resistance) appear to be driven by underlying beliefs about voices' (Morrison, 1998, p293). However an alternative explanation could be that the distress

could be contributing to emotion regulation strategies without the beliefs influencing these responses over and above the emotional contribution. The current studies results point to there being the possibility that emotional and interpersonal meanings may contribute to the development and maintenance of misinterpretations regarding hallucinatory experiences in a similar way to social meaning discussed in Morrison (1998). Morrison (1998) suggests that interpretations of the hallucinations may mediate emotional, physiological and behavioural responses; but the current study is suggesting that emotion or distress and interpersonal relating are mediating responses, in particular emotion regulation strategies in a relatively distressed group of voice hearers. There may be other moderating or contributory variables but the sample size limits this exploration.

Vaughan and Fowler (2004) found that 'different styles of relating between voice and voice hearer are associated with differing emotional responses to voices' (p150). It may therefore be that the perceived dominant style of the voice is linked to the level of distress more strongly than beliefs about the voice. This could then have an impact on the emotion regulation strategies used. IIP-32 total score was significant, along with distress in predicting the use of External-Dysfunctional emotion regulation; therefore this sample of participants may be a subgroup of distressed voice hearers whose style of relating to their voice is important for how they respond to the difficulties associated with voice hearing. This has implications for clinical practice and for future research to identify the important contributing factors and the link

between emotion regulation and interaction between the voice hearer and their voice.

The omnipotence scores represent elements of control and power in connection with the voices and emotion regulations strategies may be part of the person's coping style. There still needs to be clarity, as pointed out by Haddock *et al*. (1999) as to 'whether control over hallucinations is a cause or consequence of coping style, or of voice characteristics (e.g. loudness, location, negative content) or the result of the wider social consequences of hearing voices (e.g. distress, disruption to life)' (p886). In the current study emotion and interpersonal elements made a contribution to the person's dysfunctional emotion regulation strategies, but beliefs about the control and powerfulness of the voices was minimal. It may be that the emotion and dysfunctional strategies used to deal with the distress are factors in the development of beliefs and these beliefs are then secondary to distress and social elements. It is possible that the subscale used to indicate beliefs about the voice was not the most appropriate. Andrew *et al*. (2008) found that malevolence was a superior predictor of distress, especially depression. Therefore the malevolence subscale may have been an alternative predictor, but the sample size limits multiple tests of variables.

The defence model of persecutory beliefs proposes that people with persecutory beliefs would show an externalising bias in explaining negative events (Jolley *et al*. 2006). The predictor variables which include negative emotions and problems with interpersonal interactions, biased towards the

negative, predicted the use of External-Dysfunctional emotion regulation strategies. Although there is mixed evidence for the external attribution for negative events for people with persecutory beliefs, it may be that those who hear voices are more prone to using external solutions when dealing with negative issues. In Jolley *et al*. (2006) the externalising tendency was associated with a combination of persecutory and grandiose beliefs, not with either type of belief or depression on their own. It may be that in the current study participants may have had additional symptoms and persecutory or grandiose beliefs, but this was information was not gathered as a single symptoms was considered the goal of the study. This demonstrates the difficulty with investigating one element as other moderating and mediating symptoms are not considered, or controlled for. It may be that emotion regulation strategies, especially dysfunctional strategies may be impacted on by differing symptoms or subgroups of voice hearers, but this analysis is beyond the scope of the current study.

Hayashi *et al*. (2007) discuss research showing that the 'severity of and distress caused by auditory hallucinations were associated with use of active coping strategies' (p644). The Dysfunctional strategies used in the REQ may be more active than the Functional strategies and therefore, with the current distressed group of participants, this may be the reason their distress predicted the use of these strategies.

The results of the predictor analysis offer support for an alternative approach to the focus on symptoms or diagnoses; this would be a focus on emotional

dysfunction (Livingstone, Harper & Gillanders, 2009). The distress includes symptoms of anxiety, depression, phobic anxiety, interpersonal issues and other emotional complaints; these could be the focus of therapy. The Cella *et al*. (2008) study 'provides support for the idea that factors related to the emotional context play a crucial role in the formation and maintenance of positive symptoms and that they should be addressed in psychosis prevention and early intervention' (p548).

Lung *et al*. (2009) describe beliefs affecting the voice hearers emotional outcome, but the current study does not support this as the beliefs about the voices power and controllability does not add much to the emotional outcome in the form of dysfunctional emotion regulation strategies, whereas distress and interpersonal issues do predict the outcome. The current study did not assess personality traits which affected emotional outcome in the Lung *et al*. (2009) study. It would be interesting for future research to investigate personality traits as well as emotion regulation to establish pathways to voice hearing.

4.7 Theoretical implications

The processes associated with anxiety, such as attentional bias, self-focus and safety behaviours (Freeman & Garety, 2003), may lead to regulation strategies that are dysfunctional. The results of the current study suggest these processes may operate in those who hear voices.

Although the results of the current study are tentative, the trends support aspects of the Cognitive models with reference to people having beliefs about voices, emotions and interpersonal elements also being part of the development and course of the voice hearing experience. The voice hearers also hold beliefs about the uncontrollability and powerfulness of voices, which can increase thoughts of danger and thereby trigger anxiety (Freeman & Garety, 2003). Treating the anxiety could reduce the impact of voice hearing. This could be through anxiety management, or through the development of emotion regulation strategies that increase functional emotion regulation.

Cognitive models emphasis the role that cognitive aspects lead to anomalous experiences, which when combined with maladaptive emotional and cognitive appraisals can lead to the formation of complaints (Garety *et al*. 2001; Krabbendam & van Os, 2005). The role of cognition is emphasised, with other contributory factors being secondary. However it may be that emotion, coping and emotion regulation strategies are making as big an impact on the outcome as the cognitive processes. Emotion is important for guiding judgements and behaviour (Serper & Berenbaum, 2008) and is therefore implicated in cognition. The emotional experiences may make the voice experience more personally significant or intrusive resulting in a search for explanations (Krabbendam & van Os, 2005). This may be apparent in voice hearers who have experienced trauma or abuse. Therefore all these factors make a contribution and are therefore elements that should be included in models of voice hearing or in alternative models that look at emotion regulation.

Baker and Morrison (1998) posit that beliefs could influence the selection of strategies of self-regulation and that this could increase the intrusive beliefs. If this is the case, it may be that beliefs impact on the selection of emotion regulation strategies. Thus, if the beliefs are negative they could result in the use of dysfunctional strategies that serve to make the situation worse. However there may be more than one mechanism involved in the development of voices (Paulik *et al*. 2006). The current study suggests an emotional element, but whether this is attributable to the cause of the voices or the result of the voice hearing experience still remains to be confirmed.

The study participants also demonstrate negative beliefs about their voices. The negative beliefs can guide the attention given to ruminating and can be used to interpret cognitive events (Morrison & Wells, 2003). The participants in the current study experience mood symptoms. Depression can result in rumination and anxiety symptoms are often associated with fear. In addition the participants in the present study have difficulty with the interpersonal area of sociability. This could be seen to increase rumination, prevent opportunities for the disconfirmation of beliefs, reduce confidence in feeling safe and create the opportunity to develop and carry out safety behaviours. The promotion of social activities can decrease the rumination and interrupt the interactive process between the subject and the voices (Perona Garcelan, 2004). Beliefs can be challenged and the relationship with the voices can be altered.

Gross and Thompson (2007) consider similarities between psychological processes that are regulated. It may be possible to regulate beliefs as well as emotion regulation as there are similarities in the processes involved. Diamond and Aspinwall (2003) describe 'meta-emotion-cognition' (p131) which integrates beliefs, the interpersonal environment, perception, appraisal, cognitive processes as well as the capacity to regulate their own and other people's emotions. These elements are relevant to different degrees at all stages of life and require the development of skills to manage change. However this can be disrupted possibly through trauma, neglect, anomalous experiences or lack of social contact. Therefore all these elements may contribute to and maintain the voice hearing experience. Distraction and reframing may be used to help regulate emotion and beliefs. Future research is needed to identify the appropriate sequence and what components are needed for the intervention to ensure the most effective outcome for the voice hearer.

Researchers cited in McGovern and Turkington (2001) suggest that those who experienced voices and were not distressed by then may have interpreted the phenomena differently to those who become distressed. The present study would add that it may not solely be the interpretation or the beliefs, but how the person manages their emotional reaction that leads to the experience being considered positive or negative.

4.8 Clinical Implications

This study points cautiously to a number of clinical implications. These should be considered with reservation as a number of methodological limitations reduce the generalisability of the findings. However there are a number of implications that could be important in a clinical setting.

If emotion regulation is difficult for voice hearers then they may 'benefit from a therapeutic approach that places emotional functioning and the development of emotion regulation at its core' (Livingston *et al*. 2009). Paulik *et al*. (2006) suggest that it is important to treat the negative affective states, in addition to the psychotic symptoms. The current study did not find great differences in BSI symptoms and therefore the voice hearers may be similar in affective profile which may offer the opportunity for group work to be developed to address affective profiles in conjunction with addressing the voice hearing elements.

Evidence has shown that CBT can reduce negative affect and improve social functioning (Garety *et al.* 2001). Results from the current study suggest that people who hear voices have problems with their beliefs, emotions and social interactions. These can be modified by CBT. In addition, it may be advantageous to include elements from Family Interventions which also improve social functioning and can reduce environmental stress. Changing the person's relationship with their voices could also be incorporated into a treatment strategy. Living in a less stressful environment and improving social interactions could provide the person with the 'space' to learn and

practice new emotion regulation strategies that are more adaptive. Focusing on 'internal affective reactions' (Davies *et al*. 2001, p368) may be more susceptible to change than the person's perception of an external stimulus. Therefore a focus on emotion and emotion regulation, even if beliefs were the important factor in the voice hearing experience, could be an important component of the intervention.

The model described by Morrison (1998) suggests that instead of treating the auditory hallucinations themselves, clinicians should target the interpretations the person has in connection with their voices. The current study proposes areas where interpretations could be altered (beliefs about the voice's power, the negative beliefs about voices), and also alternative ways of intervening to reduce distress (improving relationships with the voices and in the 'real' world, learning alternative emotion regulations strategies). Undertaking this while encouraging a normalising approach to voice hearing could allow the person to engage with the treatment and their voices in a positive and productive manner.

Kuipers *et al.* (2006) consider it important for effective treatment to assess and treat the affect that is connected to the voices. They further propose that enhancing coping strategies could be helpful in reducing feelings of powerlessness, and perhaps reduce the frequency of voices. Thus these two ideas can be integrated to develop interventions that focus on emotion regulations strategies.

According to Diamond and Aspinwall (2003), emotion regulation is sensitive to changing goals and contexts and should be flexible and adaptable. Therefore emotion regulation strategies can be developed and learned in response to situations. The challenge for researchers and clinicians is finding ways of amending the dysfunctional strategies as well as identifying which ones need to be mastered. It is possible that voice hearers may not effectively learn from their attempts at coping (Farhall *et al.* 2007), therefore practical education with practice may need to be implemented to ensure that functional emotion regulation is successful.

Lakeman (2001) proposes that attempts to help the voice hearer should take into account an understanding of the person's experience, their sensitivity to distress, their coping strategies and the meaning they attribute to the voice hearing experience. The present study suggests that the participants have beliefs about their voices, experience emotion and use a variety of emotion regulation techniques to deal with their voice hearing experience. In addition they also experience interpersonal problems that also need to be taken into account. Baker and Morrison (1998) imply that cognitive challenging, psycho-education and behavioural experiments can be used to confront intrusive thoughts as well as address the biases and beliefs, especially those about the uncontrollability of the voices.

Birchwood *et al.* (2004) direct the clinician to target the relationship with the voice if this is the crucial issue. Van der Gaag *et al.* (2003) conclude that 'a change in beliefs about the voices can make a difference for the patients'

(p544). Interventions that can integrate these two approaches could prove useful for voice hearers.

Interventions that improve perceived control over voices may help individuals develop new and enhanced coping strategies that improve social and interpersonal functioning (Gumley *et al.* 2003), and thereby promote adaptive beliefs and functional appraisals of their voices.

From previous research and with the results of the current research, it is important to assess several factors within the formulation of the person who hears voices. Emotion regulation strategies, interpersonal difficulties, beliefs about the voices and other symptoms should be included within the realms of current problems. However it is also important to assess their development and purpose both in the past and in the present to obtain a complete picture of the voice hearing experience and its antecedents. These can all help to determine the most appropriate treatment.

Investigating experiences across diagnostic categories and in those who do not have a diagnosis could help identify different pathways to voice hearing, different problems experienced and the best route to functional coping. This could turn a negative experience into a life event with which the person can to cope. Obtaining a clear picture about the 'voices' themselves is another important element in understanding the development, course and the best treatment to offer the person. In the Karlsson (2007) study, the participants in the focus groups described a wide variation in the view of their voices.

These descriptions included voices being perceived as their inner voice, hearing a voice in their head, or voices being 'ear-close'. They also reported that somebody may be responsible for the voices, such as 'the spirits'. The voices could also belong to different people, both fictitious and real life. When assessing and formulating the voice hearing experience all these factors are important in obtaining a coherent picture so that effective interventions can be delivered. These aspects may also be important for differentiating subgroups of voice hearers which may help to answer questions and criticisms.

4.9 Areas for future research

The findings of this research require replication with larger numbers to be confident that the differences are apparent in other samples. In particular it would be beneficial to establish an appropriate way to assign voice hearers to groups. This could help identify subgroups who have developed along different pathways and inform theory with reference to voice hearing experiences as opposed to diagnostic categories. It could also help determine which clinical interventions would be the most appropriate.

The measure of emotion regulation (REQ) has recently been developed with an adolescent population. The measure has only been used in one previous study investigating the experiences of psychosis in adults. Therefore, the measure would benefit from validation with samples who have specific single 'psychotic' symptoms. Development of the measure with reference to different populations would also be beneficial to ensure that it is

encompassing general as well as specific emotion regulation strategies. Future research could also develop treatments based on the outcome of these validations and developmental studies.

Emotional dysfunction is not restricted to those who hear voices (Birchwood, 2003). It is possible that there are several pathways that result in emotional dysfunction. Future research could build on previous work discussed in Birchwood (2003) and Birchwood *et al.* (2005) that looks at psychosis and schizophrenia and establish which pathways are linked with the experience of voices and if people in each of the pathways regulate their emotions in similar ways.

It would be interesting to establish if beliefs about voices are associated with beliefs about the self and if these have an impact on emotion regulation strategies in voice hearers.

The IIP-32 could also be further investigated to determine if this is the best measure for people who hear voices. There are questions about whether it encapsulates all potential interpersonal issues. It may also be advantageous to establish if this can be amended to establish voice hearers' relationships with their voices.

There is still work to be done with reference to confirming the mechanism for the development as well as the maintenance of voices; also whether emotion regulation strategies, anxiety, depression, interpersonal difficulties and

beliefs precede or follow the experience of voices. Investigating differences in all these element for those who experience hypnagogic, hypnopompic, voices during bereavement, voices as part of religious rituals, could help determine which are the most important element in increasing distress and resulting in help seeking behaviour.

There is still much that remains to be investigated regarding the voice hearing experience. Perhaps the alternative viewpoint of single symptoms can go some way to finding out what leads to voices, what can be done to prevent the negative outcomes and what needs to be developed in treatment to alleviate the distress that often accompanies hearing voices (Bak *et al.* 2005). Sanjuan *et al.* (2004) suggest the 'emotional response rather than the psychotic experience itself appears to differentiate between patients and non-patients' (p273). There may be an alternative approach investigating emotion regulation that will prove to be more enlightening.

4.10 Limitations

4.10.1 The sample

One of the main limitations of the current study is the small number of participants and their allocation to two groups. The groups were not matched on any variables; the design was cross-sectional and employed self-report measures.

In order to explore the aims of the study, participants could be any person who had heard a voice during the past 6 months; this resulted in a heterogeneous sample as indicated by the range of service use, length of voice hearing, time since being an inpatient and the number of voices heard. It may be that the results are more an artefact of these differences rather than differences based on their beliefs about the omnipotence of their voices.

The two groups were split according to their omnipotence scores, which the literature suggests is linked with beliefs and distress connected with voices. This was considered preferable to separating the groups according to diagnosis. Van der Gaag *et al.* (2003) dichotomised their groups according to the malevolence and benevolence scores and this may have yielded different results. In the case of the current study it was decided that the omnipotence of the voices could be an important discriminating factor. Further research is needed to establish if this is a viable option for differentiating voice hearers, or if there is a more robust way to explore group differences. One alternative may be to allocate voice hearers to groups based on their emotion regulation strategies, rather than their beliefs. This however requires more research.

Although the information is directly derived from the patient and used minimal clinical time, there are issues about the accuracy with which people are able to report their symptoms, especially if they potentially lack insight into their illness. Therefore the results, a reflection of the subjective experience of

voice hearing, could be flawed as a result of the persons misinterpretation of the realities of their distress.

4.10.2 Questionnaires

Although the questionnaires used in the study have previously been validated, they have not always been validated for voice hearers. A questionnaire was amended to refer to voices in place of paranoia. However this questionnaire has not been previously used for voice hearers regarding their voice hearing experience. Future research will be needed to ascertain if this amended questionnaire is measuring the same dimensions as those of the paranoia version.

The PSYRATS measure only includes externality of attribution about the source and control of voices (Morrison *et al.* 2004). A measure of other sources could have informed differences in beliefs. In addition, many of the measures focused on negative aspects of voice hearing, but there is evidence to suggest that voice hearing can be pleasurable, even within the psychiatric population (Sanjuan *et al.* 2004). The current study did not assess the more pleasurable aspects of voice hearing and has therefore omitted a potentially important dimension of the voice hearing experience.

4.10.3 Statistical analysis

Non-parametric test were used to assess some of the hypotheses as some of the data did not meet the criteria for parametric tests. As a result the data

are given rank scores which are then used in the statistical tests. However, the magnitude of some of the differences is lost and therefore the results are less powerful. Therefore some of the significant differences may have been missed in the current study (Type II error). For some of the tests non-parametric options were not available, however these tests are robust and the subscales used were not all skewed or extremely non normal. However the results will need to be interpreted carefully.

4.11 Conclusions

This study provides information on the experience of voice hearing in a group of voice hearers. It also demonstrates differences within this heterogeneous group based on the participant's view of the omnipotence of their voices. These differences, although tentative suggest that irrespective of diagnosis, there may be subgroups of voice hearers whose experiences differ in a number of elements. Identifying these subgroups could help with the fine-tuning of interventions.

The current study also suggests that voice hearers experience difficulty with emotion regulation strategies, have negative beliefs about their voices, experience issues in interpersonal relationships and also experience a number of symptoms (as demonstrated by BSI subscales). Some of these problems are particularly problematic for voice hearers who consider their voices to be highly omnipotent, but this is not clear-cut. The results suggest that research is needed to investigate alternative pathways to mental distress as well as targets for interventions.

The results indicate problems, which if taken together within the cognitive behavioural models, suggest there may be scope for teaching functional emotion regulations strategies, as well as developing interpersonal skills that will help the person to manage their voices as well as their reactions in the 'real' world. Not seeking help can be the result of the ability to frame voices in a healthy positive way (O'Connor, 2009); therefore guiding people toward this could help alleviate further stigmatisation. Identifying the combination of beliefs, anxieties and interpersonal issues that trigger hallucinations could also inform prevention approaches.

The current study suggests that omnipotence scores may offer limited opportunities to differentiate voice hearers. However, emotion regulation strategies could help add details to cognitive models with reference to the development, maintenance and treatment of distressing voices. There is still much research that needs to be undertaken to inform the links between elements of voice hearing and if targeting certain strategies based on differentiating sub-groups of voice hearers is effective.

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APPENDICES

Appendix 1: Patient Information Sheet

Centre Number:
Study Number:
Patient identification number for this research:

Version 2.0 (04/03/09)

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PATIENT INFORMATION SHEET

Hearing Voices: The impact of emotion, interpersonal relating and beliefs about voices on people who hear voices (that other people do not hear)

Hello, my name is Linda Hayward and I am a trainee Clinical Psychologist. I would like to invite you to take part in a research study. I am very interested in learning about people's experiences of hearing voices. Before you decide if you would like to take part please read this sheet to find out why I am doing the research and what you will be asked to do.

Please do feel free to phone and speak to me on (01463) 704683 if you have any questions. I will get back to you as soon as I can. The best time to get me is a Wednesday, Thursday and Friday.

What is this research about?
This study is being done to find out the effect that feelings, thoughts and relationship difficulties, have on a person who hears voices. Hearing voices happens to many people who have mental health problems (depression, anxiety, schizophrenia, and personality disorders). It also occurs in people who have not experienced mental health problems.

In this study I am trying to better understand how hearing voices affects those who hear them. I am interested in seeing if these experiences are different for people with different mental health issues. I would also like to find out if feelings have an affect on how people cope with their voices.

Why have I asked you to take part?
I am asking people who hear voices to take part in this study. The voices can be soft or loud, kind or critical, happen often or only rarely. I am very keen to have your views if you have only heard one voice on one occasion, or if you hear many voices all the time. As long as you have heard a voice in the past 6 months I would like you to take part. The questions the research would like to answer need the responses of as many voice hearers as possible.

Do I have to take part?
No, it is totally your choice about whether you take part. If you decide to take part, you will be given this information sheet to keep. You will also be asked to sign a consent form. If you agree to take part, you can **withdraw at any time and without giving a reason**. Withdrawing or deciding not to take part, will not affect the standard of care you receive.

What will happen next?

If you wish to take part, please complete the enclosed consent form and return it in the envelope supplied. You will then be sent six questionnaires. You will be asked questions about your voice(s), what they are like, how you feel about them, and some questions about how you get on with other people. In these questionnaires you will be asked to tick a box or choose an answer. **There are no right or wrong answers.** It is your views I am interested in.

Completing these questionnaires should take about 40 minutes. You will also be asked for some information about yourself, your service use and your experience of hearing voices. You will **not** be asked for your name, address or date of birth. If you are receiving treatment, this will carry on. If you would like to know what happens with the research, please let me know.

How long will I be in the study?
You will only need to fill in one set of questionnaires, which will involve less than 40 minutes of your time, but the views you give will be invaluable to us. You will be sent a reminder three weeks after you receive your questionnaires. This will be sent even if you have returned your questionnaires, as we will not know who has still to return the information.

What are the risks of the study?
As the research does not involve any treatment, there are minimal risks to you. However, the questions focus on you and your voices and this may be difficult or cause you some discomfort. Should you have any issues, please contact either your mental health worker (psychiatrist, CPN, psychologist), or contact Linda Hayward on the telephone number above.

Are there any benefits to taking part in the study?
We strongly hope that this study will help inform treatment. However, this cannot be guaranteed. Finding out about people's beliefs and distress associated with their voice hearing could help increase the effectiveness of treatment.

What if something goes wrong?
If at any time you become upset or worried about answering the questionnaires, please contact your keyworker, or you can speak to me (my contact details are at the end of the information sheet). If you have any questions at any point about the study, please do not hesitate to get in touch with me.

What about confidentiality?
All information collected about you during the research will be kept strictly confidential. Your name or other identifying information will not appear in any reports. Your personal details will appear on the consent form. This is so that the information can be sent to you. The consent forms will be stored securely and safely, within the Department of Psychological Services.

What will happen to the results of the research study?
The results of the study will be presented at conferences and reported to the NHS Highland Department of Psychological Services. The final results and conclusions of the study will form part of my qualification in Clinical Psychology. The information contained in the study will be anonymous and no identifying participant details will be available.

My contact details are: **Linda Hayward, Department of Psychological Services, New Craigs Hospital, 6-16 Leachkin Road, Inverness, Telephone No. (01463) 704683.**

Thank you very much for reading this and for any further involvement you may take in the study.

Patient Consent Form

Title: Hearing Voices: The impact of emotion, interpersonal relating and beliefs about voices on people who hear voices

Please initial box

1. I agree to take part in the study described in the information form set out above. ☐
2. I have read and understood the patient information sheet dated 04.03.09 (version 2.0) and have had the opportunity to ask questions. ☐
3. I understand that I can withdraw from the study at any time, without giving reason, without my treatment being affected. ☐
4. I agree that research data gathered from the results of the study may be published, provided that I cannot be identified. ☐

Address:

Signature of the participant	Please PRINT name	Date
Name of person taking consent (if different from researcher)	Please PRINT name	Date
Sugnature of investigator		Date

Thank you for taking part in the study

Linda Hayward

Centre Number:
Study Number:
Patient identification number for this research:

Department of Psychological Services
New Craigs
6-16 Leachkin Road
Inverness IV3 8NP
Telephone 01463 704683
Fax 01463 704686
www.show.scot.nhs.uk/nhshighland

Revocation of consent

Title: Hearing Voices: The impact of emotion, interpersonal relating and beliefs about voices on people who hear voices (that other people do not hear)

I hereby wish to WITHDRAW my consent to participate in the research described above.

_____

Signature Please PRINT name Date

The section of Revocation of Consent should be forwarded to Linda Hayward, Department of Psychological Services, New Craigs Hospital, 6-16 Leachkin Road, Inverness

Appendix 2: Demographic Information

NHS Highland

Please circle, or complete the information:

Gender Male Female

Age ……

Marital Status ……..

Are you employed? Yes No

Have you ever received psychiatric services? Yes No

Do you have a psychiatric diagnosis? Yes No

If so, what is your diagnosis? ……..

Are you receiving any support from metal health services
CPN
Psychologist
Psychiatrist
Support worker
Other (please specify)
……..

Have you been hospitalised in connection with your diagnosis? Yes No

If so, how long has it been since you were an inpatient? …….

Are you on any medication? Yes No

If so, what medication? ……

For how long have you heard voices? …….

How many voices do you hear? ……..

What treatment have you received in connection with your diagnosis?

……..

Thank you for taking part.

Appendix 3: Regulation of Emotions Questionnaire 2 (REQ)

Regulation of Emotions Questionnaire (REQ)

NHS Highland

We all experience lots of different feelings or emotions. For example, different things in our lives make us feel happy, sad, angry and so on…

The following questions ask you to think about **how often** you do certain things **in response to your emotions**. You do not have to think about specific emotions but just how often you **generally** do the things listed below.

Please tick the box corresponding to the answer that fits best. We all respond to our emotions in different ways so there are no right or wrong answers.

In GENERAL how do you respond to your emotions?	Never	Seldom	Often	Very Often	Always
1. I talk to someone about how I feel	○	○	○	○	○
2. I take my feelings out on others verbally (e.g. shouting, arguing)	○	○	○	○	○
3. I seek physical contact from friends or family (e.g. a hug, hold hands)	○	○	○	○	○
4. I review (rethink) my thoughts or beliefs	○	○	○	○	○
5. I harm or punish myself in some way	○	○	○	○	○
6. I do something energetic (e.g. play sport, go for a walk)	○	○	○	○	○
7. I dwell on my thoughts and feelings (e.g. It goes round and round in my head and I can't stop it)	○	○	○	○	○
8. I ask others for advice	○	○	○	○	○
9. I review (rethink) my goals or plans	○	○	○	○	○
10. I take my feelings out on others physically (e.g. fighting, lashing out)	○	○	○	○	○

In **GENERAL** how do you respond to your emotions?	Never	Seldom	Often	Very Often	Always
11. I put the situation into perspective	○	○	○	○	○
12. I concentrate on a pleasant activity	○	○	○	○	○
13. I try to make others feel bad (e.g. being rude, ignoring them)	○	○	○	○	○
14. I think about people better off and make myself feel worse	○	○	○	○	○
15. I keep the feeling locked up inside	○	○	○	○	○
16. I plan what I could do better next time	○	○	○	○	○
17. I bully other people (e.g. saying nasty things to them, hitting them)	○	○	○	○	○
18. I take my feelings out on objects around me (e.g. deliberately causing damage to my house, school or outdoor things)	○	○	○	○	○
19. Things feel unreal (e.g. I feel strange, things around me feel strange, I daydream)	○	○	○	○	○
20. I telephone friends or family	○	○	○	○	○
21. I go out and do something nice (e.g. cinema, shopping, go for a meal, meet people)	○	○	○	○	○

Thank you for your help.

Appendix 4: The Psychotic Symptom Rating Scales (PSYRATS)

Psychotic Symptom Rating Scale (Haddock et al. 1999)

Please circle the answer that is closest to the impact of your voice(s).

Frequency

0 Voices not present or present less than once a week

1 Voices occur for at least once a week

2 Voices occur at least once a day

3 Voices occur at least once an hour

4 Voices occur continuously or almost continuously, i.e stop for only a few seconds or minutes

Duration

0 Voices not present

1 Voices last for a few seconds, fleeting voices

2 Voices last for several minutes

3 Voices last for at least one hour

4 Voices last for hours at a time

Location

0 No voices present

1 Voices sound like they are inside head only

2 Voices outside the head, but close to ears or head. Voices inside the head may also be present

3 Voices sound like they are inside or close to ears and outside head away from ears

4 Voices sound like they are from outside the head

Loudness

0 Voices not present

1 Quieter than own voice, whispers

2 About same loudness as own voice

3 Louder than own voice

4 Extremely loud, shouting

Beliefs re-origin of voices

0 Voices not present

1 Believes voices to be solely internally generated and related to self

2 Holds less than 50% conviction that voices originate from external causes

3 Holds more than 50% conviction but less than 100% that voices originate from external causes

4 Believes voices are solely due to external causes (100% conviction)

Amount of negative content of voices

0 No unpleasant content

1 Occasional unpleasant content (less than 10%)

2 Minority of voice content is unpleasant or negative (less than 50%)

3 Majority of voice content is unpleasant or negative (more than 50%)

4 All the voice content is unpleasant or negative

Please circle the answer that is closest to the impact of your voice(s).

Degree of negative content

0 Not unpleasant of negative

1 Some degree of negative content, but not personal comments relating to self or family e.g. swear words or comments not directed to self e.g. 'the milkman's ugly'

2 Personal verbal abuse, comments on behaviour e.g. 'shouldn't do that or say that'

3 Personal verbal abuse relating to self-concept e.g. 'you're lazy, ugly, mad, perverted'

4 Personal threats to self e.g. threats to harm self or family, extreme instructions or commands to harm self or others

Amount of distress

0 Voices not distressing at all

1 Voices occasionally distressing, majority not distressing (less than 10%)

2 Minority of voices distressing (less than 50%)

3 Majority of voices distressing, minority not distressing (more than 50%)

4 Voices always distressing

Intensity of distress

0 Voices not distressing at all

1 Voices slightly distressing

2 Voices are distressing to a moderate degree

3 Voices are very distressing, although you could feel worse

4 Voices are extremely distressing, feel the worst you could possibly feel

Disruption to life caused by voices

0 No disruption to life, able to maintain social and family relationships (if present)

1 Voices cause minimal amount of disruption to life

2 Voices cause moderate amount of disruption to life causing some disturbance to daytime activity and or family social activities. You may receive additional help with daily living skills or be in supported accommodation

3 Voices cause severe disruption to life so that hospitalisation is usually necessary. You maintain some daily activities, self-care and relationships while in hospital. You may be in supported accommodation but experience severe disruption of life in terms of activities, daily living skills and or relationships

4 Voices cause complete disruption of daily life requiring hospitalisation. You are unable to maintain any daily activities and social relationships. Self-care is severely disrupted

Controllability of voices

0 You can have control over the voices and can always bring on or dismiss them at will

1 You believe that you can have some control over the voices on the majority of occasions

2 You believe you can have some control over the voices on the majority of occasions

3 You believe that you have control over your voices but only occasionally. The majority of the time you experience voices that are uncontrollable

4 You have no control over when the voices occur and cannot dismiss or bring them on at all.

Appendix 5: Basic Symptom Inventory

NHS Highland

Brief Symptom Inventory (BSI)

Here is a list of problems people sometimes have. I want you to circle HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. These are the answers I want you to use

0 = not at all
1 = a little bit
2 = Moderately
3 = quite a bit
4 = extremely
R = refused

DURING THE PAST 7 DAYS, how much were you distressed by:

1.	Nervousness or shakiness inside	0	1	2	3	4	R
2.	Faintness or dizziness	0	1	2	3	4	R
3.	The idea that someone else can control your thoughts	0	1	2	3	4	R
4.	Feeling others are to blame for most of your troubles	0	1	2	3	4	R
5.	Trouble remembering things	0	1	2	3	4	R
6.	Feeling easily annoyed or irritated	0	1	2	3	4	R
7.	Pains in the heart of chest	0	1	2	3	4	R
8.	Feeling afraid in open spaces	0	1	2	3	4	R
9.	Thoughts of ending your life	0	1	2	3	4	R
10.	Feeling that most people cannot be trusted	0	1	2	3	4	R
11.	Poor appetite	0	1	2	3	4	R
12.	Suddenly scared for no reason	0	1	2	3	4	R
13.	Temper outbursts that you could not control	0	1	2	3	4	R
14.	Feeling lonely even when you are with people	0	1	2	3	4	R
15.	Feeling blocked in getting things done	0	1	2	3	4	R
16.	Feeling lonely	0	1	2	3	4	R
17.	Feeling blue	0	1	2	3	4	R
18.	Feeling no interest in things	0	1	2	3	4	R
19.	Feeling fearful	0	1	2	3	4	R
20.	Your feelings being easily hurt	0	1	2	3	4	R
21.	Feeling that people are unfriendly or dislike you	0	1	2	3	4	R

Linda

0 = not at all
1 = a little bit
2 = Moderately
3 = quite a bit
4 = extremely
R = refused

DURING THE PAST 7 DAYS, how much were you distressed by:

22.	Feeling inferior to others	0	1	2	3	4	R
23.	Nausea or upset stomach	0	1	2	3	4	R
24.	Feeling that you are watched or talked about by others	0	1	2	3	4	R
25.	Trouble falling asleep	0	1	2	3	4	R
26.	Having to check and double check what you do	0	1	2	3	4	R
27.	Difficulty making decisions	0	1	2	3	4	R
28.	Feeling afraid to travel on buses, subways, or trains	0	1	2	3	4	R
29.	Trouble getting your breath	0	1	2	3	4	R
30.	Hot or cold spells	0	1	2	3	4	R
31.	Having to avoid certain things, places, or activities because they frighten you	0	1	2	3	4	R
32.	Your mind going blank	0	1	2	3	4	R
33.	Numbness or tingling in parts of your body	0	1	2	3	4	R
34.	The idea that you should be punished for your sins	0	1	2	3	4	R
35.	Feeling hopeless about the future	0	1	2	3	4	R
36.	Trouble concentrating	0	1	2	3	4	R
37.	Feeling weak in parts of your body	0	1	2	3	4	R
38.	Feeling tense or keyed up	0	1	2	3	4	R
39.	Thoughts of death or dying	0	1	2	3	4	R
40.	Having urges to beat, injure, or harm someone	0	1	2	3	4	R
41.	Having urges to break or smash things	0	1	2	3	4	R
42.	Feeling very self-conscious with others	0	1	2	3	4	R
43.	Feeling uneasy in crowds	0	1	2	3	4	R
44.	Never feeling close to another person	0	1	2	3	4	R
45.	Spells of terror or panic	0	1	2	3	4	R
46.	Getting into frequent arguments	0	1	2	3	4	R
47.	Feeling nervous when you are left alone	0	1	2	3	4	R
48.	Other not giving you proper credit for your achievements	0	1	2	3	4	R
49.	Feeling so restless you couldn't sit still	0	1	2	3	4	R
50.	Feelings of worthlessness	0	1	2	3	4	R
51.	Feeling that people will take advantage of you if you let them	0	1	2	3	4	R
52.	Feeling of guilt	0	1	2	3	4	R
53.	The idea that something is wrong with your mind	0	1	2	3	4	R

Appendix 6: Revised Beliefs About Voices Questionnaire

NHS Highland

The revised Beliefs About Voices Questionnaire (BAVQ-R) (Chadwick et al. 2000).
Please answer the following in relation to hearing voices that others do not hear.

1=disagree
2=unsure
3=agree slightly
4=agree strongly

1. My voice is punishing me for something I have done	1	2	3	4
2. My voice wants to help me	1	2	3	4
3. My voice is persecuting me for no good reason	1	2	3	4
4. My voice wants to protect me	1	2	3	4
5. My voice is evil	1	2	3	4
6. My voice is helping to keep me sane	1	2	3	4
7. My voice wants to harm me	1	2	3	4
8. My voice is helping me to develop my special powers or abilities	1	2	3	4
9. My voice wants me to do bad things	1	2	3	4
10. My voice is helping me to achieve my goals in life	1	2	3	4
11. My voice is trying to corrupt or destroy me	1	2	3	4
12. I am grateful for my voice	1	2	3	4
13. My voice is very powerful	1	2	3	4
14. My voice reassures me	1	2	3	4
15. My voice frightens me	1	2	3	4
16. My voice makes me happy	1	2	3	4
17. My voice makes me feel down	1	2	3	4
18. My voice makes me feel angry	1	2	3	4
19. My voice makes me feel calm	1	2	3	4
20. My voice makes me feel anxious	1	2	3	4
21. My voice makes me feel confident	1	2	3	4
22. My voices seem to know everything about me	1	2	3	4
23. I cannot control my voices	1	2	3	4
24. My voice makes me do things I really don’t want to do	1	2	3	4
25. My voice rules my life	1	2	3	4
26. My voice will harm or kill me if I disobey or resist it	1	2	3	4

1=disagree
2=unsure
3=agree slightly
4=agree strongly

WHEN I HEAR MY VOICE, USUALLY ……

27. I tell it to leave me alone	1	2	3	4
28. I try and take my mind off it	1	2	3	4
29. I try to stop it	1	2	3	4
30. I do things to prevent it talking	1	2	3	4
31. I am reluctant to obey it	1	2	3	4
32. I listen to it because I want to	1	2	3	4
33. I willingly follow what my voice tells me to do	1	2	3	4
34. I have done things to start to get in contact with my voice	1	2	3	4
35. I seek the advice of my voice	1	2	3	4

Appendix 7: Beliefs About Voices Scale

BELIEFS ABOUT VOICES (Adapted)

1. My voices are useful for avoiding trouble

1 not at all	2 somewhat	3 moderately so	4 very much

2. In the past if I had not heard voices I could have got hurt

1 not at all	2 somewhat	3 moderately so	4 very much

3. Bad things happen so it helps to hear voices

1 not at all	2 somewhat	3 moderately so	4 very much

4. My voices get out of control

1 not at all	2 somewhat	3 moderately so	4 very much

5. My voices stop me from talking to other people

1 not at all	2 somewhat	3 moderately so	4 very much

6. I get upset when I hear voices

1 not at all	2 somewhat	3 moderately so	4 very much

7. Hearing voices makes me an interesting person

1 not at all	2 somewhat	3 moderately so	4 very much

8. It is important to hear voices

1 not at all	2 somewhat	3 moderately so	4 very much

9. If I did not hear voices others would take advantage of me

1 not at all	2 somewhat	3 moderately so	4 very much

10. My voices stop me from feeling close to others

1 not at all	2 somewhat	3 moderately so	4 very much

11. It is safer to hear voices

1 not at all	2 somewhat	3 moderately so	4 very much

12. My voices prevent me from doing things I enjoy

1 not at all	2 somewhat	3 moderately so	4 very much

13. If I did not hear voices then I would lose control

1 not at all	2 somewhat	3 moderately so	4 very much

14. Hearing voices worries me

1 not at all	2 somewhat	3 moderately so	4 very much

15. My voices are related to my life experiences

1 not at all	2 somewhat	3 moderately so	4 very much

16. Hearing voices is a coping strategy

1 not at all	2 somewhat	3 moderately so	4 very much

17. Hearing voices keeps me on my toes

1 not at all	2 somewhat	3 moderately so	4 very much

18. Hearing voices keeps me sharp

1 not at all	2 somewhat	3 moderately so	4 very much

19. Me hearing voices upsets other people

1 not at all	2 somewhat	3 moderately so	4 very much

20. Hearing voices makes my life seem more exciting and exhilarating

1 not at all	2 somewhat	3 moderately so	4 very much

21. Everybody can hear voices at some point

1 not at all	2 somewhat	3 moderately so	4 very much

22. Hearing voices means I have difficulty trusting others

1 not at all	2 somewhat	3 moderately so	4 very much

23. Hearing voices keeps me safe from harm

1 not at all	2 somewhat	3 moderately so	4 very much

24. I will always hear voices to some extent

1 not at all	2 somewhat	3 moderately so	4 very much

25. Hearing voices protects me

1 not at all	2 somewhat	3 moderately so	4 very much

26. Hearing voices is something everyone has to some extent

1 not at all	2 somewhat	3 moderately so	4 very much

27. Hearing voices is just human nature

1 not at all	2 somewhat	3 moderately so	4 very much

28. Hearing voices distresses me

1 not at all	2 somewhat	3 moderately so	4 very much

29. Life would be dull if it wasn't for my voices

1 not at all	2 somewhat	3 moderately so	4 very much

Appendix 8: Inventory of Interpersonal Problems (IIP-32)

IIP-32 Question/ Scoring Sheet

Name: _____

Date: _____ / _____ / _____ (Month / Day / Year) Sex: Male ☐ Female ☐

People have reported having the following problems in relating to other people. Please read the list below, and for each item, consider whether it has been a problem for you with respect to **any** significant person in your life. Then fill in the numbered circle that describes how distressing that problem has been.

The following are things you find hard to do with other people. **It is hard for me to:**	Not at all	A little bit	Moderately	Quite a bit	Extremely	
1. Say "no" to other people	⓪	①	②	③	④	1.
2. Join in on groups	⓪	①	②	③	④	2.
3. Keep things private from other people	⓪	①	②	③	④	3.
4. Tell a person to stop bothering me	⓪	①	②	③	④	4.
5. Introduce myself to new people	⓪	①	②	③	④	5.
6. Confront people with problems that come up	⓪	①	②	③	④	6.
7. Be assertive with another person	⓪	①	②	③	④	7.
8. Let other people know when I am angry	⓪	①	②	③	④	8.
9. Socialize with other people	⓪	①	②	③	④	9.
10. Show affection to people	⓪	①	②	③	④	10.
11. Get along with people	⓪	①	②	③	④	11.
12. Be firm when I need to be	⓪	①	②	③	④	12.
13. Experience a feeling of love for another person	⓪	①	②	③	④	13.
14. Be supportive of another person's goals in life	⓪	①	②	③	④	14.
15. Feel close to other people	⓪	①	②	③	④	15.
16. Really care about other people's problems	⓪	①	②	③	④	16.
17. Put somebody else's needs before my own	⓪	①	②	③	④	17.
18. Feel good about another person's happiness	⓪	①	②	③	④	18.
19. Ask other people to get together socially with me	⓪	①	②	③	④	19.
20. Be assertive without worrying about hurting the other person's feelings	⓪	①	②	③	④	20.
The following are things that you do too much.						
21. I open up to people too much.	⓪	①	②	③	④	21.
22. I am too aggressive toward other people.	⓪	①	②	③	④	22.
23. I try to please other people too much.	⓪	①	②	③	④	23.
24. I want to be noticed too much.	⓪	①	②	③	④	24.
25. I try to control other people too much.	⓪	①	②	③	④	25.
26. I put other people's needs before my own too much.	⓪	①	②	③	④	26.
27. I am overly generous to other people.	⓪	①	②	③	④	27.
28. I manipulate other people too much to get what I want.	⓪	①	②	③	④	28.
29. I tell personal things to other people too much.	⓪	①	②	③	④	29.
30. I argue with other people too much.	⓪	①	②	③	④	30.
31. I let other people take advantage of me too much.	⓪	①	②	③	④	31.
32. I am affected by another person's misery too much.	⓪	①	②	③	④	32.

Appendix 9: Ethics Approval

North of Scotland Research Ethics Committees
Summerfield House
2 Eday Road
Aberdeen
AB15 6RE

Telephone: 01224 558480
Facsimile: 01224 558609
Email: nosres@nhs.net

NHS Grampian

9 March 2009

Mrs Linda Hayward
Trainee Clinical Psychologist
NHS Highland
Department of Psychological Services
6-16 Leachkin Road
INVERNESS
IV3 8NP

Dear Mrs Hayward

Full title of study: **Hearing voices: The impact of emotion, interpersonal relating and beliefs about their voices on people who hear voices (that others do not hear)**
REC reference number: **09/S0802/10**

Thank you for your letter of 26 February 2009 and email of 4 March 2009, responding to the Committee's request for further information on the above research and submitting revised documentation.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The Committee has agreed that site-specific assessment is not required for the following site(s):

Research site	*Name of PI (CTIMPs only) or local contact point*	*Post*
New Craigs Hospital, Inverness	Linda Hayward	Trainee Clinical Psychologist

The favourable opinion for the study therefore applies to the above site(s). There is no need to complete the Site-Specific Information Form or to inform other Research Ethics Committees about the research. However, all researchers and local research collaborators who intend to participate in this study at NHS sites should seek approval from the R&D office for the relevant care organisation.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission at NHS sites ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Peer Review		
Confirmation of Student Status		6 November 2008
Investigator CV: Sheelagh Rodgers		9 December 2008
Investigator CV: Matthias Schwannauer		10 December 2008
Participant Consent Form: Revocation		10 December 2008
Participant Consent Form		10 December 2008
Questionnaire: IIP-32 Question/Scoring Sheet		10 December 2008
Questionnaire: Revised Beliefs about Voices (BAVQ-R)	1.1	12 November 2008
Questionnaire: Beliefs about Voices	1.1	12 November 2008
Questionnaire: Brief Symptom Inventory (BSI)	1.1	12 November 2008
Questionnaire: General Information	1.1	12 November 2008
Compensation Arrangements		5 September 2008
Letter from Sponsor		2 December 2008
Protocol	1.1	9 December 2008
Investigator CV		9 December 2008
Application	2.0	9 December 2008
Questionnaire: Psychotic Symptom Rating Scale	1.1	12 November 2008
Questionnaire: Regulation of Emotion 2		10 December 2008
Letter from Dr Chris MacGregor		11 February 2009
Response to Request for Further Information		26 February 2009
Participant Information Sheet	2.0	4 March 2009
Covering Letter		26 February 2009
Investigator CV: Dr Chris MacGregor		January 2009

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review.

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "After ethical review –guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

09/S0802/10 **Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Dr Sheila A Simpson
Chair

Enclosures: "After ethical review – guidance for researchers"

Copy to: Elspeth Currie

Appendix 10: Tests of normality

PSYRATS questionnaire

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PSYRATS1	.237	34	.000	.869	34	.001
PSYRATS2	.274	34	.000	.795	34	.000
PSYRATS3	.235	34	.000	.830	34	.000
PSYRATS4	.336	34	.000	.811	34	.000
PSYRATS5	.242	34	.000	.863	34	.001
PSYRATS6	.316	34	.000	.810	34	.000
PSYRATS7	.314	34	.000	.804	34	.000
PSYRATS8	.323	34	.000	.690	34	.000
PSYRATS9	.198	34	.002	.900	34	.005
PSYRATS10	.310	34	.000	.798	34	.000
PSYRATS11	.239	34	.000	.815	34	.000
PSYRATS total	.066	34	200*	.97	34	.514
PSYRATS emotional	.169	34	.015	.895	34	.003
PSYRATS physical	.155	34	.038	.961	34	.265
PSYRATS cognitive	.149	34	.053	.936	34	.048
a. Lilliefors Significance Correction *This is the lower bound of the true significance						

BAVS Questionnaire

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Negative beliefs	.119	34	.200*	.940	34	.062
Survival strategy	.252	34	.000	.741	34	.000
Positive beliefs	.342	34	.000	.671	34	.000
Normalising beliefs	.162	34	.024	.905	34	.006

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

BAVQ-R Questionnaire

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Malevolence	.135	34	.122	.942	34	.070
Benevolence	.266	34	.000	.706	34	.000
Engagement	.255	34	.000	.752	34	.000
Resistance	.127	34	.181	.944	34	.078
Omnipotence	.108	34	.200*	.950	34	.123

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

IIP-32 Questionnaire

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Too aggressive	.207	34	.001	.859	34	.000
Hard to support	.203	34	.001	.832	34	.000
Hard to involve	.167	34	.017	.902	34	.005
Hard to sociable	.172	34	.012	.905	34	.006
Hard to be asser	.206	34	.001	.911	34	.009
Too dependent	.177	34	.008	.937	34	.051
Too caring	.155	34	.037	.941	34	.068
Too open	.221	34	.000	.888	34	.002
IIP-32 total	.153	34	.042	.923	34	.020

a. Lilliefors Significance Correction

REQ Questionnaire

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
External-functional	.176	34	.009	.933	34	.039
External-dysfunctional	.305	34	.000	.607	34	.000
Internal-functional	.257	34	.000	.805	34	.000
Internal-dysfunctional	.172	34	.012	.944	34	.083

a. Lilliefors Significance Correction

BSI Questionnaire

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BSI somatic	.166	33	.022	.895	33	.004
BSI obsessive-compulsive	.179	33	.009	.931	33	.038
BSI interpersonal	.144	33	.082	.942	33	.076
BSI depression	.147	33	.066	.939	33	.064
BSI anxiety	.175	33	.012	.943	33	.085
BSI hostility	.215	33	.000	.833	33	.000
BSI phobic anxiety	.165	33	.024	.907	33	.008
BSI paranoid	.122	33	.200*	.952	33	.149
BSI psychotic	.123	33	.200*	.953	33	.160
BSI grand total	.152	33	.051	.940	33	.068

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Appendix 11: Descriptive statistics

Descriptive statistics for Questionnaires

	Valid	Missing	Mean	Median	Std. Deviation	Variance	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Range	Minimum	Maximum
Omnipotence	34	0	15.71	15.00	3.69	13.61	.50	.40	-.27	.79	14.00	10.00	24.00
Malevolence	34	0	16.44	17.00	4.78	22.86	-.33	.40	-.68	.79	16.00	8.00	24.00
Benevolence	34	0	10.29	7.00	6.05	36.64	1.30	.40	.08	.79	17.00	6.00	23.00
Engagement	34	0	12.38	10.00	5.53	30.55	1.49	.40	1.05	.79	18.00	8.00	26.00
Resistance	34	0	26.12	25.00	6.09	37.14	-.12	.40	-.40	.79	23.00	13.00	36.00
Negative beliefs	34	0	30.03	30.00	6.71	45.06	.44	.40	-.61	.79	23.00	20.00	43.00
Survival beliefs	34	0	14.38	13.00	5.17	26.73	2.00	.40	3.86	.79	20.00	10.00	30.00
Positive beliefs	34	0	5.76	4.50	2.83	8.00	1.87	.40	2.68	.79	10.00	4.00	14.00
Normalizing beliefs	34	0	6.56	6.50	2.88	8.32	.18	.40	-1.23	.79	9.00	3.00	12.00
BSI somatic	33	1	8.52	7.00	6.65	44.20	1.11	.41	.77	.79	25.00	.00	25.00
BSI obsessive compulsive	33	1	14.18	15.00	5.10	25.97	-.03	.41	-1.21	.80	18.00	5.00	23.00
BSI Interpersonal	33	1	9.70	10.00	4.00	16.03	-.030	.41	-1.22	.80	13.00	3.00	16.00
BSI Depression	33	1	13.79	12.00	6.92	47.86	.022	.41	-1.10	.80	23.00	1.00	24.00
BSI anxiety	33	1	13.85	15.00	5.39	29.07	-.46	.41	-.67	.80	21.00	1.00	22.00
BSI hostility	33	1	6.55	4.00	5.56	30.94	1.28	.41	.67	.80	20.00	.00	20.00
BSI phobic anxiety	33	1	10.39	11.00	5.93	35.18	.09	.41	-1.43	.80	18.00	2.00	20.00
BSI paranoid	33	1	10.18	10.00	4.76	22.65	-.04	.41	-1.03	.80	16.00	2.00	18.00
BSI psychotic	33	1	10.30	10.00	5.12	26.22	-.18	.41	-.99	.80	18.00	1.00	19.00
BSI Grand total	33	1	105.94	114.00	41.66	1735.62	-.12	.41	-1.25	.80	146.00	32.00	178.00
REQ External-functional	34	0	14.65	15.00	4.73	22.36	.57	.40	1.40	.79	22.00	7.00	29.00
REQ External-Dysfunctional	34	0	8.44	7.000	4.66	21.71	2.88	.40	8.52	.79	20.00	5.00	25.00
REQ Internal-Functional	34	0	12.29	12.00	3.12	9.73	.94	.40	5.83	.79	18.00	6.00	24.00
REQ Internal-Dysfunctional	34	0	16.03	16.00	3.73	13.91	-.26	.40	-.86	.79	15.00	8.00	23.00
Too aggressive	34	0	2.85	2.00	2.94	8.61	.91	.40	.07	.79	10.00	.00	10.00
Hard to be supportive	34	0	5.65	3.500	4.96	24.60	.83	.40	-.75	.79	15.00	1.00	16.00
Hard to be involved	34	0	7.74	7.00	5.32	28.26	.127	.40	-1.55	.79	16.00	.00	16.00
Hard to be sociable	34	0	9.85	9.00	3.90	15.22	.166	.40	-1.47	.79	12.00	4.00	16.00
Hard to be assertive	34	0	10.00	11.00	3.68	13.58	-.78	.40	.78	.79	15.00	1.00	16.00
Too dependent	34	0	10.03	10.50	2.72	7.423	-.55	.40	-.37	.79	10.00	4.00	14.00
Too caring	34	0	9.47	10.00	3.31	10.92	-.14	.40	-1.00	.79	11.00	4.00	15.00
Too open	34	0	5.09	4.00	4.17	17.42	1.16	.40	1.02	.79	16.00	.00	16.00
IIP-32 total	34	0	60.68	60.00	20.67	427.20	.39	.40	-.89	.79	70.00	32.00	102.00
PSYRATS emotion	34	0	10.82	12.00	4.20	17.60	-.54	.40	-1.06	.79	13.00	3.00	16.00
PSYRATS physical	34	0	9.56	10.00	2.63	6.92	-.37	.40	-.29	.79	10.00	4.00	14.00
PSYRATS cognitive	34	0	7.18	7.00	2.24	5.00	.51	.40	.162	.79	9.00	3.00	12.00
PSYRATS1	34	0	2.38	2.00	1.26	1.58	-.01	.40	-1.02	.79	4.00	.00	4.00
PSYRATS2	34	0	2.82	3.00	1.22	1.48	-.39	.40	-1.49	.79	3.00	1.00	4.00
PSYRATS3	34	0	2.21	2.00	1.15	1.32	.34	.40	-1.36	.79	3.00	1.00	4.00
PSYRATS4	34	0	2.15	2.00	.82	.68	.76	.40	.57	.79	3.00	1.00	4.00
PSYRATS5	34	0	2.50	2.00	1.05	1.11	.17	.40	-1.15	.79	3.00	1.00	4.00
PSYRATS6	34	0	2.62	3.00	1.37	1.88	-.82	.40	-.63	.79	4.00	.00	4.00
PSYRATS7	34	0	2.85	3.00	1.18	1.40	-1.10	.40	.40	.79	4.00	.00	4.00
PSYRATS8	34	0	2.88	4.00	1.37	1.87	-.61	.40	-1.56	.79	3.00	1.00	4.00
PSYRATS9	34	0	2.47	3.00	1.21	1.47	-.36	.40	-.81	.79	4.00	.00	4.00
PSYRATS10	34	0	1.65	1.00	1.10	1.21	1.06	.40	.39	.79	4.00	.00	4.00
PSYRATS11	34	0	3.03	3.00	1.03	1.06	-.77	.40	-.51	.79	3.00	1.00	4.00
PSYRATS total	34	0	27.56	27.50	7.30	53.22	.039	.40	-.70	.79	26.00	14.00	40.00

Appendix 12: Regression analysis

Descriptive Statistics

	Mean	Std. Deviation	N
REQ External-Dysfunctional	8.5455	4.69102	33
BSI grand total	105.9394	41.66079	33
IIP-32 total	60.0303	20.63747	33
PYRATS emotion	10.6970	4.19438	33
Omnipotence	15.4545	3.43776	33

Correlations

		REQ External-Dysfunctional	BSI grand total	IIP-32 total	PSYRATS emotion	Omnipotence
Pearson Correlation	REQ External-Dysfunctional	1.000	.194	-.220	-.436	-.163
	BSI grand total	.194	1.000	.314	.235	.410
	IIP-32 total	-.220	.314	1.000	.014	.361
	PSYRATS emotion	-.436	.235	.014	1.000	.474
	Omnipotence	-.163	.410	.361	.474	1.000
Sig. (1-tailed)	REQ External-Dysfunctional	.	.139	.110	.006	.182
	BSI grand total	.139	.	.038	.094	.009
	IIP-32 total	.110	.038	.	.470	.020
	PSYRATS emotion	.006	.094	.470	.	.003
	Omnipotence	.182	.009	.020	.003	.
N	REQ External-Dysfunctional	33	33	33	33	33
	BSI grand total	33	33	33	33	33
	IIP-32 total	33	33	33	33	33
	PSYRATS emotion	33	33	33	33	33
	Omnipotence	33	33	33	33	33

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	PSYRATS emotion, IIP-32 total, BSI grand total[a]	.	Enter
2	Omnipotence[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: REQ External-Dysfunctional

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.626[a]	.391	.328	3.84450	.391	6.215	3	29	.002	
2	.627[b]	.394	.307	3.90473	.002	.112	1	28	.740	2.059

a. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total

b. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total, Omnipotence

c. Dependent Variable: REQ External-Dysfunctional

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	275.556	3	91.852	6.215	.002[a]
	Residual	428.626	29	14.780		
	Total	704.182	32			
2	Regression	277.268	4	69.317	4.546	.006[b]
	Residual	426.914	28	15.247		
	Total	704.182	32			

a. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total

b. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total, Omnipotence

c. Dependent Variable: REQ External-Dysfunctional

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	14.533	2.805		5.181	.000	8.796	20.269					
	BSI grand total	.048	.018	.428	2.722	.011	.012	.084	.194	.451	.394	.848	1.179
	IIP-32 total	-.079	.035	-.347	-2.268	.031	-.150	-.008	-.220	-.388	-.329	.898	1.114
	PSYRATS emotion	-.595	.167	-.532	-3.561	.001	-.937	-.253	-.436	-.552	-.516	.941	1.063
2	(Constant)	13.929	3.371		4.132	.000	7.023	20.834					
	BSI grand total	.047	.019	.414	2.508	.018	.009	.085	.194	.428	.369	.794	1.260
	IIP-32 total	-.083	.037	-.365	-2.220	.035	-.159	-.006	-.220	-.387	-.327	.802	1.248
	PSYRATS emotion	-.624	.191	-.558	-3.266	.003	-1.016	-.233	-.436	-.525	-.481	.741	1.349
	Omnipotence	.086	.257	.063	.335	.740	-.441	.613	-.163	.063	.049	.609	1.643

a. Dependent Variable: REQ External-Dysfunctional

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Omnipotence	.063[a]	.335	.740	.063	.609	1.643	.609

a. Predictors in the Model: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total

b. Dependent Variable: REQ External-Dysfunctional

Casewise Diagnostics[a]

Case Number	Std. Residual	REQ External-Dysfunctional	Predicted Value	Residual
5	2.349	25.00	15.8270	9.17295
15	2.349	25.00	15.8270	9.17295
22	2.109	15.00	6.7640	8.23601

a. Dependent Variable: REQ External-Dysfunctional

Collinearity Diagnostics[a]

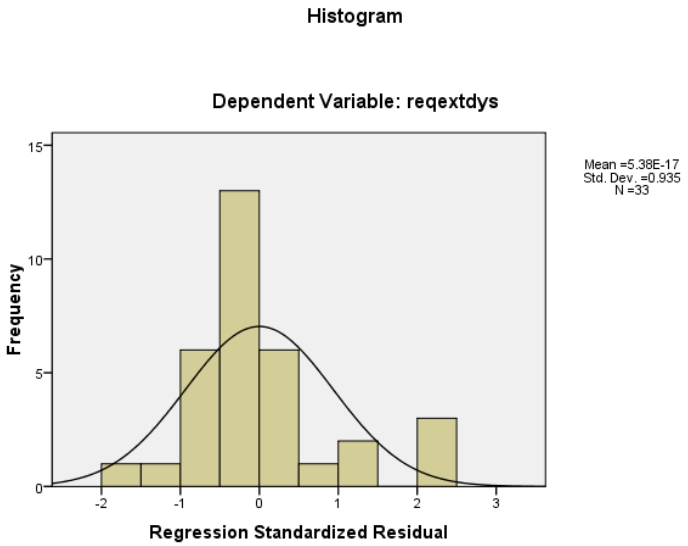
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	BSI grand total	IIP-32 total	PSYRATS emotion	Omnipotence
1	1	3.759	1.000	.00	.01	.01	.01	
	2	.118	5.642	.00	.05	.24	.66	
	3	.082	6.764	.05	.94	.25	.01	
	4	.040	9.643	.95	.01	.50	.31	
2	1	4.735	1.000	.00	.00	.00	.00	.00
	2	.119	6.321	.00	.06	.22	.50	.00
	3	.083	7.530	.03	.91	.19	.00	.01
	4	.043	10.536	.45	.01	.55	.37	.05
	5	.021	15.171	.52	.03	.04	.13	.94

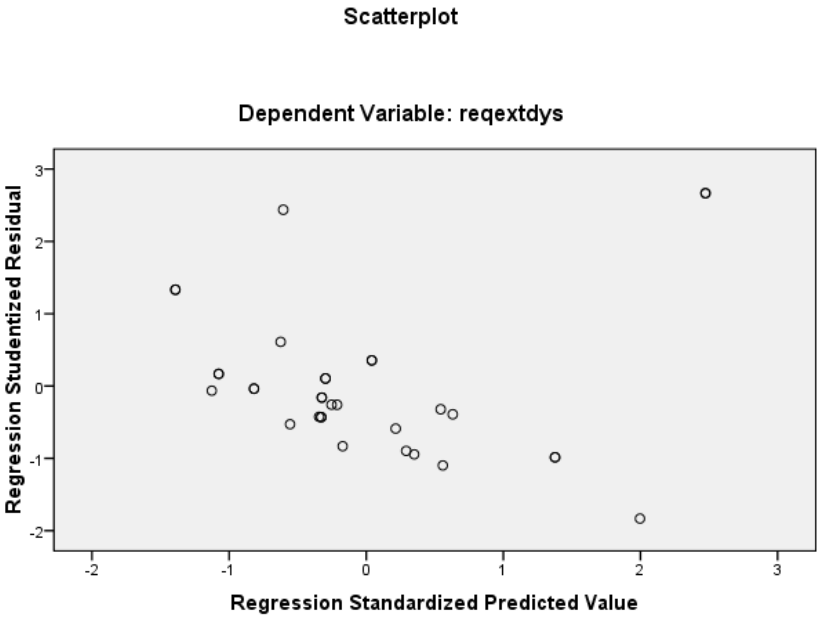
a. Dependent Variable: REQ External-Dysfunctional

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	4.4488	15.8270	8.5455	2.94357	33
Std. Predicted Value	-1.392	2.474	.000	1.000	33
Standard Error of Predicted Value	.819	2.371	1.464	.415	33
Adjusted Predicted Value	3.0563	15.9750	8.3777	3.00696	33
Residual	-6.42212	9.17295	.00000	3.65254	33
Std. Residual	-1.645	2.349	.000	.935	33
Stud. Residual	-1.833	2.667	.020	1.045	33
Deleted Residual	-7.97496	11.82180	.16774	4.56543	33
Stud. Deleted Residual	-1.919	3.032	.049	1.128	33
Mahal. Distance	.438	10.826	3.879	2.817	33
Cook's Distance	.000	.411	.054	.119	33
Centered Leverage Value	.014	.338	.121	.088	33

a. Dependent Variable: REQ External-Dysfunctional




Scatterplot
Dependent Variable: reqextdys
Regression Studentized Residual
Regression Standardized Predicted Value
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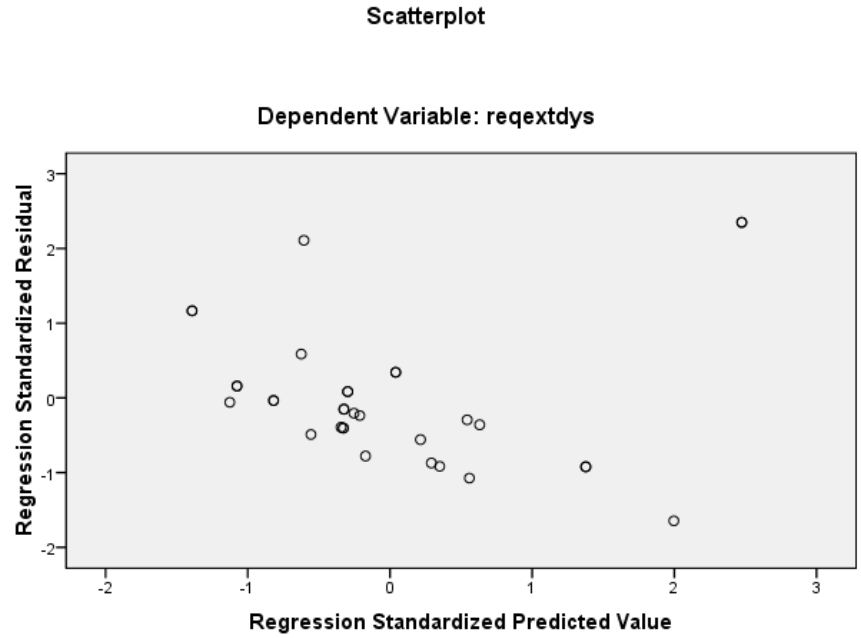
3


Scatterplot
Dependent Variable: reqextdys
Regression Standardized Residual
Regression Standardized Predicted Value
3
2
1
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-1
-2
-2
-1
0
1
2
3

Descriptive Statistics

	Mean	Std. Deviation	N
REQ Internal-Dysfunctional	15.9697	3.77065	33
BSI grand total	105.9394	41.66079	33
IIP-32 total	60.0303	20.63747	33
PSYRATS emotion	10.6970	4.19438	33
Omnipotence	15.4545	3.43776	33

Correlations

		REQ Internal-Dysfunctional	BSI grand total	IIP-32 total	PSYRATS emotion	Omnipotence
Pearson Correlation	REQ Internal-Dysfunctional	1.000	.758	.424	.276	.490
	BSI grand total	.758	1.000	.314	.235	.410
	IIP-32 total	.424	.314	1.000	.014	.361
	PSYRATS emotion	.276	.235	.014	1.000	.474
	Omnipotence	.490	.410	.361	.474	1.000
Sig. (1-tailed)	REQ Internal-Dysfunctional	.	.000	.007	.060	.002
	BSI grand total	.000	.	.038	.094	.009
	IIP-32 total	.007	.038	.	.470	.020
	PSYRATS emotion	.060	.094	.470	.	.003
	Omnipotence	.002	.009	.020	.003	.
N	REQ Internal-Dysfunctional	33	33	33	33	33
	BSI grand total	33	33	33	33	33
	IIP-32 total	33	33	33	33	33
	PSYRATS emotion	33	33	33	33	33
	Omnipotence	33	33	33	33	33

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	PSYRATS emotion, IIP-32 total, BSI grand total[a]	.	Enter
2	Omnipotence[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: REQ Internal-Dysfunctional

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.791[a]	.626	.587	2.42355	.626	16.153	3	29	.000	
2	.799[b]	.638	.586	2.42582	.012	.946	1	28	.339	2.208

a. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total

b. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total, Omnipotence

c. Dependent Variable: REQ Internal-Dysfunctional

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	284.636	3	94.879	16.153	.000[a]
	Residual	170.334	29	5.874		
	Total	454.970	32			
2	Regression	290.201	4	72.550	12.329	.000[b]
	Residual	164.768	28	5.885		
	Total	454.970	32			

a. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total

b. Predictors: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total, Omnipotence

c. Dependent Variable: REQ Internal-Dysfunctional

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	6.138	1.768		3.472	.002	2.522	9.755					
	BSI grand total	.060	.011	.663	5.376	.000	.037	.083	.758	.706	.611	.848	1.179
	IIP-32 total	.039	.022	.214	1.783	.085	-.006	.084	.424	.314	.203	.898	1.114
	PSYRATS emotion	.105	.105	.117	1.000	.325	-.110	.321	.276	.183	.114	.941	1.063
2	(Constant)	5.049	2.094		2.411	.023	.759	9.340					
	BSI grand total	.057	.012	.632	4.949	.000	.034	.081	.758	.683	.563	.794	1.260
	IIP-32 total	.032	.023	.173	1.365	.183	-.016	.079	.424	.250	.155	.802	1.248
	PSYRATS emotion	.052	.119	.058	.439	.664	-.191	.295	.276	.083	.050	.741	1.349
	Omnipotence	.156	.160	.142	.973	.339	-.172	.483	.490	.181	.111	.609	1.643

a. Dependent Variable: REQ Internal-Dysfunctional

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Omnipotence	.142[a]	.973	.339	.181	.609	1.643	.609

a. Predictors in the Model: (Constant), PSYRATS emotion, IIP-32 total, BSI grand total

b. Dependent Variable: REQ Internal-Dysfunctional

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	BSI grand total	IIP-32 total	PSYRATS emotion	Omnipotence
1	1	3.759	1.000	.00	.01	.01	.01	
	2	.118	5.642	.00	.05	.24	.66	
	3	.082	6.764	.05	.94	.25	.01	
	4	.040	9.643	.95	.01	.50	.31	
2	1	4.735	1.000	.00	.00	.00	.00	.00
	2	.119	6.321	.00	.06	.22	.50	.00
	3	.083	7.530	.03	.91	.19	.00	.01
	4	.043	10.536	.45	.01	.55	.37	.05
	5	.021	15.171	.52	.03	.04	.13	.94

a. Dependent Variable: REQ Internal-Dysfunctional

Casewise Diagnostics[a]

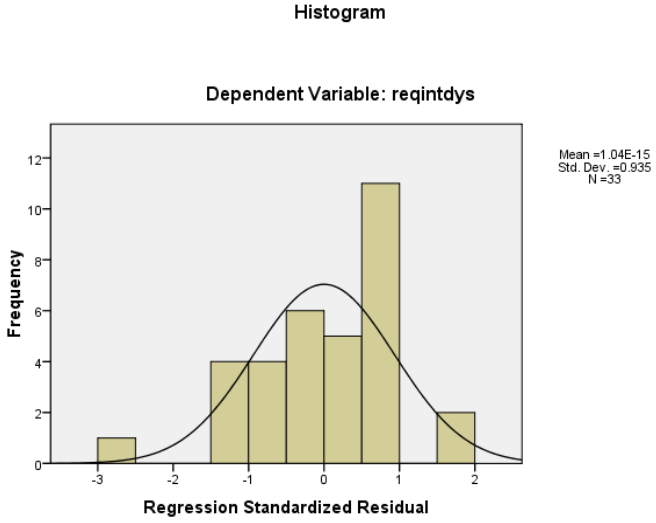
Case Number	Std. Residual	REQ Internal-Dysfunctional	Predicted Value	Residual
12	-2.686	8.00	14.5146	-6.51463

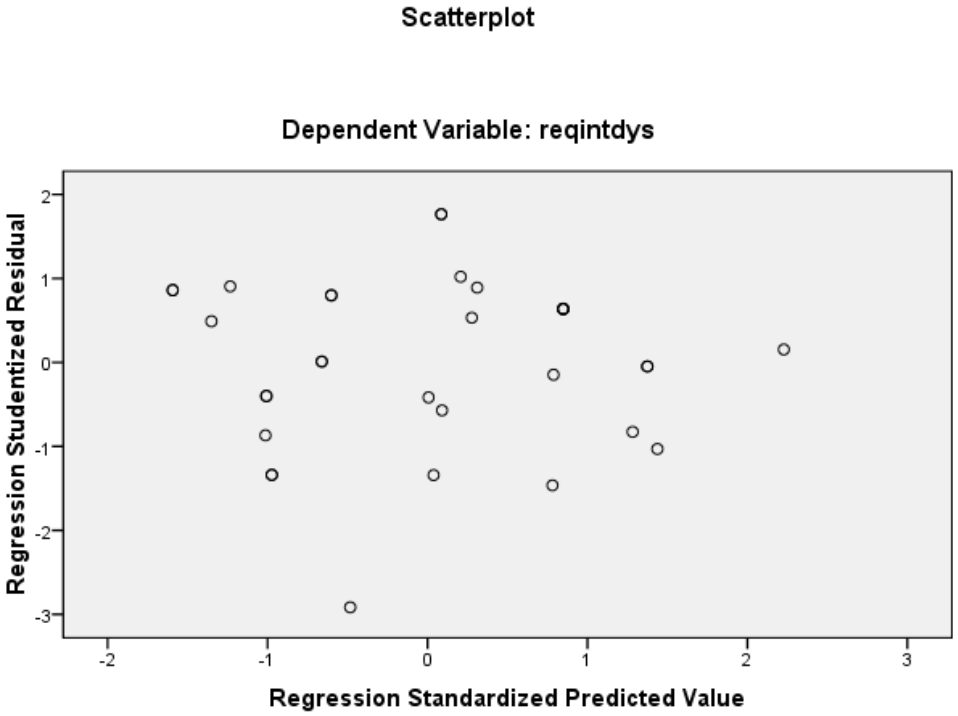
a. Dependent Variable: REQ Internal-Dysfunctional

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11.1727	22.6766	15.9697	3.01144	33
Std. Predicted Value	-1.593	2.227	.000	1.000	33
Standard Error of Predicted Value	.509	1.473	.909	.258	33
Adjusted Predicted Value	10.6136	22.5681	15.9254	3.11154	33
Residual	-6.51463	3.77163	.00000	2.26914	33
Std. Residual	-2.686	1.555	.000	.935	33
Stud. Residual	-2.915	1.765	.008	1.018	33
Deleted Residual	-7.67556	4.86076	.04429	2.69615	33
Stud. Deleted Residual	-3.430	1.839	-.007	1.077	33
Mahal. Distance	.438	10.826	3.879	2.817	33
Cook's Distance	.000	.303	.039	.065	33
Centered Leverage Value	.014	.338	.121	.088	33

a. Dependent Variable: REQ Internal-Dysfunctional

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Regression Studentized Residual
Regression Standardized Predicted Value
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0
-1
-2
-3
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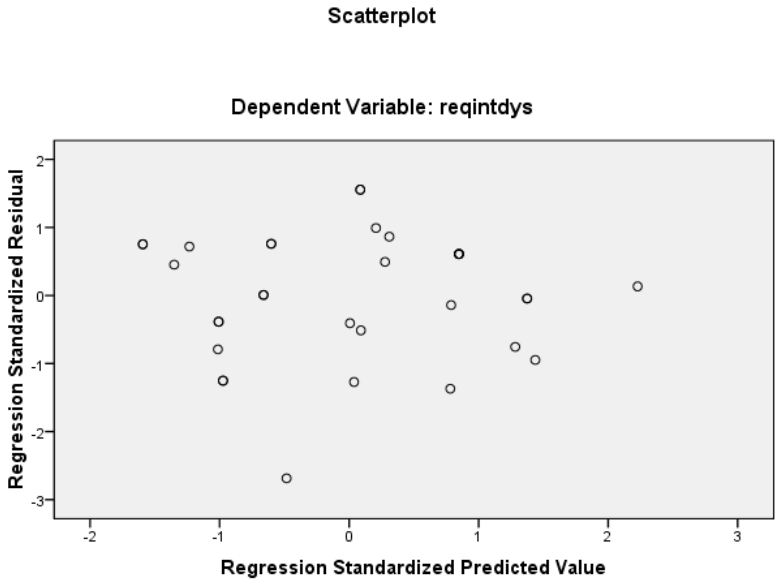
1
2
3


Scatterplot
Dependent Variable: reqintdys
Regression Standardized Residual
Regression Standardized Predicted Value
2
1
0
-1
-2
-3
-2
-1
0
1
2
3