

# **Contextual Factors Associated with Psychological Inflexibility and Distress in Adults**

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# 1 Abstract

It is widely accepted in the literature that adverse experiences in childhood, such as abuse and emotional invalidation, pose a major risk factor for the development of psychopathology later in life. What is less known, however, is what processes mediate these associations. This study investigated whether psychological inflexibility – that is, cognitive fusion and experiential avoidance - play a role in mediating these relationships. Although abuse and experiential avoidance have featured prominently in the literature, emotional invalidation and cognitive fusion have been comparatively neglected. 518 adults currently experiencing self-reported psychological distress were recruited from online mental health support forums. They completed questionnaires measuring experiences of abuse and maternal/paternal emotional invalidation in childhood and current levels of cognitive fusion, experiential avoidance and psychopathology in an online survey. Given the interpersonal nature of the childhood experiences, and the impact these may have on attachment relationships, participants were also asked to complete a measure of adult attachment. Regression and path analyses indicated that whilst childhood abuse had a direct impact on adult psychopathology, experiences of maternal and paternal emotional invalidation had indirect relationships with psychopathology via cognitive fusion and experiential avoidance. In terms of predicting current levels of psychopathology, cognitive fusion made the most significant contribution, both directly, and indirectly via experiential avoidance. No reliable predictive relationships were observed between adult attachment and any other variable. The results add novel findings to the literature regarding the role of childhood emotional invalidation and cognitive fusion in the development and/or maintenance of distress. They suggest that clinical interventions aimed at cognitive defusion may be of particular benefit to people currently experiencing psychological distress and, perhaps, those with a history of emotional invalidation. However, the cross-sectional nature of this study limits the causal conclusions that can be made and future research should consider the use of longitudinal designs to extend these findings.

## **2 Introduction**

### **2.1 Overview**

This study examined a number of topic areas. As such, there is vast amount of literature available and a full review of its entirety is beyond the scope of this project. This introduction first orients the reader to the concepts of childhood abuse and emotional invalidation, before outlining the theoretical and empirical relationships between these early experiences and psychopathology later in life. It then goes on to introduce the concepts of experiential avoidance and cognitive fusion, which are constructs defined by the Acceptance and Commitment Therapy (ACT) approach (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes, Strosahl, & Wilson, 1999). An overview of the ACT approach is then given, followed by a conceptualisation of how childhood experiences of abuse and emotional invalidation might be understood from an ACT perspective. A review of the literature linking childhood abuse and emotional invalidation to experiential avoidance is also presented. The latter part of this introduction discusses the interpersonal aspects of abuse and emotional invalidation and their impact on attachment, and makes enquiries into the possible relationships between attachment and psychological inflexibility. Finally, the rationale for this study, its clinical relevance and aims and hypotheses are outlined.

### **2.2 Literature search strategy**

Initially, a preliminary search for review papers was carried out using the Annual Review and Cochrane databases. The following search terms were used: acceptance and commitment therapy (ACT); psychological inflexibility; experiential avoidance; cognitive fusion; child abuse; maltreatment; emotional invalidation; attachment. Key references from relevant review articles were then obtained.



From the relevant papers, a second set of search terms were compiled. These included: abuse; sexual abuse; physical abuse; emotional abuse; psychological abuse; neglect; invalidation; emotional invalidation; emotional neglect; physical neglect; trauma; attachment; adult attachment; psychological inflexibility; acceptance and commitment therapy; ACT; cognitive fusion; experiential avoidance; emotional inhibition; emotional avoidance; cognitive avoidance; cognitive flexibility; psychological distress; mental health; psychopathology; psychological disorder. These terms were then used in different combinations to search the following databases: PsycINFO; PubMed; Medline; Scopus; and Web of Science. Studies were excluded if they were not reported in English.

The reference lists of relevant articles were searched and additional papers deemed most relevant were obtained. Searches on the World Wide Web were also conducted using internet search engines such as 'Google' and 'Google Scholar'. The Association for Contextual Behaviour Science website was also used to find relevant articles in addition to relevant author websites. Particular authors were contacted if articles were not accessible freely on the internet (for example, articles in submission or in press).

### **2.3 Introduction to childhood contextual factors**

In this study, childhood 'contextual factors' refer to the experiences of abuse and emotional invalidation in childhood. In the literature, these are often referred to as 'adverse early experiences' and they have each been linked, either theoretically or empirically, to the experience of psychological distress and psychopathology later in life.

### **2.3.1 Childhood abuse: definition and brief overview**

Difficulties with defining the concept of abuse have plagued research studies. In the United Kingdom (UK), since The Children Act (Department of Health, 1989) came into effect, legal definitions of abuse have relied on the concept of Significant Harm (Adcock & White, 1998) and this has been accepted as the threshold for recognition of child abuse and neglect (Glaser, 2000). Significant Harm relies on evidence of either ill-treatment of the child that has caused or is likely to cause significant harm, and/or impairment of the child's health and development, which is attributable to ill-treatment or to the care that the child has or has not received (Glaser, 2000).

Definitions of abuse for research purposes have generally tended to be broader than legal definitions (Shaffer, Huston, & Egeland, 2008). From a clinical perspective, however, the victim's subjective account of an incident - that is, the meaning and interpretation they give an experience - is highly relevant in determining what constitutes abuse and neglect (Shaffer et al., 2008). This has important implications for research in that similar experiences could be recalled and reported differently depending on the individual. There are also other factors that may interfere with the reporting of a past experience, including accuracy of memory, relationship with the perpetrator, motivation and current psychopathology (Briere, 1992).

Prevalence rates of different forms of abuse are equivocal and affected by many factors, including methodological problems within studies (Pollock, 2001). Statistics tend to be clouded by the definition of abuse used, response rates, willingness to disclose the abuse, and memory impairments. It has been suggested that in community samples up to 54% of females and 18% of males have experienced unwanted sexual contact with an adult before the age of 18 years (Gorey & Leslie, 1997). In clinical samples, prevalence rates are thought to be higher. A study by Cawson, Wattam, Brooker and Kelly (2000) estimated that approximately 7% of children in the UK had experienced

serious physical abuse and 6% had been victim to severe emotional maltreatment. One percent of children had experienced sexual abuse by a parent or carer, 3% by another relative, and 11% by people unrelated to their family. Five percent reported being sexually abuse by people unrelated to them.

With respect to the study of abuse more generally, the most relevant caveat is that it is difficult to disentangle the effects of one form of abuse from another (Pollock, 2001). It has been reported that only five percent of abuse cases involve a single form of abuse, with a combination of neglect, physical and verbal abuse reported to have the most detrimental effect on a child (Ney, Fung, & Wickett, 1994). Despite this, sexual abuse appears to be the most frequently examined form of abuse in the scientific literature (Chaffin, 2006; Feiring & Zielinski, 2011).

### **2.3.2 Emotionally invalidating childhood environments: definition and brief overview**

Abuse and neglect in childhood often occur in environments that are generally invalidating to the child (Follette, 1994). The concept of an invaliding environment was first proposed in the Dialectical Behaviour Therapy (DBT) model (Linehan, 1993) and was originally described as an environment in which:

‘...communication of private experiences is met by erratic, inappropriate and extreme responses. In other words the expression of private experiences is not validated; instead it is often punished, and/or trivialized.’

(p.49).

In an invalidating environment, the child may be told repeatedly that they are ‘wrong’ in their description and analysis of their own experiences (Linehan,

1993). Communication of emotion is ignored or responded to negatively, and displays of negative affect or individualism are not tolerated, with high value being attached to being happy, never giving up and believing in positivity (Mountford, Corstorphine, Tomlinson, & Waller, 2007). Extreme emotional displays may be intermittently reinforced, resulting in escalation of emotional expressions (Rosenthal, Lynch, & Linehan, 2005). Children may also experience emotional invalidation if one or both parents are experienced as physically or emotionally 'unavailable', possibly due to factors such as substance misuse, mental health difficulties or financial issues (Mountford et al., 2007)

It has been suggested that an invalidating environment in childhood might underlie all forms of trauma (Mountford et al., 2007). In its most extreme form, emotional invalidation can also be conceptualised as a form of emotional abuse (Krause, Mendelson, & Lynch, 2003). The importance of studying the effects of more subtle forms of trauma, such as emotional invalidation, in addition to more overt forms of abuse, has been highlighted by Rorty, Yager, & Rossotto (1994). The topic of emotional invalidation has been of increasing interest to both clinicians and researchers. A common finding that has emerged is the implication these experiences may have on the emotional development of the individual. For example, individuals who have experienced invalidation can experience difficulties with identifying, labelling and regulating emotional states and tolerating distress (Waller, Corstorphine, & Mountford, 2007).

## **2.4 Links between childhood contextual factors and psychopathology in adulthood**

In the literature, childhood abuse and emotional invalidation have been linked to experiences of psychological distress and psychopathology later in adult life. A review of all of the literature is beyond the scope of this study. However, a brief summary of relevant findings will be outlined below.

### **2.4.1 Abuse and psychopathology**

Research has shown that abusive experiences in childhood are traumatic and can have a major impact on an individual's mental health, both in childhood and later on in adulthood (Browne & Finkelhor, 1986; Bulik, Prescott, & Kendler, 2001; Mullen, Martin, Anderson, Romans, & Herbison, 1996; Sacco et al., 2007). A recent systematic review examining the impact of childhood sexual abuse on health (Maniglio, 2009) concluded that across studies and samples there was evidence to suggest that survivors of childhood sexual abuse were significantly at risk of a wide range of mental health problems, including: psychosis; depression; anxiety disorders; eating disorders; somatisation; personality disorders; suicidal and self-harming ideation or behaviour; and substance misuse. Additionally, studies have shown that individuals exposed to emotional and physical abuse (Cutajar et al., 2010; MacMillan et al., 2001; Mullen et al., 1996; Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003) and neglect (Min, Farkas, Minnes, & Singer, 2007) in childhood are also more likely to report increased levels of psychopathology in adulthood. Some studies have shown larger effects for more severe experiences of abuse (Bulik et al., 2001) and for different types of abuse (Fergusson, Bogen, & Horwood, 2008).

There exists some scepticism in this area of research as to whether childhood abuse is unique in its effects on development, given that it usually occurs in the context of many other confounding variables, such as socioeconomic disadvantage and family dysfunction (Noll, 2008). Although this question remains somewhat unanswered, mainly due to difficulties with isolating specific effects of abuse, a longitudinal study by Fergusson, et al., (2008) has attempted to address this issue. They found that even when socio-economic and family factors had been statistically controlled for, childhood sexual abuse continued to significantly predict adult levels of symptomatology. This provides

initial support for the unique effects of abuse on psychopathology later in life, although further research of this nature is clearly warranted.

#### **2.4.2 Emotional invalidation and psychopathology**

Theoretically, authors have been interested in the role of childhood experiences of emotional invalidation on later psychological and emotional wellbeing for over a decade, although this has not been reflected in the research literature, as there remains a lack of empirical studies in the area. More recently, there has been some published research highlighting relationships between childhood experiences of emotional invalidation and psychological distress in adulthood (Krause et al., 2003), as well as a range of psychological and behavioural disorders / difficulties, including eating disorders (Ford, Waller, & Mountford, 2010; Haslam, Mountford, Meyer, & Waller, 2008; Mountford et al., 2007) deliberate self-harm (Chapman, Gratz, & Brown, 2006; Gratz, 2003) and borderline personality disorder (Selby, Braithwaite, Joiner, & Fincham, 2008). Although further research in this area is clearly needed, there is preliminary evidence in support of the theoretical link made in the literature between emotional invalidation in childhood and psychopathology later in life.

#### **2.4.3 How might abuse and emotional invalidation increase the risk of psychopathology later in life?**

Despite evidence that adverse childhood experiences might increase the risk of psychological distress later in life, the relationships between early abuse and emotional invalidation and later dysfunction are not direct, and not everyone who experiences abuse / invalidation develops long-term difficulties (Merrill, Thomsen, Sinclair, Gold, & Milner, 2001). Researchers have therefore begun to examine what factors may influence whether psychological difficulties develop as a result of adverse childhood experiences (Gratz, Bornovaiova, Delany-Brumsey, Nick, & Lejuez, 2007). One way in which

adverse experiences in childhood might increase the risk of psychopathology is via the ways in which a person learns to manage and process internal emotional experiences. In recent years there has been an increased interest in the 'third wave' of cognitive behaviour theories, which tend to emphasise the role of underlying processes in managing internal experiences. One such process that has featured more heavily in research is that of experiential avoidance. Experiential avoidance refers to the attempt to alter the form, frequency or situational sensitivity of private events, even when doing so may cause behavioural harm (Hayes et al., 1996).

The concept of experiential avoidance has been recognised, implicitly or explicitly, within many systems of therapy (Blackledge & Hayes, 2001). As such, it is a construct that could be conceptualised in a number of ways. A full review of the vast literature in this area is beyond the scope of this study. However, the one theoretical approach that stands out in offering arguably the most comprehensive understanding of experiential avoidance is that of Acceptance and Commitment Therapy (ACT; Hayes et al., 2006; Hayes et al., 1999). It is for this reason that ACT will be the main theoretical perspective considered in this study. It is hoped that by focusing on this approach, the underlying processes that might maintain distress in individuals who have lived difficult childhood experiences (as opposed to the content or consequences of that distress), will be illuminated, and that the existing knowledge base will be expanded accordingly.

Despite this focus on ACT, it is acknowledged that other theoretical approaches could also account for some of the concepts and research findings discussed hereafter. This is particularly true for other models that also emphasise process over content. One example is the Self-Regulatory Executive Function (S-REF) model (Wells & Matthews, 1996), which, instead of focusing on experiential avoidance, highlights the role of inflexible self-focused attention and perseverative thinking styles (worry and rumination) in the development and maintenance of psychological disorders (Wells, 2006).

However, given the emphasis on experiential avoidance in this topic area, ACT remains the focus here. Before research linking experiential avoidance and adverse childhood experiences is outlined, an overview of ACT shall be presented.

## **2.5 Introduction to the ACT approach**

ACT is one of the most represented therapies under the name of the 'third wave' of cognitive-behaviour therapy that has developed its own applied theory of psychopathology and psychological change (Hayes et al., 2006). It shares a resemblance with other emerging acceptance and mindfulness-based approaches, such as DBT (Linehan, 1993) and mindfulness-based cognitive therapy (Segal, Teasdale, & Williams, 2004) and is linked with the field of behaviour therapy. However, it differs slightly from traditional approaches in terms of its philosophical assumptions, its behaviour analytic account of language and its process-oriented model of psychopathology.

### **2.5.1 A transdiagnostic and process-oriented approach**

ACT is considered to be a transdiagnostic approach (Kring & Sloan, 2010); that is, it states that there are key processes (cognitive fusion and experiential avoidance) that maintain 'symptoms' that are shared across psychological disorders (Harvey, Watkins, Mansell, & Shafran 2004). Although such an approach has the potential to overlook important aetiological differences between psychological disorders, the advantages of a transdiagnostic approach include that it accounts for the high level of co-morbidity in mental health and can be helpful in developing and evaluating treatments that target common underlying processes as opposed to disorder-specific aspects (Kring, 2008).

In line with transdiagnostic thinking, ACT is also an approach that emphasises cognitive and emotional processes, as opposed to focusing on the content of



these internal phenomena. There is much debate in the literature about whether ACT, along with other third wave approaches, has anything new to add to existing approaches such as traditional CBT. Authors have criticised ACT for 'getting ahead of the data' (Corrigan, 2001) and for offering a different therapy, using different language, to target similar mechanisms to CBT (Arch & Craske, 2008). Despite these criticisms, however, there do appear to be clear distinctions between ACT and CBT, not least the differing philosophical orientations of the two approaches and the different ways in which they conceptualise and target cognitions and emotions in therapy (Hoffman & Asmundson, 2008). There also appears to be growing evidence that ACT does work through different mechanisms to CBT (Pull, 2009).

In order to outline ACT's model of psychopathology it is helpful to first give a brief overview of the conceptual and theoretical basis to the approach.

## **2.5.2 Conceptual and theoretical underpinnings**

### *2.5.2.1 Functional contextualism*

ACT is a behavioural model of human suffering. It is an approach grounded in functional contextualism (Hayes & Brownstein, 1986), which views psychological events as ongoing actions that interact in and with historically and situationally defined contexts (Hayes et al., 2006). From this perspective, no thought, feeling, memory or action is viewed as inherently problematic or pathological; rather, it depends on context. Painful thoughts and feelings will function very differently in contexts where they are held to be objectively true and as something to be avoided, compared to contexts in which they are 'accepted' and not held to be objectively true. In the latter context, the thoughts and feelings will have far less of an impact. They may still be painful, but they will not be harmful and they will not hold someone back from valued living (Harris, 2009). According to this philosophy, it is possible to go beyond trying to alter the form of thoughts or feelings to influence overt behaviour, to

changing the context that causally links these psychological domains (Hayes et al., 2006); that is, the relationship one has with their thoughts and feelings.

### 2.5.2.2 *Relational Frame Theory*

Theoretically, the ACT model is underpinned by Relational Frame Theory (RFT; Barnes-Holmes, Hayes, & Dymond, 2001; Fletcher & Hayes, 2005), a modern behavioural account of language. The basic premise of RFT is that human behaviour is largely governed through networks of mutual relations called relational frames. These relations form the core of human language and cognition, and allow learning to occur without direct experience (Hayes & Smith, 2005). For example, a child does not need to touch a hot stove in order to be taught verbally that it can burn.

Hayes (2004) gives the following example of how relational frames work:

Suppose a child has never before seen or played with a cat. After learning 'C-A-T' → animal, and 'C-A-T' → 'cat', the child can derive four additional relations: animal → C-A-T, 'cat' → C-A-T, 'cat' → animal, and animal → 'cat'. Now suppose that the child is scratched while playing with a cat, cries and runs away. When the child later hears father saying, 'Oh look! A cat', she may cry and run away even though scratches never occurred in the presence of the words: 'Oh look! A cat'.  
(p.11)

Humans are able to arbitrarily relate objects in the environment, thoughts, feelings and actions (essentially anything) to other objects in the environment, thoughts, feelings and actions in virtually any possible way. Examples of relational frames include frames of co-ordination ('same as'; 'like'), temporal or causal frames ('before' / 'after'; 'if' / 'then'; 'because of'), comparative and evaluative frames ('better than') and perspective frames ('I' / 'you'). These verbal relational frames are useful in that they afford humans the ability to

learn without direct experience and generate an infinite number of thoughts. They also allow people think about the future, problem solve and evaluate outcomes. However, they also have the potential to create distress. With 'if / then' temporal relations, people can predict bad events that may not happen or worry that a past depression may come back in the future (Hayes & Smith, 2005). With evaluative relations, people compare themselves to an ideal and find themselves wanting, even though they are actually doing well as they are (Harris, 2009). In this sense, humans can suffer because they are verbal creatures.

According to RFT, through the process of relational framing, the functions of each stimulus in the network (i.e. the effects the words, thoughts, objects have on a person) change according to what stimuli they are related to, and how they are related (Blackledge, 2003). Thoughts, for example, are symbolic; there is a mutual, bi-directional relationship between the thought itself and the event that the thought relates to. As such, words and thoughts can come to share many of the properties, or functions, of the events and experiences they designate. For example, thinking about biting into a lemon can result in a person salivating, despite not actually biting into a lemon. Likewise, thinking about a past trauma may bring about tears; the person responds to the thought as if the conditions described by that thought are objectively true and currently present (Blackledge, 2004). Through the process of relational framing, all sorts of 'transformations of stimulus functions' can occur. For example, if a person relates the words 'awful' and 'pointless' to the words 'my life', all the functions of 'awful' and 'pointless' will transfer across, not only to the words 'my life', but also every event within the vast relational network. As such, everything in that person's life will then seem awful and pointless (Harris, 2009). This is another way in which language may create suffering.

Overall therefore, RFT asserts that humans suffer because they are verbal creatures. As people develop, they increasingly live inside the world of language and move away from the world of direct experience. When these

processes are taken to extreme and/or applied to every thoughts or memory, problems can arise (Hayes & Smith, 2005). This is where RFT applies directly to the area of psychopathology and where ACT has developed its own psychotherapeutic approach to remediating some of these difficulties.

### **2.5.3 ACT and psychopathology: the role of psychological inflexibility**

According to ACT, there are two key processes that prolong the suffering generated by relational frames and verbal processes. These are cognitive fusion and experiential avoidance, both of which are the two main components of 'psychological inflexibility'. Psychological inflexibility is viewed by the ACT model as the main origin of psychopathology. Each of these terms / processes will now be outlined in more detail.

#### *2.5.3.1 Cognitive fusion*

Cognitive fusion refers to the process by which behaviour becomes excessively regulated by verbal processes, such as relational networks and rules (Hayes et al., 1999). Rather than noticing the continuing process of thinking and feeling in the present moment, fusion involves entanglement with the content of these internal experiences and responding to them as if they were fully and literally true (Luoma & Hayes, 2003). Put another way, fusion is a process in which people literally 'buy into' thoughts and evaluations of feelings (e.g. 'anxiety is bad'). Fusion is therefore particularly unhelpful when the content of such thoughts and feelings is painful (Herzberg et al., in submission). In such cases, the difficult content will exert enormous influence over behaviour (e.g. avoidance or struggle for control) and will prevent more useful forms of behaviour regulation. As a result, people behave and act in ways that are inconsistent with their chosen values<sup>1</sup> and goals (Hayes et al.,

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<sup>1</sup> Values, from an ACT perspective, are chosen qualities of purposive action that can be instantiated moment by moment (Hayes et al, 1996).

2006). An example of unhelpful cognitive fusion is having the thought 'life is hopeless' and then behaving and living as one would if life was truly hopeless.

From an ACT perspective, learning histories that have not shaped a difference between the verbal relations 'here and there' and 'now and then' might explain why an individual would fuse more rigidly with the content of relational responses describing events from the past (Hayes et al., 1999). A person who cannot reliably distinguish between 'here and there' and 'now and then' will find it difficult to reliably discriminate that recollections of events from 'there and then' are something entirely different from one's current reality. These temporal relations are thought to be critical in establishing a consistent sense of self that is separate from the constant changes in the environment and from events/experiences described from relational responding (Blackledge, 2004). This distinct sense of self, referred to as the 'self as context', describes the standpoint one can take to be aware of their own flow of experiences without attachment to them. An individual who has not taken on a sense of 'self as context' might instead take on a sense of 'self as content' (where the self is defined differently moment to moment by the ever-changing content of what is experienced; Blackledge, 2004). Experiencing the self as content is associated with further psychological inflexibility.

With cognitive fusion, the functional contexts that tend to have detrimental effects are largely sustained by the social/verbal community and include literalism (treating and responding to the thought as if it was literally true), reason-giving (seeking 'causes' of behaviours) and experiential control (the need to manipulate cognitive and emotional states; Hayes et al., 2006). These processes are inter-related and help to explain another component of psychological inflexibility – experiential avoidance.

### 2.5.3.2 *Experiential avoidance*

As previously mentioned, experiential avoidance refers to the process that occurs when a person is unwilling to remain in contact with particular private experiences and takes steps to alter the form or frequency of these events and the contexts that occasion them (Hayes et al., 2006). Such private experiences include bodily sensations, emotions, thoughts, memories, behavioural dispositions. In other words, experiential avoidance relates to attempts to hide, inhibit or get rid of unpleasant thoughts, feelings and bodily sensations (Briggs & Price, 2009), using a range of cognitive, emotional and behavioural strategies, such as rationalising or minimising events, or trying to suppress a thought or feeling. Experiential avoidance is not problematic per se. It is understood to become unhelpful when it is applied rigidly and inflexibly, such that enormous time, effort and energy is devoted to managing, controlling or struggling with unwanted private events (Kashdan, Barrios, Forsyth, & Steger, 2006).

Unfortunately, attempts to avoid uncomfortable private events tend to increase their functional importance because a) they become more salient, and b) the control efforts are verbally linked to feared negative outcomes (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). The verbal rule: 'Don't think about anxiety' contains the word anxiety and therefore will evoke thoughts, images and sensations associated with this feeling. Indeed, research has shown that deliberate attempts to suppress unwanted phenomena can result in a paradoxical effect of amplification and magnification of those unpleasant experiences, and can lead to a longer period of experiencing those events (Purdon, 1999; Wegner, 1994; Wegner & Zanakos, 1994; Wenzlaff & Wegner, 2000). This then induces further efforts to avoid them (Walser & Hayes, 2006) and can exacerbate and maintain emotional distress (Keville, Byrne, Tatham, & McCarron, 2008). Such paradoxical effects of suppression have been observed in individuals with a range of psychological difficulties, including

anxiety and depression (Geraerts, Merckelbach, Jelicic, & Smeets, 2006; Wenzlaff, Wegner, & Roper, 1988).

It has been argued that many forms of psychopathology can be conceptualised as unhealthy methods of experiential avoidance (Hayes et al., 1996); that is, they serve a function of providing short-term negative reinforcement through the reduction in aversive experiences / distress (Kingston, Clarke, & Remington, 2010). For example, it has been suggested that deliberate self-harm and binge eating function as focused distracters that shift attention from cues eliciting negative affect (such as thoughts), reduce physiological arousal, and facilitate the regulation of mood (Chapman et al., 2006; Keville et al., 2008). People may engage in a wide range of behaviours in order to try and avoid or suppress negative affect. People may drink alcohol or take drugs in order to 'feel better'. However, if used extensively and habitually, such strategies become problematic.

#### 2.5.3.3 *Psychological inflexibility*

Psychological inflexibility, therefore, is defined as the process of being excessively entangled in experiential avoidance and cognitive fusion, and having difficulties in choosing behaviour in accordance with chosen life values (Ciarrochi, Bilich, & Godsell, 2010). As people engage in experiential avoidance, their contact with the present moment decreases and they begin to live more 'in their heads' (Hayes et al., 1996). They have more attachment to the remembered past and feared future than they do the present moment and it can become more important for a person to defend a verbal view of themselves (for example, never being angry) than to engage in more workable behaviours that do not fit this verbalisation (Hayes et al., 1996). The ACT model of psychopathology is displayed in Figure 1.

#### 2.5.3.4 Therapeutic aims of ACT

ACT uses experiential techniques to undermine the processes of cognitive fusion and experiential avoidance and to promote psychological flexibility. It aims to foster the 'self as context' through the use of defusion and mindfulness exercises and promotes ongoing, non-judgemental contact with psychological events as they happen without defence. ACT encourages people to use language as a tool to describe events, not to predict or judge them, and strives for a sense of self called the 'self-as-process' – that is, the defused, non-judgemental, ongoing description of thoughts, feelings and other private, internal events (Hayes, 2006). ACT also promotes acceptance and commitment to moving forward in the direction of chosen values and choosing behaviour in accordance with this, which also builds psychological flexibility.

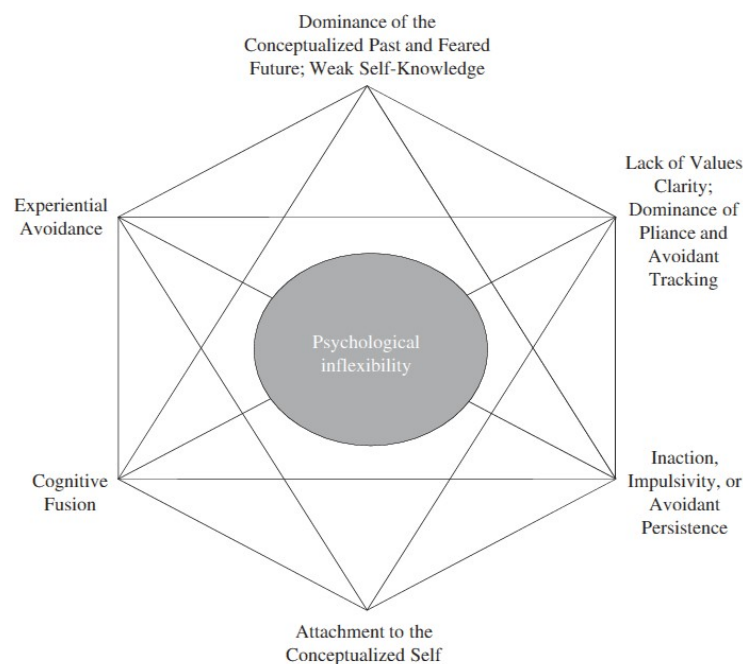


Figure 1: The ACT model of psychopathology, taken from Hayes, et al., (2006), p. 6.



#### **2.5.4 The evidence-base for ACT**

Two recent reviews (Pull, 2009; Ruiz, 2010) of research on ACT examining correlational, experimental, component, and outcome studies concluded that the evidence was very coherent and in support of the ACT model. Component studies showed that acceptance-based protocols were typically more efficacious than control-based protocols and outcome studies generally revealed the efficacy of ACT in a wide range of psychological problems (Ruiz, 2010). These studies have suggested that ACT works through its hypothesised processes of change and is different to other active treatment comparisons, including traditional, Beckian, CBT (Pull, 2009). Nonetheless, research on ACT has been criticised for being methodologically less stringent than research on other approaches. For example, Ost (2008) highlighted in a review and meta-analysis how ACT studies scored lower than CBT studies in terms of: reliability of diagnosing participants; validity of outcome measures used; sample representativeness and treatment credibility. Although ACT has produced promising findings, and usually yields moderate to large effect sizes in studies, even at follow-up (Hayes et al., 2006), Ost (2008) concluded that it did not yet fulfil the criteria for an empirically supported treatment. Further research using more stringent methodology may strengthen the evidence-base for ACT.

In many studies, experiential avoidance has been found to be related to a wide range of psychological disorders and to mediate relationships between different types of symptoms and psychological constructs (Ruiz, 2010). An empirical review by Chawla and Ostafin (2007) summarised a range of studies published between 1999 and 2006 on experiential avoidance as a factor in the aetiology of maladaptive behaviour and specific psychopathological diagnostic categories – the main ones being substance abuse, post-traumatic stress disorder, generalised anxiety disorder (GAD), trichotillomania (hair pulling) and deliberate self-harm. Overall they argue that there is a growing literature in support of the claim that experiential avoidance influences psychopathology

and predicts severity of symptoms in some specific disorders (GAD and trichotillomania).

Additional research conducted since 2006 has consolidated these findings (Kashdan, Morina, & Priebe, 2009; Kingston et al., 2010; Rosenthal, Cheavens, Lynch, & Follette, 2006; Tull, Jakupcak, Paulson, & Gratz, 2007; Woods, Wetterneck, & Flessner, 2006). These studies have strengthened previous findings by including more ethnically diverse samples (Merwin, Rosenthal, & Coffey, 2009), using well-controlled experimental designs (Gratz et al., 2007) and studying a wider range of clinically-relevant problems (Berking, Neacsiu, Comtois, & Linehan, 2009).

#### 2.5.4.1 *A limitation of existing research*

Research on the processes of ACT and psychological inflexibility has almost exclusively focused on the concept of experiential avoidance. However, as outlined previously, the broader construct of psychological inflexibility comprises of *two* core, inter-related processes – experiential avoidance *and* cognitive fusion. Despite the apparent importance of the concept of cognitive fusion, however, very little research on it has been published (Dempster, Bolderston, Gillanders, & Bond, n.d.). This, it would seem, relates to how it has traditionally been measured, as there are few valid and reliable assessment tools measuring cognitive fusion (Herzberg et al., in submission). Those that do exist tend to tap into just one aspect of cognitive fusion (e.g. believability of thoughts; Dempster et al., n.d.). To address this issue, Dempster, et al., (n.d.) have developed a 28-item self-report scale that aims to address the above limitations and assess a broad range of aspects of cognitive fusion. The current study aims to use this measure to examine associations between cognitive fusion and other key variables of interest (see section 2.9 for further details).

## **2.6 Responses to child abuse and emotional invalidation: an ACT perspective**

Thus far, it has been argued that there are relationships between childhood experiences of childhood abuse and emotional invalidation and later experiences of psychological distress and psychopathology in adulthood. It has been suggested the process of psychological inflexibility – that is, cognitive fusion and experiential avoidance – may mediate these relationships. An overview of the ACT model has been presented to further illustrate the processes of cognitive fusion and experiential avoidance and outline the evidence-base in support of the model. This section now attempts to conceptualise how responses to early experiences of abuse and emotional invalidation might relate to the process of psychological inflexibility.

According to the ACT model, psychological distress is more likely to occur when people become more fused with the content of aversive cognitions. This is thought to lead to high levels of pathological experiential avoidance and the regulation of behaviour in ways that prevent people from moving forward in life in line with their chosen goals and values. According to this view, the degree to which people might fuse with their cognitions depends on their unique learning histories (Blackledge, 2004); different thoughts or utterances will mean different things depending on an individual's social history. The context in which a person grows up is therefore important when considering how people might learn to respond to, and manage, internal events.

Experiences of abuse and emotional invalidation in childhood are particularly likely to give rise to a number of negative and painful thoughts, feelings, images, memories and bodily sensations. Some affective responses are likely to include guilt, shame, fear and rage (Polusny & Follette, 1995) and the content of thoughts are likely to include negative thoughts about the self (Follette, 1994). From an ACT perspective, rigid cognitive fusion with negative self evaluations, negative global evaluations of the world, recollections of

abusive and difficult experiences, and maladaptive rules (even after the abuse has ceased) are likely to be particularly problematic and lead to significant impairment. This is because they are likely to bring about increased aversive stimulation, maladaptive behaviour and problematic forms of avoidance. For example, when someone recollects an abusive experience, word and images participating in a relational frame involving that traumatic event share the functions of that traumatic event and therefore bring about increased levels of aversive stimulation (Blackledge, 2004).

In order to manage the increased arousal associated with cognitive fusion, people with abusive and emotionally invalidating backgrounds may be more likely to engage in unhealthy forms of experiential avoidance. This may be particularly true if, following experiences of emotional invalidation, individuals are less able to label and make sense of their emotional experiences and therefore experience increases in negative affect as threatening and overwhelming (Linehan & Koerner, 1993). Indeed, it has been shown that children who suffer recurrent experiences of abuse and emotional invalidation are likely to experience disproportionately high frequencies of dysphoric emotions, including anxiety and depression (Herman, 1992), even after the abuse stops (Follette, 1994).

Moreover, when growing up in an abusive or emotionally invalidating environment, children may learn to engage in experiential avoidance as a psychological way of escaping the situation, given that they cannot physically remove themselves from the environment (Marx & Sloan, 2002; Reddy, Pickett, & Orcutt, 2006). Repeated exposure to the aversive properties of the abuse and the use of avoidance strategies to reduce the aversive properties may result in over-learned avoidance strategies, such as dissociation, substance misuse, binge-purge eating behaviour, deliberate self-harm and suicide attempts (Follette, 1994). In the short-term, such strategies may be negatively reinforced by the immediate reduction or suppression of the intense negative feelings and thoughts associated with the abuse (Polusny & Follette,

1995). However, continued use of experiential avoidance, as discussed above, is likely to lead to compromised levels of functioning and greater psychological distress in the long-term. Such avoidance strategies may also generalise and become a more global way of managing emotional or life experiences (Keville et al., 2008)

Follette (1994) has argued that for an individual with an abusive history, there is an impact on their sense of self. Their awareness of the self has been paired with thoughts and feelings that seem too threatening to be experienced and are thus avoided at all costs. Instead, such people appear to define themselves according to the content of what is experienced moment to moment (Blackledge, 2004); that is, they think and believe that they *are* the thoughts and feelings experienced and consequently experience the self as content. In emotionally invalidating environments, children may grow up with an absence of an observed internal experience that they can make sense of. This may be because their internal worlds have not been accurately described or validated for them by their parents and because they have become overly reliant on experientially avoidant coping strategies. This lack of observed internal experience may interfere with the development of the self-as-context (Bailey, TemelKovski, Mooney-Reh, & Parker, 2008). That is, they may struggle to be aware of the flow of their internal experiences without becoming overly attached to them and may find it difficult to describe them in a descriptive and non-judgemental manner.

### **2.6.1 Childhood abuse, emotional invalidation and psychological inflexibility: empirical studies**

Research exploring abuse and emotional invalidation from an ACT perspective has predominantly, and almost exclusively, focused on the concept of experiential avoidance. For this reason, the following section reviews literature on abuse and emotional invalidation and experiential avoidance.

### 2.6.1.1 *Childhood abuse and experiential avoidance*

Over the past two decades there has been an increase in the number of studies examining relationships between early experiences of abuse and trauma, and experiential avoidance in adulthood. The common finding in these studies has been that experiences of abuse or trauma are significantly correlated with higher levels of experiential avoidance in adults. Some of these studies have shown significant associations between different types of abuse and experiential avoidance, including sexual abuse (Batten, Follette, & Aban, 2001; Gratz et al., 2007; Marx & Sloan, 2002; Merwin et al., 2009; Palm & Follette, 2011; Rosenthal, Rasmussen Hall, Palm, Batten, & Follette, 2005), physical abuse (Gratz et al., 2007) and psychological/emotional abuse (Gratz et al., 2007; Reddy et al., 2006). Other studies, however, have looked more broadly at overall reports of general abuse (i.e. they have used a total abuse score, including physical, sexual and emotional), without examining any differences that may exist between the different types of abuse and their relationships with experiential avoidance (Barrett, 2010; Briggs & Price, 2009; Kingston et al., 2010; Orcutt, Pickett, & Pope, 2005).

In addition to demonstrating significant associations between the above variables, research has also shown that experiential avoidance has significantly mediated relationships between experiences of abuse and psychological distress/psychopathology. For example, Marx and Sloan (2002) used regression analyses to reveal that the relationship between childhood sexual abuse status and psychological distress was mediated by experiential avoidance, over and above other variables, such as emotional expressiveness. Likewise, Reddy, et al., (2006) used structural equation modelling techniques and found that experiential avoidance significantly mediated the relationship between reports of childhood emotional abuse and current mental health symptoms in a cross-sectional sample of college undergraduates.

A criticism of most research in this area is the use of cross-sectional designs, which limits the conclusions that can be drawn with regards to causal relationships. The future use of prospective or longitudinal designs that can track temporal relationships amongst variables over time would strengthen research in the area. Moreover, since most research has been correlational in nature, utilising self-report measures of experiential avoidance, the use of experimental methodology would provide a way of substantiating the actual occurrence of the phenomena of experiential avoidance and measuring it more sophisticatedly in a controlled environment (Barrett, 2010).

Another main criticism of existing research in this area is that it has typically only involved participants recruited from non-clinical (i.e. student) populations. This limits the generalisation of the findings, particularly with regards to more vulnerable and clinical populations. More recently, studies have begun to examine these processes in clinical populations. Gratz et al., (2007), for example, examined relationships between childhood trauma and current experiential avoidance in 76 inner-city substance users. Kingston et al., (2010) also demonstrated meditational effects of experiential avoidance between childhood trauma and maladaptive behaviours in an opportunity clinical sample recruited from online advertisements. Although this latter study still included students, it also incorporated people recruited from a National Health Service clinic for people with personality disorders. Nonetheless, it is still apparent that further research exploring the relationships between trauma and psychopathology in clinical samples is required.

#### 2.6.1.2 *Emotional invalidation and experiential avoidance*

In addition to the studies mentioned above examining relationships between emotional abuse and experiential avoidance, there are other studies that have explored the concept of emotional invalidation and its relationship to experiential avoidance or avoidant coping. For example, Rosenthal, Polusny and Follette (2006) found, in a sample of undergraduate women, that greater

perceptions of criticism within their family of origin was significantly correlated with higher levels of experiential avoidance and that experiential avoidance mediated relationships between perceived familial criticism and psychological distress. Likewise, Rasmussen-Hall (2006) found higher levels of childhood parental invalidation and greater levels of experiential avoidance in female undergraduates with a history of self-harming and binge-purging behaviour. Moreover, Krause et al., (2003) observed that relationships between childhood emotional invalidation and adult psychological distress were mediated by current emotional inhibition (emotional inhibition defined as the use of strategies to suppress unwanted emotional thoughts, feelings or expressions – a concept similar to that of experiential avoidance), again in a sample of students aged between 18 and 30. As can be seen, the same criticisms mentioned above can be applied to these studies also, particularly with regards to the need to focus more on clinical samples. Nonetheless, when taken together, these studies provide preliminary support for the idea that experiences of emotional invalidation in childhood have implications for how an individual learns to manage their emotional experiences later in life, which, in turn, may contribute to psychological distress. Figure 2 is one way of conceptualising this (adapted from Keville et al., 2008).



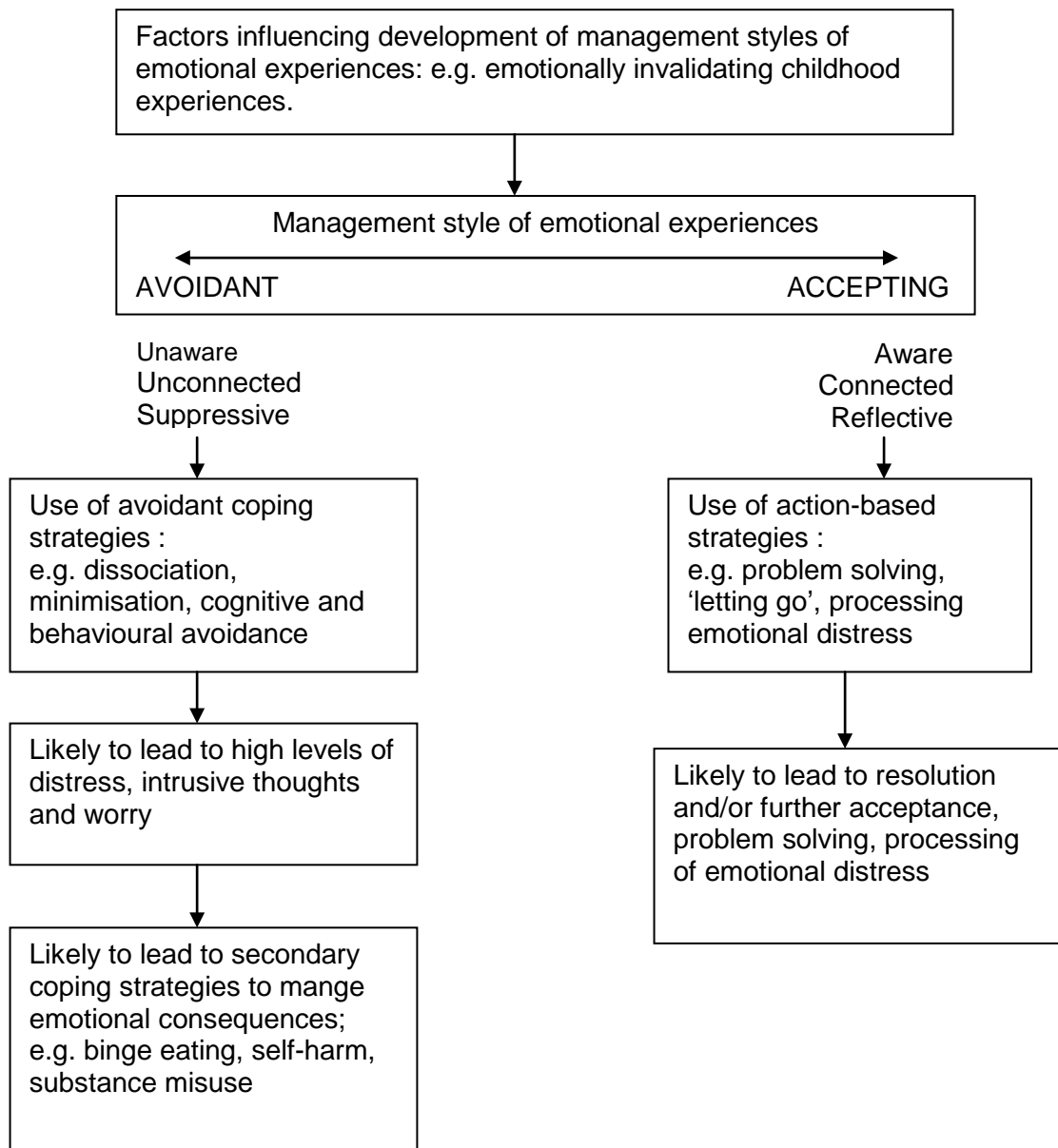


Figure 2: Conceptualising how early experiences might influence management style of life / emotional experiences.

Adapted from Keville et al., (2008)

### 2.6.1.3 *What about cognitive fusion?*

As previously mentioned, research in this area has focused on experiential avoidance, with minimal attention being paid to cognitive fusion. An exception to this, however, is a recent study by Palm and Follette (2011) that investigated the concept of cognitive flexibility and its relationship to experiential avoidance and psychological distress in adult survivors of interpersonal victimisation (including actual or threatened abuse/harm). In their paper, Palm and Follette (2011) argued that cognitive flexibility was related to the broader ACT concept of psychological inflexibility, but stated that this latter construct also included behavioural flexibility. Palm and Follette (2011) used the Cognitive Flexibility Scale (Martin & Rubin, 1995; as cited in Palm & Follette, 2011), which measures a person's awareness of alternative thoughts and behaviours in given situations. In this sense, cognitive flexibility could be conceptualised as a parallel process to cognitive fusion. This is because being fused with the content of cognitions implies that one would find it difficult to acknowledge or consider the existence of alternative thoughts and behaviours.

The results of Palm and Follette's (2011) study revealed significant relationships between cognitive flexibility, experiential avoidance and psychological distress. They also provided preliminary evidence to suggest that experiential avoidance mediated a relationship between cognitive flexibility and psychological distress. This study therefore lends weight to the argument that, for people who have been exposed to some form of interpersonal trauma, how they think about their experiences can lead to greater avoidance. In turn, this might lead to psychological distress. However, as far as the author is aware, no studies have looked specifically at the role of cognitive fusion in relation to experiential avoidance, the development of psychopathology or its potential role in mediating associations between early abuse/trauma and psychopathology. This suggests that it might be an important area for future research.

## **2.7 The interpersonal aspects of abuse and emotional invalidation**

Abuse and emotional invalidation occur within interpersonal contexts and can be conceptualised as interpersonal traumas (Waldinger, Schulz, Barsky, & Ahern, 2006). With this in mind, it is perhaps not surprising that retrospective studies have demonstrated that childhood experiences of abuse and emotional invalidation have a detrimental impact on a person's interpersonal functioning across the lifespan, including difficulties with intimacy, care-taking, care-seeking and sexual behaviour (DiLillo, 2001; Messman-Moore & Coates, 2007; Riggs & Kaminski, 2010). Likewise, childhood experiences also impact negatively on an individual's attachment style, with abused people being more likely to exhibit insecure attachments both in infancy and later in adulthood (Gauthier, Stollak, Messe, & Aronoff, 1996; Riggs, 2010; Riggs, Cusimano, & Benson, 2011; Styron & JanoffBulman, 1997). This suggests that abuse and emotional invalidation have the potential to have long-lasting implications for adult relationships and attachments to significant others. Given that relational experiences form a large part of an individual's life across the lifespan, this potentially presents many problems.

### **2.7.1 Attachment and psychopathology**

Poor interpersonal functioning and insecure attachment styles have consistently been linked to a wide range of psychological disorders (ColeDetke & Kobak, 1996; Riggs et al., 2007; Rosenstein & Horowitz, 1996; Shorey & Snyder, 2006). Those who are securely attached in adulthood tend to experience significantly less general anxiety, panic, social and simple phobia, agoraphobia, post-traumatic stress disorder, obsessive-compulsive disorder, somatisation, psychosis, eating disorders, suicidal behaviour, dysthymia and depression, compared to those who are insecurely attached (Mikulincer & Shaver, 2007). There are a number of ways in which links between attachment styles and psychopathology have been understood. A

common theme between explanations, however, relates to the ways in which people with differing attachment or relational tendencies manage their emotional experiences. Before an overview of research linking attachment and emotional functioning is outlined, a brief introduction to adult attachment research is presented.

### **2.7.2 Adult attachment research**

Hundreds of studies have been conducted on a person's attachment style in adulthood, which has been defined as the systematic pattern of relational expectations, emotions and behaviours that result from a particular history of attachment experiences (Fraley & Shaver, 2000). Research has generally fallen into two camps. There has been the developmental line of research, focusing on early childhood experiences with parents, and there has been the more social line of research that has focused on adult relationships with romantic partners. Both types of adult attachment are assumed to be outgrowths of early attachment bonds (Riggs, 2010) and both identify adult classifications that are analogous to infant attachment patterns (Ainsworth, Blehar, Waters, & Wall, 1978; Crittenden, 1985).

Adult attachment research was initially based on Ainsworth et al.'s (1978) three category typology of attachment styles in infancy – secure, anxious and avoidant – and on Hazan and Shaver's (1987) discovery of similar adult styles in romantic the romantic relationship domain. Subsequent studies, however, revealed that attachment styles were more appropriately conceptualised as regions in a two dimensional space (Mikulincer, Dolev, & Shaver, 2004). The first of these is 'attachment anxiety' – the degree to which a person worries that a partner will not be available at the time of need. The second relates to 'attachment avoidance' – the extent to which a person distrusts partners and strives for emotional distance. In line with this, attachment in adulthood has moved from away from being viewed as a categorical construct, and more towards being viewed as dimensional concept.

### **2.7.3 Attachment and emotional functioning**

Differences in emotional functioning based on attachment styles have been documented in the literature for many years. Mikulincer and Shaver (2003) have proposed that variations along the dimensions of attachment avoidance and anxiety reflect not only a person's sense of attachment security, but also the ways in which they manage stress and distress. They purport that people who obtain low scores on these dimensions have a continued sense of secure attachment and rely on constructive strategies for managing affect. They have been described as more tolerant of stressful situations and more able to allow accessibility of unpleasant emotions, without feeling overwhelmed (Mikulincer & Florian, 1995). Those who score highly on either the anxiety or avoidance dimension tend to experience a continued sense of attachment insecurity and rely on less adaptive strategies for managing affect (Mikulincer et al., 2004). They are thought to be more limited in their ability to respond flexibly in unfavourable situations (Carlson & Sroufe, 1995) and are generally thought of as having greater difficulty in tolerating and alleviating difficult thoughts and feelings (Sroufe, 1996). Further, they are often described as having difficulties with emotion dysregulation – that is, problems with modulating emotions and modifying the magnitude of emotional experiences appropriately to environmental demands (Aldao, Nolen-Hoeksema, & Schweizer, 2010).

A large body of research evidence supports these claims. Those scoring highly on attachment anxiety dimensions have been observed to exaggerate emotions and become overwhelmed with the availability (or lack of availability) of others (Dozier, Stovall, & Albus, 1999). They also appear to react with strong emotional distress, even after the actual threat has terminated (Mikulincer & Florian, 1998). Individuals scoring highly on the dimension of attachment avoidance have been observed to use avoidant coping strategies, including cognitive and emotional distancing and disengagement (Brennan & Shaver, 1995; Feeney, 2002), thought suppression (Gillath, Bunge, Shaver,

Wendelken, & Mikulincer, 2005; Mikulincer et al., 2004) and avoidance of painful memories (Mikulincer & Orbach, 1995).

#### **2.7.4 Attachment and psychological inflexibility: an ACT perspective?**

The difficulties with emotional functioning and emotion regulation with regards to attachment insecurity appear to mirror the processes outlined in the ACT literature. This suggests that some of the difficulties in managing emotions experienced by people with high levels of attachment insecurity might be similar to those encountered by people engaging in experiential avoidance. As such, there may be merit in exploring possible relationships between attachment experiences and psychological inflexibility. This section, therefore, attempts to reconceptualise some of the findings from attachment research from a RFT / ACT approach. It is hoped that by doing this, some of the underlying dynamic processes related to attachment and emotional experiences will be emphasised, as opposed to the categorical and content-based conceptualisations that appear to have dominated the literature to date (e.g. the content of attachment styles and ‘internal working models’; c.f. Mikulincer & Shaver, 2003).

During early experiences of abuse and/or emotional invalidation, children may relate an array of different words, thoughts, feelings and images with their negative experiences. These may then be activated throughout life, particularly in relation to adult interpersonal experiences, through the ongoing process of relational framing. Thoughts, words and images in the present may share the properties or functions of the earlier negative encounters, and thus might continue to be experienced as distressing and aversive (Follette, La Bash, & Sewell, 2010). Such an explanation could account for the high levels of emotional distress displayed by individuals described as having greater levels of attachment anxiety; they may be rigidly fused with the negative content of the attachment-related thoughts and recollections. In order to manage this distress, some individuals may engage in experiential avoidance.

This might explain the research literature linking attachment avoidance and the use of avoidant coping techniques. However, due to the rebound effects of avoidant coping strategies, such as suppression, it is likely that people will experience an increase in the frequency and intensity of the precise content being suppressed, leading to an increase in psychological distress.

Overall, this suggests that there might be merit in investigating whether empirically there are links between attachment and psychological inflexibility.

#### *2.7.4.1 Studies on attachment and psychological inflexibility*

At the time of writing, literature searches failed to identify any published material explicitly examining the relationship between attachment and experiential avoidance or psychological inflexibility. However, two unpublished studies (Levell, 2008; Morse, Crozier, & Lynch, 2001) have looked at this. Levell (2008) conducted a study that examined relationships between retrospective accounts of attachment bonds with parents, current experiential avoidance and current alcohol misuse in a sample of homeless adults. The results indicated significant associations between parental bonding and experiential avoidance. However, as no relationship was observed between parental bonding and alcohol misuse, no analyses were conducted to investigate whether experiential avoidance mediated the relationship between attachment and drinking behaviour. According to Levell (2008), this lack of relationship between attachment and alcohol dependence was either due to homelessness acting as a confounding variable or low statistical power (small sample size). More in-depth research into attachment experiences and experiential avoidance was thus recommended.

In the study by Morse et al. (2001), relationships were investigated between adults' recollections of their parents' responses to emotions, their current levels of experiential avoidance (measured using thought suppression and ambivalence about emotional expression scales) and their current adult

attachment styles. It was found that both ambivalence about emotional expression, and thought suppression, mediated relationships between perceived parental responses to emotion and current attachment patterns. From this, the authors concluded that the invalidating effects of negative responses from parents to emotion resulted in higher levels of experiential avoidance in adults, which then led to insecure attachment styles. Although this unpublished study provides preliminary evidence of a relationship between emotional invalidation, attachment and experiential avoidance, the study could have been taken further by the use of a measure specifically designed to measure experiential avoidance, such as the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004).

The paucity of research examining more directly relationships between attachment and psychological inflexibility from an ACT perspective, using measures developed with the ACT framework in mind, indicates that more research in this area is warranted.

## **2.8 Rationale and clinical relevance**

Although research has made inroads into examining the psychological factors that might mediate relationships between experiences of abuse in childhood and adult psychopathology, this research is still in its infancy and further studies are required to consolidate and extend these findings. Specifically, further research is needed into relationships between childhood emotional abuse and later adult adjustment (Wright, 2007). This is particularly true for more subtle forms of childhood trauma, such as emotional invalidation (Rorty et al., 1994) and mediating processes. Whilst existing research has tended to focus on the concept of experiential avoidance, little consideration has been given to cognitive fusion, despite the importance of this construct within the ACT model of psychopathology. This current study aimed to address this gap by exploring the relationships between emotional invalidation and cognitive fusion in addition to abuse and experiential avoidance. Finally, given the



potential impact of childhood abuse and emotional invalidation on attachment, this study also attempted to build on previous unpublished research findings by investigating relationships between attachment and abuse / emotional invalidation, psychological inflexibility and psychological distress.

This research potentially has implications for the current understanding of the aetiology and maintenance of psychopathology in adults, which, in turn, has treatment implications. If cognitive fusion and experiential avoidance do mediate relationships between early experiences of abuse and emotional invalidation and later psychopathology, then clinical interventions targeted at altering these processes would be indicated. The inclusion of attachment in the study also has clinical implications. If psychological inflexibility also plays a role in the difficulties experienced by insecurely attached individuals then this might suggest a role for clinical interventions focused on developing psychological flexibility in individuals with poor attachment who may also be at risk of developing mental health problems.

## **2.9 Aims and hypotheses**

The main aim of this study was to examine whether childhood experiences of abuse and emotional invalidation were long term risk factors for the development of insecure attachment, psychological inflexibility (cognitive fusion and experiential avoidance) and psychopathology in adulthood. A second aim was to investigate whether the processes of cognitive fusion and experiential avoidance acted as mediators of relationships between abuse and emotional invalidation and psychopathology. Given the potential impact of abuse and emotional invalidation on adult attachment, a final aim was to examine whether adult attachment was also related to processes to cognitive fusion and experiential avoidance. This study aimed to explore and untangle these complex relationships in a sample of adults currently experiencing some form of psychological distress.

Based on the existing literature, it was hypothesised that:

- 1) Experiences of abuse and emotional invalidation in childhood would be positively related to insecure attachment, psychological inflexibility (cognitive fusion and experiential avoidance) and psychopathology in adulthood.
- 2) Insecure attachment, cognitive fusion and experiential avoidance would be positively correlated with each other.
- 3) Insecure attachment, cognitive fusion and experiential avoidance would act as risk and/or maintenance factors with respect to adult experiences of psychopathology.
- 4) Cognitive fusion and experiential avoidance would mediate relationships between early abuse and emotional invalidation and adult psychopathology.

## **3 Method**

### **3.1 Design**

A web-based survey was employed to examine the relationships between the study variables: experiences of abuse and emotional invalidation in childhood; current attachment experiences; current psychological inflexibility and current psychological distress/psychopathology. The design of the study was therefore non-experimental and correlational. The study variables were investigated using self-report questionnaires to be completed online. A web-based survey design was deemed an appropriate method of data collection and had several advantages, including low cost and reduced time. It also enabled a specific population to be targeted (see below).

Although some of the questionnaires were designed to measure past experiences, the study design was essentially cross-sectional. This meant that participants' retrospective accounts of early experiences, and particularly difficult experiences (such as childhood abuse), may have been distorted or incomplete. This may have occurred due to various biases, including reduced accuracy of recall (due to memory loss or retrieval problems), suppression or exaggeration of past events in their episodic or autobiographical memories. Furthermore, the internal validity of cross-sectional designs in establishing causal relationships is rather limited, most notably when variables are measured only concurrently. By measuring some of the main variables retrospectively, it was hoped to increase the internal validity of those statistical analyses that investigated causal relationships amongst the main variables.

## **3.2 Participants**

### **3.2.1 Intended target population and sampling**

The target population for the study was adults who had experienced some degree of psychological distress or mental health problem. Participants were recruited from online advertisements posted on mental health charity and support forums on the World Wide Web and were thus regarded as a self-selected, opportunity sample. The charities or support forums on which the study was advertised are listed in Appendix A.

### **3.2.2 Response rate, sample selection and final sample size**

A total of 1087 people entered the survey online. However, almost half of these ( $N = 518$ ; 48%) did not go on to complete the survey and dropped out after giving their personal background information. In order for the final sample to include only people who were currently reporting some form of self-reported mental health difficulty, participants who reported that were not currently experiencing any of the items on the Mental Health Screening Questionnaire (MHSQ; see section 3.3.7) were excluded from the dataset. Only three people (<1%) had to be excluded for this reason, leaving a total of 566 as potential participants.

Further analysis of this sample showed that 48 people (8%) had not completed the Brief Symptom Inventory-18 or the MHSQ and, as such, no information on the degree of psychological distress or psychopathology currently experienced by these people was available. Due to the importance of this information for the main data analysis, these people were also excluded from the sample. The final sample size was 518. A flow chart showing the different stages of inclusion / exclusion criteria in determining the final sample size is shown in Figure 3.

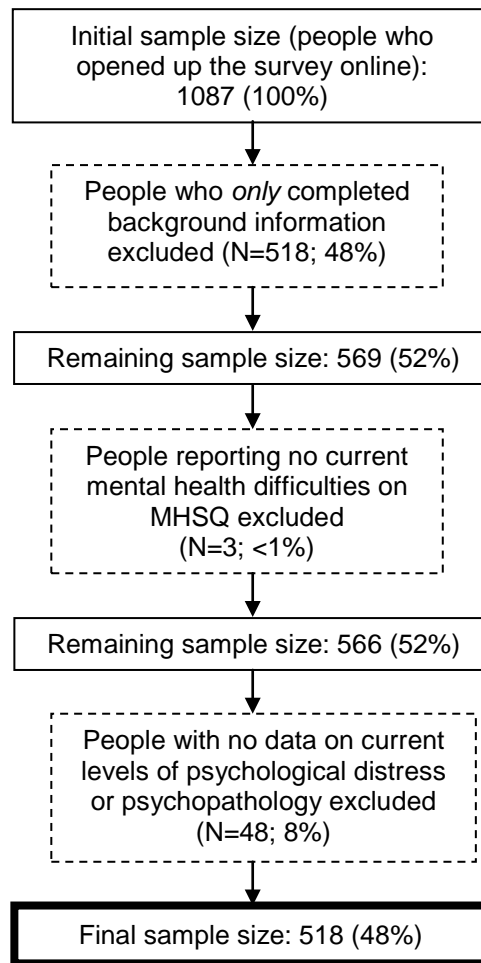


Figure 3: Flow chart showing how the final sample size was determined.

### 3.2.3 Statistical power and sample size

It was intended to recruit as many participants as possible. Nonetheless, a sensitivity analysis was conducted in GPower3 to determine the minimum sample size. The sensitivity analysis was set up to calculate the functional relationship between a specific effect size correlation  $r$  and the sample size required for detecting it, with the alpha error set at 5% and statistical power at 95%. The results are displayed in Figure 4.

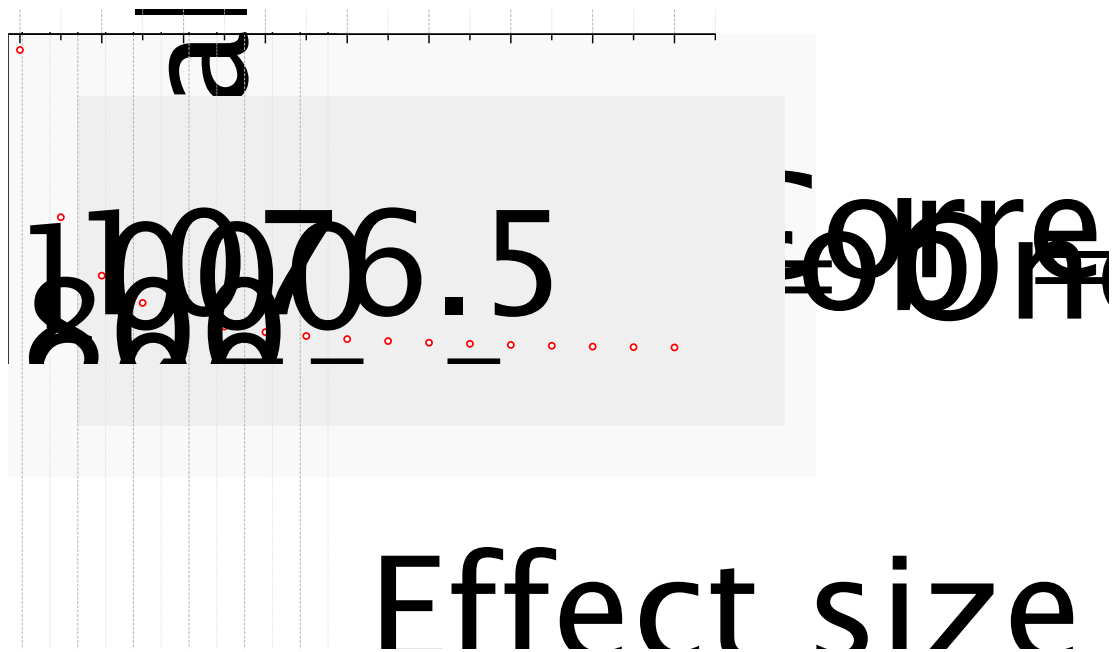


Figure 4: Result of a sensitivity analysis between the effect size correlation  $r$  and sample size  $N$  (alpha = 0.5, beta = .95).

According to Cohen (1992) an effect size correlation of  $r = .20$  is regarded as a small effect. Therefore, a sample size of  $N = 266$  was set as the minimum sample size for the survey to allow for the discovery of even very modest influences of past experiences on the current levels of psychopathology.

### 3.3 Measures

At the beginning of the survey, each participant was asked to complete a brief questionnaire (developed for this study) about relevant background information, including their age, sex, ethnicity and current employment and relationship status. Following this, six standardised self-report questionnaires were administered, in addition to one measure developed specifically for this study, which was named the Mental Health Screening Questionnaire. Copies of the measures are presented in Appendices B to I.

### **3.3.1 Childhood Trauma Questionnaire (CTQ; Berstein & Fink, 1998)**

The CTQ was used as a retrospective measure of childhood abusive experiences. It is a 28-item self-report inventory designed to provide quick screening for histories of abuse and neglect, including emotional, physical, and sexual abuse, and emotional and physical neglect. It also includes a 3-item Minimisation/Denial Scale for detecting false-negative trauma reports. The CTQ can be used in both clinical and non-clinical settings as well as for research purposes. Individuals respond to a series of statements about childhood events, which are endorsed on a 5-point Likert scale according to their frequency (*Never True* to *Very Often True*). The scores are summed (after the appropriate items have been reversed scored) to produce scale scores ranging from 5 to 25 that quantify the severity of maltreatment in each area. The higher the score is, the greater the severity of maltreatment.

Original internal consistency reliability coefficients for the CTQ ranged from .63 (Physical Neglect Scale) to .92 (Sexual Abuse Scale; Berstein & Fink, 1998). Test re-test reliabilities with testing over an average 3.6 month period yielded stability coefficients near .80, suggesting good consistency of responses over time (Berstein & Fink, 1998). The results of confirmatory factor analyses testing the goodness of fit of the five-factor CTQ subscale model showed structural invariance across three different samples, indicating that the constructs had viability and coherence across diverse populations (Berstein & Fink, 1998). There were also good correlations between CTQ scores and ratings derived from semi-structured interviews administered by clinicians, suggesting good convergent and discriminant validity. Norms for the scale were derived from six different samples, mainly comprising of adolescent psychiatric inpatients, black male inpatient substance users and white female Health Maintenance Organisation members in the United States. These norms were then used to create the severity classification categories of (1) None/Minimal to (4) Severe/Extreme.

### **3.3.2 Invalidating Childhood Environments Scale (ICES; Mountford et al., 2007).**

The ICES was used as a self-report, retrospective measure of childhood invalidation. It contains 14 items that examine specific maternal and paternal behaviours thought to reflect the eight themes that define an invalidating environment (Linehan, 1993). Participants are asked to rate their experience of each parent up to the age of 18 years using a 5-point Likert scale (1 = *Never*; 5 = *All the Time*). The overall levels of perceived invalidation for mothers and fathers are obtained by calculating the mean score for the 14 items for each parent. Higher scores reflect greater perceptions of emotional invalidation.

The ICES has been validated on a female eating disordered population (Mountford et al., 2007) and has been shown to possess good levels of internal consistency (paternal Cronbach's alpha ( $\alpha$ ) = .796; maternal  $\alpha$  = .772). Levels of consistency were, however, more modest amongst a non-clinical population (paternal  $\alpha$  = .587; maternal  $\alpha$  = .664; Mountford et al., 2007). The scale correlates with eating pathology and with measures of emotional processing, such as distress tolerance (Mountford et al., 2007). Mountford et al., (2007) provide norms for eating disordered and nonclinical group as follows: Clinical group – paternal scale  $M = 34.7$ ; maternal scale  $M = 31.7$ ; non-clinical group – paternal scale  $M = 27.8$ ; maternal scale  $M = 28.2$ .

### **3.3.3 Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller, & Brennan, 2000)**

The ECRS-R was used as a measure of current attachment-related anxiety and attachment-related avoidance. This 36-item scale is a revised version of the Experiences in Close Relationships Scale (ECRS; Brennan, Clark, & Shaver, 1998). The ECRS was constructed by combining all known self-report adult attachment scales into a single measure (323 items), factor analysing



the items and retaining those 36 items with the highest absolute-value correlations with one of the two higher-order avoidance or anxiety factors (Mikulincer & Shaver, 2007). These two factors are analogous to the two dimensions of attachment first identified by Ainsworth and colleagues (Ainsworth et al., 1978). The ECR-R has been used in hundreds of studies, always with high reliability (the alpha coefficients are always near or above .90), and test-retest coefficients usually range between .50 and .75, depending on the time span and nature of the sample (Mikulincer & Shaver, 2007).

The ECRS-R is a dimensional measure. The decision to use a dimensional scale rather than a categorical one was based on the literature outlining the greater reliability and sensitivity of multiple-item measures, and the tendency for categorical measures to be more prone to response bias (Brennan et al., 1998; Fraley & Waller, 1998). Half of the items on the scale tap into attachment related anxiety, half measure attachment avoidance. Each item is rated on a 7-point Likert scale, ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). After the necessary items have been reversed scored, the sum of the total scores for each of the two scales is calculated and then averaged. These are the final scores for each of the scales. Although the wording of the scale asks about romantic partners, the items can be adapted so that they enquire into one's general or global attachment style. In this study, the questionnaire asked about a person's general orientation in romantic relationships. It was hoped that this would give participants a particular focus on which to base their answers (romantic relationships rather than general orientation to relationships).

### **3.3.4 The Cognitive Fusion Questionnaire (CFQ; Dempster et al., n.d.; Gillanders, 2009)**

The CFQ was used as a measure of cognitive fusion. The 28-item scale is a self-report questionnaire that aims to address the limitations of other published scales in the area and address a broad range of aspects of cognitive fusion, rather than specific aspects, such as believability of thoughts (Dempster et al., n.d.). Each item is rated on a 7-point Likert scale, ranging from 1 (*Never True*) to 7 (*Always True*). Once the relevant items have been reversed scored the total score is calculated by adding together the scores for all 28 items. The total score ranges from 28 to 189. Higher scores reflect greater levels of cognitive fusion.

Based on a University sample the CFQ has been shown to have adequate convergent validity (coefficients of .67 and .79) and internal consistency (alpha coefficient .85; (Dempster et al., n.d.). Although a 13-item version of this measure also exists, researchers are currently encouraged to use the 28-item version until further studies confirm the validity of the 13-item version (Gillanders, 2009). To the author's knowledge there are no published articles that have used this measure.

### **3.3.5 The Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004)**

The nine-item AAQ was used as a measure of experiential avoidance. Respondents are asked to rate the degree to which each statement applies to them using a 7-point Likert scale ( $1 = \textit{Never True}$ ;  $7 = \textit{Always True}$ ). Four items are reversed scored and the nine items are summed to give a total score ranging from 9 to 63. Higher scores indicate greater levels of experiential avoidance.

The measure has been found to have adequate internal validity, with Cronbach's alphas ranging between .70 and .79 (Bond & Bunce, 2003; Hayes et al., 2004). It has also been shown to have good criterion-related, predictive and convergent validity (Bond, Flaxman, & Bunce, 2008). The scale correlates highly with numerous general and specific measures of psychopathology, as well as with component processes such as thought suppression (Hayes et al., 2006). Although an updated version of the AAQ now exists (AAQ-II; Bond et al., in press), there was limited data on the psychometric properties of this scale when this study was developed and the measure has seldom been used in research to date. It was therefore decided that the more widely used nine-item version of the AAQ would be utilised in this study.

### **3.3.6 The Brief Symptom Inventory 18 (BSI-18; Derogatis, 2001).**

The BSI-18 was used to measure current psychological distress. The BSI-18 is an 18-item self-report symptom inventory designed to screen for psychological distress and psychiatric disorders in community and medical populations. The 18 items on the BSI-18 also appear on the 53-item Brief Symptom Inventory (Derogatis, 1993). The BSI-18 is, however, shorter, and therefore quicker to administer, and can be used in both clinical and research settings.

The BSI-18 includes three subscales reflecting the symptom dimensions of anxiety, depression and somatisation. These dimensions are understood to reflect the most prevalent psychiatric syndromes and, as such, the BSI-18 is argued to have maximum sensitivity to psychological distress as it actually presents in the community and primary care populations. In addition to the three subscales, the BSI-18 also includes a global severity index, which summarises the respondent's overall level of psychological distress.

Each item response on the BSI-18 is assigned a value from 0 to 4. To calculate the three dimension scores (anxiety depression and somatisation),

the values for the six item responses for each dimension are summed. To calculate the global severity index, the total scores for the three dimensions are added together. Cut-off scores using values obtained from the community norms (from the sample on which the BSI-18 was normed) can be used to estimate whether individuals might be considered a positive risk or a clinical 'case'. If a male respondent has a GSI raw score of 18 or above, or if a female has a raw score of 20 or above (the BSI has separate norms for men and women), they are considered a positive risk/clinical case.

The BSI-18 has been found to have acceptable internal consistency, with coefficients ranging from .74 for somatisation to .89 for the global severity index, respectively (Derogatis, 2001). An estimate of test-retest reliability was obtained from the corresponding scales on the BSI, and was proved to be acceptable. Data from the BSI have also provided an estimate of the validity of the BSI-18 and can be found in the BSI-18 manual (Derogatis, 2001). The depression scale on the BSI, which also features on the BSI-18, showed convergence coefficients of .72 and .67 with the depression scores from the Minnesota Multiphasic Personality Inventory (MMPI).

### **3.3.7 Mental Health Screening Questionnaire (MHSQ)**

A brief and simple self-report questionnaire was designed to measure the historical or current presence of psychological disorders. This scale asked participants to simply state whether they were currently experiencing or had in the past experienced a number of different mental health problems, including (but not limited to) anxiety, depression, eating disorders and drug and alcohol problems. A current difficulties index was calculated by summing the number of 'disorders/difficulties' participants reported they were currently experiencing, whilst a past difficulties index was calculated by summing the number of difficulties/disorders participants stated they had experienced in the past. This measure was used as a screening tool to determine the final sample size and also as a brief measure that could supplement the BSI-18, which only asked

about somatisation, anxiety and depression and not other psychological disorders/difficulties. When developing the MHSQ existing standardised measures of psychopathology, such as the Symptom Checklist-90-Revised (Derogatis, 1994), and the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (APA, 2000), were consulted to enhance the content validity of the MHSQ. Existing standardised measures of psychopathology were not used due to the number of measures already included in the survey and the need to minimise demand on participants completing the study.

### **3.3.8 Managing missing values**

If participants had more than 10% of missing data on any measure they were excluded from analysis involving that scale and treated as a ‘missing case’. For some analyses, e.g. regression analyses, missing values were replaced with mean values.

## **3.4 Procedure**

Twenty-six online mental health support forums (see Appendix A for details of forums contacted) were contacted via personal message or email asking for permission to advertise the study on their website. When permission was granted, a brief advert was placed on the website or forum (Appendix J) containing a link to the study website, SurveyMonkey. Once potential participants had accessed the link they were presented with information about the study (Appendix K) and asked to confirm their informed consent to participate (Appendix L). The questionnaires were then presented in a standard order. Given the sensitive nature of some of the questionnaires the majority of the scales were optional – i.e. people could choose to skip questions and move onto the next questionnaire. Once they had completed the study, participants were informed that they could email the primary researcher to receive a summary of the study findings. They were also

presented with debrief information as well as information regarding sources of support in the event of any distress (Appendix M). All data from the online database was downloaded in Microsoft Excel file format, and then imported into the SPSS statistical package software. The online copy of the dataset was then deleted.

### **3.5 Ethical considerations**

All participants were presented with an information sheet (Appendix K), which outlined important information pertaining to issues of informed consent and confidentiality. Participants were then asked to confirm that they had read the information sheet, that they understood their participation was voluntary and that they could withdraw from the study at any time. They were also asked to confirm that they were above the age of 18 years. All participants were given the contact details of the researcher and primary supervisor prior to participation in case they had any queries.

In order to ensure anonymity and confidentiality, participants were not asked to provide their names or other identifying information when completing the questionnaires. The participants were given the option of requesting a summary of the study results by emailing their contact details separately to the primary researcher. This was to ensure that their contact details could not be matched to their questionnaire responses. Once the dataset was complete, it was downloaded from the online survey provider, and the online copy was deleted. This was in line with recommendations from the University of Hertfordshire, School of Psychology, Ethics Committee.

Due to the sensitive nature of the study topic, it was acknowledged that participation might result in distress for participants and/or that people might disclose suicidal ideation, which would present a risk issue. In order to anticipate and manage this, all participants were informed prior to the study that in the event of any distress they could contact the primary researcher,

and/or the primary supervisor, who would recommend possible sources of support. In addition to this, at the end of the study, all participants were provided with the contact details of national organisations offering support, such as The Samaritans and The National Association for People Abused in Childhood, and advised about whom to contact if they were concerned about their psychological wellbeing (Appendix M).

Participants for this study were recruited from outside the National Health Service. Ethical approval was therefore obtained from the School of Psychology Ethics Committee, University of Hertfordshire (Reference: PSY/07/10/JC; Appendix N).

## **4 Results**

The results of the data analysis will begin with a description of the socio-demographic and clinical status of the final sample. The results from two principal component analyses will then be presented, followed by the findings obtained from a number of multiple regression analyses conducted. Following this, a series of mean group comparisons on the main study variables will be presented. Finally, the results of a path analysis exploring overall direct and indirect effects of the different variables on current psychopathology levels will be outlined.

### **4.1 Sample description**

#### **4.1.1 Gender, age and ethnicity**

As shown in Table 1, the sample included a much larger number of female participants (83%) than male participants (17%). The majority of the participants were aged between 18 and 30 years (63%) and were of white-British (48%) or white (non-specified) (35%) origin. The age of the participants ranged from 18 to 67 years, with the mean age of the sample being 30 years.



Table 1: Frequencies and percentages of the gender, age and ethnicity of the sample.

| Variable  | Category                   | Frequency | Percentage |
|-----------|----------------------------|-----------|------------|
| Gender    | Male                       | 89        | 17%        |
|           | Female                     | 429       | 83%        |
| Age group | 18 – 30 years              | 326       | 63%        |
|           | 31 – 50 years              | 158       | 30%        |
|           | 51 years +                 | 34        | 7%         |
| Ethnicity | White British              | 247       | 48%        |
|           | White (non-specified)      | 185       | 35%        |
|           | Mixed race                 | 35        | 7%         |
|           | White (other)              | 31        | 6%         |
|           | Asian                      | 9         | 2%         |
|           | Black (inc. Black British) | 5         | 1%         |
|           | Did not specify            | 6         | 1%         |
| Sample    | Total                      | 518       | 100%       |

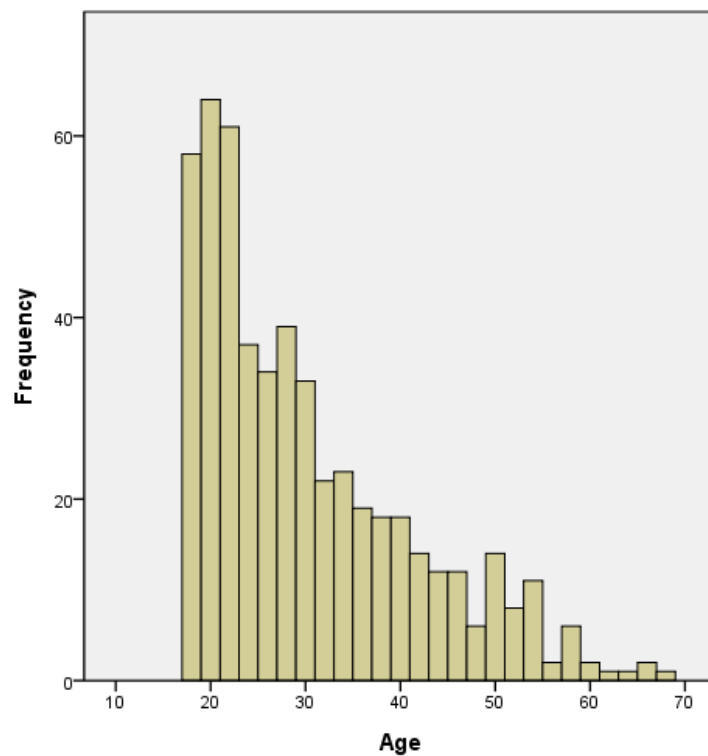


Figure 5: Histogram of participants' age.

#### 4.1.2 Employment and relationship status

Data regarding the current employment and relationship status of the sample are presented in Table 2. One quarter of the sample (25%) was in full-time employment and approximately another quarter (27%) were students. Approximately half of the sample (51%) described their current relationship status as single, whereas 20% described themselves as in a long-term relationship (longer than six months) and 16% reported that they were married or in a civil partnership.

Table 2: Frequencies and percentages of participants' employment and relationship status.

| Variable            | Category                       | Frequency | Percentage |
|---------------------|--------------------------------|-----------|------------|
| Employment status   | Full-time                      | 130       | 25%        |
|                     | Part-time                      | 65        | 12%        |
|                     | Unemployed                     | 81        | 16%        |
|                     | Student                        | 142       | 27%        |
|                     | Looking for work               | 25        | 5%         |
|                     | Other                          | 75        | 15%        |
|                     | Total                          | 518       | 100%       |
| Relationship status | Single                         | 264       | 51%        |
|                     | Long-term r'ship (> 6 months)  | 104       | 20%        |
|                     | Short-term r'ship (< 6 months) | 31        | 6%         |
|                     | Married / civil partner        | 84        | 16%        |
|                     | Cohabiting                     | 32        | 6%         |
|                     | Widowed                        | 2         | <1%        |
|                     | Total                          | 518       | 100%       |

### 4.1.3 Clinical status

#### 4.1.3.1 BSI-18 scores

Descriptive statistics for participants' raw scores on the BSI-18 are given in Table 3. As can be seen, participants' tended to report more anxiety and depression symptoms than somatisation symptoms.

Table 3: Descriptive statistics for the four BSI-18 subscales (N = 518).

| Subscale         | Min. | Max.  | <i>M</i> | <i>Mdn</i> | <i>SD</i> | Skew<br>-ness | Kurto<br>-sis |
|------------------|------|-------|----------|------------|-----------|---------------|---------------|
| Somatisation     | 0    | 24.00 | 7.71     | 6.00       | 6.23      | .69           | -.39          |
| Anxiety          | 0    | 24.00 | 11.89    | 12.00      | 7.03      | .03           | -1.14         |
| Depression       | 0    | 24.00 | 13.76    | 15.00      | 7.03      | -.37          | -1.02         |
| GSI <sup>1</sup> | 0    | 72.00 | 33.36    | 33.00      | 17.85     | .04           | -.85          |

<sup>1</sup> *GSI = Global Severity Index*

In order to establish the proportion of people presenting as a 'positive risk' or a clinical 'case', Derogatis' (2001) criteria for 'caseness' (using community norms) was applied to the sample (see section 3.3.6 for details). Using this criteria, a total of 393 (76%) participants were identified as a positive risk, with the remaining 125 (24%) not meeting the criteria for clinical 'caseness'. As can be seen in Table 4, there were no reliable gender differences in terms of 'caseness' ( $p = .49$ ).

Table 4: GSI case by sex crosstabulation.

|               |            | Sex               |        |        |        |
|---------------|------------|-------------------|--------|--------|--------|
|               |            | Male              | Female | Total  |        |
| GSI           | Not a risk | Count             | 24     | 101    | 125    |
|               |            | Expected Count    | 21.5   | 103.5  | 125.0  |
|               |            | % within GSI Case | 19.2%  | 80.8%  | 100.0% |
|               |            | % within Sex      | 27.0%  | 23.5%  | 24.1%  |
|               |            | % of Total        | 4.6%   | 19.5%  | 24.1%  |
| Positive risk |            | Count             | 65     | 328    | 393    |
|               |            | Expected Count    | 67.5   | 325.5  | 393.0  |
|               |            | % within GSI Case | 16.5%  | 83.5%  | 100.0% |
|               |            | % within Sex      | 73.0%  | 76.5%  | 75.9%  |
|               |            | % of Total        | 12.5%  | 63.3%  | 75.9%  |
| Total         |            | Count             | 89     | 429    | 518    |
|               |            | Expected Count    | 89.0   | 429.0  | 518.0  |
|               |            | % within GSI Case | 17.2%  | 82.8%  | 100.0% |
|               |            | % within Sex      | 100.0% | 100.0% | 100.0% |
|               |            | % of Total        | 17.2%  | 82.8%  | 100.0% |

#### 4.1.3.2 MHSQ scores

As can be seen in Table 5, the majority of the sample reported that they were currently experiencing difficulties with anxiety/worry (72%), stress (69%) and low mood (68%). Just under half of the respondents (44%) reported current difficulties with sleeping. The mental health problems least reported by respondents were drug (3%) and alcohol (5%) problems.

Table 5: Frequencies and percentages of the sample's self-reported mental health difficulties.

| Problem                            | Time       | Frequency | Percentage |
|------------------------------------|------------|-----------|------------|
| Stress                             | Currently  | 393       | 76%        |
|                                    | Previously | 115       | 22%        |
|                                    | Never      | 10        | 2%         |
| Low mood                           | Currently  | 385       | 74%        |
|                                    | Previously | 125       | 24%        |
|                                    | Never      | 8         | 2%         |
| Anxiety/worry                      | Currently  | 405       | 78%        |
|                                    | Previously | 104       | 20%        |
|                                    | Never      | 9         | 2%         |
| Panic                              | Currently  | 200       | 39%        |
|                                    | Previously | 217       | 42%        |
|                                    | Never      | 101       | 19%        |
| Phobias                            | Currently  | 192       | 37%        |
|                                    | Previously | 135       | 26%        |
|                                    | Never      | 191       | 37%        |
| Obsessive-compulsive difficulties  | Currently  | 159       | 31%        |
|                                    | Previously | 138       | 26%        |
|                                    | Never      | 221       | 43%        |
| Post-traumatic stress difficulties | Currently  | 100       | 19%        |
|                                    | Previously | 87        | 17%        |
|                                    | Never      | 331       | 64%        |
| Deliberate self-harm               | Currently  | 147       | 28%        |
|                                    | Previously | 199       | 39%        |
|                                    | Never      | 172       | 33%        |
| Eating problems                    | Currently  | 170       | 33%        |
|                                    | Previously | 129       | 25%        |
|                                    | Never      | 219       | 42%        |
| Hearing voices                     | Currently  | 45        | 9%         |
|                                    | Previously | 96        | 18%        |
|                                    | Never      | 377       | 73%        |
| Alcohol problems                   | Currently  | 36        | 7%         |
|                                    | Previously | 84        | 16%        |
|                                    | Never      | 398       | 77%        |
| Drug problems                      | Currently  | 16        | 3%         |
|                                    | Previously | 61        | 12%        |
|                                    | Never      | 441       | 85%        |
| Sleep problems                     | Currently  | 246       | 48%        |
|                                    | Previously | 158       | 30%        |
|                                    | Never      | 114       | 22%        |
| Total                              |            | 518       | 100%       |

Descriptive statistics for participants' responses to the MHSQ are presented in Table 6. As can be seen, the mean number of difficulties currently being experienced by participants was 4.81.

Table 6: Descriptive statistics for responses to the MHSQ (N = 518).

| Time       | Min. | Max. | <i>M</i> | <i>Mdn</i> | <i>SD</i> | Skew<br>-ness | Kurto-<br>sis |
|------------|------|------|----------|------------|-----------|---------------|---------------|
| Currently  | 1    | 13   | 4.81     | 5.00       | 2.75      | .19           | -.46          |
| Previously | 0    | 12   | 3.18     | 3.00       | 2.41      | .75           | .40           |

#### 4.1.3.3 CTQ scores

As can be seen in Table 7, the most prevalent forms of abuse experienced by the sample were emotional abuse ( $N = 382$ ; 74%) and emotional neglect ( $N = 384$ ; 74%). The least prevalent was physical abuse ( $N = 165$ ; 32%). Approximately half of the sample ( $N = 275$ ; 53%) scored in the severe range on one or more of the CTQ scales. A total of 108 (21%) people scored in the severe range on one area of abuse or neglect, with 19 people (4%) scoring in the severe range across all five domains. Analysis of the CTQ minimisation / denial scale indicated that 11% ( $N = 57$ ) of the sample may have been underreporting maltreatment. This meant that 89% ( $N = 461$ ) were likely to be accurately reporting experiences of abuse.

Table 7: Frequency (and percentage) of participants CTQ classifications.

| Class-<br>ification | Type of Abuse  |               |                |                  |                 |
|---------------------|----------------|---------------|----------------|------------------|-----------------|
|                     | Phys.<br>Abuse | Emo.<br>Abuse | Sex.l<br>Abuse | Phys.<br>Neglect | Emo.<br>Neglect |
| None                | 353 (68%)      | 136 (26%)     | 325 (63%)      | 248 (48%)        | 134 (26%)       |
| Low                 | 59 (11%)       | 123 (24%)     | 42 (8%)        | 87 (17%)         | 134 (26%)       |
| Moderate            | 46 (9%)        | 75 (14%)      | 55 (11%)       | 96 (18%)         | 85 (16%)        |
| Severe              | 60 (12%)       | 184 (36%)     | 96 (18%)       | 87 (17%)         | 165 (32%)       |
| Total               | 518 (100%)     | 518 (100%)    | 518 (100%)     | 518 (100%)       | 518 (100%)      |

Crosstabulation (Table 8) showed that there were significant differences in whether a person was a severe abuse case or not based on whether they were considered to be a clinical case on the GSI ( $\chi^2(1, 518) = 17.55, p < .001, \eta^2 = .18, \text{odds ratio} = 2.40$ ). There were no reliable gender differences in terms of abuse severity ( $p = .22$ ).

Table 8: Crosstabulation of CTQ abuse severity and GSI caseness.

|       |                 | Abuse severity (CTQ)           |                                     |        |        |
|-------|-----------------|--------------------------------|-------------------------------------|--------|--------|
|       |                 | Not severe<br>in any<br>domain | Severe in at<br>least one<br>domain | Total  |        |
| GSI   | Not a<br>'case' | Count                          | 79                                  | 46     | 125    |
|       |                 | Expected Count                 | 58.6                                | 66.4   | 125.0  |
|       |                 | % within GSI Case              | 63.2%                               | 36.8%  | 100.0% |
|       |                 | % within Severe<br>Abuse       | 32.5%                               | 16.7%  | 24.1%  |
|       |                 | % of Total                     | 15.3%                               | 8.9%   | 24.1%  |
| A     | 'case'          | Count                          | 164                                 | 229    | 393    |
|       |                 | Expected Count                 | 184.4                               | 208.6  | 393.0  |
|       |                 | % within GSI Case              | 41.7%                               | 58.3%  | 100.0% |
|       |                 | % within Severe<br>Abuse       | 67.5%                               | 83.3%  | 75.9%  |
|       |                 | % of Total                     | 31.7%                               | 44.2%  | 75.9%  |
| Total |                 | Count                          | 243                                 | 275    | 518    |
|       |                 | Expected Count                 | 243.0                               | 275.0  | 518.0  |
|       |                 | % within GSI Case              | 46.9%                               | 53.1%  | 100.0% |
|       |                 | % within Severe<br>Abuse       | 100.0%                              | 100.0% | 100.0% |
|       |                 | % of Total                     | 46.9%                               | 53.1%  | 100.0% |

#### 4.1.4 Physical health status

Participants were asked to state whether they had experienced any physical health problems, either currently or in the past, and to rate their current physical health. Data pertaining to the sample's physical health status is presented in Table 9. 182 (34%) reported that they were currently experiencing physical health complaints whilst 210 (41%) reported never having experienced significant physical health problems. Just under half of the sample (47%) rated their current physical health as *'quite good'*.



Table 9: Frequencies and percentages of the participants' physical health ratings.

| Variable                               | Time           | Frequency | Percentage |
|--|----------------|-----------|------------|
| Experience of physical health problems | Currently      | 182       | 34%        |
|  | Previously     | 122       | 24%        |
|  | Never          | 210       | 41%        |
|  | No response    | 4         | <1%        |
|  | Total          | 518       | 100%       |
| Current physical health rating         | Excellent      | 19        | 4%         |
|  | Very good      | 113       | 22%        |
|  | Quite good     | 243       | 47%        |
|  | Quite poor     | 106       | 20%        |
|  | Very poor      | 22        | 4%         |
|  | Extremely poor | 11        | 2%         |
|  | No response    | 4         | <1%        |
| Total                                  | 518            | 100%      |            |

#### 4.1.5 Treatment and therapy status

Data pertaining to the treatment and therapy status of the sample is presented in Table 10. It can be seen that 74% of the sample had in the past received, and/or were currently receiving, a talking therapy for mental health problems. Of that 74%, just over two-thirds (68%) stated that the therapy had helped. Just under one third said that it had not helped. 42% of the sample was currently on medication for mental health difficulties.

Table 10: Frequency and percentage of participants' experience of talking therapy and medication.

| Treatment / therapy       | Response    | Frequency | Percentage |
|---------------------------|-------------|-----------|------------|
| Talking therapy           | Yes         | 382       | 74%        |
|                           | No          | 136       | 26%        |
|                           | Total       | 518       | 100%       |
| Did talking therapy help? | Yes         | 259       | 68%        |
|                           | No          | 123       | 32%        |
|                           | Total       | 382       | 100%       |
| Medication                | Currently   | 219       | 42%        |
|                           | Previously  | 130       | 25%        |
|                           | Never       | 165       | 32%        |
|                           | No response | 4         | <1%        |
|                           | Total       | 518       | 100%       |

## 4.2 Preparatory analyses

### 4.2.1 Creating an overall psychopathology index

Correlations between the three BSI-18 scales (Anxiety, Depression and Somatisation) and the total score for current psychopathology on the MHSQ were investigated using a principal components analysis (PCA) with no rotation. This was to ascertain whether these variables could be summarised using a latent variable. Inspection of the correlation matrix, which can be found in Table 11, revealed the presence of coefficients above .55. The Kaiser-Meyer-Okin value was .81, supporting the factorability of the correlation matrix.

Table 11: Correlation matrix for the BSI-18 and MHSQ subscales ( $N = 518$ ).

| Scale                   | Somatisation | Depression | Anxiety |
|-------------------------|--------------|------------|---------|
| Somatisation            | --           | --         | --      |
| Depression              | .56**        | --         | --      |
| Anxiety                 | .72**        | .70**      | --      |
| Current psychopathology | .57**        | .60**      | .65**   |

\*\*  $p < .001$

The PCA yielded only one component with an eigenvalue above 1 (eigenvalue = 2.90). This accounted for 73% of the variance. Inspection of the scree plot (Figure 6) confirmed the presence of only one component and all items loaded strongly on this one component. Individual loadings for each of the scales can be found in Table 12.

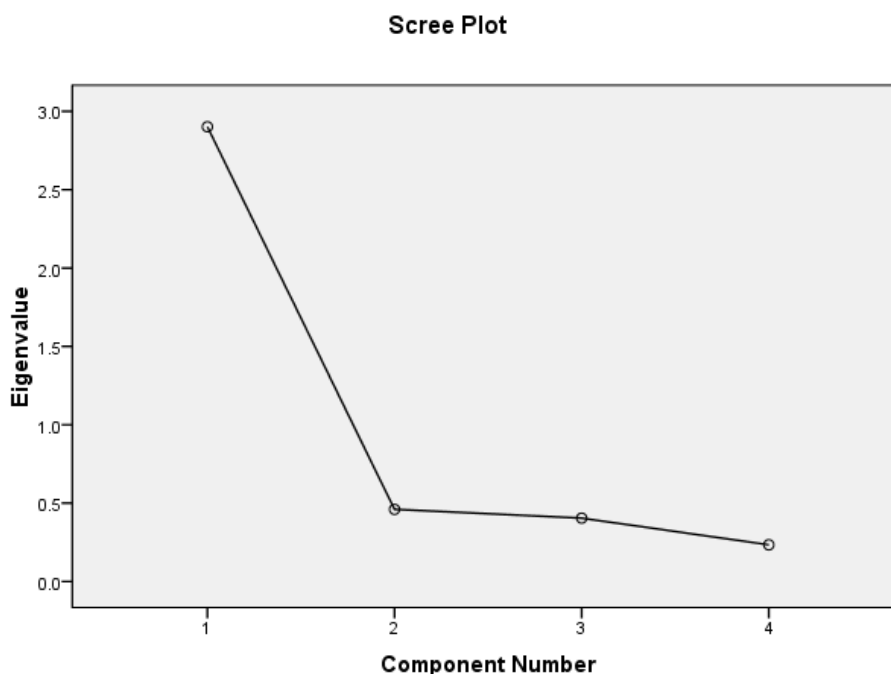


Figure 6: Scree plot of eigenvalues for the PCA on the BSI-18 and MHSQ data.

Table 12: PCA component loadings for the BSI-18 and MHSQ scales ( $N = 518$ ).

| Subscale             | Component Loadings |
|----------------------|--------------------|
| Somatisation         | .84                |
| Depression           | .84                |
| Anxiety              | .91                |
| MHSQ Psychopathology | .82                |

The results of the PCA indicated that there was good convergent validity between the BSI-18 and the newly developed MHSQ. They also suggested that there was one summary variable that could be conceptualised as a measure or index of the participants' current levels of psychopathology. It was decided that this index would be used as the main measure of current psychopathology in the main analysis and thus factor scores were computed for each participant.

#### **4.2.2 Creating an overall abuse index**

Correlations between the five scales on the CTQ were also investigated using a PCA with no rotation. The correlation matrix (Table 13) revealed coefficients of above .50, apart from the correlation between emotional neglect and physical abuse, and those correlations involving the sexual abuse subscale, which were lower. The Kaiser-Meyer-Okin value was .79, indicating the appropriateness of a PCA. Table 14 shows the descriptive statistics for the different abuse scales.

Table 13: Correlation matrix for the five CTQ subscales ( $N = 518$ ).

| Scale             | Physical Neglect | Emotional Abuse | Emotional Neglect | Physical Abuse |
|-------------------|------------------|-----------------|-------------------|----------------|
| Physical Neglect  | --               | --              | --                | --             |
| Emotional Abuse   | .65**            | --              | --                | --             |
| Emotional Neglect | .67**            | .75**           | --                | --             |
| Physical Abuse    | .51**            | .57**           | .43**             | --             |
| Sexual Abuse      | .30**            | .37**           | .22**             | .43**          |

\*\* $p < .001$

Table 14: Descriptive statistics for the five CTQ subscales ( $N = 518$ ).

| Scale             | Min. | Max.  | $M$   | $Mdn$ | $SD$ | Skew-ness | Kurto-sis |
|-------------------|------|-------|-------|-------|------|-----------|-----------|
| Physical Abuse    | 5.00 | 25.00 | 7.60  | 6.00  | 4.06 | 2.09      | 4.34      |
| Emotional Abuse   | 5.00 | 25.00 | 13.31 | 12.50 | 6.05 | .34       | -1.05     |
| Sexual Abuse      | 5.00 | 25.00 | 8.42  | 5.00  | 6.04 | 1.69      | 1.43      |
| Physical Neglect  | 5.00 | 22.00 | 8.71  | 8.00  | 3.72 | 1.02      | .50       |
| Emotional Neglect | 5.00 | 25.00 | 14.19 | 14.00 | 5.70 | .12       | -1.04     |

The PCA revealed the presence of one component with an eigenvalue exceeding 1 (eigenvalue = 3.02), which explained 60% of the variance. Inspection of the scree plot (Figure 7) revealed a break after the first component, although there was some evidence of a small break after the second component. However, for the purposes of this study (the aim being to summarise the abuse scales with a summary, or latent, variable) it was decided to retain only one component. All items loaded strongly on this one component. Individual loadings are presented in Table 15.

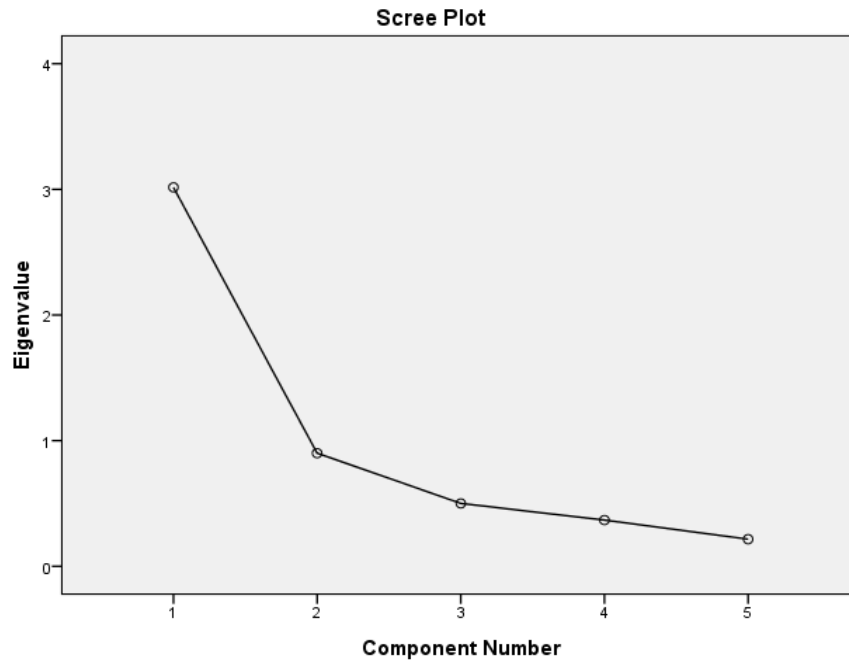


Figure 7: Scree plot for the eigenvalues for the PCA on the CTQ data.

Table 15: PCA component loadings for the CTQ subscales ( $N = 518$ ).

| Subscale          | Component Loadings |
|-------------------|--------------------|
| Physical Neglect  | .83                |
| Emotional Abuse   | .89                |
| Emotional Neglect | .83                |
| Physical Abuse    | .75                |
| Sexual Abuse      | .53                |

The results of this PCA therefore indicated that the five CTQ scales could be summarised by one latent 'abuse' variable (the one component identified in this PCA) and that this score would be used in the main analysis. Individual factors scores were therefore computed for each participant.

### **4.3 Descriptive analyses**

Following the PCAs on the psychopathology and abuse data, it was decided that there were eight main psychological variables that would be used in the main analyses. These were: 1) an overall abuse scale (from the PCA); 2) maternal invalidation and 3) paternal invalidation scales from the ICES; 4) current attachment anxiety and 5) attachment avoidance scales from the ECR-R; 6) cognitive fusion scale from the CFQ; 7) experiential avoidance scale from the AAQ; and 8) an overall psychopathology scale (from the PCA). Descriptive statistics for the main eight variables used in the main analyses are presented in Table 16 and box plots for the scales can be found in Figure 8 and Figure 9. As can be seen, the distributions of scores on most scales were reasonably even, with the exception of the abuse scale, which was slightly positively skewed as a result of outliers. Inspection of the dataset confirms that these scores appear to represent high reports of abuse within the sample and are not erroneous data entries.

Table 16: Descriptive statistics for the main eight variables used in the statistical data analysis.

| Scale                     | <i>N</i> | Min.  | Max.   | <i>M</i> | <i>SD</i> | Skew-<br>ness | Kurto-<br>sis |
|---------------------------|----------|-------|--------|----------|-----------|---------------|---------------|
| Abuse                     | 518      | -1.38 | 3.38   | .00      | 1.00      | .80           | .11           |
| Maternal<br>Invalidation  | 508      | 13.00 | 68.00  | 33.18    | 12.95     | .64           | -.45          |
| Paternal<br>Invalidation  | 482      | 14.00 | 70.00  | 34.83    | 13.75     | .60           | -.38          |
| Attachment<br>Anxiety     | 470      | 2.94  | 6.00   | 4.16     | .47       | .28           | .37           |
| Attachment<br>Avoidance   | 472      | 2.72  | 5.17   | 3.94     | .42       | .09           | -.02          |
| Cognitive<br>Fusion       | 518      | 50.00 | 190.00 | 136.39   | 27.33     | -.50          | -.23          |
| Experiential<br>Avoidance | 518      | 12.00 | 63.00  | 44.76    | 9.11      | -.59          | -.12          |
| Psycho-<br>Pathology      | 518      | -1.95 | 2.25   | .00      | 1.00      | .01           | -.79          |



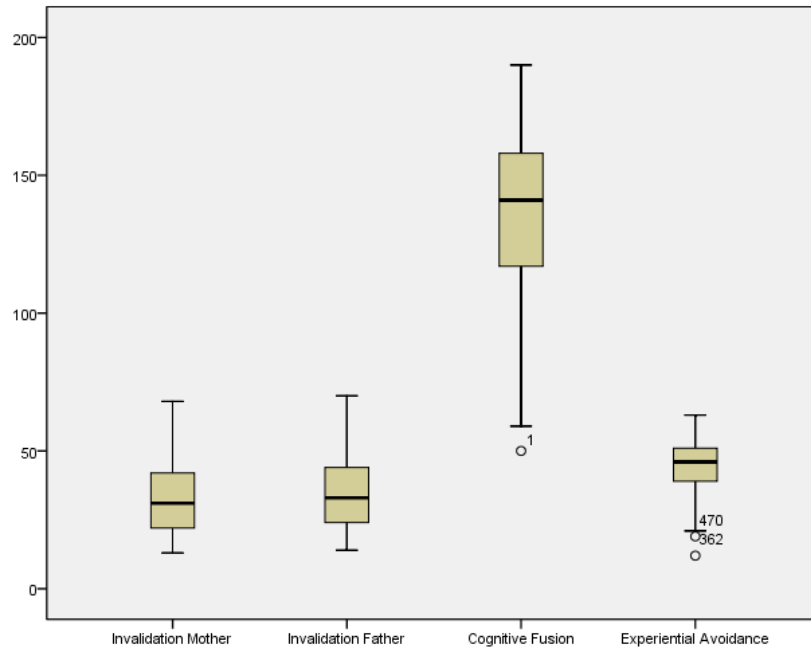


Figure 8: Box plots for the two invalidation scales and the cognitive fusion and experiential avoidance scales.

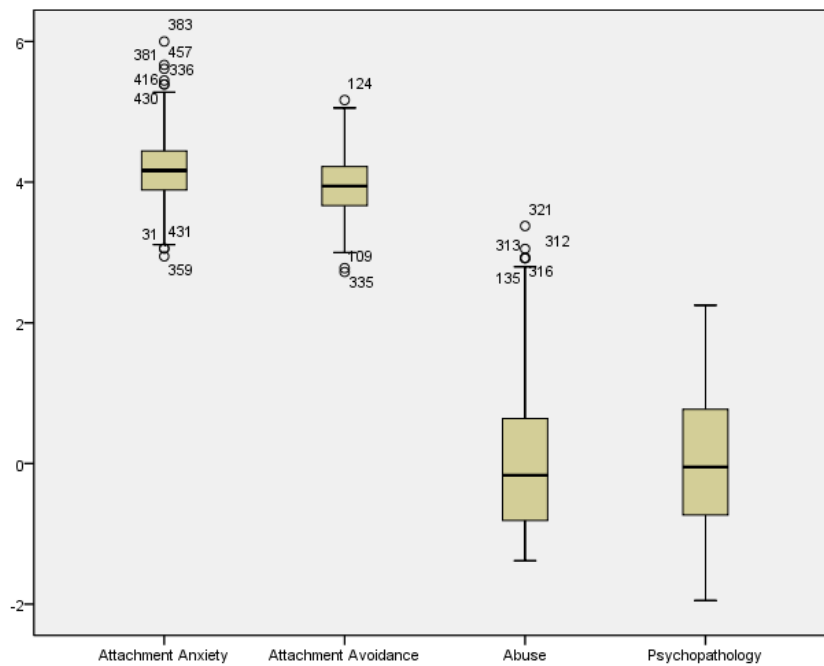


Figure 9: Box plots for the two attachment scales and the abuse and psychopathology indexes.

## **4.4 Prediction models: multiple regression analyses**

In order to address the main research hypotheses and identify a final list of variables that could be included in a path analysis, a series of multiple regression analyses using the backward elimination procedure and mean substitution for missing values were carried out. The backward elimination procedure was chosen each time to determine the final best-fitting model where all predictors in the model made a significant and unique contribution to the criterion variable. Predictor variables were only included in the regression models if they achieved a minimum correlation of around .25 with the criterion variable. This was to ensure that all predictors contributed to at least 5% of the variance.

### **4.4.1 Predicting current psychopathology**

The first multiple regression analysis sought to identify which of the seven predictor variables made a unique contribution to the criterion variable of current psychopathology. Pearson's correlations between these predictor variables and psychopathology are presented in Table 17. As neither of the attachment scales (attachment anxiety and attachment avoidance) obtained a correlation with psychopathology of .25 they were excluded from the regression analyses. The emotional maternal invalidation scale just fell short of a .25 correlation ( $r = .23, p < .01$ ). As the correlation was so close to .25, it was decided that this scale would be entered into the regression model.

Table 17: Correlations between predictor variables and psychopathology.

| Scale                                | Psychopathology |
|--------------------------------------|-----------------|
| Abuse ( $N = 518$ )                  | .35**           |
| Maternal Invalidation ( $N = 508$ )  | .23**           |
| Paternal Invalidation ( $N = 482$ )  | .30**           |
| Attachment Anxiety ( $N = 470$ )     | .05             |
| Attachment Avoidance ( $N = 472$ )   | -.12*           |
| Cognitive Fusion ( $N = 518$ )       | .67**           |
| Experiential Avoidance ( $N = 518$ ) | .60**           |

\*  $p < .01$  \*\* $p < .001$

A multiple regression analysis using the backward elimination procedure, with abuse, maternal invalidation, paternal invalidation, cognitive fusion and experiential avoidance as the predictor variables and psychopathology as the criterion variable was run. The results indicated that the best fitting model, in which all predictors had a statistically significant contribution, was a model that did not include the paternal invalidation. This model therefore indicated that abuse, maternal invalidation, cognitive fusion and experiential avoidance all significantly predicted 50% of the variance on the psychopathology scale ( $adj.-R^2 = .49$ ,  $F(4, 513) = 126.93$ ,  $p < .001$ ). As can be seen in Table 18, cognitive fusion made the largest contribution to the model, followed by abuse, experiential avoidance and then maternal invalidation.

Table 18: Summary of multiple regression analysis for variables predicting current psychopathology ( $N = 518$ ).

|               | $B$  | $SE(B)$ | $\beta$ | $T$    | 95% CI for $B$ |       |
|---------------|------|---------|---------|--------|----------------|-------|
|               |      |         |         |        | Lower          | Upper |
| Abuse         | .26  | .04     | .26     | 6.06** | .18            | .35   |
| Mat. Invalid. | -.01 | .00     | -.09    | -2.12* | -.01           | -.00  |
| Cog. Fusion   | .02  | .00     | .51     | 9.16** | .02            | .02   |
| Exp. Avoid.   | .02  | .01     | .14     | 2.51*  | .00            | .03   |

a. \*  $p < .05$  \*\* $p < .001$

#### 4.4.2 Predicting current attachment anxiety and avoidance

The second multiple regression analysis sought to identify potential predictors of current attachment-related anxiety and avoidance. Pearson's correlations between the potential predictor and criterion variables are presented in Table 19. As none of the potential predictor variables revealed correlation coefficients above .25 with either of the attachment scales, further regression analyses were not carried out.

Table 19: Correlations between predictor variables and current attachment anxiety and attachment avoidance.

| Scale                               | Attachment Anxiety | Attachment Avoidance |
|-------------------------------------|--------------------|----------------------|
| Abuse ( $N = 470$ )                 | -.05               | -.09                 |
| Maternal Invalidation ( $N = 464$ ) | -.01               | -.09*                |
| Paternal Invalidation ( $N = 440$ ) | -.04               | -.06                 |

\*  $p < .05$  \*\* $p < .001$

#### 4.4.3 Predicting current levels of cognitive fusion and experiential avoidance

The third and fourth regression analyses sought to identify factors that might predict current levels of psychological inflexibility. Pearson's correlations between potential predictor and criterion variables are presented in Table 20. As can be seen, the correlation coefficients between the two attachment scales and the two criterion variables (cognitive fusion and experiential avoidance) were of a small magnitude and both below .25. It was therefore decided that neither of the attachment measures would be entered into a regression model. However, the rest of the correlations just fell short of .25

and given they were close to this cut off, it was decided that they would be taken forward in a multiple regression analysis.

Table 20: Correlations between potential predictor variables and criterion variables (cognitive fusion and experiential avoidance).

| Scale                               | Cognitive Fusion | Experiential Avoidance |
|-------------------------------------|------------------|------------------------|
| Abuse ( $N = 518$ )                 | .23**            | .22**                  |
| Maternal Invalidation ( $N = 508$ ) | .22**            | .21**                  |
| Paternal Invalidation ( $N = 482$ ) | .23**            | .22**                  |
| Attachment Anxiety ( $N = 470$ )    | .04              | .01                    |
| Attachment Avoidance ( $N = 470$ )  | -.19**           | -.14*                  |

\*  $p < .01$  \*\* $p < .001$

#### 4.4.3.1 Cognitive fusion as the criterion variable

Table 21 shows that the third multiple regression analysis using the backward elimination procedure with abuse and the two invalidation scales as the predictor variables revealed a model in which only the two invalidation scales (maternal and paternal) contributed to 6% of the variance on the cognitive fusion scale ( $adj.-R^2 = .06$ ,  $F(2, 515) = 18.42$ ,  $p < .001$ ). Through backward elimination the abuse scale had been removed from the model.

Table 21: Summary of multiple regression for variables predicting cognitive fusion ( $N = 518$ ).

|                          | $B$ | $SE (B)$ | $\beta$ | $T$   | 95% $CI$ for $B$ |       |
|--------------------------|-----|----------|---------|-------|------------------|-------|
|                          |     |          |         |       | Lower            | Upper |
| Maternal<br>Invalidation | .31 | .10      | .15     | 3.07* | .11              | .51   |
| Paternal<br>Invalidation | .33 | .98      | .16     | 3.33* | .13              | .52   |

a. \*  $p < .05$

#### 4.4.3.2 *Experiential avoidance as the criterion variable*

The fourth multiple regression analysis using the backward elimination procedure with abuse and the two invalidation scales as predictor variables and experiential avoidance as the criterion variable revealed a model similar to that for cognitive fusion, in which only the two invalidation scales contributed to 6% of the variance on the experiential avoidance scale ( $adj.-R^2 = .06$ ,  $F(2, 515) = 16.20$ ,  $p < .001$ ). Through the backward elimination procedure, the abuse scale had been removed from the model so that all other predictors made a reliable and unique contribution. Table 22 summarizes the results from this multiple regression analysis.

Table 22: Summary of multiple regression for variables predicting experiential avoidance ( $N=518$ ).

|                          | $B$ | $SE (B)$ | $\beta$ | $t$   | 95% $CI$ for $B$ |       |
|--------------------------|-----|----------|---------|-------|------------------|-------|
|                          |     |          |         |       | Lower            | Upper |
| Maternal<br>Invalidation | .10 | .03      | .14     | 2.93* | .03              | .17   |
| Paternal<br>Invalidation | .10 | .03      | .15     | 3.07* | .04              | .17   |

a. Dependent Variable: Experiential Avoidance

b. \*  $p < .01$

## **4.5 Group differences on the eight main variables used in the analysis**

Given the large sample size and the data available on potentially relevant background information, it was decided that a series of mean comparisons would be conducted. The aim of this part of the analysis was to investigate whether any group differences existed on the main study variables based on a number of different factors, including participants' treatment status, gender, age, relationship status and employment status. As the majority of the sample was white, no mean differences between different ethnic/cultural groups were explored.

### **4.5.1 Group differences based on positive risk / clinical 'caseness'**

In order to examine whether there might be differences on the main variables used in previous analyses based on whether participants are considered a clinical case/at risk or not, a series of independent samples t-tests were carried out with 'caseness' as the independent variable and the main variables as the dependent variables. As the overall psychopathology measure was calculated using BSI-18 scores, this measure was replaced with MHSQ raw scores in the final t-tests. This was to see if there were group differences on the MHSQ.

The results showed that those who were considered to be a positive risk, or a 'case', had significantly higher scores on measures of abuse ( $t(516) = 4.77, p < .001, d = .42$ ), maternal invalidation ( $t(506) = 3.55, p < .001, d = .32$ ), paternal invalidation ( $t(480) = 4.60, p < .001, d = .42$ ), cognitive fusion ( $t(516) = 15.67, p < .001, d = 1.38$ ) and experiential avoidance ( $t(516) = 15.67, p < .001, d = 1.38$ ). Significant group differences were also found on the MHSQ. As expected, individuals classed as positive cases had higher current psychopathology levels ( $t(516) = 14.70, p < .001, d = 1.29$ ) but lower scores of past psychological difficulties ( $t(516) = -6.58, p < .001, d = .58$ ) than those

not identified as positive cases. There were no significant group differences on the attachment anxiety or attachment avoidance measures. Group means can be found in Tables 23 and 24.

Table 23: Group means and standard deviations for main variables by positive risk.

|          |           | Abuse | Maternal<br>Inval. | Paternal<br>Inval. | Attach.<br>Anx. | Attach.<br>Avo. | Cog.<br>Fusion | Exp.<br>Avoid. |
|----------|-----------|-------|--------------------|--------------------|-----------------|-----------------|----------------|----------------|
| A        | <i>N</i>  | 393   | 385                | 366                | 354             | 355             | 393            | 393            |
| positive | <i>M</i>  | .12   | 34.32              | 36.42              | 4.16            | 3.93            | 145.13         | 47.67          |
| risk     | <i>SD</i> | .99   | 13.12              | 13.94              | .48             | .43             | 22.28          | 7.13           |
| Not a    | <i>N</i>  | 125   | 123                | 116                | 116             | 117             | 125            | 125            |
| positive | <i>M</i>  | -.36  | 29.61              | 29.82              | 4.18            | 3.98            | 108.90         | 35.60          |
| risk     | <i>SD</i> | .93   | 11.73              | 11.87              | .41             | .41             | 23.28          | 8.56           |
| Effect   |           |       |                    |                    |                 |                 |                |                |
| Size     | <i>D</i>  | .42** | .32**              | .42**              | --              | --              | 1.38**         | 1.38**         |
| Total    | <i>N</i>  | 518   | 508                | 482                | 470             | 472             | 518            | 518            |
|          | <i>M</i>  | .00   | 33.18              | 34.83              | 4.16            | 3.94            | 136.39         | 44.76          |
|          | <i>SD</i> | 1.00  | 12.95              | 13.75              | .47             | .42             | 27.33          | 9.11           |

\*\*  $p < .001$



Table 24: Group means and standard deviations for the MHSQ by positive risk.

|                     |           | MHSQ<br>Current difficulties | MHSQ Past<br>difficulties |
|---------------------|-----------|------------------------------|---------------------------|
| A positive risk     | <i>N</i>  | 393                          | 393                       |
|                     | <i>M</i>  | 5.66                         | 2.80                      |
|                     | <i>SD</i> | 2.40                         | 2.21                      |
| Not a positive risk | <i>N</i>  | 125                          | 125                       |
|                     | <i>M</i>  | 2.17                         | 4.37                      |
|                     | <i>SD</i> | 2.01                         | 2.62                      |
| Effect<br>Size      | <i>D</i>  | 1.29**                       | .58                       |
| Total               | <i>N</i>  | 518                          | 518                       |
|                     | <i>M</i>  | 4.81                         | 3.18                      |
|                     | <i>SD</i> | 2.75                         | 2.41                      |

\*\*  $p < .001$

#### 4.5.2 Group differences based on treatment status

##### 4.5.2.1 Group differences based on therapy status

In order to examine differences between participants who had received a talking therapy and those who had not, participants were assigned to one of three 'therapy status' groups: 1) those who had never had therapy; 2) those who had had therapy but had not found it helpful; and 3) those who had had therapy and who reported to have found it helpful. A series of ANOVA tests were then carried out, with therapy status as the independent variable and the eight main subscales as the dependent variables. The group means and standard deviations are presented in Table 25.

Table 25: Group means and standard deviations for main variables by therapy status.

|                               |           | Abuse | Mat.<br>Inval. | Pat.<br>Inval. | Attach.<br>Anx. | Attach.<br>Avo. | Cog.<br>Fusion | Exp.<br>Avoid. | Psych-<br>pathol. |
|-------------------------------|-----------|-------|----------------|----------------|-----------------|-----------------|----------------|----------------|-------------------|
| Not had<br>therapy            | <i>N</i>  | 136   | 134            | 130            | 123             | 124             | 136            | 136            | 136               |
|                               | <i>M</i>  | -.27  | 30.60          | 33.11          | 4.17            | 3.92            | 127.27         | 41.79          | -.291             |
|                               | <i>SD</i> | .93   | .93            | 11.41          | .45             | .41             | 30.67          | 10.26          | 1.08              |
| Therapy<br>was<br>helpful     | <i>N</i>  | 259   | 252            | 247            | 236             | 237             | 259            | 259            | 259               |
|                               | <i>M</i>  | .01   | 33.13          | 34.81          | 4.17            | 3.96            | 138.42         | 45.39          | .05               |
|                               | <i>SD</i> | .99   | 13.08          | 13.32          | .48             | .45             | 26.14          | 8.85           | .94               |
| Therapy<br>was not<br>helpful | <i>N</i>  | 123   | 122            | 105            | 111             | 111             | 123            | 123            | 123               |
|                               | <i>M</i>  | .28   | 36.12          | 37.01          | 4.14            | 3.96            | 142.18         | 46.72          | .22               |
|                               | <i>SD</i> | 1.03  | 13.71          | 14.70          | .46             | .40             | 23.34          | 7.39           | .96               |
| Total                         | <i>N</i>  | 518   | 508            | 482            | 470             | 472             | 518            | 518            | 518               |
|                               | <i>M</i>  | .00   | 33.18          | 34.83          | 4.16            | 3.94            | 136.39         | 44.76          | .00               |
|                               | <i>SD</i> | 1.00  | 12.95          | 13.75          | .47             | .42             | 27.33          | 9.11           | 1.00              |

A one-way ANOVA with therapy status as the independent variable and the abuse scale as the dependent variable revealed significant mean differences between the three groups ( $F(2, 515) = 9.95, p < .001, \eta^2 = .04$ ). Bonferroni adjusted mean comparisons revealed that those who had had therapy but had not found it helpful had significantly higher scores on the abuse scale compared to those who had had therapy and found it helpful ( $d = .27, p < .05$ ) and those who had not had therapy ( $d = .55, p < .001$ ). Participants who had had therapy and found it helpful also had significantly greater abuse scores than those who had not had therapy ( $d = .28, p < .05$ ).

The ANOVA comparing the three therapy status groups on the maternal invalidation scale also revealed significant mean differences ( $F(2, 505) = 5.93, p < .01, \eta^2 = .02$ ). Bonferroni adjusted mean comparisons indicated that those who had had therapy and had not found it helpful had significantly greater scores than those who had not had therapy ( $d = .43, p < .01$ ).

A one-way ANOVA with therapy status as the independent variable and the cognitive fusion scale as the dependent variable revealed significant mean differences between the three groups ( $F(2, 515) = 11.49, p < .001, \eta^2 = .04$ ). Bonferroni adjusted mean comparisons showed that those who had had therapy and not found it helpful had significantly higher cognitive fusion scores than those who had not had therapy ( $d = .56, p < .001$ ). Those who had had therapy and found it helpful also had significantly higher cognitive fusion scores compared to those who had not had therapy ( $d = .42, p < .001$ ).

When experiential avoidance was entered as the dependent variable, the one-way ANOVA revealed significant mean differences between therapy groups ( $F(2, 515) = 11.13, p < .001, \eta^2 = .04$ ). Bonferroni adjusted mean comparisons indicated that those who had had therapy and not found it helpful had significantly higher experiential avoidance scores than those who had not had therapy ( $d = .18, p < .001$ ) and those who had had therapy and found it helpful had significantly higher experiential avoidance scores compared to those who had not had therapy ( $d = .13, p < .001$ ).

A one-way ANOVA with psychopathology as the dependant variable showed significant mean differences between the three groups ( $F(2, 515) = 9.25, p < .001, \eta^2 = .04$ ). Similar to other measures, Bonferroni adjusted mean comparisons revealed significantly higher psychopathology scores for those who had had therapy and not found it helpful compared to those who had not had therapy ( $d = .52, p < .001$ ). Likewise, those who had had therapy and found it helpful also had significantly greater psychopathology scores compared to those who had not had therapy ( $d = .35, p < .01$ ).

There were no reliable differences between either of the attachment scales (anxiety and avoidance) or on the paternal invalidation scale.

#### 4.5.2.2 Group differences based on medication status

In order to explore whether scores on the main eight psychological variables differed depending on whether participants had ever taken medication for mental health problems, participants were assigned to one of three groups: 1) those who had never taken medication; 2) those who had taken medication in the past; and 3) those who were currently taking medication for mental health difficulties. A series of ANOVA tests were then carried out with medication status as the independent variable and the main eight study variables were entered as dependent variables. Group means and standard deviations are presented in Table 26.

Table 26: Group means and standard deviations for main variables by medication status.

|                            |           | Abuse | Mat.   | Pat.   | Attach. | Attach. | Cog.   | Exp.   | Psych-  |
|----------------------------|-----------|-------|--------|--------|---------|---------|--------|--------|---------|
|                            |           |       | Inval. | Inval. | Anx.    | Avo.    | Fusion | Avoid. | pathol. |
| Never<br>had<br>meds.      | <i>N</i>  | 165   | 164    | 156    | 151     | 151     | 165    | 165    | 165     |
|                            | <i>M</i>  | -.33  | 30.65  | 31.96  | 4.14    | 3.97    | 126.65 | 41.25  | -.37    |
|                            | <i>SD</i> | .89   | 11.05  | 13.54  | .42     | .43     | 30.38  | 9.91   | .99     |
| Previously<br>had<br>meds. | <i>N</i>  | 130   | 126    | 117    | 117     | 119     | 130    | 130    | 130     |
|                            | <i>M</i>  | .22   | 35.34  | 35.96  | 4.06    | 3.91    | 136.62 | 45.36  | .13     |
|                            | <i>SD</i> | 1.00  | 13.72  | 14.27  | .46     | .43     | 27.27  | 9.01   | 1.02    |
| Currently<br>on meds.      | <i>N</i>  | 219   | 215    | 205    | 199     | 199     | 219    | 219    | 219     |
|                            | <i>M</i>  | .11   | 33.96  | 36.24  | 4.26    | 3.94    | 143.43 | 46.96  | .19     |
|                            | <i>SD</i> | 1.03  | 13.57  | 13.32  | .48     | .42     | 22.31  | 7.60   | .91     |
| Total                      | <i>N</i>  | 514   | 505    | 478    | 467     | 469     | 514    | 514    | 514     |
|                            | <i>M</i>  | -.00  | 33.23  | 34.77  | 4.17    | 3.94    | 136.32 | 44.73  | -.01    |
|                            | <i>SD</i> | 1.00  | 12.96  | 13.74  | .46     | .42     | 27.30  | 9.10   | 1.10    |

A one-way ANOVA revealed significant group differences on the abuse measure ( $F(2, 511) = 14.28, p < .001, \eta^2 = .05$ ). Bonferroni adjusted mean comparisons revealed that those who had never taken medication had

significantly lower abuse scores than those who had previously taken medication ( $d = .56, p < .001$ ) and those who were currently taking medication ( $d = .46, p < .001$ ).

When the maternal invalidation scale was entered as the dependent variable the ANOVA also revealed significant group differences ( $F(2, 502) = 5.35, p < .01, \eta^2 = .02$ ). Again, Bonferroni adjusted mean comparisons showed that those who had never taken medication had lower scores on the maternal invalidation scale than both those who had previously taken medication ( $d = .37, p < .01$ ) and were currently taking medication ( $d = .26, p < .05$ ).

A one-way ANOVA with paternal invalidation as the dependent variable revealed significant group differences based on medication status ( $F(2, 475) = 4.97, p < .01, \eta^2 = .02$ ). Bonferroni adjusted mean comparisons indicated that participants who were currently on medication had higher paternal invalidation scores compared to those who had never taken medication ( $d = .31, p < .05$ ).

A one-way ANOVA with attachment anxiety entered as the dependent variable also revealed significant group differences based on medication status ( $F(2, 464) = 7.51, p < .001, \eta^2 = .03$ ). Bonferroni adjusted mean comparisons showed that those currently on medication had higher attachment anxiety scores than those previously on medication ( $d = .44, p < .01$ ).

A one-way ANOVA also revealed significant group differences on the cognitive fusion scale ( $F(2, 511) = 19.02, p < .001, \eta^2 = .07$ ). Bonferroni adjusted mean comparisons showed that those who had never taken medication had significantly lower cognitive fusion than those who were previously on medication ( $d = .38, p < .01$ ) and those who were currently on medication ( $d = .64, p < .001$ ).

An ANOVA with the experiential avoidance scale as the dependent variable also indicated significant group differences ( $F(2, 511) = 20.37, p < .001, \eta^2 = .07$ ). Similar to previous analyses, Bonferroni adjusted mean comparisons confirmed that those who had never taken medication for mental health problems had significantly lower experiential avoidance scores than those who had previously taken medication ( $d = .47, p < .001$ ) and those who were currently taking medication ( $d = .65, p < .001$ ).

The final ANOVA that revealed significant 'medication status' group differences was that conducted with psychopathology as the dependent variable ( $F(2, 511) = 17.67, p < .001, \eta^2 = .07$ ). Bonferroni adjusted mean comparisons revealed that those who had never taken medication had lower psychopathology scores than those who had previously been on medication ( $d = .52, p < .001$ ) and those who were currently on medication ( $d = .58, p < .001$ ).

No significant group differences were found on the attachment avoidance scale.

#### **4.5.3 Group differences based on sex**

In order to investigate whether there might be group differences on the main eight scales as a result of a person's sex, a series of independent samples t-tests were computed with sex as the independent variable and each of the main eight scales as the dependent variables. There were no significant differences between males and females on any of the main variables (all  $ps > .05$ ). Group means and standard deviations are presented in Table 27.

Table 27: Group means and standard deviations for main variables by sex.

|        |           | Abuse | Mat.   | Pat.   | Attach. | Attach. | Cog.   | Exp.   | Psych-  |
|--------|-----------|-------|--------|--------|---------|---------|--------|--------|---------|
|        |           |       | Inval. | Inval. | Anx.    | Avo.    | Fusion | Avoid. | pathol. |
| Male   | <i>N</i>  | 89    | 88     | 84     | 77      | 78      | 89     | 89     | 89      |
|        | <i>M</i>  | -.05  | 32.86  | 35.58  | 4.14    | 3.94    | 135.56 | 44.04  | -.06    |
|        | <i>SD</i> | .98   | 11.70  | 12.89  | .49     | .44     | 26.77  | 8.70   | 1.11    |
| Female | <i>N</i>  | 429   | 420    | 398    | 393     | 394     | 429    | 429    | 429     |
|        | <i>M</i>  | .01   | 33.25  | 34.67  | 4.17    | 3.94    | 136.56 | 44.91  | .01     |
|        | <i>SD</i> | 1.01  | 13.20  | 13.94  | .46     | .42     | 27.48  | 9.20   | .97     |
| Total  | <i>N</i>  | 518   | 508    | 482    | 470     | 472     | 518    | 518    | 518     |
|        | <i>M</i>  | .00   | 33.18  | 34.83  | 4.16    | 3.94    | 136.39 | 44.76  | .00     |
|        | <i>SD</i> | 1.00  | 12.95  | 13.75  | .47     | .42     | 27.33  | 9.11   | 1.00    |

#### 4.5.4 Group differences based on age

A series of independent sample t-tests with age group as the independent variable and each of the main eight scales as the dependent variables were carried out to investigate whether there might be age differences on the eight main psychological scales.

The results indicated that participants aged 43 to 67 years of age scored significantly more highly on measures of abuse ( $t(516) = -3.31, p < .01, d = .29$ ), maternal invalidation ( $t(506) = -2.94, p < .01, d = .26$ ) and paternal invalidation ( $t(480) = -2.23, p < .05, d = .20$ ). Participants in the younger age range (18 to 42 years) scored significantly more highly on measures of cognitive fusion ( $t(516) = 2.24, p < .05, d = .20$ ) and experiential avoidance ( $t(516) = 2.65, p < .01, d = .23$ ). There were no significant age differences on measures of attachment anxiety, attachment avoidance or psychopathology. Group means can be found in Table 28.

Table 28: Group means and standard deviations for main variables by age.

|         |           | Abuse | Mat.   | Pat.   | Attach. | Attach. | Cog.   | Exp.   | Psych-  |
|---------|-----------|-------|--------|--------|---------|---------|--------|--------|---------|
|         |           |       | Inval. | Inval. | Anx.    | Avo.    | Fusion | Avoid. | pathol. |
| 18 – 42 | <i>N</i>  | 440   | 434    | 411    | 400     | 400     | 440    | 440    | 440     |
| years   | <i>M</i>  | -.06  | 32.49  | 34.25  | 4.16    | 3.93    | 137.51 | 45.20  | .02     |
|         | <i>SD</i> | .97   | 12.55  | 13.60  | .46     | .42     | 27.16  | 9.03   | .99     |
| 43 – 67 | <i>N</i>  | 78    | 74     | 71     | 70      | 72      | 78     | 78     | 78      |
| years   | <i>M</i>  | .34   | 37.24  | 38.18  | 4.19    | 4.00    | 130.04 | 42.26  | -.11    |
|         | <i>SD</i> | 1.12  | 14.52  | 14.25  | .52     | .46     | 27.62  | 9.20   | 1.05    |
| Effect  |           |       |        |        |         |         |        |        |         |
| size    | <i>d</i>  | .29** | .26**  | .20*   | --      | --      | .20*   | .23**  | --      |
| Total   | <i>N</i>  | 518   | 508    | 482    | 470     | 472     | 518    | 518    | 518     |
|         | <i>M</i>  | .00   | 33.18  | 34.83  | 4.16    | 3.94    | 136.39 | 44.76  | .00     |
|         | <i>SD</i> | 1.00  | 12.95  | 13.75  | .47     | .42     | 27.33  | 9.11   | 1.00    |

To explore relationships between age and the main psychological measures further, Pearson's correlations between age (as a continuous variable) and each of the eight main scales were calculated. As can be seen in Table 29, these results were concordant with the group comparison data, with reliable but weak correlations being observed between age and abuse, maternal invalidation, paternal invalidation, cognitive fusion, experiential avoidance and psychopathology.



Table 29: Pearson's correlation coefficients between age and the main eight study variables.

| Scale                                | Age    |
|--------------------------------------|--------|
| Abuse ( $N = 518$ )                  | .16**  |
| Maternal Invalidation ( $N = 508$ )  | .16**  |
| Paternal Invalidation ( $N = 482$ )  | .12*   |
| Attachment Anxiety ( $N = 470$ )     | .02    |
| Attachment Avoidance ( $N = 472$ )   | -.02   |
| Cognitive Fusion ( $N = 518$ )       | -.18** |
| Experiential Avoidance ( $N = 518$ ) | -.20** |
| Psychopathology ( $N = 518$ )        | -.11*  |

\*  $p < .05$  \*\* $p < .01$

#### 4.5.5 Group differences based on current relationship status

In order to examine group differences based on relationship status, participants were assigned to one of three groups, depending on their self-reported relationship situation: 1) single (single and widowed); 2) in a stable relationship (those married or in a long-term relationship); and 3) those in a new relationship (those in a new relationship or cohabiting). A series of ANOVA tests with relationship status as the independent variable and the main eight study scales as the dependent variables were then carried out. Group means are in Table 30.

Table 30: Group means and standard deviations for main variables by relationship status.

|                        |           | Abuse | Mat.<br>Inval. | Pat.<br>Inval. | Attach.<br>Anx. | Attach.<br>Avo. | Cog.<br>Fusion | Exp.<br>Avoid. | Psych-<br>pathol. |
|------------------------|-----------|-------|----------------|----------------|-----------------|-----------------|----------------|----------------|-------------------|
| Single                 | <i>N</i>  | 264   | 257            | 249            | 218             | 219             | 264            | 264            | 264               |
|                        | <i>M</i>  | .09   | 33.60          | 36.49          | 4.04            | 3.99            | 140.49         | 45.93          | .13               |
|                        | <i>SD</i> | 1.00  | 12.65          | 14.21          | .46             | .44             | 25.69          | 8.28           | .94               |
| Stable<br>rel'<br>ship | <i>N</i>  | 189   | 187            | 173            | 187             | 189             | 189            | 189            | 189               |
|                        | <i>M</i>  | -.07  | 33.03          | 33.88          | 4.27            | 3.90            | 130.94         | 43.41          | -.14              |
|                        | <i>SD</i> | 1.01  | 13.20          | 13.20          | .47             | .41             | 28.04          | 9.83           | 1.06              |
| New<br>rel'<br>ship    | <i>N</i>  | 63    | 62             | 58             | 63              | 62              | 63             | 63             | 63                |
|                        | <i>M</i>  | -.18  | 31.63          | 30.40          | 4.24            | 3.89            | 136.02         | 43.95          | -.14              |
|                        | <i>SD</i> | .97   | 13.59          | 12.49          | .41             | .40             | 29.62          | 9.78           | 1.02              |
| Total                  | <i>N</i>  | 516   | 506            | 480            | 468             | 470             | 516            | 516            | 516               |
|                        | <i>M</i>  | .00   | 33.15          | 34.81          | 4.16            | 3.94            | 136.45         | 44.77          | .00               |
|                        | <i>SD</i> | 1.00  | 12.96          | 13.78          | .47             | .42             | 27.37          | 9.12           | 1.00              |

A one-way ANOVA revealed significant group differences on the paternal invalidation scale ( $F(2, 477) = 5.30, p < .01, \eta^2 = .02$ ). Bonferroni adjusted mean comparisons indicated that participants who were single had significantly greater scores on the paternal invalidation scale compared to those who were in a new relationship ( $d = .45, p < .01$ ).

A one-way ANOVA also revealed significant group differences on the attachment anxiety scale ( $F(2, 465) = 13.72, p < .001, \eta^2 = .06$ ). Bonferroni adjusted mean comparisons showed that those who were single had significantly lower attachment anxiety scores compared to those in a new relationship ( $d = .44, p < .01$ ) and those in a stable relationship ( $d = .50, p < .001$ ).

When cognitive fusion was entered as a dependent variable, a one-way ANOVA indicated significant group differences based on relationship status ( $F$

(2, 513) = 6.87,  $p < .01$ ,  $\eta^2 = .03$ ). Bonferroni adjusted mean comparisons revealed that those who were single had significantly higher cognitive fusion scores than those in a stable relationship ( $d = .35$ ,  $p < .01$ ).

A one-way ANOVA with experiential avoidance as the dependent variable also showed significant relationship status group differences ( $F(2, 513) = 4.55$ ,  $p < .05$ ,  $\eta^2 = .02$ ). Bonferroni adjusted mean comparisons revealed that those who were single had significantly greater experiential avoidance scores than those who were in a stable relationship ( $d = .28$ ,  $p < .05$ ).

A one-way ANOVA with psychopathology as the dependent variable revealed significant group differences based on relationship status ( $F(2, 513) = 4.85$ ,  $p < .01$ ,  $\eta^2 = .02$ ). Bonferroni adjusted mean comparisons showed that those who were single had significantly greater psychopathology scores than those who were in a stable relationship ( $d = .27$ ,  $p < .05$ ).

Mean comparisons on the abuse ( $p = .08$ ) and attachment avoidance ( $p = .07$ ) scales just failed to reach statistical significance. No reliable group differences were found on the maternal invalidation scale.

#### **4.5.6 Group differences based on current employment status**

In order to investigate group differences on the main psychological scales based on employment status, participants were assigned to one of three groups: 1) employed; 2) unemployed; and 3) student. A series of ANOVA tests were then undertaken. Group means can be found in Table 31.

Table 31: Group means and standard deviations for main variables by employment status.

|                 |           | Abuse | Mat.<br>Inval. | Pat.<br>Inval. | Attach.<br>Anx. | Attach.<br>Avo. | Cog.<br>Fusion | Exp.<br>Avoid. | Psych-<br>pathol. |
|-----------------|-----------|-------|----------------|----------------|-----------------|-----------------|----------------|----------------|-------------------|
| Employed        | <i>N</i>  | 195   | 189            | 181            | 173             | 175             | 195            | 195            | 195               |
|                 | <i>M</i>  | -.22  | 31.86          | 32.10          | 4.19            | 3.91            | 126.88         | 41.90          | -.36              |
|                 | <i>SD</i> | .91   | 12.48          | 13.14          | .43             | .41             | 29.53          | 10.32          | 1.06              |
| Un-<br>employed | <i>N</i>  | 181   | 178            | 167            | 169             | 169             | 181            | 181            | 181               |
|                 | <i>M</i>  | .31   | 35.21          | 37.31          | 4.20            | 3.94            | 142.01         | 46.33          | .33               |
|                 | <i>SD</i> | 1.08  | 14.20          | 13.74          | .52             | .44             | 24.74          | 7.98           | .91               |
| Student         | <i>N</i>  | 142   | 141            | 134            | 128             | 128             | 142            | 142            | 142               |
|                 | <i>M</i>  | -.09  | 32.39          | 35.44          | 4.08            | 3.97            | 142.27         | 46.69          | .08               |
|                 | <i>SD</i> | .92   | 11.60          | 14.01          | .43             | .42             | 23.62          | 7.62           | .86               |
| Total           | <i>N</i>  | 518   | 508            | 482            | 470             | 472             | 518            | 518            | 518               |
|                 | <i>M</i>  | .00   | 33.18          | 34.83          | 4.16            | 3.94            | 136.39         | 44.76          | .00               |
|                 | <i>SD</i> | 1.00  | 12.95          | 13.75          | .47             | .45             | 27.33          | 9.11           | 1.00              |

A one-way ANOVA with employment status as the independent variable and the abuse scale as the dependent scale revealed significant group differences ( $F(2, 515) = 14.42, p < .001, \eta^2 = .05$ ). Bonferroni adjusted mean comparisons indicated that those who were employed had significantly lower scores on the abuse scale compared to those who were unemployed ( $d = .53, p < .001$ ) or a student ( $d = .40, p < .05$ ).

A one-way ANOVA with maternal invalidation as the dependent variable also revealed significant group differences based on employment status ( $F(2, 505) = 3.48, p < .05, \eta^2 = .01$ ). Bonferroni adjusted mean comparisons showed that those who were employed had significantly lower maternal invalidation scores than those who were unemployed ( $d = .26, p < .05$ ).

A one-way ANOVA with paternal invalidation as the dependent variable revealed significant group differences based on employment status ( $F(2, 505)$

= 6.55,  $p < .01$ ,  $\eta^2 = .03$ ). Bonferroni adjusted mean comparisons showed that those who were employed had significantly lower scores on the paternal invalidation scale compared to those who were unemployed ( $d = .38$ ,  $p < .01$ ).

A one-way ANOVA with cognitive fusion as the dependent variable revealed significant group differences between the different employment groups ( $F(2, 515) = 20.33$ ,  $p < .001$ ,  $\eta^2 = .07$ ). Bonferroni adjusted mean comparisons indicated that those who were employed had significantly lower cognitive fusion scores compared to those who were unemployed ( $d = .57$ ,  $p < .001$ ) and those who were a student ( $d = .58$ ,  $p < .001$ ).

Significant group differences on the measure of experiential avoidance were also highlighted by a one-way ANOVA ( $F(2, 515) = 16.43$ ,  $p < .001$ ,  $\eta^2 = .06$ ). Bonferroni adjusted mean comparisons, again, indicated that those who were employed had significantly lower experiential avoidance scores compared to those who were unemployed ( $d = .50$ ,  $p < .001$ ) or a student ( $d = .54$ ,  $p < .001$ ).

A one-way ANOVA with psychopathology as the dependent variable also revealed significant employment-based group differences ( $F(2, 515) = 24.89$ ,  $p < .001$ ,  $\eta^2 = .09$ ). Bonferroni adjusted mean comparisons indicated that those who were employed had significantly lower psychopathology scores than those who were unemployed ( $d = .72$ ,  $p < .001$ ) and those who were a student ( $d = .46$ ,  $p < .001$ ). Mean differences between those who were unemployed and those who were a student just failed to reach statistical significance ( $p = .06$ ).

Mean comparisons on the attachment anxiety scale just failed to reach statistical significance ( $p = .07$ ). There were no significant differences on the attachment avoidance scale.

## 4.6 Path analyses of current psychopathology

The previous multiple regression analyses established a number of important predictive relationships between the main variables. In order to take this analysis further and explore how these relationships impact overall on current psychopathology levels, a path analysis was carried out (Keith, 2006; Kline, 2005). A fundamental premise of classic path analysis is that the relationships to be investigated are unidirectional, representing the causal flow of an interconnected system of variables. Hence some variables within such a system will be antecedents, others will function as mediators, and some will represent the final consequences of cumulative causal influences operating within that system.

The first step of the present path analysis, therefore, involved the specification of a model M1, which was based on theoretical considerations as well as the empirical findings presented above. This is presented as a path diagram in Figure 10. Model M1 suggests that the experience of abuse during childhood, as well as maternal invalidation, directly influence current levels of psychopathology. Furthermore, maternal invalidation is also expected to impact on cognitive fusion and experiential avoidance which, in turn, affect psychopathology. Thus both cognitive fusion and experiential avoidance are the two important mediators in the model, whereas abuse during childhood, as well as maternal and paternal invalidation, represent three antecedent risk factors of later psychopathology. These specified relationships are also supported by previous research findings (Chawla & Ostafin, 2007; Maniglio, 2009; Palm & Follette, 2011; Spertus et al., 2003; Young, Lennie, & Minnis, in press). In comparison to maternal invalidation, the importance of paternal invalidation as a risk factor for psychopathology is expected to be somewhat lower and only indirect in nature via its impact on the mediators, cognitive fusion and experiential avoidance. Finally, the direction of causality between cognitive fusion and experiential avoidance had to be considered since the

previous analyses had revealed a strong correlation ( $r = .83$ ) between these two variables, clearly indicating a direct relationship between them. Given the suggestion in the literature that the process of experiential avoidance is a direct result of cognitive fusion (Hayes et al., 2006; Hayes et al., 1999), it seemed plausible to award causal priority to cognitive fusion over experiential avoidance, although it could also be argued that they might influence each other mutually, in which case their relationship would have to be presented as reciprocal. In the path model shown in Figure 10, cognitive fusion therefore has a direct effect on psychopathology as well as an indirect effect generated through the mediator experiential avoidance.

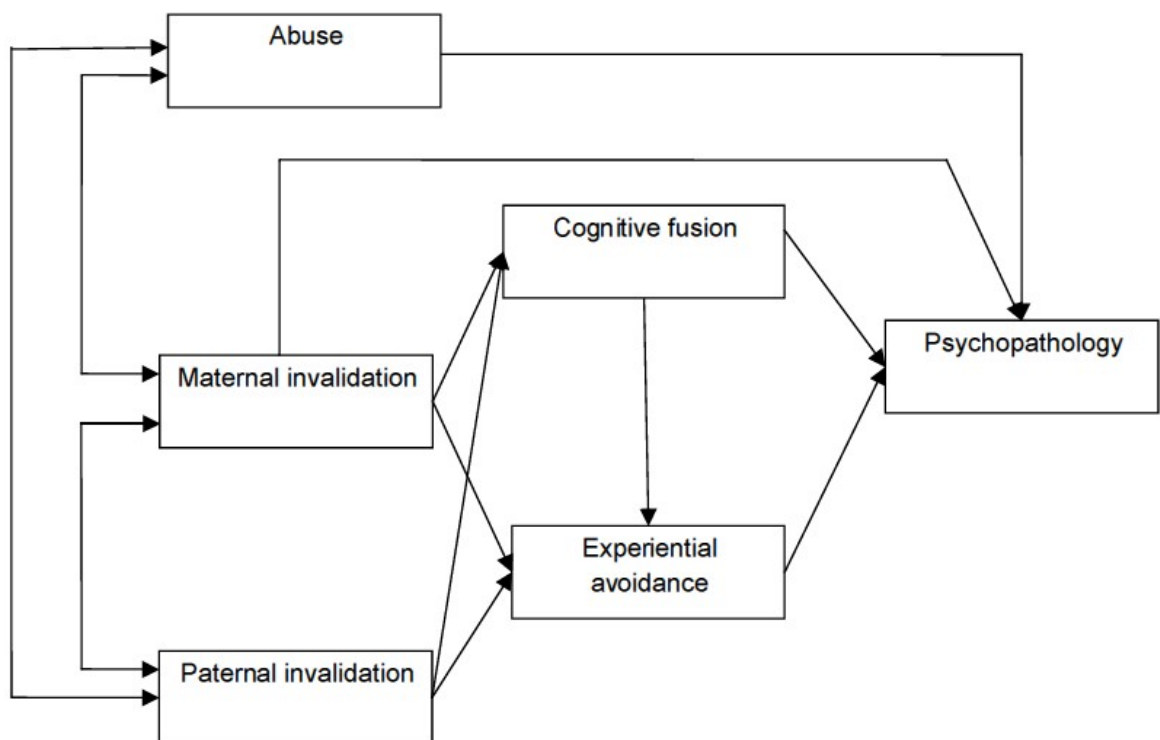


Figure 10: Path diagram of the initial model M1.

The statistical programme LISREL 8.80 was used to carry out the path analysis and test whether the specified relationships between the main variables as presented in model M1 were empirically supported. This involved estimating the path coefficients and testing them for significance, evaluating

the model fit and, finally, conducting an effect analysis to quantify and compare the direct, indirect and total effects of the determinants of psychopathology (Keith, 2006; Kline, 2005). LISREL's imputation algorithm for missing values was used to avoid unnecessary data loss resulting in a large sample size (N = 514). The ML estimation procedure was selected as the distributions of the variables did not significantly deviate from multivariate normality. Pearson correlations were used as the data input matrix and are shown in Table 32.

Table 32: Correlation Matrix of the main variables for the path analysis (N = 514).

|                  | Cognitive Fusion | Exp. Avoidance | Psycho-pathology | Abuse | Maternal Inval. |
|------------------|------------------|----------------|------------------|-------|-----------------|
| Cognitive Fusion | 1.00             | --             | --               | --    | --              |
| Exp. Avoid.      | .83              | 1.00           | --               | --    | --              |
| Psycho-pathology | .67              | .60            | 1.00             | --    | --              |
| Abuse            | .23              | .22            | .35              | 1.00  | --              |
| Maternal Inval.  | .22              | .21            | .24              | .69   | 1.00            |
| Paternal Inval.  | .24              | .21            | .30              | .61   | .45             |

The goodness of fit test for model M1 indicated that it should be accepted,  $\chi^2(3 \text{ df}) = 2.35$ ,  $p = .50$ , with all fit indices suggesting that it was excellent in reproducing the empirical correlation matrix, RMSEA = 0.01 (90%-CI, LL= 0.001, UL = 0.068), AGFI = .99, NFI = 1.00; the highest standardised residual was only 1.11. However, inspection of the estimates for the path coefficients revealed that both paths from maternal and paternal invalidation to experiential avoidance were statistically unreliable ( $t$ -values < 1.00) and could therefore be removed from the model. Furthermore, the direct effect of maternal invalidation on psychopathology was, surprisingly, negative, but



quite small (-.09) and statistically only borderline. Considering the high statistical power behind this analysis in detecting even very small effects, it was decided to remove this path from the model also, so as to avoid empirical over-fitting and to simplify the interpretation of its paths and the effects analysis to follow. These three paths were therefore set to zero, leading to a modified model M2.

The goodness of fit test for model M2 still suggested a very well fitting model,  $\chi^2(6 \text{ df}) = 7.52$ ,  $p = .28$ ; all fit indices were well above their respective benchmarks for a good fitting model, RMSEA = 0.022 (90%-CI, LL= 0.001, UL = 0.068), AGFI = .98, NFI = 1.00; the highest standardised residual was only -1.80. Model M2 was therefore accepted as the final model and its path coefficients, as well as the amount of explained variance for its endogenous variables, are displayed in Figure 11.

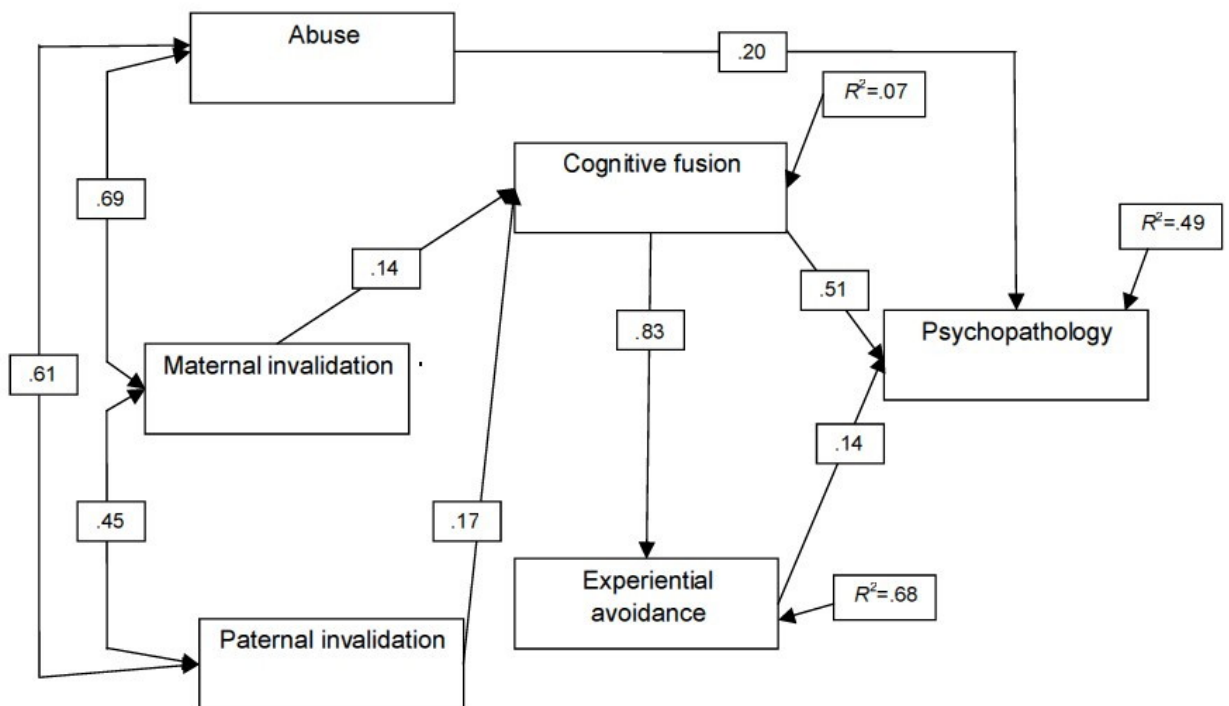


Figure 11: Final path model M2 with standardised coefficients.

Several comments are worth making. The model explains 49% of the variance in currently levels of psychopathology, which is impressive even for a sample of people presently suffering from some mental health problems. The amount of explained variance for experiential avoidance is even higher (68%), but solely down to the influence of cognitive fusion as its only determinant variable; none of the past risk factors impinge directly on current experiential avoidance, only indirectly via cognitive fusion as a mediator. By contrast, cognitive fusion is determined by past experience of maternal and paternal invalidation, but only to a modest extent (i.e. 7% explained variance). These results therefore provide further justification for specifying the direction of causality between the two mediators as cognitive fusion affecting experiential avoidance, since the former is partly itself a result of past experiences but not the latter.

Table 33 shows the results of an effects analysis for each variable in the model exerting an influence on another variable. The impact of a variable is separated into a direct and/or indirect effect generated by a mediator(s) and combined into a total effect. Regarding present psychopathology, cognitive fusion is clearly the most important impact factor with a strong direct and modest indirect effect via experiential avoidance. This suggests that any therapeutic approach would have to consider cognitive fusion as a main target. However, and importantly, past experiences of abuse also directly affect psychopathology suggesting that these experiences should be regarded as traumatic as they appear to not only trigger off but also maintain mental health problems.

Table 33: Results of the effects analysis for model M2 displaying standardized effect parameters.

| Path   | Direct effect | Indirect effect | Total effect |
|--|---------------|-----------------|--------------|
| Abuse ⇒ Psychopathology                        | .20           |                 | .20          |
| Maternal Invalidation ⇒ Psychopathology        |               | .09             | .09          |
| Paternal Invalidation ⇒ Psychopathology        |               | .11             | .11          |
| Cognitive Fusion ⇒ Psychopathology             | .51           | .11             | .62          |
| Experiential Avoidance ⇒ Psychopathology       | .14           |                 | .14          |
| Maternal Invalidation ⇒ Cognitive Fusion       | .14           |                 | .14          |
| Paternal Invalidation ⇒ Cognitive Fusion       | .17           |                 | .17          |
| Maternal Invalidation ⇒ Experiential Avoidance |               | .12             | .12          |
| Paternal Invalidation ⇒ Experiential Avoidance |               | .14             | .14          |
| Cognitive Fusion ⇒ Experiential Avoidance      | .83           |                 | .83          |

Note: all effect parameters are significant ( $t$ -values > 2.45)

The direct effects of maternal and paternal invalidation on cognitive fusion are both modest, but, considering the time gap between those past experiences and the present self-assessed status of cognitive fusion, are very interesting. Furthermore, due to the strong link between cognitive fusion and experiential avoidance the indirect effects of maternal and paternal invalidation on experiential avoidance are comparable to their direct effects on cognitive fusion. Again this testifies to the potential long-term adverse repercussions when the attachment relationships between parent and children are strained.

## **5 Discussion**

### **5.1 Overview**

The main aim of this study was to examine whether childhood experiences of abuse and emotional invalidation were long term risk factors for the development of insecure attachment, psychological inflexibility (cognitive fusion and experiential avoidance) and various mental health problems. Furthermore, current attachment anxiety/avoidance, cognitive fusion and experiential avoidance were not only expected to be connected with each other, but also to be risk or maintenance factors themselves with respect to current experiences of psychopathology. The study therefore attempted to partly disentangle these complex associations by focusing on the role of psychological inflexibility and insecure adult attachment as both potential mediators of past emotional neglect, abuse or trauma and also drivers of current experiences of psychopathology.

A series of multiple regression analyses and, finally, a path analysis was carried out to investigate these relationships. Additional analyses were also performed to explore the sample characteristics (e.g. demographics); the convergent validity between the psychopathology scales and the abuse subscales; and any group differences that existed on the main study variables. This discussion provides an overview of the main findings from the multiple regression and path analyses in relation to hypotheses, previous research and theory, before commenting on the principal component analyses and group comparison results. Consideration is then given to the external validity and clinical implications of the study, along with the strengths and limitations, conclusions and suggestions for future research.

## 5.2 Discussion of the main findings

### 5.2.1 Discussion of the multiple regression analyses

*A series of multiple regression analyses were conducted in order to begin exploring predictive relationships between the main study variables and to identify a final list of variables to be included in a path analysis. The regression models examined predictors of current psychopathology, predictors of current attachment anxiety and avoidance, and predictors of current levels of psychological inflexibility (cognitive fusion and experiential avoidance). Each of these will be considered in turn.*

#### 5.2.1.1 *Predicting current psychopathology*

It was hypothesised that each of the main study variables (abuse, emotional invalidation, attachment anxiety and avoidance, cognitive fusion and experiential avoidance) would make a significant contribution to the prediction of current levels of psychopathology, even when controlled for the other predictors. However, the simple correlations revealed that neither attachment scale (i.e. anxiety and avoidance) was related with psychopathology. This was surprising, and not in line with the relevant hypotheses, which were based on a number of previous studies (Dozier et al., 1999). There are a number of potential reasons why this may be so, and these are outlined further in the next section (section 5.2.1.2).

The findings from the multiple regression analysis showed that abuse, maternal invalidation, cognitive fusion and experiential avoidance, as expected, all made significant and unique contributions to a regression model that explained 50% of the variance on the current psychopathology index. Interestingly, cognitive fusion was found to be a far more important predictor ( $\beta = .51$ ) of psychopathology than experiential avoidance ( $\beta = .14$ ); even childhood experiences of abuse, despite the distance in time, had a larger

impact ( $\beta = .20$ ). The impact of maternal invalidation was negligible, and, surprisingly, in an unexpected direction. Moreover, the weak association between paternal emotional invalidation and psychopathology identified by simple correlation was diminished to the point of insignificance when controlled for the other predictors in the multiple regression analysis. These results appear to suggest that emotional invalidation does not have a substantial impact on mental health or that their impact is mediated by other factors or not long lasting.

#### 5.2.1.2 *Predicting current attachment anxiety and avoidance*

It was expected that reports of abuse and emotional invalidation in childhood would significantly predict adult levels of attachment anxiety and avoidance, but no evidence was found in support of this hypothesis. All correlations over time between these variables were minor (all  $r < .10$ ) and thus did not warrant further regression analyses. If taken at face value, these results suggest that early experiences of abuse and emotional invalidation do not impact on current attachment-related thoughts, feelings and behaviours. This appears to be at odds with the existing literature, which has identified these early experiences as antecedent risk factors for the development of insecure attachment in romantic relationships (Riggs, 2010). However, there are methodological considerations that should be taken into account when interpreting this finding. The attachment measure used in this study was one that was formed in the more social and personality line of adult attachment research. It therefore examined attachment in romantic relationships. Although there is evidence in the literature to suggest that attachment styles in romantic relationships reflect those of other relationships (e.g. parental relationship), in support of the idea of a global attachment style, there is also research that challenges this view. Some studies have shown that adults may have multiple ways of relating to others and therefore multiple attachment styles (Shorey & Snyder, 2006). It may be that a retrospective attachment measure, perhaps

one tapping into attachment processes in parental relationships, may have illuminated associations between abuse/emotional invalidation and attachment-related anxiety and avoidance.

A second possible explanation for the lack of relationship observed between abuse, emotional invalidation and attachment relates to the high number of participants in the sample who were not in a relationship. Just over half of the sample ( $N = 264$ ; 51%) stated that they were currently single, and, therefore, may have completed this questionnaire rather hypothetically, possibly misjudging their actual feelings and behaviours in a partnership. However, when the analysis was repeated involving only those currently in a relationship, the results were no different (see Appendix O for details), suggesting that this was not a likely explanation. This is discussed further in section 5.3.3.4.

### *5.2.1.3 Predicting current psychological inflexibility*

It was hypothesised that childhood experiences of abuse and emotional invalidation would predict current levels of psychological inflexibility, but all correlations over time with cognitive fusion and experiential avoidance were weak ( $r < .25$ ). The results of the regression analysis showed that whilst maternal and paternal emotional invalidation were significant predictors of both cognitive fusion and experiential avoidance, childhood abuse was not. The contribution of the two invalidation scales to the two measures of psychological inflexibility was small, explaining just 6% of the variance. This may not be too surprising, given that the experiences of invalidation are historical experiences and that participants were asked to recall their memories of these subtle interactions with parents from many years ago. However, the relatively modest contribution to current inflexibility implied that there may be other factors not accounted for in this study that also contributed to the variance on these two scales.

Abuse did not come out as a significant predictor of current levels of psychological inflexibility in the multiple regression once controlled for emotional invalidation. This was surprising given that previous studies have reported reliable relationships between childhood abuse and experiential avoidance. The size of the simple correlation obtained in this study involving abuse and experiential avoidance (the AAQ) was relatively weak ( $r = .22$ ), but, nonetheless, comparable to those obtained in other studies. However, it is of note that other studies tend not to report correlations between childhood trauma and the AAQ alone; instead choosing to compute composite measures of experiential avoidance, incorporating additional measures (e.g. thought suppression). This perhaps suggests that on its own, the AAQ is not a robust measure (see section 5.2.2.4 for further details on this). Moreover, previous studies have tended not to consider abuse and emotional invalidation together. Here, once emotional invalidation was controlled for, abuse no longer impacted on inflexibility. This might suggest that it is the emotionally invalidating impact of abuse in childhood that has its effect on how one then relates to and manages internal experiences. This fits with the existing literature documenting the significance of emotional invalidation in relation to abuse, and the impact it has on later emotional functioning (Krause et al., 2003; Mountford et al., 2007).

It was also hypothesised that current attachment-related anxiety and avoidance would be contributing factors to current levels of psychological inflexibility. However, no reliable associations were found between attachment anxiety and the two ACT measures, and only one small correlation emerged between attachment avoidance and cognitive fusion, which was negative ( $r = -.19$ ). Again, when the results were repeated using only participants in relationships, the results remained insignificant (Appendix O). On the whole, this suggested that attachment-related anxiety and avoidance were not associated with psychological inflexibility in this sample and the relevant hypotheses were rejected.



## 5.2.2 Discussion of the path analyses

The multiple regression analyses had identified a number of important predictive relationships between the main variables. These relationships were then explored further in a path analysis and causal hypotheses involving cognitive fusion and experiential avoidance as mediators between the historical risk factors of abuse and emotional invalidation and current psychopathology levels were tested. An initial model was developed based on theoretical considerations, as well as the multiple regression analysis findings from this study. After the removal of three insignificant paths, a final path model was accepted that fitted the data well and explained almost half of the variance of current psychopathology levels ( $R^2 = .49$ ). This was deemed to be impressive, even for a sample of people reporting mental health difficulties.

### 5.2.2.1 *Predicting psychopathology*

The final path model indicated that the most significant predictor of current levels of psychopathology was cognitive fusion, with a total effect of .62. Experiential avoidance also had a direct effect on current psychopathology, but its total effect was much weaker (TE = .14) and even smaller than the total effect of childhood abuse (TE = .20). This finding provides support for the ACT model of psychopathology (Hayes et al., 1996) and the claim that cognitive fusion and experiential avoidance play a key role in the development / maintenance of distress. However, it also raises the question as to the relative importance of cognitive fusion and experiential avoidance in this process. Previous studies have identified experiential avoidance as the significant predictor of mental health problems in adulthood (Chawla & Ostafin, 2007), but the findings from this path analysis highlight the role of cognitive fusion over and above experiential avoidance.

Following the ACT model, a causal relationship between cognitive fusion and experiential avoidance was assumed, but the direction of causality between

these two core ACT variables is still far from clear. To the author's knowledge, this specific relationship has not been studied in the empirical literature to date. The closest study was that of Palm and Follette's (2011), which identified a predictive relationship between cognitive flexibility and experiential avoidance. However, in their study experiential avoidance fully mediated relationships between cognitive flexibility and psychological distress, whereas in this study experiential avoidance did not fully mediate the effects of cognitive fusion on psychopathology. To the contrary, the direct effect of cognitive fusion ( $DE = .51$ ) was five times stronger than its indirect effect ( $IE = .11$ ) via the mediator of experiential avoidance. According to this finding, therapeutic prevention and intervention efforts would therefore have to clearly target the process of cognitive fusion over experiential avoidance.

Cognitive fusion, based on underlying processes of relational framing between words and the events they specify, is a process that is assumed to begin early in life when language starts to develop and interact with cognition (Blackledge, 2003). It is therefore likely that fusion is a process that is deeply ingrained and this may explain why it came out as the main predictor of psychopathology in this study. It is also a process that is assumed to relate past and current experiences (by relationally framing current words, thoughts and experiences to past experiences). This may explain, therefore, why past experiences might exert an ongoing influence on distress in the present moment, despite not being directly linked themselves to psychopathology. This has important implications for therapeutic intervention, which is discussed further in section 5.5.

Finally, it must also be acknowledged that the strong relationship between cognitive fusion and psychopathology may be bi-directional. As many of the participants had a history of psychological difficulties, cognitive fusion may also, in part, be a consequence of more severe or chronic mental health problems. However, because of the cross-sectional design of the study it is

impossible to disentangle the direction of influence between these two variables.

#### *5.2.2.2 Direct and indirect effects of antecedent risk factors and the mediating role of psychological inflexibility*

In terms of antecedent risk factors, the path analysis indicated that childhood abuse had a modest direct effect on psychopathology ( $DE = .20$ ). This is in line with a wealth of research that has observed relationships between traumatic experiences of abuse in childhood and psychopathology later on in adulthood (MacMillan, et al., 2001; Maniglio, 2009; Mullen, et al., 1996; Spertus, et al., 2003). Conversely, abuse did not impact on current levels of psychological inflexibility and thus did not support the hypothesis that psychological inflexibility would mediate relationships between childhood abuse and adult psychopathology. This contradicted the majority of recent research studies highlighting predictive relationships between childhood abuse and experiential avoidance, and the mediating role of experiential avoidance between early experiences of abuse and later psychopathology (Marx & Sloan, 2002; Reddy et al., 2006). However, as alluded to in a previous section, other studies have usually conducted analyses using a composite measure of experiential avoidance, perhaps suggesting that the AAQ on its own is not robust enough to produce reliable and substantial mediator relationships between trauma and psychopathology (this is discussed in more detail in the next section).

The path analysis in this study indicated that neither maternal nor paternal invalidation had direct effects on psychopathology. They did, however, have statistically reliable indirect effects via cognitive fusion, which were very modest in size (IE around  $.10$ ). However, because the two invalidation scales were obviously correlated themselves ( $r = .45$ ), as they tap into the same phenomenon, their combined total indirect effect of  $.20$  is comparable to the total direct effect of abuse on psychopathology. No evidence emerged for

any long-term effects of past emotional invalidation on present experiential avoidance. The finding that cognitive fusion mediated relationships between emotional invalidation and psychopathology, but not experiential avoidance, therefore provided partial support for the hypotheses regarding the mediating role of psychological inflexibility.

Interestingly, the results of the path analysis did not directly replicate previous findings that have identified experiential avoidance as a mediator between emotional invalidation/emotional abuse and psychopathology (e.g. Krause et al., 2003; Rosenthal, Polusny, et al., 2006). Instead, the results here point to the potential for cognitive fusion to play a role in the development of psychological difficulties following a history of emotional invalidation – a finding that has not yet been reported in the literature. This suggests that the negative content of thoughts and feelings that might be generated when growing up in an environment where emotional needs and expressions are ignored, misunderstood, criticised, punished or met with ambiguity, might make cognitive fusion more likely and more problematic, resulting in increased levels of psychopathology in adulthood.

The relationships between emotional invalidation, cognitive fusion and psychopathology could be explained by RFT. An array of words, thoughts, feelings or experiences may have been / be related to past experiences of emotional invalidation. The functions of these words and thoughts may have changed, as a result of these relational frames, and the person may have difficulties with distinguishing between what is happening now, in the present, from what happened in the past. That is, people may continue to experience the past in the present, through the symbolic nature of words, thoughts, images. The content of these words and images is likely to be painful, given the nature of emotional invalidation, and thus, when taken literally or believed to be present and objectively true (i.e. cognitive fusion), may become distressing and problematic for the individual. Additionally, they may take on a sense of self-as-content, and define themselves differently, moment to

moment, by the ever-changing content of what is experienced (Blackledge, 2004). As outlined by ACT, and to some extent in the path model, this may then lead to experiential avoidance and distress. Experiential avoidance may be a strategy that people with a history of emotional invalidation are likely to engage in, given their difficulties with making sense of their emotional experiences, which they may experience as overwhelming and threatening (Linehan & Koerner, 1993).

#### 5.2.2.3 *The issue of multicollinearity among antecedent variables*

In classic path analysis, multicollinearity involving the antecedents in the model can be problematic for the interpretation of their true causal impact on dependent variables. For the present path analysis substantial correlations between abuse and the two invalidation scales ( $r = .45, .61, .69$ ) were found. These correlations probably reflect the fact that the three measures are all related to similar family experiences. Whilst the respective path coefficients indicate the unique importance of each antecedent variable, their joint effect is not that obvious as their correlations are not part of the path analysis, and are considered as given, due to influences from outside the model (Kline, 2005). One way of representing the commonality among these three variables would be to define them as a single latent variable.

#### 5.2.2.4 *Conceptual overlap between cognitive fusion and experiential avoidance?*

The results prior to the path analysis demonstrated a substantial correlation between cognitive fusion and experiential avoidance ( $r = .83$ ). This was further highlighted by the strong relationship between these two variables in the final path model, raising the question of whether there is overlap in terms of how these two constructs are conceptualised and measured. A look at the CFQ and AAQ confirms that there are some items on each measure that are alike, such as: 'Even when I am having upsetting thoughts, I can see those thoughts

may not be literally true' (CFQ) and 'when I evaluate something negatively, I usually recognise that this is just a reaction, not an objective fact' (AAQ). These similarities need to be taken into consideration when interpreting the results of the path analysis.

It is interesting to note that whilst historically the AAQ has been used in research as a measure of experiential avoidance (Hayes et al., 2004), a more recent version of the scale that has been developed, the AAQ-II (Bond et al., in press), has been described as a measure of experiential avoidance *and psychological inflexibility*. This potentially provides support for the idea that the AAQ measures a broader construct than just experiential avoidance. Indeed, Chawla and Ostafin (2007, p. 886) have argued that the nine items on the AAQ appear to assess disparate constructs, including 'the need for emotional and cognitive control, avoidance of negative private events, inability to take needed action in the face of private events, and forms of negative entanglement'. Having been developed in the context of the ACT model, it is possible that the AAQ is better viewed as a measure of several ACT processes. Chawla and Ostafin (2007) cite studies that have suggested lower estimates of internal consistency (alphas below .50) for the AAQ and argue that it is a measure with limitations. They also state that there appears to be a lack of theoretical refinement with regards to the operationalisation of the construct of experiential avoidance.

This suggests that further evaluation of the construct of experiential avoidance is warranted, notably in relation to the task of clearly delineating it from the construct of cognitive fusion with which it is so strongly correlated in the present study. This could be partially achieved by conducting a confirmatory factor analysis on the existing measures that include items from both scales, which may give rise to a multi-dimensional approach to assessing psychological inflexibility. Given that the CFQ is at present unpublished, it would be advantageous for these issues to be considered further in the development and validation of this scale also.

### **5.3 Discussion of additional findings**

In addition to the multiple regression and path analyses, additional analyses were carried out. These examined the convergence validity of the BSI-18 and the MHSQ and mean comparisons on the main study variables based on various grouping factors.

#### **5.3.1 Findings from the principal component analyses: Index construction for psychopathology and past abuse**

The results of the first PCA on the three BSI-18 subscales and the MHSQ provided strong support for the validity of the MHSQ, which was a newly developed measure for current and past mental health problems and related psychological distress. The four scales were highly inter-correlated and all loaded strongly onto one general factor. This suggests excellent convergent validity for the four scales towards a one-dimensional, highly reliable, overall index of current psychopathology. The MHSQ might, therefore, provide a useful screening tool for assessing psychological difficulties in adults. However, a limitation of the MHSQ is that it is somewhat unspecific as to the type of psychopathology and measures more the burden of suffering.

The PCA carried out on the CTQ abuse scales provided equally strong evidence in support of a global index construction across all measures of abuse. This was particularly useful for the purposes of this study. One reason was to restrict the number of predictors being entered into regression models to an acceptable level; the other reason was to avoid the obvious problem of multicollinearity amongst the abuse predictors. Whether a specific type of abuse (e.g. sexual versus physical) is more relevant for the development of psychopathology or whether it is the intensity, circumstances (e.g. lack of support or help) or interpretation of the abuse experience that matters, is a question for further research.

### 5.3.2 Findings from the group comparison data

This study explored whether mean differences existed on any of the main study variables based on a number of grouping factors. Due to the large sample size, the study had enough power to detect even very small differences between groups, and because of this, only the findings with moderate to large effect sizes (Cohen's  $d$  of around .50 and above) will be discussed here.

#### 5.3.3.1 *Positive risk / clinical 'caseness'*

Participants who were identified as a clinical case / 'positive risk' for on the BSI-18 had significantly higher scores on measures of psychological inflexibility compared to those who were not a positive risk (both  $d = 1.38$ ; a large effect size). These results support the findings from the regression and path analyses and suggest that those with increased levels of psychological distress and suffering have an increased tendency to 'buy into' the literal meaning of unpleasant thoughts and feelings (cognitive fusion) and engage in experiential avoidance. This finding is consistent with the ACT model, again providing support for the role of psychological inflexibility in the development and / or maintenance of psychopathology. There were also large differences between these two groups on the MHSQ ( $d = 1.29$ ), although this was not surprising given how highly correlated the BSI-18 and the MHSQ were.

#### 5.3.3.2 *Treatment status: therapy and medication*

Moderate mean differences also existed between groups based on therapy status, with participants who had received therapy and not found it helpful scoring significantly higher on measures of abuse, cognitive fusion and psychopathology than people who had not had therapy at all. This result would appear to reflect the clinical status of the people who required therapy; they were the people with more significant histories of abusive experiences,



who were more cognitively fused and experiencing more psychological distress. The finding that people who had received therapy and not found it helpful had significantly elevated cognitive fusion and psychopathology scores implies that therapy had not (yet) been successful for these people. One could argue that this may be because underlying processes that may be maintaining their distress had not been adequately targeted in therapy, such as cognitive fusion. However, this would merely be speculation given that the limited information that was gained regarding people's problem history and experiences of therapy.

The results indicated that participants who had previously taken medication for mental health problems had moderately higher scores on the past abuse and current psychopathology scales than those who had never taken medication ( $d = .56$  and  $.52$ ). This perhaps reflects the psychological difficulties people with histories of abuse face later in life and the tendency to be prescribed medication for these. The finding that those currently on medication for mental health difficulties had moderately higher scores on measures of psychological inflexibility (cognitive fusion and experiential avoidance) and psychopathology than those who had never taken medication ( $d = .64$ ,  $.65$  and  $.58$ ) is in-keeping with the idea that psychological inflexibility is associated with levels of psychopathology that reach the threshold for medical treatment (i.e. medication). If one accepts the view that medication may serve to dampen or regulate affect, then this latter finding might suggest that those on medication might be experiencing difficulties with regulating or managing emotions, in keeping with the finding that such people are more likely to engage in experiential avoidance as a way of trying to manage their feelings. This might imply that therapeutic interventions aimed at supporting such people to manage internal thoughts and feelings might be of benefit.

#### 5.3.3.3 *Sex and age*

Interestingly there were no significant mean gender differences on any of the scales. This is perhaps surprising, particularly with regards to psychopathology, given the literature consistently documenting higher rates of anxiety (Armstrong & Khawaja, 2002) and depression (Piccinelli & Wilkinson, 2000) in females compared to males – the two most commonly reported difficulties in this female dominated sample. The lack of gender differences could be due to a number of factors, not least the heavy gender bias and the global measurement of psychopathology. If individual problem types had been investigated instead, it is possible that differences between the male and female participants would have been illuminated.

Although there were several reliable group differences as a function of age, all of these effect sizes were small (all  $d < .30$ ) and were, therefore, not considered further. Simple correlations also confirmed that any associations between age and the main study variables were of a very small magnitude (all  $r < .20$ ).

#### 5.3.3.4 *Relationship status*

With regards to relationship status, the most significant finding was that people who were not in a relationship had significantly lower attachment anxiety scores compared to those who were in a stable relationship ( $d = .50$ ). On the surface this result might seem surprising. However, there are number a possible explanations. Firstly, as mentioned previously, it could be that those who were single misjudged their attachment-related feelings and behaviours on the ECR-R, because they were not in a current relationship on which they could reflect. Secondly, it is possible that those people in intimate relationships are so *because* they are anxious about relationships. The anxiety subscale of the ERC-R asks about worry in relationships and fear of abandonment, suggesting that people scoring high on such a measure might

struggle with not being in a relationship. A third explanation, however, relates to RFT. Those people in relationships may be more likely to have experiences that trigger or bring about the products of words, images, thoughts participating in a relational frame between current and past interpersonal experiences. This process may result in increased anxiety, as reported on the ECR-R. People who are single on the other hand may have fewer experiences of this, given that they are not in an intimate relationship.

#### 5.3.3.5 *Employment status*

Finally the results showed that participants in employment scored lower on measures of past abuse and current cognitive fusion, experiential avoidance and psychopathology, compared to those who were either unemployed or a student (all  $d$  between .40 and .72). The strongest difference was between the psychopathology scores of employed and unemployed participants. These results could highlight the longer term, detrimental impact of experiences of child abuse on psychosocial functioning, with more experiences of abuse in childhood leading to higher levels of psychological inflexibility and distress in adulthood, resulting in difficulties with obtaining and sustaining employment. Again, this might provide support for the ACT model in highlighting the impact of the inflexibility on distress and social functioning. Nonetheless, it is also possible that a consequence of being out of employment is increased psychological inflexibility and psychopathology, and, as such, results of these group differences should be interpreted cautiously.

### **5.4 External validity and generalisability of the findings**

The sample used in this study was predominantly female (83%), white (89%) and aged between 18 and 30 (63%). This may indicate a particular bias in the sample and reflect people who are more likely to access web-based forums for mental health support. This has particular implications for the external validity of this study, meaning that the findings can not necessarily be

generalised to the wider population, particularly with regards to males and people from other ethnic and cultural backgrounds.

The study aimed to target people currently experiencing some form of psychological distress. The results from the relevant scales confirm that this was achieved and suggest that the sample was, indeed, a clinical sample. On the BSI-18, 76% of participants were identified as a positive risk/clinical 'case' for psychopathology. This proportion is substantially higher than that obtained with cancer patients (40%; Hoffman, Zevon, D'Arrigo, & Cecchini, 2004) and comparable to that obtained in a sample of women in treatment for trauma and co-occurring psychological disorders (74%; Becker et al., 2005). The newly developed MHSQ produced results concordant with this, with anxiety, stress and low mood being the most frequently reported difficulties in the sample. The clinical status of the sample was further supported by abuse scores on the CTQ; approximately half of the sample scored in the severe range in at least one domain of abuse or neglect. Similarly, the sample's mean paternal and maternal emotional invalidation scores ( $M = 34.83$  and  $33.18$ ) were in line with those of the eating disordered sample ( $M = 34.70$  &  $31.68$ ), and higher than those in the non-clinical sample ( $M = 27.81$  and  $28.24$ ), reported in Mountford et al.,'s (2007) study. The mean experiential avoidance score ( $M = 44.76$ ) was also higher than that obtained in clinical sample by Kingston et al., (2010;  $M = 39.50$ ). Finally, the majority of the sample (74%) had received a talking therapy for mental health problems and 67% had taken medication for similar reasons, again confirming the clinical status of the current study population. This suggests that the findings of this study *may* generalise to other adults with similar mental health problems.

## **5.5 Clinical implications**

### **5.5.1 Importance of cognitive fusion**

#### *5.5.1.1 Assessment and formulation*

The findings of the regression and path analysis have important implications for the conceptualisation of psychological distress and psychopathology in adults. They suggest that two important psychological processes in the development of psychopathology in adulthood might be those of cognitive fusion and experiential avoidance, but particularly cognitive fusion. Given the theoretical context underpinning these psychological constructs (ACT/RFT), the results suggest that the way in which language interacts with cognition creates the basis for the experience of psychological suffering and leads to the processes of cognitive fusion and experiential avoidance. In clinical work, it might be important that these processes are considered in assessment and incorporated into a formulation of clients' difficulties. Harris (2009) provides a useful framework for assessing the core processes of psychological inflexibility, including questions about cognitive fusion, such as: 'What sort of unhelpful cognitive content is the client fused with – rigid rules or expectations, self-limiting beliefs, criticisms and judgements, reason giving, being right, ideas of hopelessness or worthlessness, or others?' (Harris, 2009, p.36). Inclusion of such processes in clinical formulations would then inform treatment.

#### *5.5.1.2 Intervention*

The results of the regression and path analysis, therefore, also have important implications for the treatment of psychological distress and psychopathology. They imply that clinical interventions for adults with psychological difficulties should target these underlying language procedures and the processes of cognitive fusion and experiential avoidance. One type of therapy that has been designed for this very purpose, of course, is ACT (Hayes et al., 1999).

Specifically, ACT is an intervention that fosters cognitive *defusion* (to target fusion) and acceptance (to target experiential avoidance) in order to reduce psychological suffering.

In ACT, a variety of metaphorical and non-literal experiential exercises are utilised to foster cognitive defusion skills and undermine the process of cognitive fusion. Such techniques are designed to 'deliteralise' language representations and decrease the believability of, or attachment to, private events. The exercises do *not* seek to change the frequency of private events but rather change the way one interacts with or relates to them (Hayes et al., 2006). People are encouraged to view their thoughts as thoughts, occurring in the here and now, with the aim of dissolving the illusion that whatever is being thought about is present merely when it is being thought about (Hayes & Smith, 2005). This is then thought to reduce the symbolic impact of thoughts. Examples of cognitive defusion techniques include labelling the process of thinking (e.g. "*I'm having the thought I am no good*") or treating a negative thought as an externally observed object by giving it a shape, colour, size, speed or form (Hayes et al., 2006). The phrase 'buying a thought' might be used to distinguish between thoughts that just occur and thoughts that are actively believed / bought into (e.g. 'I guess I must be buying the thought that I am bad'). Various meditative and mindfulness exercises are also used to encourage defusion. For example, the 'leaves on a stream' exercise encourages clients to stand back and observe their thoughts. Whilst sitting quietly, individuals are asked to simply notice thoughts that come into their mind, put each one on a leaf that is on a stream, and watch it drift by, without reacting to it (Fletcher & Hayes, 2005).

Other interventions in ACT aim to foster acceptance, which is taught as an alternative to experiential avoidance. Acceptance involves the active and aware embracing of private events without unnecessary attempts to change their frequency or form (Hayes et al., 2006). This includes the cognitive defusion techniques outlined above, but also includes a range of other skills

and strategies. Mindfulness is often promoted as a skilful way of approaching various life situations. Clients are taught how to observe their thoughts and feelings without evaluation and judgement, and without holding onto, getting rid of, suppressing or changing in any other way what they are experiencing (Eifert et al., 2009). As well as encouraging acceptance, the aim is to increase willingness to experience discomfort and to reinforce the notion of choices; that is, choice regarding how clients respond to their internal experiences. Clients are encouraged to develop larger patterns of effective action linked to those chosen values in life. There is now a substantial evidence-base for the utility of ACT in the treatment of a wide range of psychological disorders (Pull, 2009). There is also a growing body of experimental research documenting the importance and effectiveness of cognitive defusion processes in addressing forms of psychological distress in both non-clinical (Healy, Barnes-Holmes, Barnes-Holmes, & Keogh, 2008; Masuda, Feinstein, Wendell, & Sheehan, 2010) and clinical samples (Hayes & Pankey, 2002), which is promising. However, this research is still in its infancy and further studies, using larger sample sizes, are clearly indicated.

The findings from the mean differences data showing that those who had found therapy unhelpful had higher cognitive fusion and psychopathology scores may also have implications for the therapy. If cognitive fusion is a process that may be maintaining distress, even throughout therapy, then this provides added weight to the argument for specifically targeting this process in therapy. A current trend in the provision of psychological therapies for adults with mild-to-moderate mental health problems in the UK is to offer second-wave cognitive-behavioural therapy (for example, mainly disorder-specific, Beckian CBT), as evidenced by the expansion of the Improving Access to Psychological Therapies (IAPT) programme (Department of Health, 2008a, 2008b). However traditional CBT is not effective for everybody and there remain a number of people who do not improve following this kind of therapy. Traditional CBT tends to focus on altering the content of thoughts rather than underlying cognitive processes (Hayes et al., 2006) and a number of studies

have indicated that direct attempts to challenge the content of cognitions (that is, restructuring the existing relations between stimuli) may be ineffective or counterproductive (Blackledge, 2003). It is therefore possible that the people who do not improve with this form of therapy continue to struggle because the underlying *processes* maintaining their distress, such as cognitive fusion, have not been adequately addressed. Offering alternative third-wave CBTs, such as ACT, DBT, Meta-Cognitive Therapy, or other mindfulness-based psychotherapies, that target these processes more directly, may enable these individuals to become more flexible in how they manage internal experiences and reduce their levels of psychological distress. To date, third-wave CBTs have not been recommended in clinical guidance by the National Institute for Clinical Excellence. However, with the increase in number of randomised controlled trials evaluating the efficacy of the ACT in comparison to other treatments (such as traditional CBT), it is hoped that these third wave interventions will become more recognised as effective interventions worth investing in.

#### 5.5.1.3 *Prevention*

The results amplifying the importance of cognitive fusion also have clinical implications with regards to prevention of psychological distress. They suggest that preventive measures, focusing on psychoeducation around the relationship between language and cognition and the natural human tendency towards cognitive fusion and experiential avoidance, might help prevent the development of psychological distress. Likewise, preventative interventions teaching cognitive defusion skills and psychological flexibility might also be effective in preventing distress. It has been argued elsewhere that ACT may be particularly suited to a preventative intervention (Hayes, Pistorello, & Biglan, 2008). This is because it is an approach that is non-pathological and non-blaming, and one that is based on the idea that normal cognitive processes can lead to distress when they are not balanced by defusion, acceptance, mindfulness and valued-based action. There is some evidence



already that ACT might be useful in a preventative context. In a randomised trial with 230 high school students, Livheim (2004; cited in Hayes et al., 2008) found that a nine-hour ACT intervention resulted in significantly lower depression and anxiety problems compared to psychoeducation. At a two-year follow up, the gains with the ACT participants were maintained (Hayes et al., 2008). The results have also been replicated in another, more recent, study (Stavenow, 2008).

### **5.5.2 Emotional validation and relationship issues**

The findings from the path analysis that emotional invalidation impacted directly on cognitive fusion and indirectly on experiential avoidance and psychopathology also have clinical implications. Invalidation is a subtle process, which clients may not always be aware of and which clinicians may not routinely identify (Mountford et al., 2007). Including questions about these more subtle experiences in assessment processes may bring these issues to light and allow for them to be included in clinical formulations. Moreover, ongoing consideration of how prior experiences of emotional invalidation may impact on therapy and the therapeutic relationship may also be important, particularly given that emotional invalidation is a relational issue and that therapy involves a relational process. Safran and Muran (2000) have written about how developmental histories of emotional invalidation might lead to individuals experiencing an ongoing sense of misattunement to their own feelings and developing a critical stance towards themselves and their own needs, which may impact on the therapeutic process and create a 'barrier to relatedness' (pg. 104). They outline the importance of the therapist remaining attuned to the relational aspects of the therapeutic encounter and discuss the ways in which the therapeutic relationship can be used to facilitate the working through of issues to do with relatedness. It may be that the process of relating to others and relating to the self can be understood and targeted in parallel in therapy (Safran & Muran, 2000). With regards to focusing on relational processes in ACT specifically, Hayes et al. (1999) discuss the importance of

the therapeutic relationship in ACT and state that sensitivity to the client is the most important aspect of being an effective ACT practitioner. This provides additional support for the above claims.

### **5.5.3 Social isolation and mental health**

Finally, some of the additional findings of the study also have clinical implications. The finding that almost half of the sample (51%) was single possibly points to the potentially isolating effects of poor mental health (Kessler, Price, & Wortman, 1985). This may highlight how people with psychological difficulties may withdraw from social contact and may, therefore, benefit from interventions focused on building relationships and supportive social networks. The finding that people with more severe forms of distress and psychopathology are those who are unemployed imply that support around employment may also be of benefit, particularly given the financial and social implications of being unemployed and its impact on self-esteem, which may further compound mental health problems.

## **5.6 Strengths and limitations**

One of the main strengths of this research project is the large sample size, which ensured the study had enough power to detect relationships between variables and determine, with precision, the magnitude of these relationships. In contrast to previous research, which has focused mainly on non-clinical samples, this study was successful in recruiting a large number of people who were all suffering to some extent with mental health problems. The study utilised an online survey design to investigate underlying psychological processes that might be involved in the development and maintenance of distress, which could then be applied clinically and targeted in therapy. Rather than focusing on just experiential avoidance, this study widened the focus to incorporate another core component of the ACT concept of psychological inflexibility. Another positive outcome of the study was the development of a

screening measure for psychopathology that was highly correlated with an existing validated measure.

A main limitation of this study, however, is its cross-sectional design, as true causal relationships between the different variables could not be fully established. Longitudinal research would be required to test more reliably the direction of causality. Moreover, the historical factors of abuse and emotional invalidation were measured retrospectively in this study, using self-report assessments. Even under optimal procedures, the accuracy of this data will be compromised by factors such as retrospective bias, distorted memory and social desirability (Kingston et al., 2010).

A further limitation of this study, as mentioned previously, relates to sampling. A self-selected, opportunity sample was used as this was a convenient and time efficient recruitment strategy. However, this type of sampling clearly raises issues regarding external validity and the over-representation of young and female respondents in this study limits the generalisability of the findings. The study could have been improved by the inclusion of more males, older people and people from a more diverse ethnic background. The high levels of psychological distress reported by participants in this sample may also be a reflection of a self-selection bias. People who chose to participate in this research may have done because they were experiencing high levels of distress and felt the study was relevant to them. Although 74% of participants indicated that they had at some point received a talking therapy for mental health difficulties, this study did not reliably ascertain whether participants were current users of clinical services and what the extent of their use of clinical services had been. Additional information on these issues would have been useful and future research should use a more rigorously identified and selected clinical sample.

There were also limitations of this study that related to the analyses. As the project adopted a transdiagnostic approach, differences between specific

psychological problem areas (e.g. anxiety, depression, psychosis) were not considered. Moreover, in the statistical modelling of past and present factors, given the time gap between them, it is likely that there are other intervening variables that, if included in the study, would have influenced the empirical relationships. Similarly, the path analysis did not take into consideration the benefits that people may have experienced as a result of psychological interventions, which, if included in the model, may also have influenced the findings.

## **5.7 Conclusions and suggestions for future research**

Overall, the current study made some important contributions towards the understanding of some of the factors implicated in the development and maintenance of psychopathology in adulthood. The results demonstrated that whilst experiences of childhood abuse have direct effects on psychological difficulties in adulthood, experiences of emotionally invalidating environments exerted a small effect on adult symptomatology through the mediating factors of cognitive fusion and experiential avoidance. The analyses conducted in this study produced a final path model that accounted for almost half of the variance of current psychopathology, which was deemed impressive. Cognitive fusion made the most substantial contribution, exerting a direct influence on psychopathology as well as an indirect effect via experiential avoidance. The results therefore provide some support for the ACT model of psychopathology, although further research is clearly needed to consolidate and extend these findings. Specifically, there is a need for longitudinal studies to prospectively track trajectories between relevant predictive variables, as well as to identify additional risk factors for the development of cognitive fusion and psychopathology that were not considered in this study. Finally, further clarification regarding the two constructs of cognitive fusion and experiential avoidance and how they are measured would be a useful next step in the development of research in this area.

## 6 References

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## 7 Appendices

### Appendix A: List of charities and support forums used for recruitment

| Name of website     | Description   | URL   |
|---------------------|---|---|
| Addiction Tribe     | Online support and recovery community for people with addictions                  | <a href="http://www.addictiontribe.com">http://www.addictiontribe.com</a>                     |
| Anxiety Forums      | A community for people anxiety sufferers  | <a href="http://www.anxietyforum.net">http://www.anxietyforum.net</a>                         |
| Anxiety Support     | Support forum for people with a wide range of anxiety disorders                   | <a href="http://www.anxiety-support.kickchat.com">http://www.anxiety-support.kickchat.com</a> |
| Anxiety Tribe       | Online anxiety support community  | <a href="http://www.anxietytribe.com">http://www.anxietytribe.com</a>                         |
| Anxiety UK          | Community for people suffering from anxiety                                       | <a href="http://www.anxietyuk.org.uk">http://www.anxietyuk.org.uk</a>                         |
| BDD Central         | Website with advice and support related to body dysmorphic disorder (BDD)         | <a href="http://www.bddcentral.com">http://www.bddcentral.com</a>                             |
| BEAT                | UK charity for people with eating disorders                                       | <a href="http://www.b-eat.co.uk">http://www.b-eat.co.uk</a>                                   |
| Beating the Beast   | Online support group for people with depression                                   | <a href="http://www.beatingthebeast.com">http://www.beatingthebeast.com</a>                   |
| Bipolar support     | Forum delivering advice and support for people with bipolar disorder              | <a href="http://www.bipolarsupport.org">http://www.bipolarsupport.org</a>                     |
| Daily Strength      | A range of support groups focused on mental health issues                         | <a href="http://www.dailystrength.org">http://www.dailystrength.org</a>                       |
| Depression Tribe    | Online depression support community   | <a href="http://www.depressiontribe.com">http://www.depressiontribe.com</a>                   |
| Mental Health Forum | A forum for discussion about mental health experiences and psychological distress | <a href="http://www.mentalhealthforum.net">http://www.mentalhealthforum.net</a>               |
| Neurotic planet     | OCD discussion forum  | <a href="http://www.neuroticplanet.com">http://www.neuroticplanet.com</a>                     |
| No More Panic       | Form for information for sufferers of anxiety disorders                           | <a href="http://www.nomorepanic.co.uk">http://www.nomorepanic.co.uk</a>                       |

| <b>Name of website</b>                  | <b>Description</b>   | <b>URL</b>  |
|---|--|---|
| OCD Action                              | Community for OCD sufferers  | <a href="http://www.ocdaction.org.uk">http://www.ocdaction.org.uk</a>                           |
| OCD Today                               | Non-profit organisation dedicated to OCD support   | <a href="http://www.ocdtodayuk.org">http://www.ocdtodayuk.org</a>                               |
| OCD Tribe                               | Forum for OCD support and advice   | <a href="http://www.ocdtribe.com">http://www.ocdtribe.com</a>                                   |
| Phobics awareness                       | A community for anxiety sufferers  | <a href="http://www.phobics-awareness.org">http://www.phobics-awareness.org</a>                 |
| Psychforums                             | Mental health website with support forums for a wide range of psychological difficulties | <a href="http://www.psychforums.com">http://www.psychforums.com</a>                             |
| Recover Your Life                       | Self-harm support community  | <a href="http://www.recoveryourlife.com">http://www.recoveryourlife.com</a>                     |
| Rethink                                 | Mental health charity for people with severe mental illness                              | <a href="http://www.rethink.org">http://www.rethink.org</a>                                     |
| Social Anxiety Support                  | Support forum for people with social anxiety difficulties                                | <a href="http://www.socialanxiety.com">http://www.socialanxiety.com</a>                         |
| Social Anxiety UK                       | Support forum for people with social anxiety/phobia and related conditions               | <a href="http://www.social-anxiety.org.uk">http://www.social-anxiety.org.uk</a>                 |
| Something Fishy                         | Website for people with eating disorders   | <a href="http://www.something-fishy.org">http://www.something-fishy.org</a>                     |
| Stress, Anxiety and Depression Resource | Resource centre for people experiencing stress, anxiety and/or depression                | <a href="http://www.stress-anxiety-depression.org">http://www.stress-anxiety-depression.org</a> |
| Uncommon Knowledge                      | Discussion forums for people regarding a wide range of mental health problems            | <a href="http://www.uncommonforum.com">http://www.uncommonforum.com</a>                         |

## Appendix B: Background Information Questionnaire

1. What sex are you?
  - a. Male
  - b. Female
  
2. What is your age (in years): \_\_\_\_\_
  
3. How would you describe your ethnicity? \_\_\_\_\_
  
4. Is there a history of mental health problems in your family?
  - a. Yes: (provide details)
  - b. No
  
5. What is your current employment status?
  - a. Full-time
  - b. Part-time
  - c. Unemployed
  - d. Looking for work
  - e. Student
  - f. Other
  - g. Details:
  
6. What is your current marital/relationship status?
  - a. Single
  - b. In a long-term relationship
  - c. In a new relationship
  - d. Married/civil partnership
  - e. Cohabiting
  - f. Widowed
  
7. Do you have children?
  - a. Yes
  - b. No
  - c. Details:



## Appendix C: Childhood Trauma Questionnaire

These questions ask about some of your experiences growing up as a child and a teenager. Although some of these questions are of a personal nature, please try to answer as honestly as you can. For each question, write the number that best describes how you feel.

| 1          | 2           | 3              | 4          | 5               |
|------------|-------------|----------------|------------|-----------------|
| Never true | Rarely true | Sometimes true | Often true | Very often true |

When I was growing up:

1. I didn't have enough to eat
2. I knew that there was someone to take care of me and protect me
3. People in my family called me things like "stupid", "lazy" or "ugly"
4. My parent/carers were too drunk or high to take care of the family
5. There was someone in my family who helped me feel that I was important or special
6. I had to wear dirty clothes
7. I felt loved
8. I thought that my parent/carers wished I had never been born
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital
10. There was nothing I wanted to change about my family
11. People in my family hit me so hard that it left me with bruises or marks
12. I was punished with a belt, a board, a cord or some other hard object
13. People in my family looked out for each other
14. People in my family said hurtful or insulting things to me
15. I believe that I was physically abused
16. I had the perfect childhood
17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbour or doctor
18. I felt that someone in my family hated me
19. People in my family felt close to each other
20. Someone tried to touch me in a sexual way, or tried to make me touch them
21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them
22. I had the best family in the world
23. Someone tried to make me do sexual things or watch sexual things
24. Someone molested me
25. I believe I was emotionally abused
26. There was someone to take me to the doctor if I needed it
27. I believe that I was sexually abused
28. My family was a source of strength and support.

## Appendix D: Invalidating Childhood Environment Scale

The following questions address your experiences of how your parent(s)/carer(s) responded to your emotions when you were young. For each item, please choose the rating from 1 to 5 that most closely reflects your experience up to the age of 18 years. Because your parent(s)/carer(s) may have been very different, please rate them separately. *Space given for this*

| 1     | 2      | 3                | 4                | 5               |
|-------|--------|------------------|------------------|-----------------|
| Never | Rarely | Some of the time | Most of the time | All of the time |

1. My parent/carers would become angry if I disagreed with them.
2. When I was anxious, my parent/carers ignored this.
3. If I was happy, my parent/carers would be sarcastic and say things like: "What are you smiling at?"
4. If I was upset, my parent/carers said things like: "I'll give you something to really cry about!"
5. My parent/carers made me feel OK if I told them I didn't understand something difficult the first time.
6. If I was pleased because I had done well at school, my parent/carers would say things like: "Don't get too confident".
7. If I said I couldn't do something, my parent/carers would say things like: "You're being difficult on purpose".
8. My parent/carers would understand and help me if I couldn't do something straight away.
9. My parent/carers used to say things like: "Talking about worries just makes them worse".
10. If I couldn't do something however hard I tried, my parent/carers told me I was lazy.
11. My parent/carers would explode with anger if I made decisions without asking them first.
12. When I was miserable, my parent/carers asked me what was upsetting me, so that they could help me.
13. If I couldn't solve a problem, my parent/carers would say things like: "Don't be so stupid — even an idiot could do that!"
14. When I talked about my plans for the future, my parent/carers listened to me and encouraged me.

## Appendix E: The Experiences in Close Relationships Questionnaire-Revised

Instructions: The statements below concern how you feel in emotionally intimate relationships. We are interested in how you *generally* experience relationships, not just in what is happening in a current relationship. Respond to each statement by circling a number to indicate how much you agree or disagree with the statement.

| 1                 | 2        | 3                 | 4       | 5              | 6     | 7              |
|-------------------|----------|-------------------|---------|----------------|-------|----------------|
| Strongly disagree | Disagree | Somewhat disagree | Neutral | Agree somewhat | Agree | Strongly agree |

1. I prefer not to show a partner how I feel deep down.
2. I worry about being abandoned.
3. I am very comfortable being close to romantic partners.
4. I worry a lot about my relationships.
5. Just when my partner starts to get close to me I find myself pulling away.
6. I worry that romantic partners won't care about me as much as I care about them.
7. I get uncomfortable when a romantic partner wants to be very close.
8. I worry a fair amount about losing my partner.
9. I don't feel comfortable opening up to romantic partners.
10. I often wish that my partner's feelings for me were as strong as my feelings for him/her.
11. I want to get close to my partner, but I keep pulling back.
12. I often want to merge completely with romantic partners, and this sometimes scares them away.
13. I am nervous when partners get too close to me.
14. I worry about being alone.
15. I feel comfortable sharing my private thoughts and feelings with my partner.
16. My desire to be very close sometimes scares people away.
17. I try to avoid getting too close to my partner.
18. I need a lot of reassurance that I am loved by my partner.
19. I find it relatively easy to get close to my partner.
20. Sometimes I feel that I force my partners to show more feeling, more commitment.
21. I find it difficult to allow myself to depend on romantic partners.
22. I do not often worry about being abandoned.
23. I prefer not to be too close to romantic partners.
24. If I can't get my partner to show interest in me, I get upset or angry.
25. I tell my partner just about everything.
26. I find that my partner(s) don't want to get as close as I would like.
27. I usually discuss my problems and concerns with my partner.

28. When I'm not involved in a relationship, I feel somewhat anxious and insecure.
29. I feel comfortable depending on romantic partners.
30. I get frustrated when my partner is not around as much as I would like.
31. I don't mind asking romantic partners for comfort, advice, or help.
32. I get frustrated if romantic partners are not available when I need them.
33. It helps to turn to my romantic partner in times of need.
34. When romantic partners disapprove of me, I feel really bad about myself.
35. I turn to my partner for many things, including comfort and reassurance.
36. I resent it when my partner spends time away from me.

## Appendix F: Cognitive Fusion Questionnaire

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

| 1          | 2                | 3           | 4              | 5               | 6                  | 7           |
|------------|------------------|-------------|----------------|-----------------|--------------------|-------------|
| Never true | Very seldom true | Seldom true | Sometimes true | Frequently true | Almost always true | Always true |

1. My thoughts cause me distress or emotional pain.
2. I tell myself that I shouldn't be thinking the way I am thinking.
3. Even when I am having distressing thoughts, I know that they may become less important eventually.
4. I find myself preoccupied with the future or the past.
5. I make judgements about whether my thoughts are good or bad.
6. Even when I am having upsetting thoughts, I can see that those thoughts may not be literally true.
7. I get upset with myself for having certain thoughts.
8. I feel like my thoughts need to change before I can have a good life.
9. I find it easy to view my thoughts from a different perspective.
10. I tend to get very entangled in my thoughts.
11. I think some of my thoughts are bad or inappropriate.
12. I feel upset when I have negative thoughts about myself.
13. I get very focussed on distressing thoughts.
14. It's such a struggle to let go of upsetting thoughts even when I know that letting go would be helpful.
15. My thoughts distract me from what I am actually doing.
16. I get so caught up in my thoughts that I am unable to do the things that I most want to do.
17. I over-analyse situations to the point where it's unhelpful to me.
18. I can watch my thoughts from a distance without getting caught up in them.
19. It's OK to have inconsistent thoughts on the same subject.
20. It's possible for me to have negative thoughts about myself and still know that I am an OK person.
21. I am able to do what's important in life even when I have upsetting thoughts.
22. I struggle with my thoughts.
23. I can do difficult things even if my thoughts say they are impossible to do.
24. I can be aware of my thoughts without necessarily reacting to them.
25. Once I've thought about something upsetting it's difficult for me to focus on anything else.
26. I need to control the thoughts that come into my head.
27. I tend to react very strongly to my thoughts.
28. I get so caught up in my thoughts that I forget what I'm actually doing.

## Appendix G: Acceptance & Action Questionnaire

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following scale to make your choice.

| 1          | 2                | 3           | 4              | 5               | 6                  | 7           |
|------------|------------------|-------------|----------------|-----------------|--------------------|-------------|
| Never true | Very seldom true | Seldom true | Sometimes true | Frequently true | Almost always true | Always true |

1. I am able to take action on a problem even if I am uncertain what is the right thing to do.
2. When I feel depressed or anxious, I am unable to take care of my responsibilities.
3. I rarely worry about getting my anxieties, worries, and feelings under control.
4. I'm not afraid of my feelings.
5. Anxiety is bad.
6. If I could magically remove all the painful experiences I've had in my life, I would do so.
7. I often catch myself daydreaming about things I've done and what I would do differently next time.
8. When I evaluate something negatively, I usually recognize that this is just a reaction, not an objective fact.
9. When I compare myself to other people, it seems that most of them are handling their lives better than I do.

## Appendix H: Brief Symptom Inventory

Below is a list of problems people sometimes have. Read each one carefully and circle the response that best describes how much that problem has distressed or bothered you during the past seven days.

| 1          | 2            | 3          | 4           | 5         |
|------------|--------------|------------|-------------|-----------|
| Not at all | A little bit | Moderately | Quite a bit | Extremely |

1. Faintness or dizziness
2. Feeling no interest in things
3. Nervousness or shakiness inside
4. Pains in chest or heart
5. Feeling lonely
6. Feeling tense or keyed up
7. Nausea or upset stomach
8. Feeling blue
9. Suddenly scared for no reason
10. Trouble getting your breath
11. Feelings of worthlessness
12. Spells or terror or panic
13. Numbness or tingling in parts of your body
14. Feeling hopeless about the future
15. Feeling so restless you could not sit still
16. Feeling weak in parts of your body
17. Thoughts of ending your life
18. Feeling fearful

## Appendix I: Mental Health Screening Questionnaire

Please indicate with a tick whether you are currently, or have ever, experienced any of the following:

| Difficulties with:   | Am currently | Have in the past |
|--|--------------|------------------|
| 1. Extreme stress  |              |                  |
| 2. Feeling low / depressed                                   |              |                  |
| 3. Anxiety / worry   |              |                  |
| 4. Panic   |              |                  |
| 5. Significant fears or phobias (e.g. fear of going outside) |              |                  |
| 6. Obsessive or compulsive difficulties                      |              |                  |
| 7. Post-traumatic stress                                     |              |                  |
| 8. Deliberate self-harm                                      |              |                  |
| 9. Eating problems   |              |                  |
| 10. Hearing voices   |              |                  |
| 11. Alcohol problems   |              |                  |
| 12. Drug problems  |              |                  |
| 13. Sleep problems, e.g. insomnia                            |              |                  |

Are you currently, or have you ever, received a talking therapy or counselling for a mental health problem?

- Yes / No

If you have received a talking therapy, was it helpful?

- Yes / No

Are you currently or have you ever experienced any problems with your physical health?

- Currently / In the past / Never
- Details:

Are you currently or have you ever taken medication for mental health problems?

- Currently / In the past / Never

On the following scale (1-10), how would you rate your current physical health?

| 1         | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10        |
|-----------|---|---|---|---|---|---|---|---|-----------|
| Very poor |   |   |   |   |   |   |   |   | Excellent |

6. On the following scale (1-10), how would you rate your overall current mental/psychological health?

| 1         | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10        |
|-----------|---|---|---|---|---|---|---|---|-----------|
| Very poor |   |   |   |   |   |   |   |   | Excellent |



## **Appendix J: Brief Advertisement for Study**

### **Research Study**

You are invited to take part in a study investigating what background factors that may be associated with psychological inflexibility and psychology distress in adults.

We are recruiting adults (aged 18 years+) to take part in our questionnaire study. The questionnaires ask about: your early experiences; your relationships and how you manage thoughts and feelings. Anyone who may currently be experiencing mental health difficulties can participate. You can complete the questionnaires online. The study should take approximately 20-30 minutes to complete.

For further information, please go to the study website ([www.surveymonkey.com/s/contextual](http://www.surveymonkey.com/s/contextual)) or email [j.cocksey@herts.ac.uk](mailto:j.cocksey@herts.ac.uk).

Ethical approval: This study has been reviewed and given ethical approval by the University of Hertfordshire's School of Psychology Ethics Committee (Ref: PSY/07/10/JC).

## Appendix K: Participant Consent Form

University of  
Hertfordshire



**Title of Project:** Contextual factors associated with psychological inflexibility and psychological distress in adults

**Researcher:** Joanne Cocksey, Trainee Clinical Psychologist

*Please tick  
box*

1) I confirm that I have read and understand the information explaining what the research entails and what will be expected from me. I have been given the opportunity to consider the information and ask questions if required.

2) I understand that participation is voluntary and that I am free to withdraw at any time, without giving any reason. I understand that if I withdraw from the study, the data that I have submitted will also be withdrawn at my request.

3) I understand that the information that I will submit will be confidential and anonymised, and used only for this study. I understand that my information will be filed in a locked cabinet or encrypted and stored electronically on password protected computers.

4) I agree to participate in the study.

Name of Participant: .....

Signature of Participant: .....

Date: .....

Researcher Signature: .....

## Appendix L: Information Sheet for Participants

University of  
Hertfordshire



**Research Title:** Contextual factors associated with psychological inflexibility and psychological distress in adults

### **Introduction**

You are invited to take part in a research study exploring factors that may be associated with how people manage their emotions and the amount of psychological distress they experience. Before you decide whether you would like to give consent to take part, please take the time to read the following information which I have written to help you understand why the research is being carried out and what it will involve.

### **The researchers**

The study is being carried out by Joanne Cocksey, Trainee Clinical Psychologist, as part of a Doctoral qualification in Clinical Psychology. The study is supervised by Dr Saskia Keville, Academic Tutor and Chartered Clinical Psychologist.

### **What is the purpose of the study?**

This research is looking at whether contextual factors, such as difficult life experiences and relationships, are associated with how people internally manage and process their emotional experiences and the amount of psychological distress they subsequently experience. This study is therefore looking at 'normal', everyday ways of managing experiences.

### **What is involved?**

Following reading this information sheet, participants will be asked to complete a range of questionnaires, which will ask about difficult life experiences, difficulties experienced as a child, relationships with others. There will also be questions about how thoughts and feelings are managed and processed, as well as questions about past and current physical and psychological health.

### **Who is taking part?**

This study will invite adults (aged 18 years or over) who may have experienced psychological difficulties can take part. Participants will be recruited from online support forums for people with emotional difficulties. The study may be advertised in local newspapers or universities.

### **Do I have to take part?**

No. If you do not want to take part, or you change your mind *at any time* during your participation in this study, you do not need to give a reason. Participation is entirely voluntary and you can withdraw at any time.

### **Will taking part be confidential?**

Yes. I will not ask for your name. All of your responses to the questionnaires will go onto a database using numbers (not names) and these responses will only be made available to the researchers.

**What are the benefits of taking part?**

It is possible that you will not experience any direct benefits as a result of taking part in this research. However, it is hoped that this research will help develop psychological understanding of people who experience psychological difficulties and understanding about how best to help and support them.

**What are the potential difficulties that taking part may cause?**

Given the sensitive nature of the topic area it is possible that some of the questions you are asked raise issues for you or cause you to experience some distress. You are provided with my contact details here so that you can contact me in the event that you do become distressed and I will recommend possible sources of support. You will be given information about where to get support from at the end of the study. You are also free to withdraw from the study at any point, without giving a reason.

**What will happen to the results of this research study?**

The results of this study (anonymised) will be reported in a thesis for the purpose of gaining a qualification in Clinical Psychology. The thesis will be held in the University of Hertfordshire Learning Resource Centre which will be accessible to interested parties. Further to this, a summary of the main research findings may be published in a research paper.

**What if I have questions or concerns?**

If you have any concerns or further questions about the research, please feel free to contact me, details of which are below. Alternatively, you can contact Dr Saskia Keville (research supervisor) on the number below.

**Who has reviewed this study?**

This study was reviewed by University of Hertfordshire Research Ethics Committee and was given ethical approval.

Thank you for taking time to read this. Please click [www.surveymonkey.com/s/contextual](http://www.surveymonkey.com/s/contextual) to start the study.

**Contact details of the researcher:**

**Joanne Cocksey**

Email address: [j.cocksey1@herts.ac.uk](mailto:j.cocksey1@herts.ac.uk)  
Telephone number: 01707 286 322  
Postal address: Doctorate in Clinical Psychology Training Course  
University of Hertfordshire  
Hatfield, Herts., AL10 9AB

## Appendix M: Participant Debrief Information Sheet

University of  
Hertfordshire



Thank you very much for taking part in this study.

This study aimed to explore the relationships between contextual factors, such as difficult early experiences and relationships with others, psychological inflexibility (how people manage and process their internal thoughts and feelings) and psychological distress in adults. Research has shown that psychological inflexibility is associated with psychological distress, however what is less known is what factors or experiences may influence how flexibly one can process internal events. It is hoped that this research will begin to address this question.

In the event that participation in this research has raised any issues or concerns for you, please do not hesitate to contact me, or my supervisor, using the details below.

Miss Joanne Cocksey  
Trainee Clinical Psychologist  
University of Hertfordshire  
[j.cocksey1 @herts.ac.uk](mailto:j.cocksey1@herts.ac.uk)

Supervisor: Dr Saskia Keville  
Clinical Psychologist  
University of Hertfordshire  
[s.keville@herts.ac.uk](mailto:s.keville@herts.ac.uk)

### SOURCES OF SUPPORT

Thinking about your experiences may have left you feeling low or upset, this is quite normal and often passes after a few days. However, if these feelings persist there are local sources of support and comfort which may already be familiar to you. The most immediate sources of comfort and help are likely to be *your own family and friends*. If you are concerned about your psychological wellbeing, **your GP** may be able to refer you to more specialised local support services such as counsellors.

### The following national organisations also offer support:

- **The Samaritans**  
Telephone: 08457 909090  
Web address: [www.samaritans.org](http://www.samaritans.org)

The Samaritans is a helpline which is open 24 hours a day for anyone in need. It is staffed by trained volunteers who will listen sympathetically.

- **The National Association for People Abused in Childhood**  
Telephone: 0800 0853330  
Web address: [www.napac.org.uk](http://www.napac.org.uk)

The National Association for People Abused in Childhood is a registered charity that offers support and information for people abused in childhood.

- **Supportline**  
Telephone: 01708 765200  
Web address: [www.supportline.org.uk](http://www.supportline.org.uk)

Supportline offers confidential emotional support to adults by telephone, email or post.

**Appendix N: Ethics Approval Form**

**SCHOOL OF PSYCHOLOGY ETHICS COMMITTEE APPROVAL**

**Student Investigator: Joanne Cocksey**

**Title of project:** Contextual factors associated with psychological inflexibility and psychological distress in adults

**Supervisor: Saskia Keville**

**Registration Protocol Number: PSY/07/10/JC**

The approval for the above research project was granted on 12 July 2010 by the Psychology Ethics Committee under delegated authority from the Ethics Committee of the University of Hertfordshire.



**Signed:**

**Date:** 12 July 2010

**Professor Lia Kvavilashvili Chair**

**Psychology Ethics Committee**

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**STATEMENT OF THE SUPERVISOR:**

From my discussions with the above student, as far as I can ascertain, s/he has followed the ethics protocol approved for this project.

**Signed (supervisor):**

**Date:**

**Appendix O: Analysis involving only participants currently in a relationship**

Correlation matrix between the two attachment scales and the other study variables for only the participants currently in a relationship ( $N = 453$ ).

|                        | Attachment Anxiety | Attachment Avoidance |
|------------------------|--------------------|----------------------|
| Abuse                  | -.04               | -.09                 |
| Maternal Invalidation  | -.00               | -.10*                |
| Paternal Invalidation  | -.03               | -.04                 |
| Cognitive Fusion       | .04                | -.20**               |
| Experiential Avoidance | .00                | -.14**               |
| Psychopathology        | .06                | -.12*                |