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**UNIVERSITY OF SOUTHAMPTON**  
FACULTY OF MEDICINE, HEALTH AND LIFE SCIENCES  
School of Psychology

**Childhood Bullying and Paranoid Thinking**

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Thesis submitted in partial fulfilment of the degree of Doctor of Clinical Psychology

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## **Childhood Bullying and Paranoid Thinking**

### **Abstract**

Adverse early life experiences have been found to be associated with a wide variety of negative consequences in adulthood, including psychological distress and psychopathology. The literature review examined the association between a specific adverse early life experience, being bullied by peers in childhood, and negative outcomes in adulthood. It concluded that there is a consistent association between being bullied in childhood and experiencing a range of adverse effects in adulthood, although more research is required to establish the full range of effects that childhood bullying can have in adulthood. The empirical paper investigated whether emotions and/or negative beliefs would mediate the relationship between childhood bullying and paranoid thinking, in a non-clinical sample of adults. Data was collected through self-report questionnaires measuring demographics, retrospective memories of three types of childhood bullying ('indirect aggression', 'direct verbal aggression', 'direct physical aggression'), 'anxiety', 'depression', 'interpersonal sensitivity', 'negative beliefs about self' and 'negative beliefs about others' and two types of paranoid thinking ('ideas of social reference', 'persecution'). Mediation analyses revealed that 'negative beliefs about self' and 'depression' significantly mediated the relationship between 'indirect aggression' and both types of paranoid thinking, whereas 'negative beliefs about others' mediated the relationship between 'direct verbal aggression' and both types of paranoid thinking. The results suggest that negative beliefs are the primary mediators of the relationship between bullying and paranoid thinking indicating cognitive models as the most appropriate theory for understanding and treating paranoid thinking.

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**Being Bullied in Childhood by Peers: Are there Long-Term, Adverse  
Consequences in Adulthood?**

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(see Appendix A for 'Guide for Authors')

## **Abstract**

Childhood bullying is associated with a wide variety of adverse consequences, including psychological distress and psychopathology. In this paper, the literature investigating the association between being bullied by peers in childhood and negative outcomes in adulthood will be reviewed and evaluated. Previous research largely utilising retrospective measures of bullying have found a consistent association between being bullied in childhood and experiencing a range of adverse effects in adulthood, particularly depression, body image dissatisfaction and low self-esteem. However, there are numerous methodological limitations to bullying research, including a lack of consensus over defining and measuring bullying, failure to investigate moderating or mediating variables, over-reliance on female and undergraduate populations and a lack of longitudinal research to establish if the association between being bullied in childhood and experiencing adverse consequences in adulthood is causal. Recommendations for future empirical investigations and the implications for clinical practice are suggested.

**Keywords:** Childhood bullying, victimisation, psychological distress, negative consequences.

## **1. Introduction**

Within children, the immediate and adverse consequences of being bullied by peers have been well documented, in both literature reviews (e.g., Rigby, 2003) and meta-analytic reviews (e.g., Hawker & Boulton, 2000). However, the long-term consequences, specifically within adults, of being bullied by peers have received less empirical investigation (Roth-Ledley et al., 2006; Roth, Coles & Heimberg, 2002). Therefore, the aim of this literature review is to evaluate the literature investigating the association between being bullied in childhood and adverse outcomes, such as psychological distress or psychopathology, in adulthood and to provide recommendations for future empirical investigation. First, the literature review briefly describes how bullying is defined, measured and how prevalent it is. Next, the literature review will evaluate studies that have used retrospective self-report measures of bullying to examine the association between being bullied in childhood and adverse outcomes in adulthood. The literature review will evaluate studies that have used longitudinal research designs to examine if being a victim of childhood bullying causes adverse effects in adulthood. Next, the literature review evaluates some of the methodological limitations specific to studies of bullying. Finally, the literature review suggests recommendations for future research and clinical practice.

### **1.1. Defining Bullying**

Scientific interest into researching and defining bullying gathered pace following the suicide of three Norwegian boys in the 1980's, allegedly as a result of being victims of severe bullying from peers (Olweus, 1993a). Subsequently, the Norwegian government commissioned Dan Olweus, often considered the pioneer and father of bullying research (Wong, 2009), to develop anti-bullying programmes, and the

research spawning from this programme led to increased interest in other countries (Roth et al., 2002). Since then there has been an explosion in research examining bullying, reflected by 62 citations of bully\* or bulli\* in PsycINFO between 1900 and 1989 compared to 289 citations in the 1990's alone (Berger, 2007). However, despite the recent scientific interest in bullying, understanding and defining bullying has been somewhat more complex than anticipated (Wong, 2009).

As Griffin and Gross (2004) state, there has been disagreement amongst researchers in how best to define bullying, with Arora (1996) suggesting that there is very little consensus on what constitutes bullying. One problem lies in how bullying actually differs in definition from aggression per se (Griffin & Gross, 2004). Another problem appears to stem from the fact that definitions of bullying are vague and vary across individuals (Wong, 2009). Indeed, this is reflected by the fact that multiple terms have all been used in the research literature to describe the same concept, including 'peer rejection' (e.g. Hock & Lutz, 2001), 'peer victimisation' (e.g. Miler & Vaillancourt, 2006) and 'peer abuse' (e.g. Olweus, 1993a). Many researchers now agree that there are three fundamental criteria that make a behaviour an act of bullying: (1) behaviour causes some form of harm; (2) behaviour occurs repeatedly; (3) behaviour occurs within the context of an imbalance of power (Wong, 2009; Berger, 2007, Rigby, 2003). Interestingly, these operational criteria for defining bullying emphasise the overt behaviour of the bully rather than the actual experiences or perceptions of the victim (Griffin & Gross, 2004).

## **1.2. Types of Bullying Behaviour**

Whilst there have been difficulties in defining what bullying is, there have been less problems with identifying different forms of bullying behaviour, namely different types of aggression. Indeed, there are two frequently cited constructs of bullying behaviour supported by factor-analytic studies (Bjorkqvist et al., 1992); (1) direct aggression; (2) indirect aggression (Rigby, 2003; Smith, Singer, Hoel & Cooper, 2003; Sourander et al., 2007).

Direct aggression may take the form of physical aggression, such as punching or kicking, or verbal aggression, such as insults or making threats (Sourander et al., 2007; Smith et al., 2003). Indirect aggression, sometimes known as relational aggression or social aggression (Archer & Coyne, 2005), refers to a form of aggression in which the victim's relationships or social status are damaged (Card, Sawalani, Stucky & Little, 2008), such as by spreading rumours or isolating them (Card et al., 2008; Sourander et al., 2007). In a comprehensive meta-analytic review of the effects of different forms of bullying on maladjustment, victims of direct aggression were found to be more likely to exhibit externalising problems whereas victims of indirect aggression were found to be more likely to exhibit internalising problems regardless of the victim's gender or age (Card et al., 2008).

## **1.3. Assessing Bullying Behaviours**

There are numerous methods for measuring bullying, but for the purposes of this literature review the method that is frequently deployed within studies measuring childhood bullying in adult populations, namely retrospective self-report measures, will briefly be described. As Wong (2009) states, self-report questionnaires are the

most frequently utilised method of identifying victims of bullying. Whilst interviews are also effective, questionnaires are quicker to deploy and administer and ensure anonymity which is more likely to increase disclosure of victimisation (Wong, 2009). One advantage of using self-report measures with victims themselves is that they are the most accurate source of information about their experiences of being bullied (Ladd & Kochenderfer-Ladd, 2002). There are a number of methodological concerns with self-report retrospective measures of bullying, but these will be detailed later in the literature review (please see section '4. Methodological limitations').

#### **1.4. Prevalence Rates**

Inevitably, given the difficulties with defining and categorising victims of bullying, gaining accurate and valid prevalence rates for bullying is extremely difficult, particularly across cultures and countries (Griffin & Gross, 2004). As Berger (2007) states, it is nigh on impossible to conduct a meta-analytic review of prevalence rates for bullying considering the many different methodologies utilised by studies (e.g. using different age ranges, measuring different types of bullying, etc).

Nevertheless, research suggests that bullying is relatively common. Olweus (1993a) stated that one in five children are bullied. Hamilton et al. (2008) in a review of North American survey studies note that approximately 10-15% of children are chronically bullied at school. Glover, Gough, Johnson and Cartwright (2000) found that 75% of 4,700 British children aged between 11 to 16 years reported being a victim of physical bullying within the last year of being surveyed. In terms of specific forms of bullying, teasing appears to be the most common form of bullying (Olweus, 1993a). For example, Whitney and Smith found that over 50% of children in junior, middle and



secondary school reported being called names. Bullying appears to be quite stable with some studies finding that victims endured bullying for an average of five years (Cash, 1995). Some research suggests that bullying is most likely to occur in middle childhood (Eslea & Rees, 2001).

## **2. Search Strategy**

An evidence-based literature review was deemed the most appropriate type of literature review to conduct. Two main methods were used to obtain the relevant studies for the literature review; an internet-based search and a manual search. First, four internet-based databases (MEDLINE, PsycINFO, PsycARTICLES, CINAHL) were searched for articles published between 1990 and November 2009, to include only the most recent and relevant empirical research. Searches were conducted using the following combination of keywords; ‘bullying’ or ‘childhood bullying’ or ‘peer victimisation (the American spelling, ‘victimization’, also used)’ or ‘childhood peer victimisation’ or ‘peer rejection’ or ‘childhood peer rejection’ and ‘consequences’ or ‘long-term consequences’ or ‘mental health’ and/or ‘adulthood’ or ‘adults’. Second, further research articles were identified through a manual search of reference lists from the retrieved articles.

To be included in the literature review, a study needed to satisfy the following criteria (1) published in peer-reviewed journals; (2) published in full and in English; (3) not dissertation papers, editorials, letters, conference proceedings, books or book chapters; (4) investigated being a victim of bullying by peers before the age of 18; (5) investigated a range of adverse effects in adults aged 18 and above; (6) had primary data obtained from retrospective (cross-sectional) or longitudinal studies.

### **3. Results**

Overall, 45 studies were found that have examined the relationship between being bullied by peers in childhood and experiencing negative outcomes in adulthood and met the inclusion criteria outlined above. A full list of the studies are included in Appendix B. The results of the literature search have been organised by research design sub-group; retrospective studies and longitudinal studies. Within these sub-sections the results have been organised by outcome measure sub-group in order to differentiate between all the potential long-term effects of childhood bullying.

#### **3.1. Retrospective Studies**

Overall, 41 studies were identified that used retrospective self-report methods, including questionnaires and interviews, to measure being the victim of childhood bullying.

##### **3.1.1. Self-Esteem**

In terms of self-esteem, the majority of research has concentrated on the effects of childhood teasing, particularly in relation to teasing about weight and appearance, in samples of females. In a sample of 40 clinically obese females, Grilo, Wilfley, Brownell and Rodin (1994) used the Physical Appearance Related Teasing Scale (PARTS; Thompson, Fabian, Moulton, Dunn & Altabe, 1991), a retrospective measure of teasing that measures two factors; Weight/Size Teasing (WST) and General Appearance Teasing (GAT). Initially they did not find any associations between low self-esteem and childhood teasing in their entire sample, but when they separated out the participants who had early-onset obesity ( $n = 15$ ) they found a large significant association between WST and self-esteem ( $r = -.55$ ). In a clinical sample

of 115 females with a diagnosis of Binge Eating Disorder (BED) small significant partial associations between self-esteem and GAT ( $r = -.25$ ) and WST ( $r = -.28$ ) were found when controlling for age of overweight onset and current Body Mass Index (BMI) (Jackson, Grilo & Masheb, 2000). In a replication study which also included a clinical sample of females with a diagnosis of Bulimia Nervosa (BN), Jackson, Grilo and Masheb (2002) found medium significant associations between self-esteem and WST ( $r = -.37$ ) and GAT ( $r = -.42$ ) in the BN sample, but non-significant associations between self-esteem and WST ( $r = -.27$ ) and GAT ( $r = -.27$ ) in the BED sample. This contrasts with the results of the Jackson et al. (2000) study that did find significant associations between self-esteem and GAT and WST. However, the Jackson et al. (2000) study had a sample of 115 females with BED whereas the Jackson et al. (2002) study had a sample of 32 females with BED meaning they had low statistical power to detect meaningful associations.

Further evidence for the association between childhood teasing and low self-esteem has been found in two studies that deployed their own measure of childhood teasing. Rosenberger, Henderson and Grilo (2006) found a small significant correlation between childhood teasing and self-esteem ( $r = .22$ ) in a sample of 131 extremely obese females awaiting bariatric surgery. Similarly, Rosenberger, Henderson, Bell and Grilo (2007) in a sample of 174 extremely obese females and males awaiting bariatric surgery, found that individuals with a history of moderate to severe levels of childhood teasing were significantly more likely to have lower levels of self-esteem compared to individuals with no or minimal levels of childhood teasing. Being one of a few studies that included males, it would have been interesting to analyse the moderating effect of gender, yet they failed to do this. Fortunately, Gleason,

Alexander and Somers (2000) did examine the differences between females and males in a sample of 164 undergraduates. They found that childhood teasing about competence was the only significant predictor of low self-esteem in adult males, whereas childhood teasing about appearance and competence were significant predictors of low self-esteem in adult females, thus suggesting that females may be more susceptible to the effects of teasing than males. However, Roth-Ledley et al. (2006) found that memories of childhood teasing were significantly correlated with self-esteem for both males and females. Finally, Matz, Faith, Foster and Wadden (2002) found no significant relations between childhood teasing and self-esteem in a sample of 79 obese females. However, unlike the majority of studies that have used the PARTS, they used the Perception Of Teasing Scale (POTS; Thompson, Cattarin, Fowler & Fisher, 1995), so the inconsistencies in results is most likely due to differences in the measures.

Whilst the majority of research has concentrated on a specific type of bullying, namely teasing, some studies have looked at bullying in general. Fosse and Holen (2007) used Olweus' (1991) inventory of bullying and found that being bullied by peers was a significant predictor of low self-esteem in a sample of 160 psychiatric outpatients. Similarly, on a global measure of bullying created by the authors, Schafer et al. (2004) found that individuals defined as victims of bullying were significantly more likely to have lower levels of general self-esteem, same-sex self-esteem and opposite sex self-esteem than individuals identified as non-victims of bullying. Matsui, Tsuzuki, Kakuyama and Onglatco (1996) found in a sample of 134 male Japanese undergraduates that severity of victimisation of different forms of bullying was negatively associated with self-esteem, but only for individuals who self-reported

low levels of self-esteem prior to the victimisation, suggesting that those who are already low in self-esteem may be more likely to be bullied. However, there may have also been a recall bias with individuals low in self-esteem selectively remembering childhood memories of low-self-esteem. Finally, using a global measure of bullying, Tritt and Duncan (1997) found a significant association between childhood victimisation and self-esteem in a sample of 206 undergraduates.

In sum, it would appear that there is conclusive evidence that there is an association between being bullied in childhood and low levels of self-esteem in adulthood, for both clinical and non-clinical samples. However, as most of the research has been conducted in females with measures of teasing, the results cannot yet be generalised to males or for other sub-types of bullying.

### **3.1.2. Loneliness**

Four of the five studies examining the association between being bullied in childhood and loneliness in adults have used the UCLA Loneliness Scale (Russell & Cutrona, 1988), which conceptualises loneliness as a discrepancy between an individual's desired and actual levels of loneliness (Strawser, Storch & Roberti, 2005). Three studies used validated measures of teasing, all of which found significant associations between memories of childhood teasing and loneliness in adults (Storch et al., 2004; Strawser et al. 2005; Faith, Storch, Roberti & Roth-Ledley, 2008). Using a global measure of bullying in a sample of 206 undergraduates, Tritt and Duncan (1997) found that victims of bullying reported significantly higher levels of loneliness than non-victims of bullying. Finally, Schafer et al. (2004) found that individuals identified as victims of bullying were significantly more likely to have higher levels of

emotional loneliness, a sub-scale of a self-perception measure, than non-victims of bullying.

In sum, the evidence is unequivocal in showing that there are clear associations between being a victim of bullying and subjective reports of being lonely in adulthood.

### **3.1.3. Shame**

Three studies have used an outcome measure of shame when investigating the effects of being bullied in childhood on later life functioning. Rosenberger et al. (2006) found a small significant correlation between being teased as a child and shame ( $r = .18$ ), as measured by the Internalised Shame Scale (ISS; Cook, 1993), in a sample of extremely obese females. Likewise, in a sample of extremely obese males and female, participants who reported being a victim of childhood teasing were significantly more likely to have higher levels of shame on the ISS than non-victims, even after controlling for childhood onset of obesity (Rosenberger et al., 2007). In a sample of 92 female patients diagnosed with a range of eating disorders (Sweetingham & Waller, 2008), those who reported being a victim of childhood teasing about their appearance were significantly more likely to have higher levels of shame, as measured by the Experience of Shame Scale (ESS; Andrews, Qian & Valentine, 2002), than non-victims.

Evidently, there is sufficient evidence for an association between childhood teasing and shame in adulthood within populations characterised by some form of eating disorder. As such, the samples are not representative of the general population, and

further research is required to determine if there is such an association in populations not characterised by eating disorders. Interestingly, no research has investigated the association between being a victim of childhood bullying and guilt, which is surprising given that shame and guilt are often associated with one another in the research literature (Tangney, 1996).

#### **3.1.4. Body Image Dissatisfaction**

A large number of studies have been interested in investigating the association between being teased in childhood and perceptions of Body Image Dissatisfaction (BID) in female adults. Most of the studies have used the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper & Fairburn, 1987), a validated scale that measures BID.

Three studies have examined the association between being teased in childhood and BID in adulthood exclusively in female samples meeting the DSM-IV (APA, 2000) criteria for eating disorders. Jackson et al. (2000) found that GAT, but not WST, was significantly partially associated with BID ( $r = .32$ ) in a sample of 115 females with a diagnosis of BED after controlling for age of overweight onset and current BMI. Conversely, Jackson et al. (2002) did not find that BID was significantly associated with GAT or WST in a sample of 32 females diagnosed with BED or a sample of 32 females diagnosed with BN. However, when they ran partial correlations controlling for age and BMI, they did find a medium significant association between GAT and BID in the sample diagnosed with BN ( $r = .38$ ). Interestingly, the non-significant association between GAT and BID found in the BED sample ( $r = .33$ ) in the Jackson et al. (2002) study was actually stronger than the significant association found

between GAT and BID in the BED sample in the Jackson et al. (2000) study. Therefore, it would appear that the smaller sample size in the Jackson et al. (2002) study resulted in low statistical power thus explaining the inconsistent results. Sweetingham and Waller (2008) found in a sample of 92 females diagnosed with a range of eating disorders that those who reported being teased about their appearance by peers were significantly more likely to have a greater level of BID, as measured by the body dissatisfaction sub-scale contained within the Eating Disorders Inventory (EDI; Garner, Olmsted & Polivy, 1983), than those who did not report a history of teasing. Furthermore, shame mediated the relationship between being teased and BID and there were no significant differences in BID for those who were victims or non-victims of verbal or physical bullying. The results of these three studies suggest that specifically, teasing around physical appearance has an association with BID in populations presenting with eating disorders. However, have similar results been found in other populations?

Grilo et al. (1994) actually found within a sample of 40 clinically obese females that WST, which had non-significant associations in the eating disorder studies, was strongly associated with BID ( $r = .53$ ). Cash (1995) specifically investigated the effects of physical appearance related-teasing and found significant associations between being teased and body image dysphoria in a sample of 111 female undergraduates. Rosenberger et al. (2006) found that being teased in general was significantly associated with BID ( $r = .24$ ). Matz et al. (2002) did not find any significant associations between being teased in childhood and BID in adulthood in a sample of 79 obese females. Clearly, there are mixed results regarding the effects of specific types of teasing on body image dissatisfaction in adults. Jackson et al. (2002)



concluded that the impact of different types of teasing may vary depending on the nature and severity of the eating disorder. However, there may be an alternative explanation. Thompson, Coovert and Stormer (1999) found in a sample of 173 female undergraduates that appearance-based social comparison mediated the relationship between being teased about appearance and BID. Therefore, specific types of teasing, such as appearance related teasing, may only impact on BID through the presence of specific mediating variables. Research is required to investigate other variables that may mediate the relationship between specific forms of teasing and BID in adults. Furthermore, all the research described thus far has failed to include males, excluding the possibility that gender may have a moderating effect.

Indeed, Grilo and Masheb (2005) found that WST, and not GAT, was one of three significant predictors that accounted for 28.4% of the variance in BID in 267 females diagnosed with BED. Yet, in 76 males diagnosed with BED neither GAT nor WST was a significant predictor of BID. Similarly, Gleason et al. (2000) found that BID had significant associations with being teased about appearance ( $r = .31$ ), being teased about competency ( $r = .28$ ) and being teased about weight ( $r = .38$ ) in 89 female undergraduates, but only found a significant association between BID and being teased about weight ( $r = .39$ ) in 75 male undergraduates. The results of these two studies suggest that gender may indeed have a moderating effect in the relationship between teasing and BID. The only other study incorporating both males and females found that victims of bullying had significantly higher levels of BID than non-victims, but they failed to do separate analyses controlling for the effect of gender (Rosenberger et al., 2007). In the only study specifically studying males, a sample of 95 males with a conviction for domestic violence, Shelton and Liljequist (2002) found

that victims of bullying were significantly more likely to have lower body image satisfaction, as measured by the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 1990), compared to non-victims. Therefore, it would appear that both male and female victims of teasing are susceptible to experiencing BID in adulthood but the association may be weaker for males.

In sum, a substantial body of evidence supports a relationship between being teased in childhood and experiencing BID in adulthood. Specifically, it would appear that teasing about physical attributes is a risk factor for developing BID, though it is less clear how different forms of teasing about appearance, such as GAT and WST, impact on BID. Clearly, more research similar to the Thompson et al. (1999) study is needed to determine how and why specific forms of bullying, such as appearance related teasing, impact on BID. Using both male and female populations may help to reveal some of the different psychological processes involved in mediating the relationship between teasing and BID.

### **3.1.5. Eating Psychopathology**

In comparison to the bullying research that has examined factors associated with eating psychopathology, fewer studies have examined the impact of being bullied in childhood and its association with eating psychopathology in adulthood.

A number of studies have used the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994), a 37-item self-report scale that measures six factors associated with eating psychopathology, including frequency of binge eating, frequency of vomiting, dietary restraint, eating concerns, shape concerns and weight

concerns, to measure eating psychopathology. Jackson et al. (2000) found in a sample of 115 females with BED that none of the six factors from the EDE-Q were associated with WST. In terms of GAT, there was only one small significant association and that was with weight concerns ( $r = .20$ ) when controlling for age of overweight onset and current BMI. Jackson et al. (2002) in a sample of 32 females diagnosed with BED also found no significant associations between WST and the six factors from the EDE-Q. They did find a medium significant association between GAT and dietary restraint ( $r = .47$ ). They also included a sample of 32 females with BN but found that WST and GAT had no significant associations with any of the five factors. In a sample of 92 females diagnosed with a range of eating disorders, Sweetingham and Waller (2008) found no significant differences between victims of verbal bullying, physical bullying or teasing and non-victims on measures of drive for thinness and bulimia taken from the EDI. Clearly, within populations with severe eating psychopathology, namely those diagnosed with an eating disorder, there is little evidence for an association between eating psychopathology as measured by the EDE-Q and being bullied in childhood. However, a couple of studies have utilised the EDE-Q with clinically obese populations.

For example, two studies used the EDE-Q in a sample of obese individuals awaiting bariatric surgery. Rosenberger et al. (2006) only used the Frequency of Binge Eating subscale from the EDE-Q and found no significant association with being teased in childhood in a sample of 131 females. However, when Rosenberger et al. (2007) deployed all of the subscales from the EDE-Q in a sample of 174 males and females they found that victims of childhood teasing were significantly more likely to have eating concerns, weight concerns and shape concerns. In a non-clinical population,

Thompson et al. (1999) found using covariance structure modelling that social comparison mediated the relationship between appearance-related teasing and eating disturbances, as measured by the Drive for Thinness and Bulimia measures from the EDI, in a sample of 173 female undergraduates. Studies utilising the EDE-Q or the EDI as their outcome measure have found little evidence for a relationship with being bullied in childhood, particularly within samples diagnosed with eating disorders, which suggests that a significant relationship may depend on the severity of the individual's eating psychopathology. Surprisingly, hardly any research has actually used the severity of an individual's eating psychopathology, namely a diagnosis of an eating disorder, as an actual outcome measure.

Striegel-Moore, Dohm, Pike, Wilfley and Fairburn (2002) chose to compare 162 females diagnosed with BED, 107 females diagnosed with a DSM-IV axis I psychiatric disorder and 249 healthy females to determine if females with BED were more likely to be victims of physical bullying. The authors found that females with BED were significantly more likely to have been victims of physical bullying than the healthy females, yet there were no significant differences between the females with BED and the psychiatric comparison group. A couple of studies have used obesity, as measured by the BMI, as an outcome measure. Gunstad et al. (2006) found that out of 19 early life stressors, being bullied was only one of two stressors that significantly predicted obesity in a sample of 332 males. Regression analyses revealed no significant predictors in a sample of 339 females. Kestila, Rahkonen, Martelin, Lahti-Koski and Koskinen (2009), in a sample of 1,894 adults aged 18-29 years, found that amongst the females that being bullied was the only factor to have an association with adulthood obesity, independently of all the other factors that they measured. No

significant association between being bullied and adulthood obesity was found in the males. It is somewhat interesting that these two studies found inconsistent results across gender, making it difficult to draw conclusions from the results. Further still, as Kestila et al. (2009) state, many of the individuals may have already been obese at school and subsequently bullied which may have confounded the results of the two studies. Indeed, Rosenberger et al. (2006) found a strong association between being teased in childhood and being overweight in childhood ( $r = .57$ ), suggesting that childhood obesity may be a confounding factor in the Gunstad et al. (2006) and Kestila et al. (2009) studies.

In sum, it would appear that evidence for an association between being bullied in childhood and eating disturbances is minimal. Given the lack of significant associations, particularly within populations with eating disorders, it would be worthwhile to determine if severity of eating psychopathology itself perhaps moderates or mediates the relationship between eating disturbance related factors and being bullied in childhood. Interestingly, when studies have used severity of eating psychopathology itself as an outcome measure, more consistent evidence for an association between being bullied in childhood and having severe eating psychopathology, as reflected by clinical levels of obesity or an eating disorder, have been found (e.g. Gunstad et al., 2006; Striegel-Moore et al., 2002). However, as with most retrospective studies, more longitudinal designs are needed before a causal connection between being bullied in childhood and severe eating psychopathology can be inferred.

### 3.1.6. Depression

Two studies have examined the association between being teased in childhood and experiencing symptoms of depression within individuals diagnosed with eating disorders. Jackson et al. (2002) found a significant association between GAT and depression in a sample of 32 females diagnosed with BED ( $r = .39$ ) and in a sample of 32 females diagnosed with BN ( $r = .48$ ). However, there was no significant association between WST and depression. Similarly, Jackson et al. (2000) found significant associations between GAT and depression within a sample of 115 females diagnosed with BED after controlling for age of overweight onset and current BMI. However, unlike the Jackson et al. (2002) study, they found significant associations between WST and depression ( $r = .21$ ). Two studies used a single question to elicit the teasing history of obese individuals awaiting bariatric surgery. Rosenberger et al. (2006) found a small significant relationship between childhood teasing and depression ( $r = .14$ ) whereas Rosenberger et al. (2007) found that individuals with a history of moderate to severe levels of childhood teasing were significantly more likely to have higher levels of depression compared to individuals with no or minimal levels of childhood teasing, even after controlling for childhood onset of obesity.

Further evidence for the association between childhood teasing and depression in later life comes from a series of studies that used different versions of a validated teasing scale in non-clinical samples, some of which produced a total teasing score only (Roth et al., 2002), some of which produced a total teasing score and five sub-scale scores measuring teasing about social behaviour, academics, performance, appearance and family (Storch et al., 2004; Strawser et al., 2005), and some of which produced a total teasing score and three sub-scale scores measuring teasing about social behaviour,

academics and appearance (Faith et al., 2008). In all four studies, significant associations were found between all the teasing scores and scores on a measure of depression. All of the eight studies that have found a significant association between childhood teasing and depression in adults have used different versions of the Beck Depression Inventory (BDI-II; Beck, Steer & Brown, 1996), the most widely used measure of depression (Roth et al., 2002). Therefore, there is compelling evidence that childhood teasing can impact on depression in adulthood. However, one question that remains unanswered is whether childhood teasing or other types of bullying are actually associated with clinical levels of depression?

Due, Damsgaard, Lund and Holstein (2009) used the Bech Major Depression Inventory (MDI; Bech, Rasmussen, Olsen, Noerholm & Abildgaard, 2001) that has a cut-off point that reflects the DSM-IV criteria for clinical depression. The authors found exposure to bullying was significantly associated with higher levels of depression in a sample of 614 adults. However, they failed to perform comparative data analyses to determine whether the 36 individuals who scored above the cut-off point for clinical levels of depression had significantly higher levels of exposure to bullying than those individuals who scored below the cut-off point for clinical levels of depression. Fortunately, Lund et al. (2008) did use clinical levels of depression as their outcome measure in their sample of 6,097 Danish males born in 1953. They used the MDI and also included a measure that asked participants whether a doctor had ever told them that they had depression. The authors found that both bullying duration and bullying intensity were significantly associated with both measures of depression even after controlling for social class and parental mental health history. Asking participants to recall whether a doctor had ever told them that they had depression

does not represent a reliable and valid way of measuring clinical levels of depression, but the fact that they also incorporated a validated measure of depression does lend some credibility to their findings. Pirkola et al. (2005) interviewed 4,076 members of the general population using a diagnostic interview, and found that being bullied as a child significantly predicted being diagnosed with depression in the last 12 months.

Three studies have used student or general population samples to examine the association between depression and being bullied in childhood. Lev-Wiesel, Nuttman-Shwartz and Sternberg (2006) found that social peer rejection was a significant predictor of depression severity in undergraduates. Matsui et al. (1996) found in a sample of 134 Japanese male undergraduates that severity of victimisation of different forms of bullying was significantly associated with depression, but only for individuals who self-reported high levels of depression prior to the victimisation, suggesting that those who are already low in depression may be more likely to be bullied. However, they had a rather unorthodox method of measuring being a victim of bullying. Participants were asked to recall the most prominent incident of victimisation that they experienced at school. They then had to choose from a list of different types of bullying, whether the incident they recollected was a form of verbal bullying or physical bullying, with physical bullying being rated as more severe for the purpose of scoring. They were then asked to indicate how many times they were a victim of this particular form of bullying. Clearly, there are a number of methodological issues with this measure. First, the authors assumed that physical bullying was more detrimental to mental health than verbal bullying by rating it as more severe. Second, the measure did not capture those victims who had experienced multiple forms of bullying. Therefore, the results of this study are methodologically



flawed and may impact on the reliability and validity of the results. Finally, Hock & Lutz (2001) found a medium significant correlation between being bullied in childhood by peers and depression ( $r = .45$ ) in a sample of 88 mothers.

In sum, it is evident that there is an association between being the victim of different types of bullying or teasing in childhood and experiencing symptoms of depression in later life. Less clear is the association between being a victim of bullying and being diagnosed with clinical depression in adulthood. Clearly, further research is required to confirm the results of the Lund et al. (2008) and Pirkola et al. (2005) studies.

Interestingly, no studies to date have examined the association between being bullied in childhood and being diagnosed with bipolar disorder in adulthood. This represents another avenue for future research.

### **3.1.7. Anxiety Symptoms**

Two studies have examined the effects of being bullied in childhood in adults with anxiety disorders. In a sample of 4,076 adults aged between 30-64 years, being bullied as a child was found to be a significant predictor of being diagnosed with an anxiety disorder (panic disorder, with or without agoraphobia; generalised anxiety disorder; social anxiety; and agoraphobia without panic disorder) according to DSM-IV (APA, 2000) criteria within the last 12 months (Pirkola et al., 2005). In a sample of adults with either social anxiety ( $n = 26$ ), Obsessive Compulsive Disorder (OCD) ( $n = 26$ ) or panic disorder ( $n = 26$ ; with or without agoraphobia), those who self-reported a history of childhood bullying or teasing had a significantly lower age of onset of their anxiety disorder and higher levels of anxiety in social situations when compared to those who did not report a history of childhood bullying or teasing (McCabe, Antony,

Summerfeldt, Liss & Swinson, 2003). Interestingly, they found that those diagnosed with social anxiety reported significantly higher levels of childhood teasing or bullying compared to those diagnosed with OCD or panic disorder. The results of this study suggest that being bullied as a child may be more strongly associated with social anxiety than other forms of anxiety.

Indeed, in a sample of 514 undergraduates, Roth et al. (2002) found that being teased in childhood was more strongly associated with social anxiety than worry in adulthood. Guzick, Dorman, Groff, Altermatt and Forsyth (2004) found in a sample of 581 students that childhood peer rejection had the strongest effect on social anxiety in adulthood ( $r = .37$ ) amongst a range of predictors including a lack of a close friend and family connectedness. Two studies have attempted to establish whether specific types of teasing are associated with fear of negative evaluation, a core component of social anxiety (Roth et al., 2002). Storch et al. (2004) found that fear of negative evaluation had a medium significant relationship with being teased in childhood about performance ( $r = .30$ ) and had a small significant relationship with being teased about academics ( $r = .19$ ), social behaviour ( $r = .22$ ) and appearance ( $r = .25$ ) in a sample of 414 undergraduates. In a replication study, Strawser et al. (2005) found that fear of negative evaluation had a medium significant relationship with being teased about appearance ( $r = .41$ ) and performance ( $r = .31$ ) and had a small significant relationship with being teased about academics ( $r = .27$ ), family ( $r = .16$ ) and social behaviour ( $r = .28$ ) in a sample of 303 undergraduates. Both the Storch et al. (2004) and Strawser et al. (2005) studies found a medium association between social anxiety and teasing about performance, suggesting that being teased about performance may be a significant factor associated with social anxiety. However, there were some

differences in the results of the two studies, such as with regards to teasing about family, despite the fact that both studies used exactly the same measure of teasing and social anxiety, suggesting there may be some reliability issues in measuring childhood teasing. Conversely, Sweetingham and Waller (2008) found no significant differences between victims of teasing and non-victims for fear of negative evaluation. However, they created their own dichotomous measure of teasing, again suggesting that the inconsistencies in results are likely to be a result of differences in defining and measuring teasing.

Whilst the majority of research has found a significant association between being bullied in childhood and social anxiety in adulthood, a number of other anxiety variables have also been investigated. Studies have shown that memories of childhood teasing are significantly associated with trait anxiety (Roth et al., 2002; Storch et al., 2004) and anxiety sensitivity (Roth et al., 2002). Lev-Wiesel et al. (2006) surveyed 387 undergraduates and found that of their sample, 112 participants reported social peer rejection as being their most traumatic childhood event whereas the other 275 participants reported physical, emotional or sexual abuse as their most traumatic childhood event. A hierarchical regression analysis was performed on those 112 participants who reported that social peer rejection was their most traumatic childhood event. Social peer rejection was found to be a significant predictor of symptoms of Post-Traumatic Stress Disorder (PTSD) in this sample. The authors failed to complete or report comparative analyses between the two groups so no conclusions can be drawn about the differential impact of different types of abuse on symptoms of PTSD. Finally, a study adopting an experimental design in which participants were subjected to an acute anxiety provoking stressor (being asked to prepare a speech), found that

male participants who had a self-reported childhood history of being bullied displayed a significantly blunted blood pressure response in comparison to male participants who did not have a self-reported childhood history of being bullied (Hamilton, Newman, Delville & Delville, 2008).

In sum, studies using both clinical and non-clinical samples have found associations between being bullied as a child and anxiety in adulthood. More specifically, research has consistently shown an association between being teased as a child and social anxiety in adulthood. Further studies adopting a longitudinal design and examining the difference between being bullied in childhood and different types of anxiety are needed to clarify whether being bullied as a child is a specific risk factor for particular forms of anxiety, such as social anxiety.

### **3.1.8. Substance Misuse**

There has only been one study that has used substance misuse as an outcome measure. Pirkola et al. (2005) interviewed 4,076 individuals of the Finnish general population aged between 30 and 64 years of age with a diagnostic interview to determine if individuals had suffered clinical levels of depression, anxiety or pure alcohol use disorders in the last 12 months. Using a logistic regression model, the authors found that being bullied at school predicted all of the diagnostic disorders classified from their diagnostic interview (depression and anxiety disorders) apart from pure alcohol use disorders. However, the study failed to explore other types of substance misuse such as drug dependency and did not adopt a validated measure of bullying. Therefore, until further replication studies are conducted with validated and standardised measures of bullying with populations experiencing different forms of

substance misuse it is difficult to draw any conclusions about the association between being bullied as a child and substance misuse in adulthood.

### **3.1.9. Relationship Variables**

A number of studies have used relationship variables as outcome measures. Roth-Ledley et al. (2006) did not find a significant relationship between being teased in childhood and having fewer closer friends in adulthood in a sample of 414 undergraduates. Whilst the results of this study suggest that teasing does not appear to impact on the quantity of friends, the study failed to explore how teasing may have impacted on the quality of friendships. Fortunately, other studies have examined the quality of friendships in later adulthood and its relation to being bullied in childhood.

For example, Schafer et al. (2004) found that when adults who were classified as victims of bullying ( $n = 247$ ) were compared to non-victims ( $n = 637$ ), that victims reported significantly more maintenance difficulties (e.g. "It's difficult to get along with close friend") with a close friend. However, there were no significant differences between victims and non-victims on four other sub-scales measuring the quality of friendships. Conversely, in a study of 940 undergraduates, those who self-reported not having experienced peer rejection in their childhood were significantly more likely to self-report having current good relationships with peers, romantic partners and family than those who were subjected to peer rejection in their childhood (Gumpel & Ish-Shalom, 2003). However, unlike the Schafer et al. (2004) study that used a validated measure of quality of friendships, the Gumpel and Ish-Shalom (2003) study created their own subjective questions to measure quality of friendships, thus possibly accounting for the differences in the conflicting results. Similarly, Jantzer, Hoover

and Narloch (2006) created their own bullying questionnaire and found that being a victim of childhood bullying was significantly associated with friendship satisfaction ( $r = -.23$ ) and trust in friendships ( $r = .31$ ) in a sample of 170 undergraduates.

However, there were no significant relationships with romantic relationship satisfaction and trust in romantic relationships, which may have been due to the fact that less than half the sample had romantic partners.

Whilst the results of studies examining friendship quantity and quality have been mixed, there has been more consistency in results when attachment has been explored. For example, Roth-Ledley et al. (2006) found small significant associations between memories of childhood teasing and a range of attachment-related factors including less comfort with intimacy, closeness, trusting others, depending on others and a fear of being abandoned. Similarly, Schafer et al. (2004) found that victims of bullying were significantly more likely to have a fearful attachment style, such as fearing getting close to others. Furthermore, using mediation models to analyse their data, Landolt, Bartholomew, Saffrey, Oram and Perlman (2004) found in a study of 191 gay males that peer rejection largely mediated the relationship between parental rejection and both attachment anxiety and attachment avoidance in adulthood. The evidence suggests that being a victim of bullying has an association with insecure attachment styles in later life. However, considering that attachment styles are relatively stable across the life span (Bowlby, 1969) and formed at a relatively early age (Ainsworth et al., 1978), being bullied may actually be a consequence of a child's insecure attachment style.

In sum, the results are mixed, particularly with regards to friendship quality-related variables. The studies that have found significant associations all created their own bullying questionnaires, so further research with standardised and validated measures of bullying are needed to replicate the results. In terms of attachment, longitudinal research is needed to rule out the possibility that attachment style makes a person susceptible to being bullied.

### **3.1.10. Personality Variables**

Jantzer et al. (2006) found a significant association between being a victim of bullying and shyness ( $r = .24$ ) in a sample of 170 undergraduates. Butler, Doherty and Potter (2007) found a medium significant relationship ( $r = .34$ ) between being teased in childhood and sensitivity to rejection in 104 undergraduates. In terms of the five teasing subscales, teasing about social behaviour produced the largest effect ( $r = .37$ ). In a sample of undergraduate females, Miller and Vaillancourt (2007) explored the impact of different types of bullying; indirect aggression, direct physical aggression and direct verbal aggression, on perfectionism. The authors conducted two separate studies using different samples and measures of perfectionism in each of the studies. In the first study the multiple regression analyses revealed that indirect aggression was a predictor of socially prescribed perfectionism, self-oriented perfectionism and other-oriented perfectionism, accounting for approximately 4% of the variance. Verbal aggression was a significant predictor of other-oriented perfectionism. The results were replicated within their second study, with indirect aggression being the only significant predictor for an eating disorders subscale of perfectionism, accounting for approximately 11% of the variance. Similarly, Rosenberger et al. (2006) did not find significant associations between being teased in childhood, a form

of direct verbal aggression, and perfectionism, suggesting that perfectionism may only have associations with specific forms of bullying, namely indirect aggression.

Interestingly, both Butler et al. (2007) and Miller and Vaillancourt (2007) found that different types of bullying had a differential impact on personality variables. Thus, in the Butler et al. (2007) study, it was specifically teasing about social behaviour that had the strongest association with rejection sensitivity, and in the Miller and Vaillancourt (2007) study, it was specifically indirect aggression that was consistently associated with perfectionism. Unfortunately, Fosse and Holen (2007) failed to use a sensitive measure of bullying as the previous studies had. In their sample of 160 patients from a psychiatric outpatient ward, they found that bullying by peers significantly predicted an external locus of control, but did not predict any of the 'Big Five' personality traits; openness to experience, conscientiousness, extroversion, agreeableness and neuroticism (Pervin, Cervone & John, 2005). Perhaps, if the authors had used a scale that measured different types of bullying, they may have found some interesting and significant relationships with some of the 'Big Five' personality traits. Clearly, more research is needed to explore how different types of bullying can impact on a range of different personality variables.

### **3.1.11. Bullying Variables**

A couple of studies have investigated whether individuals who are bullied in childhood are also victims of bullying in adulthood. Smith et al. (2003) found in a sample of 5,288 adults from various workplaces in the UK that individuals who indicated that they had been bullied in their childhood were significantly more likely to have been a victim of workplace bullying in both the last six months and last five



years. This study included a specific definition of bullying thus increasing the construct validity of the study. However, their effect was rather modest, with a large number of individuals reporting being a victim of workplace bullying indicating that they had not been bullied at school. Twemlow, Fonagy, Sacco and Brethour (2006) surveyed 116 teachers in the US and found that being bullied as a child had medium significant relationships with being bullied as teachers by their students ( $r = .34$ ) and with bullying their students as a teacher ( $r = .32$ ). Furthermore, they found a small significant association between being bullied as a child and being bullied outside of work as an adult ( $r = .28$ ). The results of both these studies suggest that some victims of bullying face a lifetime of being bullied, though given the size of the effect for both studies it would appear that only a small proportion of victims are at risk.

Clearly, research is needed to clarify why certain individuals experience bullying throughout their lives. For example, Smith et al. (2003) found that individuals who did not report being able to cope with bullying in childhood were significantly at risk of being bullied as adults in their workplace. Thus, an individual's coping strategies may act as a buffer against the long-term effects of bullying. Further research is needed to expand on this area to determine what other factors or characteristics may pre-dispose someone to a lifetime of bullying and associated distress.

### **3.1.12. Socio-Economic Variables**

Two studies have examined the association between being bullied in childhood and the possible effects on socio-economic status in later life. Varhama and Bjorkqvist (2005) recruited 68 Finnish males and females from a back-to-work training programme aimed at individuals with long-term unemployment. Participants were

asked open-ended questions about whether they had been bullied and how frequently. As with many of the previous studies, no definition of bullying was provided. They found that 29.5% of the participants had experienced bullying by peers at comprehensive school at least once a week. When compared to national data, in which 8% of 53,394 Finnish adolescents at secondary school reported being bullied at least once a week, they found the difference to be statistically significant. However, the national data was sourced in 2001, and the average age of their small sample was 42 years, therefore the study was unable to match the samples and control for cohort effects. Furthermore, as the study failed to define and elaborate on the extent of their sample's length of unemployment, as well as failing to use unemployment as an outcome measure, it is difficult to draw meaningful conclusions from the results.

Fosse and Holen (2004) used the Olweus (1991) Inventory to categorise 160 psychiatric outpatients as victims or non-victims of childhood bullying. Using victim versus non-victim as their dependent variable, within a logistic regression analysis they found that being single, having a lower level of education and living on social benefits were all significantly associated with being a victim of bullying. Furthermore, bivariate analyses revealed that those who were bullied were significantly more likely to have unskilled jobs, such as working as a shop assistant, than non-victims. Whilst the results suggest that being a victim of bullying in childhood can have significant associations with socio-economic status in adulthood, the lack of a control comparison group and its reliance on a population with psychiatric mental health problems makes it difficult to generalise the results of the study to the general population.

### **3.1.13. Miscellaneous Variables**

Hock & Lutz (2001) followed 88 mothers and their children aged 18 months over a 20-month period. They found that mother's interview-based ratings of internal representation of self, which measures an individual's perception of their self in relation to others, was significantly associated with being bullied in childhood. Furthermore, they found a significant association between the mother's recollections of being bullied in childhood and behavioural problems displayed by their child. However, the authors failed to provide effect sizes and it is worth noting that depression was significantly associated with all of the above variables, suggesting that the mother's depressive state may have had a possible confounding effect, particularly in relation to the development of behavioural problems in the children. Finally, van Dijk et al. (2007) found that adult survivors of retinoblastoma who had been bullied as a result of their condition in childhood were significantly more likely to have an impaired quality of life compared to non-victims.

### **3.1.14. Summary**

Evidently, there is a large body of research indicating an association between being bullied in childhood and suffering long-term consequences in adulthood, particularly depression, low self-esteem and BID. However, as the research is correlational, has largely ignored the role of mediating and moderating variables and in a lot of cases failed to control for confounding variables, causal relationships cannot be inferred. Similarly, the majority of research has been conducted with undergraduate psychology student samples, eating disorder samples and with females, and so there are issues around the ecological validity of the research. Furthermore, there does not appear to be a consistent definition of bullying. Some studies defined victims

dichotomously whereas others defined bullying on a continuum. Some studies used a global construct of bullying whereas other studies examined different types of bullying. Even in the area of teasing, which was the most researched sub-type of bullying, there were huge variations in the definition of teasing measured, with some measures focussing exclusively on appearance related teasing (e.g. the PARTS) and others measuring a range of domains of teasing (e.g. the TQ-R). However, despite all these methodological concerns, the research is quite consistent in illustrating that being bullied in childhood has an association with a diverse range of adverse outcomes in adulthood.

### **3.2. Longitudinal Studies**

Overall, four studies were identified that utilised a longitudinal research design. Specifically, all four studies were part of a larger nationwide study called “From a Boy to a Man”, an epidemiological study examining psychiatric disorders in Finland (Almqvist et al., 1999), in which 10% ( $N = 6,017$ ) of the base population of children born in 1981 were assessed at the age of eight. In 1999, at the age of 18, all males in Finland receive an obligatory call-up to the National military. The Finnish army conducts a psychiatric examination and puts all the results on a military call-up register, which the researchers had access to. Thus, the four studies described below are based upon Finish males assessed at the age of eight and followed up between the ages of 18 and 23.

#### **3.2.1. Depression**

Two studies have exclusively examined being bullied in childhood and its long-term effects on depression in adulthood. Haavisto et al. (2004) found in a sample of 2,348

18 year-old males that being a victim of childhood bullying, as self-reported at the age of eight, was significantly predictive of depressive symptoms, as measured by the BDI, in adulthood. Utilising exactly the same sample as that of the Haavisto et al. (2004) study, Klomek et al. (2008) found that those who had been both frequently bullied and a frequent bully at the age of eight were significantly more likely to be depressed in adulthood. Those who were only frequently bullied were not significantly more likely to be depressed at the age of 18. Surprisingly, these two studies utilised the same sample and outcome measure of depression, yet found completely contrasting results, why is this so?

It would appear that the answer lies in the different research designs deployed by the two studies. In the Haavisto et al. (2004) study they only used the participant's self-reports of being bullied, whereas the Klomek et al. (2008) study combined the participant's self-reports with teacher's observations of the participant being bullied. Indeed, Klomek et al. (2008) note that inter-rater agreement was low, suggesting that relying purely on one measure of bullying may not be an accurate and reliable form of measuring being a victim of bullying. Furthermore, Haavisto et al. (2004) chose to categorise both participants who reported being infrequently bullied and those who reported being frequently bullied as victims of bullying in their logistical regression. In contrast, Klomek et al. (2008) categorised victims of frequent bullying and infrequent bullying separately, and so it would appear that depression later in life may be dependent on the frequency of bullying experienced in childhood, thus suggesting a 'dose response' relationship. Finally, Haavisto et al. (2004) failed to control for the effects of childhood depression. In fact, they stated that childhood depression, as measured by the Children's Depression Inventory (CDI; Kovacs, 1992), was the

strongest predictor of being depressed in adulthood. However, Klomek et al. (2008) controlled for childhood depression when conducting their statistical analyses, thus meaning that childhood depression may have had a confounding effect in the Haavisto et al. (2004) study.

In sum, Klomek et al. (2008) deployed a stronger methodological design than that of Haavisto et al. (2004), and subsequently found that being bullied at the age of eight did not predict depression in adulthood. However, they did find that those who were frequently bullied and a frequent bully were significantly more likely to be depressed. Clearly, further well-designed studies, incorporating females, are needed to investigate the effects of being bullied on depression in adulthood.

### **3.2.2. Psychiatric Diagnoses**

Two studies have used psychiatric diagnoses in early adulthood as an outcome measure. Based upon psychiatric diagnostic criteria, Sourander et al. (2007) used five groups of psychiatric disorder as their outcome measure; anxiety disorder, depressive disorder, anti-social personality disorder, substance misuse disorder and psychotic disorder. In a sample of 2,540 males aged between 18 and 23, they found that when they controlled for parental education level and childhood psychiatric symptoms as measured at the age of eight, being a victim of frequent bullying independently predicted having an anxiety disorder. Participants who were both frequent victims and bullies were significantly likely to have either anxiety disorders or anti-social personality disorder.

Using the same sample as Sourander et al. (2007), Ronning et al. (2009) used any psychiatric diagnosis disorder as an outcome measure. They found that being a frequent victim or bully at age eight predicted psychiatric morbidity in adulthood, whereas sometimes being a victim or bully had a low risk for psychiatric diagnosis in adulthood, thus providing further evidence for a dose response relationship, namely that it is the level of frequency of being bullied that is critical in predicting psychiatric morbidity in adulthood. Furthermore, they found that whilst inter-rater reliability was low between teacher, parent and children's self-reports for measuring being a victim of bullying, that all three independently predicted psychiatric morbidity. However, this association was eliminated for all three forms of measurement once childhood psychiatric symptoms were controlled for.

In sum it would appear that being a victim of childhood bullying does place them at risk of developing a psychiatric diagnosis in adulthood. Yet, there does appear to be a dose-response relationship, with the risk of developing a psychiatric diagnosis in adulthood somewhat dependent on the level of frequency of victimisation that the child suffered. Clearly, further research is required to investigate the dose response relationship in terms of frequency, yet it is also important to investigate other types of dose response relationships, such as in terms of severity (e.g. being a victim of one type of bullying versus being a victim of more than one type of bullying).

### **3.2.3. Summary**

Unfortunately, only four studies have been conducted using a longitudinal design, and all these studies have been based on a homogenous sample of Finnish males and so only tentative conclusions can be drawn. What is rather more confounding is that

despite drawing upon the same sample, same measure of bullying and same outcome measure, two studies managed to produce completely contrasting results, with one study finding that being bullied in childhood did predict depression in adulthood (Haavisto et al., 2004), whereas the other study did not find a significant association (Klomek et al., 2008), which appears to be a result of methodological issues as stated previously in the literature review. It is quite worrying that a few subtle differences in the research and statistical designs of the two studies created such contrasting results. Nevertheless, there is some evidence to suggest that being bullied in childhood can cause later psychopathology in adulthood, though further well-controlled longitudinal studies applied to a variety of samples (e.g., females) are required before more substantial claims about the long-term effects of bullying can be made.

#### **4. Methodological Limitations**

Many of the retrospective and longitudinal studies evaluated in the literature review suffered from a range of methodological limitations common to most psychological research, including a lack of control groups, poor ecological validity stemming from limited and homogenous samples and small statistical power resulting from small sample sizes. However, there were some more specific methodological issues particularly pertinent to evaluating bullying research.

##### **4.1. Causality**

The majority of studies reviewed within this literature review utilised cross-sectional designs. Therefore, causal relationships between childhood bullying and adverse effects in adulthood cannot be inferred given the correlational nature of the research designs (Jackson et al., 2002; Strawser et al., 2005). Hence, it is feasible that



individuals who self-report being victims of bullying may have displayed certain attributes that pre-disposed them to being bullied (Storch et al., 2004; Hamilton et al., 2008). For example, Olweus (1993) suggests that children who are shy are more likely to be teased. Similarly, in the Matsui et al. (1996) study bullying was only significantly associated with depression and low self-esteem in individuals reporting depression and low self-esteem, respectively, prior to the onset of the bullying. Furthermore, it is plausible that a third variable may mediate or moderate the relationship between being bullied in childhood and experiencing adverse outcomes in adulthood. The only way to establish causality is for more researchers to deploy longitudinal designs.

#### **4.2. Bullying is Assessed Retrospectively**

Aside from four studies that deployed a longitudinal design, the majority of studies investigating bullying have relied upon retrospective recall of their childhood bullying experiences. Some authors (e.g., Pirkola et al., 2005) have expressed concerns that childhood memories of bullying may be prone to recall bias, particularly in individuals in a highly distressed state or with mental health difficulties who may be more likely to recall adverse childhood memories. However, in a comprehensive review of studies using retrospective data, Brewin, Andrews and Gotlib (1993) concluded that there is little evidence to suggest that there is a recall bias for negative memories in distressed individuals.

Another concern expressed by authors (e.g., Storch et al., 2004) is that childhood bullying may not be recalled accurately. However, Olweus (1993b) longitudinally followed participants whose actual bullying status was recorded at the age of 16, and

found that at the age of 23 participants' recalled memories of being bullied significantly correlated with their real bullying status at the age of 16 ( $r = .42$ ), thus suggesting that memories of bullying may be accurate. Furthermore, several studies have demonstrated consistent re-test reliability over long periods of time for retrospective measures of bullying (Rivers, 2001; Hock & Lutz, 2001).

### **4.3. Effect of Gender**

A large number of studies focussed on females, partly because the research was conducted with samples with eating disorders, in which the prevalence is particularly high for females (National Institute of Mental Health, 2008) and partly because research has been conducted with psychology undergraduates, which from inspecting the male-to-female ratios of the relevant studies suggests that psychology is more popular with females. Similarly, in the longitudinal studies national military call-up made it easier for the researchers to sample males rather than females, thus there are no longitudinal studies conducted with females. Clearly, it is difficult to generalise the effects of bullying and somewhat difficult to establish if gender moderates the relationship between bullying and adverse effects in adulthood. Indeed, the bullying research in the area of BID evaluated earlier suggests that gender may have a moderating effect. Unfortunately very few studies that studied both males and females analysed gender as a moderating variable or separately and so further research is required.

### **4.4. Definitional Issues**

The biggest limitation of bullying research, which has already been described earlier in the literature review, is the lack of consensus about the definition of bullying. As

several researchers have remarked, an internationally recognised, validated and standardised measure of bullying for adults, to the best of their knowledge, and the author's, does not exist (Card & Hodges, 2008; Lund et al., 2008). This is largely due to researchers using different definitions of bullying. As Wong (2009) states, researchers cannot even agree on whether participants should be provided with a definition of bullying. Subsequently, the lack of validated measures has resulted in many studies evaluated within the literature review simply creating their own questionnaires (e.g., Twemlow et al., 2006), meaning the psychometric properties of the scale are unknown. Other studies simply used a single dichotomous question to elicit bullying which can lead to issues in construct validity. Questions that use a broad construct of bullying may restrict the effects of different types of bullying.

The other definitional issue concerns whether to conceptualise bullying as a categorical variable or to conceptualise bullying as a continuum. The majority of studies in the literature review favoured the categorical approach but there are drawbacks to this approach. If less frequent or severe bullying is not associated with some adverse outcomes in adulthood, then the inclusion of individuals with less frequent or severe bullying could lead to mixed findings as reflected by the inconsistent findings of the Haavisto et al. (2004) and Klomek et al. (2008) studies described earlier. Furthermore, a continuum definition of bullying would make it easier for researchers to assess a dose-response relationship.

## **5. Recommendations**

### **5.1. Directions for Future Research**

To date research has established a strong link between being bullied in childhood and a range of adverse outcomes in adulthood, yet there is still much more research to be done in some important areas.

First, researchers need to establish clearer definitions of bullying and be more explicit in disseminating them to both participants and fellow researchers. This in turn will hopefully lead to the development of more standardised and validated measures of bullying and sub-types of bullying. For example, many studies have investigated the effects of childhood teasing on adult functioning, but less is known about the effects of other types of bullying, such as indirect bullying, and what types of bullying are most likely to produce an adverse effect (Rigby, 2003).

Second, researchers need to establish stronger support for a causal link between being bullied in childhood and adverse outcomes in adulthood. This requires well-controlled longitudinal studies that follow individuals through childhood to adulthood and measure and control for the effects of pre-bullying characteristics. Unfortunately, such studies are scarce for a reason, namely that they are costly and time-consuming, so another important research method that is more feasible and will help to strengthen the causal association between being bullied in childhood and adverse effects in adulthood is to determine what mechanisms may mediate or moderate the relationship, such as gender or cognitive factors.

Third, the literature review has shown that research has focussed on and established that being bullied in childhood has associations with a wide range of symptoms such as depression, BID and low self-esteem. However, there are some symptoms that have received less empirical investigation, such as substance misuse, symptoms of psychosis and bipolar disorder. Clearly, further cross-sectional research is required to establish the full range of long-term effects that being bullied in childhood is associated with.

Fourth, the literature review deliberately confined itself to the effects of peer bullying on victims and so did not reflect on other areas of bullying-related research.

Nevertheless, it is worth noting some of these research areas as potential avenues for investigating the long-term effects of bullying. For example, it would be interesting to explore the long-term impact of bullying by individuals other than peers, such as bullying by teachers or parents. Similarly, investigating the long-term impact of being a bully or being both a victim and bully represents another interesting avenue for research given the results found in the Sourander et al. (2007) study. Further, very little is known about those victims who do not actually develop any adverse effects, thus more research is required to investigate resiliency factors. Finally, it would be interesting to monitor the long-term effectiveness of anti-bullying initiatives into adulthood.

## **5.2. Implications for Clinical Practice**

The studies summarised in the literature review have implications for mental health professionals and for anti-bullying initiatives. Whilst there is a lack of evidence for a direct causal link between bullied in childhood and adverse effects, including

emotional distress and psychopathology, in adulthood, the literature review has been able to show that there is consistent and clear evidence for an association between being bullied in childhood and adverse effects in adulthood, which nevertheless has clinical implications for both mental health professionals and facilitators of anti-bullying initiatives.

Considering the association between bullying in childhood and adverse effects in adulthood, mental health professionals working across the life span (e.g., children or adults) should be more aware of the potential implications of this research for their clinical practice. For example, it would be important to integrate an assessment of a history of childhood bullying into an overall comprehensive assessment making sure to ask specific questions about the nature of bullying, such as the type of bullying experienced. It is particularly important to ask specific questions about the duration, frequency and severity of the bullying considering that there is evidence to suggest a dose response relationship. It would also be important to explore whether the individual was also a bully given that longitudinal studies (e.g. Klomek et al., 2008) have found individuals who are both victims and bullies are more likely to suffer long-term adverse effects. Understanding that being bullied may account for an individual's current emotional distress would help mental health professionals to formulate their understanding of certain problems, such as cognitions, for therapeutic intervention (Strawser et al., 2005). Furthermore, considering that some studies have found evidence of possible cognitive mediators (e.g. Thompson et al., 1999) this would impact on cognitive formulations of emotional distress.

The finding that being a victim of bullying is associated with a range of long-term adverse consequences provides further incentive for educators and government to develop and implement anti-bullying initiatives. Within anti-bullying initiatives, educating children about the long-term harm that bullying can have may be a powerful element in reducing and preventing the prevalence of bullying. Education about the long-term effects of bullying on mental health would also be beneficial for educators and parents. If children are provided with coping strategies to minimise the internalisation of being bullied, or taught assertion and conflict-resolution skills to reduce bullying, then the adverse effects of childhood bullying may be reduced in adulthood (Strawser et al., 2005).

## **6. Conclusions**

In conclusion, an increasing number of studies are finding an association between being bullied in childhood and adverse outcomes in adulthood, including psychological distress and psychopathology. Researchers must now start to develop more sophisticated research interests, including establishing clearer definitions of bullying, developing standardised and validated measures of bullying, determining whether there is a causal relationship between being bullied in childhood and adverse effects in adulthood by conducting more longitudinal research, and understanding more about the variables and factors that may moderate or mediate this relationship.

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**Emotions and Negative Beliefs as Possible Mediators in the Relationship between  
Childhood Experiences of being Bullied and Paranoid Thinking in a Non-  
Clinical Sample**

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(see Appendix C for ‘Guide for Authors’)



## **Abstract**

### **Objective:**

The primary objective was to further the understanding of psychological factors that contribute to the development of paranoid thinking. It was hypothesised that emotions and/or negative beliefs would mediate the relationship between childhood bullying and paranoid thinking in adulthood.

### **Method:**

A cross-sectional research design was utilised with 152 female and male undergraduate students. Data was collected through self-report questionnaires measuring demographics, retrospective memories of three types of childhood bullying ('indirect aggression', 'direct verbal aggression', 'direct physical aggression'), 'anxiety', 'depression', 'interpersonal sensitivity', 'negative beliefs about self' and 'negative beliefs about others' and two types of paranoid thinking ('ideas of social reference', 'persecution').

### **Results:**

Aside from the relationship between 'direct physical aggression' and 'interpersonal sensitivity', all the research variables displayed significant, positive correlations with one another. Regression analyses revealed that both 'ideas of social reference' and 'persecution' were significantly predicted by all the independent variables after controlling for 'gender' and 'ethnicity', accounting for 49% and 42% of the variance, respectively. Mediation analyses revealed that 'negative beliefs about self' and 'depression' significantly mediated the relationship between 'indirect aggression' and both types of paranoid thinking, whereas 'negative beliefs about others' mediated the relationship between 'direct verbal aggression' and both types of paranoid thinking.

**Conclusions:**

The results suggest that negative beliefs are the primary mediators of the relationship between bullying and paranoid thinking indicating cognitive models as the most appropriate theory for understanding the development of paranoid thinking. There are clinical implications for interventions for psychosis.

**Key words:**

Childhood bullying, paranoid thinking, mediators

## **1. Introduction**

Research suggests that paranoid thinking, a delusional belief in which a person believes that someone wants to intentionally harm them either physically or socially (Freeman & Garety, 2000), is highly prevalent within the general population (Ellett, Lopes & Chadwick, 2003). At least 10-15% of the general population are believed to regularly experience paranoid thoughts (Freeman, 2007). The fact that paranoid thinking is prevalent within the general population has led many researchers to argue that paranoia is multi-dimensional and on a continuum (Freeman, 2007). For example, Freeman et al. (2005) found that 30-40% of a student sample experienced social evaluative concerns, such as ideas of social reference, 10-30% experienced mild persecutory delusions and 5% experienced severe persecutory delusions, on a weekly basis, thus suggesting a hierarchy of paranoid thinking. Therefore, given the similarities between clinical and non-clinical experiences of paranoid thinking and the high occurrence of paranoid thinking in the general population, research is increasingly studying paranoid thinking in non-clinical populations (Freeman et al., 2008a; Freeman, 2006) and in analogue studies (Gracie et al., 2007).

### **1.1. Psychological Factors Associated with Paranoid Thinking**

In the last couple of decades there has been a surge of research into understanding the psychological factors that are associated with and may predict paranoid thinking within the general population (Freeman, 2007). Some of the key psychological factors contributing to the development and maintenance of paranoid thinking will be described in detail below:

### **1.1.1. Adverse Early Life Experiences**

The impact of adverse early life experiences on paranoid thinking has received renewed interest in non-clinical populations (Freeman, Bentall & Garety, 2008b; Read, Rudegair, & Farrelly, 2006). For example, Gracie et al. (2007) found in a sample of 200 students that a history of childhood trauma, including sexual and physical assault was significantly associated with higher levels of paranoid thinking. Similarly, Johns et al. (2004) found in the British National Survey of Psychiatric Morbidity in which 8,580 members of the general population were interviewed, that victimisation experiences, including bullying, violence at home or work and sexual abuse, were significantly associated with paranoid thinking. As Freeman et al. (2008b) and Johns et al. (2004) both state, experiencing victimisation early in life may lead a person to perceive themselves as vulnerable and to negatively bias others behaviours as hostile.

One specific form of victimisation that has been found to be associated with paranoid thinking in the general population is bullying. For example, Campbell and Morrison (2007) found that 14 – 16 year-olds who perceived themselves to be victims of bullying were significantly more predisposed to paranoid thinking than those children who did not believe that they were victims of bullying. However, research has failed to explore the effects of different types of bullying on paranoid thinking. For example, Miller and Vaillancourt (2007) found that indirect aggression, a form of bullying that involves social exclusion and rejection (Card, Stucky, Sawalani & Little, 2008), was a significant predictor of perfectionism rather than direct forms of aggression, such as verbal or physical aggression. Therefore, it may be the case that a specific type of bullying is associated with paranoid thinking.

### **1.1.2. Emotions**

Researchers are investigating the role of emotions in the development and maintenance of paranoid thinking (Freeman, 2007). For example, Freeman et al. (2008a) found emotional processes such as interpersonal sensitivity, anxiety and depression to be significantly associated with paranoid thinking in the general population. In particular, evidence suggests there is a strong association between paranoid thinking and anxiety (Freeman, 2007). For example, a range of processes associated with anxiety, including worry and catastrophising, has been found to have significant associations with paranoid thinking in non-clinical samples (Freeman et al., 2008a). It is not surprising that anxiety and paranoid thinking are associated considering that they share a common emotion, namely fear (Chadwick, 2006). It may be the case that anxiety helps to create thoughts of a paranoid nature (Freeman, 2007).

### **1.1.3. Negative Beliefs**

Fowler et al. (2006) found in a sample of 754 students that paranoid thinking was significantly associated with negative beliefs about the self and others. Furthermore, negative beliefs about self and others were found to be more predictive of paranoid thinking than low self-esteem (Fowler et al., 2006). Trower and Chadwick (1995) have distinguished between two types of paranoid thinking in clinical populations, 'poor me' paranoia in which the perceived persecution is undeserved and 'bad me' paranoia in which the perceived persecution is deserved. Chadwick (2006) states that in 'poor me' paranoia it is negative beliefs about others that dominates consciousness, whereas in 'bad me' paranoia it is negative beliefs about self that dominate

consciousness. Whilst this theory was derived specifically for clinical populations, it still has applicability for non-clinical populations.

### **1.2. A Multi-Factor Model of Paranoid Thinking**

At present there is one theory of paranoid thinking that has attempted to incorporate all the multiple factors found to be predictive of paranoid thinking; the threat anticipation cognitive model (Freeman, Garety, Kuipers, Fowler & Bebbington, 2002). The model postulates that adverse early life experiences or triggers such as drug taking lead to the development of a number of mediating psychological processes including emotions, particularly anxiety, interpersonal sensitivity and worry, anomalous experiences, reasoning biases and search for meaning, which in turn lead to paranoid thinking (Freeman et al., 2008b; Freeman et al., 2002). The model is explicit in that it suggests that multiple, interacting factors are integral to the development and maintenance of paranoid thinking (Freeman et al., 2008b).

### **1.3. Empirical Evidence for the Role of Mediators**

Despite the advances in theories and research into understanding the role of the many and various psychological factors implicated in the development of paranoid thinking, it is still unclear as to how they all interact together (Freeman et al., 2008b; Smith et al., 2006). For example, Gracie et al. (2007) examined the role of trauma and negative beliefs in the development of paranoid thinking in a non-clinical population. They found that whilst trauma had a significant impact on paranoid thinking, that it was negative beliefs about self and negative beliefs about others that accounted for 29% and 32% of the variance in paranoid thinking, respectively. This led the authors to claim that negative beliefs may be a mediator of the relationship between trauma and

paranoid thinking. However, the authors did not perform any statistical mediation analyses to confirm or disconfirm this hypothesis.

To the author's best knowledge, there is only one study to date that has empirically tested the role of mediators in the relationship between adverse early life experiences and paranoid thinking, as postulated by the threat anticipation cognitive model.

Freeman and Fowler (2009) examined whether a range of factors, including anxiety, depression, negative beliefs about self and illicit drug use would mediate the relationship between adverse early life experiences and paranoid thinking in 200 members of the general population. Specifically, Freeman and Fowler (2009) found that anxiety mediated the relationship between adverse early life experiences and paranoid thinking, thus providing some support for the threat anticipation cognitive model.

However, there are a number of flaws in the Freeman and Fowler (2009) study. First, the authors incorporated negative beliefs about self as a mediator but failed to include negative beliefs about others, which is surprising given that it accounted for more variance in paranoid thinking than negative beliefs about self (Gracie et al., 2007). Second, the authors used a multi-construct measure of paranoid thinking, yet failed to include one of the constructs 'ideas of social reference' as a dependent variable, which again is surprising given the consensus around paranoid thinking being on a continuum (Freeman, 2007). Third, the study failed to differentiate between the different types of adverse early life experiences when conducting the data analyses, thus excluding the possibility that certain types of trauma may have had more or less of an impact on paranoid thinking.

#### **1.4. The Current Study**

In sum, there is considerable evidence to suggest that a range of factors is implicated in the development and maintenance of paranoid thinking in a non-clinical population, including adverse early life experiences, emotions and negative beliefs about self and others. The threat anticipation cognitive model suggests that these specific factors and a range of others all interact to lead to the development and maintenance of paranoid thinking. However, whilst there is evidence for the association of each of the individual factors with paranoid thinking, there is considerably less evidence for a mediating relationship between several of the factors and paranoid thinking in a non-clinical population. The present study aims to fill this gap by exploring whether emotions and negative beliefs mediate the relationship between adverse early life experiences, specifically bullying, and paranoid thinking in a non-clinical adult population.

#### **1.5. Research Objectives**

The study builds upon previous research that has found an association between bullying and paranoid thinking (Johns et al., 2007; Campbell & Morrison, 2007) by specifically exploring the impact of three different types of childhood bullying; ‘indirect aggression’, ‘direct verbal aggression’ and ‘direct physical aggression’, on two types of paranoid thinking; ‘ideas of social reference’ and ‘persecution’, in adulthood. Whilst research has found significant associations between bullying and paranoid thinking, no research has yet explored the relationship between different types of bullying and paranoid thinking. This is a particularly relevant research



objective considering that research has found different types of bullying have different effects on psychological well-being (e.g., Miller & Vaillancourt, 2007).

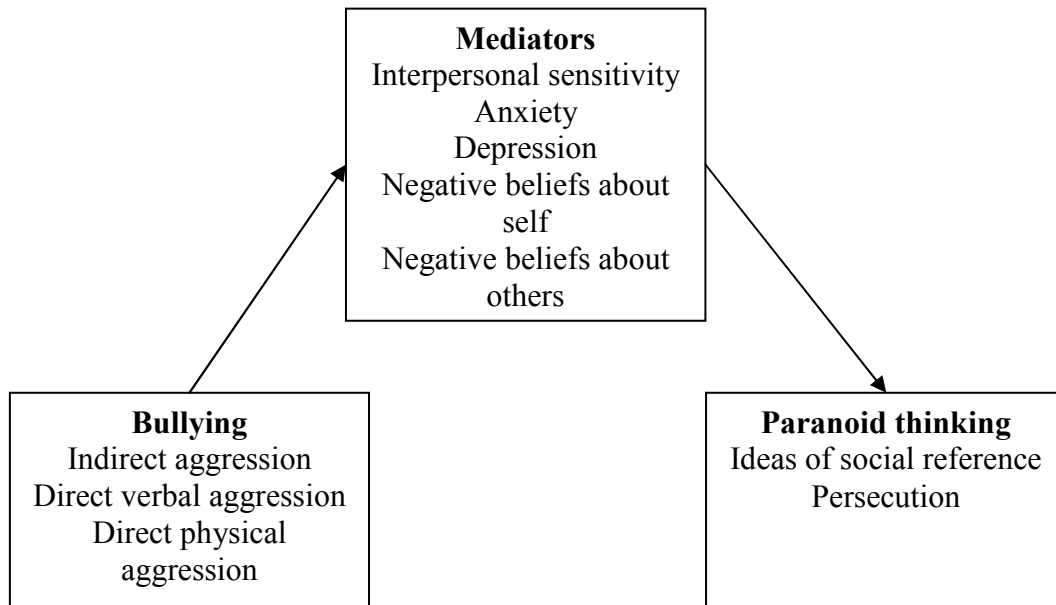
Research has shown that emotion, namely anxiety, mediates the relationship between adverse early life experiences and paranoid thinking (Freeman & Fowler, 2009).

However, more research is needed to replicate this result and to determine whether other emotions mediate the relationship between adverse early life experiences and paranoid thinking. Whilst theories such as the threat anticipation cognitive model emphasise the importance of emotions as mediators, as reflected by the findings of the Freeman and Fowler (2009) study, other theories of paranoid thinking, such as Chadwick's (2006) 'poor me' and 'bad me' paranoia, as reflected by the findings of the Gracie et al. (2007) study, emphasise the importance of negative beliefs as mediators in the relationship between adverse early life experiences and paranoid thinking. Therefore, this study will investigate whether it is emotions including 'anxiety' and 'depression', 'interpersonal sensitivity' and/or 'negative beliefs about self' and 'negative beliefs about others' that significantly mediate the relationship between adverse early life experiences and paranoid thinking in adulthood. The study will address the following hypotheses:

**Hypothesis 1:** Indirect aggression experienced in childhood will be associated with higher levels of paranoid thinking in adulthood than direct forms of aggression.

**Hypothesis 2:** Both emotions and negative beliefs will mediate the relationship between bullying and paranoid thinking in adulthood (see Figure 1 for a diagrammatic illustration of this hypothesis).

**Figure 1. The Hypothesised Mediating Role of Emotions and Negative Beliefs between Bullying and Paranoid Thinking**



## **2. Method**

### **2.1. Design**

A cross-sectional research design was utilised in this study. Data was collected through the use of computerised self-report questionnaires measuring demographics, retrospective memories of childhood bullying, anxiety, depression, interpersonal sensitivity, negative beliefs about self and others and paranoid thinking, completed by undergraduate psychology students.

### **2.2. Participants**

An a priori power analysis suggested that a minimum sample size of 107 was required in order to achieve a medium effect size with power = .8 and  $\alpha = .05$  (Cohen, 1992). In order to achieve this minimum sample size of 107, a target of 150 participants was

set to allow for participants omitted from the final data analysis due to exclusion criteria. In total, 152 undergraduate psychology students from the University of Southampton were recruited through a research participation scheme in which participation earned research credits.

### **2.2.1. Participant Demographics**

Initial data screening revealed that 11 participants had current and significant mental health problems for which they were receiving medication or professional help and that six participants had taken illegal drugs within the last month, meaning these participants were excluded from the data analysis. Of the remaining sample ( $N = 135$ ; participation rate = 88.8%) inspection of the raw data revealed no missing data. Table 1 displays the demographic characteristics for the final sample.

**Table 1: Demographic and Personal Characteristics of the Final Sample (N = 135)**

<b>Variable</b>	<b>Category</b>	<b><i>n</i></b>	<b>Frequency (%)</b>
Gender	Female	123	91.1
	Male	12	8.9
Age (years) (M = X; SD = X; range = 18-44)	18	33	24.4
	19	32	23.7
	20	47	34.8
	21	15	11.1
	22-44	8	5.8
Ethnicity	White British	104	77
	White Other	10	7.4
	White & Black Caribbean	6	4.4
	Indian	4	3
	Chinese	7	5.2
	Mixed Other	4	0.7

### **2.3. Measures**

#### **2.3.1. Demographics (see Appendix D)**

Participants were administered questions designed to elicit information regarding their age, gender, ethnicity, current mental health status and recent use of illegal drugs.

### **2.3.2. Modified Direct and Indirect Aggression Scales (Modified DIAS; Owens, Shute and Slee, 2000)**

The original DIAS (Bjorkqvist, Lagerspetz & Osterman, 1992a) is a 24-item continuum measure of childhood aggression that has victim and aggressor versions and can be applied as a peer, teacher or self-report version. The measure contains three subscales that measure ‘direct physical aggression’, ‘direct verbal aggression’ and ‘indirect aggression’. The DIAS contains a five-point Likert response scale ranging from zero (*never*) to four (*very often*). Factor analysis has shown that ‘indirect aggression’ and ‘direct aggression’ as measured by the original DIAS are separate and valid constructs and have high levels of internal reliability (Bjorkqvist, Lagerspetz & Kaukiainen, 1992b).

As the original DIAS was a measure of aggression, Owens, Shute and Slee (2000) modified it into a retrospective measure of victimisation, which will be used in this study. The modified 18-item self-report victim version of the DIAS utilises an identical Likert response scale and subscales; ‘direct physical aggression’ (five-item), ‘direct verbal aggression’ (five-item) and ‘indirect aggression’ (eight-item). Total scores for the ‘direct physical aggression’ subscale and the ‘direct verbal aggression’ subscale can range from zero to 20 and for the ‘indirect aggression’ subscale can range from zero to 32, with higher scores indicating higher frequency of victimisation. The modified version of the DIAS has been updated to include items that are more culturally relevant, such as including internet-based forms of bullying.

The original version of the DIAS had high levels of internal reliability, and the modified version of the DIAS remains so (Owens, Daly & Slee, 2005). Factor

analysis of the modified version of the DIAS has confirmed that ‘indirect aggression’ and ‘direct aggression’ are still separate and valid constructs (Earl & Burns, 2009). The modified version of the DIAS asks adolescents to recollect how often they had been a victim of different types of bullying in the past year. As this study will recruit adults, the modified DIAS was further modified, with the author’s permission, so that the instructions asked participants to recollect upon their experiences of being bullied as a student at primary school and/or secondary school. Several studies have demonstrated consistent re-test reliability over long periods of time for retrospective measures of bullying (Rivers, 2001; Hock & Lutz, 2001) and other studies have made similar modifications to the DIAS (e.g. Miller & Vaillancourt, 2007), suggesting that the change to the instructions would not affect the reliability of the measure.

### **2.3.3. Interpersonal Sensitivity Measure (IPSM; Boyce & Parker, 1989)**

The IPSM is a 36-item self-report continuum measure of heightened sensitivity about social rejection. The IPSM contains five subscales that measure interpersonal awareness, need for approval, separation anxiety, timidity and fragile inner self. However, there is a lack of consensus regarding the factor structure of these subscales (Harb, Heimberg, Fresco, Schneier & Leibowitz, 2002) and so only the total score will be used in this study as has been done by other researchers (e.g., Freeman et al. 2008a). The IPSM contains a four-point Likert response scale ranging from one (‘*very unlike you*’) to four (‘*very like you*’). The total score can range from 36 to 144 with higher scores indicating higher levels of interpersonal sensitivity. The IPSM has adequate internal reliability and six week test-retest reliability and high validity (Boyce & Parker, 1989).

#### **2.3.4. Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)**

The HADS is a 14-item self-report measure of state ‘anxiety’ (seven-item subscale) and state ‘depression’ (seven-item subscale), which has been widely used within non-clinical populations (e.g., Mykletun, Stordal & Dahl, 2001). The HADS contains a four-point Likert response scale ranging from zero (e.g. ‘*not at all*’; ‘*hardly at all*’) to three (e.g. ‘*most of the time*’; ‘*definitely as much*’). Total scores for both subscales can range from zero to 21 with higher scores indicating higher levels of anxiety and depression. According to Moorey et al. (1991), both subscales of the HADS have high internal reliability. Concurrent validity of the HADS has been confirmed in 100 medical outpatients (Zigmond & Snaith, 1983), and the validity of the separation of the two subscales has been found (Moorey et al., 1991).

#### **2.3.5. The Brief Core Schema Scales (BCSS; Fowler et al., 2006)**

The BCSS is a 24-item self-report continuum measure of core beliefs about the self and others designed specifically for clinical and non-clinical populations experiencing symptoms of psychosis. The BCSS contains four six-item subscales measuring ‘negative beliefs about self’, ‘negative beliefs about others’, ‘positive beliefs about self’ and ‘positive beliefs about others’. The BCSS contains a five-point Likert response scale ranging from zero (‘*no*’) to four (‘*yes, believe it totally*’). Total scores for each of the four subscales can range from zero to 24 with higher scores indicating higher belief conviction. The BCSS has adequate internal reliability and demonstrated concurrent and discriminant validity (Fowler et al., 2006). For the purposes of this study, only the scores for the ‘negative beliefs about self’ subscale and ‘negative beliefs about others’ subscale will be used in the data analysis, as previous research

has not found positive beliefs about self and positive beliefs about others to be predictive of paranoid thinking (Freeman et al., 2008a).

### **2.3.6. The Green et al. Paranoid Thought Scales (GPTS; Green et al., 2008)**

The GPTS is a 32-item self-report continuum measure of paranoid thoughts developed for use within both a clinical and non-clinical population. The GPTS contains two 16-item subscales that measure separate constructs of paranoid thinking; ‘ideas of social reference’ and ‘persecution’. The GPTS contains a five-point Likert response scale ranging from one (*‘not at all’*) to five (*‘totally’*). The GPTS is multi-dimensional in that it measures conviction, pre-occupation and distress. Total scores for both subscales can range from 16 to 80 with higher scores indicating higher levels of conviction, pre-occupation and distress. Internal reliability and concurrent and convergent validity has been demonstrated for both subscales of the GPTS (Green et al., 2008).

## **2.4. Procedure**

Participants completed the study online (on a computer) through a research participation scheme in which individuals received course credits for completing the study. Participants were able to access the study through a University web page listing all the available studies, including a brief description of the study and number of course credits available for completion, currently enlisted in the research participation scheme. When participants selected and volunteered to participate in this particular study they were initially presented with an information sheet (see Appendix E) and then asked to give informed consent (by ticking a box). Once they gave informed consent they completed a demographics questionnaire. They then completed the



DIAS, the GPTS, the IPSM, the BCSS and the HADS in one sitting, in a randomised order. Participants then completed a mood repair task (see Appendix F), which involved rating the humour of three jokes. They were then presented with a debriefing statement (see Appendix G) and were given the option to opt in to receive a summary of the results by email. Analysis of the survey data revealed that participants took an average 14 minutes to complete the entire study.

## **2.5. Ethical Considerations**

The study received ethical approval from the University of Southampton Research Ethics Committee (see Appendix H) and insurance from the University of Southampton Research Governance Office (see Appendix I). All participants had the opportunity to contact the researcher, the researcher's supervisors or the University counselling service. A mood repair task was incorporated into the study so that risks associated with emotional distress were controlled for.

## **2.6. Data Analysis**

The Statistical Package for Social Sciences (SPSS) was used to compute the preliminary statistics including tests of normality and the descriptive statistics including internal reliability of the scales and correlations. In order to test hypothesis 1, hierarchical multiple regression analyses would be performed and in order to test hypothesis 2, mediation analyses using bootstrapping methodology would be performed.

There are a number of different approaches that are commonly utilised when completing mediation analyses. Baron and Kenny's (1986) causal steps approach

assumes that the following four criteria must be met using a series of regression analyses in order to assess for mediation: 1) X must significantly predict Y; 2) X must predict M; 3) M must predict Y when controlling for the effect of X; 4) When the effect of M on Y is controlled, X no longer predicts Y. Inferential techniques such as the Sobel (1982) test or bootstrapping, a nonparametric re-sampling technique, are other approaches used for mediation analyses. However, the bootstrapping technique was assessed as being the most appropriate statistical test for this study because of a number of different reasons.

First, bootstrapping, as a non-parametric test, does not require parametric assumptions to be met. As such it is not based upon large sample theory and so it can be applied to small sample sizes (Preacher & Hayes, 2004). Second, the Sobel test (1982) is a parametric test and requires parametric assumptions to be met, yet assumptions of normality are commonly violated in the Sobel test (Hayes, 2009). Third, bootstrapping allows for the inclusion of multiple mediators, as is in the case in this study, to be examined simultaneously unlike other statistical techniques (Preacher & Hayes, 2008). Fourth, simulation studies have shown that bootstrapping has more statistical power than the Sobel test and the causal steps approach to testing mediation (MacKinnon, Lockwood & Williams, 2004).

### **3. Results**

#### **3.1. Preliminary Statistics**

Normality of the distribution of the scores was tested using the Kolmogorov-Smirnov test. All the research variables were significant indicating that the scores were not normally distributed. A log transformation of the research variables was performed

but Kolmogorov-Smirnov tests revealed that the results were still significant, so the original untransformed data was used for the rest of the data analysis. Considering that regression analyses are particularly sensitive to violations of parametric assumptions (Pallant, 2001), the correlation and regression analyses will be interpreted with caution. However, as bootstrapping is a non-parametric test the violated assumptions of normality do not affect the interpretation of the mediation analyses. All scales had Chronbach's alpha coefficients above .7, as can be seen in Table 2, and therefore demonstrated adequate internal reliability (Pallant, 2001).

**Table 2: Descriptive Statistics and Chronbach's Alpha Coefficients for Research Variables ( $N = 135$ )**

<b>Scale</b>	<b>Research Variable</b>	<b>M</b>	<b>SD</b>	<b><math>\alpha</math></b>
DIAS	Direct physical aggression	2.77	3.21	.87
	Direct verbal aggression	6.19	3.93	.85
	Indirect aggression	9.66	5.61	.83
IPSM	Interpersonal sensitivity	94.06	14.59	.94
HADS	Anxiety	7.30	3.80	.84
	Depression	3.23	2.96	.79
BCSS	Negative beliefs about self	3.13	3.14	.83
	Negative beliefs about others	5.19	4.41	.93
GPTS	Ideas of social reference	31.22	11.44	.93
	Persecution	22.70	9.21	.94

### 3.2. Descriptive Statistics

As all of the scales were continuum measures, clinical cut-off points or categorisation of participants is unavailable for the majority of the research variables. In terms of the bullying research variables, 'indirect aggression' was the most frequently experienced type of childhood bullying, with participants scoring a mean score of 9.66. 'Direct physical aggression' was the least frequently experienced type of childhood bullying, with a mean score of 2.77. Bullying was frequently experienced by the majority of the sample, with 99.3% ( $n = 134$ ), 96.3% ( $n = 130$ ) and 66.7% ( $n = 90$ ) of participants experiencing indirect aggression, direct verbal aggression and direct physical aggression, respectively, in their childhood. In terms of the paranoid thinking variables, 'ideas of social reference' had the highest levels of conviction, pre-occupation and distress with a mean score of 31.22 whereas persecution had a mean score of 22.70. The mean score for 'persecution' in this study is comparable to the mean score of 22.1 reported for a non-clinical population in the Green et al. (2008) study, but the mean score for 'ideas of social reference' in this study is higher than the mean score of 26.8 reported for a non-clinical population. Paranoid thinking was frequently experienced by the majority of the sample, with 98.5% ( $n = 133$ ) and 71.9% ( $n = 97$ ) of participants currently experiencing ideas of social reference and persecution, respectively.

In terms of the emotion variables measured by the HADS, 'anxiety' was the most frequently experienced type of emotion with a mean score of 7.3. A minority of participants scored 11 and over on the HADS, 20.7% ( $n = 28$ ) and 3.7% ( $n = 5$ ) indicating that they were currently experiencing clinical levels of anxiety and depression, respectively (Zigmond & Snaith, 1983). In terms of 'interpersonal

sensitivity', the mean score was 94.06, which is very similar to mean scores reported in other student samples (e.g., Boyce & Parker, 1989). In terms of the negative belief research variables, 'negative beliefs about others' had the highest level of belief conviction with a mean score of 5.19 whereas 'negative beliefs about self' had a mean score of 3.13, which are both slightly higher mean scores than the mean scores reported for the non-clinical population in the Fowler et al. (2006) study, 4.07 and 3.55, respectively. Negative beliefs were held by the majority of the sample, with 79.3% ( $n = 107$ ) and 82.2% ( $n = 111$ ) of participants currently experiencing some level of conviction in 'negative beliefs about self' and 'negative beliefs about others', respectively. Please see Table 2 for means and standard deviations for all the research variables.

Pearson's correlation coefficients were calculated using the total scores from the scales or subscales (see Table 3). Aside from the relationship between 'direct physical aggression' and 'interpersonal sensitivity', all the research variables displayed a significant, positive correlation with one another.

**Table 3: Pearson's Correlation Coefficients between Research Variables (Total scores;  $N = 135$ )**

<b>Research Variable</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>1. Direct physical aggression</b>	-	.68**	.53**	.09	.24**	.20**	.18*	.42**	.30**	.43**
<b>2. Direct verbal aggression</b>	-	-	.81**	.32**	.28**	.23**	.26**	.46**	.32**	.34**
<b>3. Indirect aggression</b>	-	-	-	.42**	.32**	.27**	.37**	.36**	.44**	.33**
<b>4. Interpersonal sensitivity</b>	-	-	-	-	.41**	.33**	.48**	.19*	.39**	.19*
<b>5. Anxiety</b>	-	-	-	-	-	.64**	.48**	.34**	.56**	.50**
<b>6. Depression</b>	-	-	-	-	-	-	.40**	.36**	.54**	.51**
<b>7. Negative beliefs about self</b>	-	-	-	-	-	-	-	.31**	.51**	.45**
<b>8. Negative beliefs about others</b>	-	-	-	-	-	-	-	-	.48**	.44**
<b>9. Ideas of social reference</b>	-	-	-	-	-	-	-	-	-	.72**
<b>10. Persecution</b>	-	-	-	-	-	-	-	-	-	-

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

### 3.3. Regression Analyses

The primary purpose of the regression analyses was to examine the relative impact of the bullying variables on paranoid thinking. However, regression analyses are particularly sensitive to violations of parametric assumptions (Pallant, 2001). The data

had already been found to violate assumptions of normality. Furthermore, the correlation between ‘indirect aggression’ and ‘direct verbal aggression’ ( $r = .81$ ) indicated multicollinearity, in which two variables are highly correlated (Tabachnick & Fidell, 1996). Motulsky (2002) states that when a primary aim of a regression is to analyse the relative impact of independent variables on the dependent variable, multicollinearity is problematic as individual  $p$  values can be misleading. However, if a primary aim of the regression is simply to explore how well the total amount of independent variables accounts for the variance in the dependent variable, then multicollinearity is not a problem, as the predictions remain accurate (Motulsky, 2002).

Therefore, two separate hierarchical multiple regression analyses were performed for each dependent variable to determine how well the overall model (e.g. sum of all the predictors) could predict the variance in paranoid thinking. The criterion variable for each analysis was ‘ideas of social reference’ and ‘persecution’. In each regression, ‘ethnicity’ and ‘gender’ were entered as the first step to control for the effects of these variables. In the second step the independent variables were entered; ‘indirect aggression’, ‘direct physical aggression’, ‘direct verbal aggression’, ‘rejection sensitivity’, ‘anxiety’, ‘depression’, ‘negative beliefs about self’ and ‘negative beliefs about others’.

An inspection of the regression analysis results revealed that ‘direct verbal aggression’ had a high Variance-Inflation Factor ( $VIF = 4.12$ ) thus confirming multicollinearity between the independent variables (Fox, 1991). ‘Ideas of social reference’ was statistically significantly predicted by all the independent variables

after controlling for ‘gender’ and ‘ethnicity’  $F(10, 134) = 13.82, p < .0005$ , adjusted R Square = .49. The full model accounted for 49% of the variance in ‘ideas of social reference’ scores (see Table 4 for a breakdown of the regression analyses). Similarly, ‘persecution’ was statistically significantly predicted by all the independent variables after controlling for ‘gender’ and ‘ethnicity’  $F(10, 134) = 10.65, p < .0005$ , adjusted R Square = .42. The full model accounted for 42% of the variance in ‘persecution’ scores (see Table 5 for a breakdown of the regression analyses).

**Table 4: Multiple Regression Analyses for Ideas of Social Reference ( $N = 135$ )**

<b>Predictor</b>	<b>Unstandardised coefficients</b>		<b>Standardised coefficients</b>	<b><i>t</i></b>	<b><i>P</i></b>
	<b><i>B</i></b>	<b><i>SE</i></b>	<b><i>Beta</i></b>		
Gender	1.803	2.622	.045	.687	.493
Ethnicity	-.212	.445	-.031	-.476	.635
Direct physical aggression	.327	.319	.092	1.023	.308
Direct verbal aggression	-.848	.365	-.291	-2.323	.022
Indirect aggression	.661	.227	.324	2.910	.004
Interpersonal sensitivity	.053	.061	.067	.860	.391
Anxiety	.585	.266	.194	2.200	.030
Depression	.796	.334	.206	2.387	.018
Negative beliefs about self	.607	.284	.167	2.137	.035
Negative beliefs about others	.635	.194	.245	3.277	.001



**Table 5: Multiple Regression Analyses for Persecution (N = 135)**

<b>Predictor</b>	<b>Unstandardised coefficients</b>		<b>Standardised coefficients</b>	<b>t</b>	<b>P</b>
	<b>B</b>	<b>SE</b>	<b>Beta</b>		
Gender	.824	2.251	.026	.366	.715
Ethnicity	-.196	.382	-.036	-.512	.609
Direct physical aggression	.768	.274	.268	2.801	.006
Direct verbal aggression	-.191	.313	-.082	-.610	.543
Indirect aggression	.074	.195	.045	.378	.706
Interpersonal sensitivity	-.077	.053	-.122	-1.458	.147
Anxiety	.441	.228	.182	1.936	.055
Depression	.759	.286	.245	2.652	.009
Negative beliefs about self	.680	.244	.232	2.788	.006
Negative beliefs about others	.307	.166	.147	1.843	.068

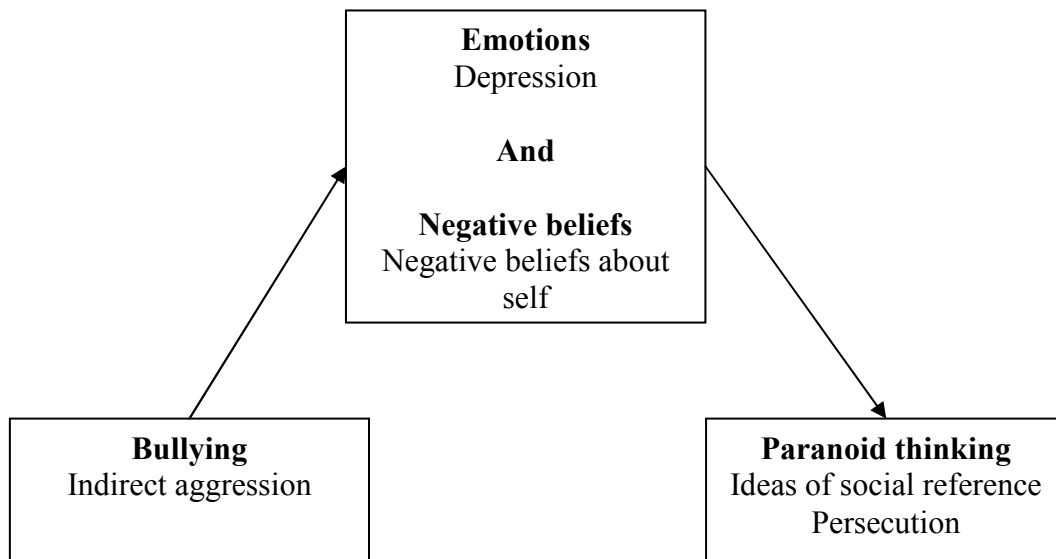
### 3.4. Mediation Analyses

Multiple mediation was tested by using Preacher and Hayes (2008) bootstrapping methodology, which provides point estimates and bias-corrected 95% Confidence Intervals (CIs) for the indirect (mediating) effects, based upon 5000 bootstrap resamples. Interpretation of the bootstrap data is achieved by examining whether zero is contained within the 95% confidence intervals, which indicates a lack of significance. Six sets of bootstrap analyses were performed. In each analysis, one of the three bullying variables, ‘direct physical aggression’, ‘direct verbal aggression’ or ‘indirect aggression’, was entered as an independent variable, with ‘ethnicity’ and ‘gender’ entered as covariates. Independent variables are mathematically treated like covariates in bootstrapping (Hayes, 2009), so it is recommended that other independent variables are entered as covariates. Thus, the other two bullying variables

were entered as covariates. ‘Interpersonal sensitivity’, ‘anxiety’, ‘depression’, ‘negative beliefs about self’ and ‘negative beliefs about others’ were entered as mediators. One of the two subtypes of paranoid thinking, ‘ideas of social reference’ and ‘persecution’, was entered as a dependent variable.

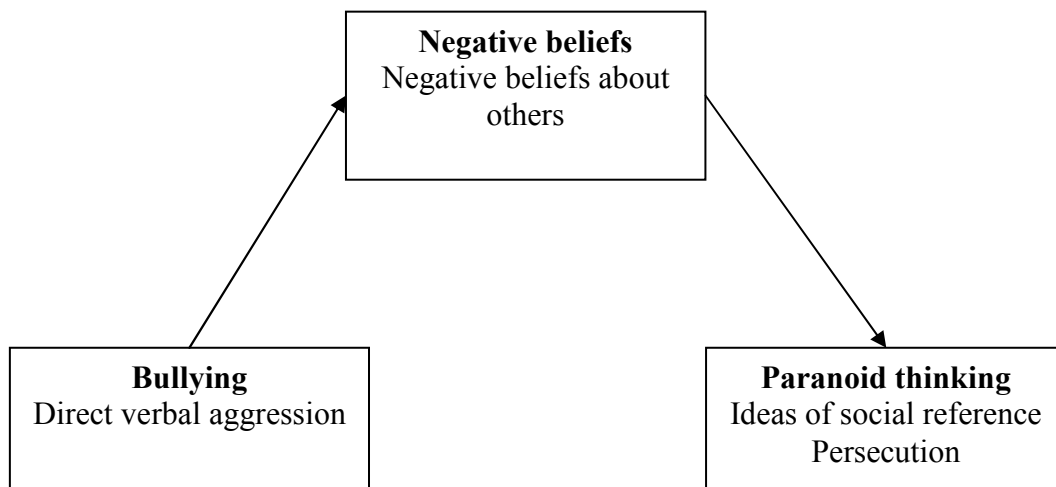
As can be seen in Table 6, an examination of the specific indirect effects revealed that ‘depression’ and ‘negative beliefs about self’ all significantly mediated the effect of ‘indirect aggression’ on ‘ideas of social reference’, with point estimates of .1062 and .1590, and 95% CIs of .0017 to .3268 and .0292 to .4112, respectively. Similarly, as can be seen in Table 7, an examination of the specific indirect effects revealed that ‘depression’ and ‘negative beliefs about self’ all significantly mediated the effect of ‘indirect aggression’ on ‘persecution’, with point estimates of .1013 and .1781, and 95% CIs of .0037 to .3301 and .0329 to .4949, respectively. These significant, mediating relationships are depicted in Figure 2.

**Figure 2. The Significant, Mediating Effect of Negative Beliefs about Self and Depression on the Relationship between Indirect Aggression and Paranoid Thinking**



As can be seen in Table 6, an examination of the specific indirect effects revealed that ‘negative beliefs about others’ significantly mediated the effect of ‘direct verbal aggression’ on ‘ideas of social reference’, with a point estimate of .2352, and 95% CIs of .0562 to .4958. Similarly, as can be seen in Table 7, an examination of the specific indirect effects revealed that ‘negative beliefs about others’ significantly mediated the effect of ‘direct verbal aggression’ on ‘persecution’, with a point estimate of .1135, and 95% CIs of .0086 to .3615. These significant, mediating relationships are depicted in Figure 3.

**Figure 3. The Significant, Mediating Effect of Negative Beliefs about Others on the Relationship between Direct Verbal Aggression and Paranoid Thinking**



**Table 6: Multiple Mediation of the Indirect Effects of Bullying on Ideas of Social Reference ( $N = 135$ ; 5000 bootstrap samples)**

Independent variable	Mediator variable	Point estimate	BCa* 95% Confidence Intervals	
			Lower	Upper
Indirect aggression	Rejection sensitivity	0.0607	-0.0654	0.2681
	Anxiety	0.1071	-0.0012	0.3404
	Depression	0.1062	0.0017	0.3268
	Negative beliefs about self	0.1590	0.0292	0.4112
	Negative beliefs about others	-0.0008	-0.0987	0.1430
Direct verbal aggression	Rejection sensitivity	0.0191	-0.0370	0.2209
	Anxiety	0.0054	-0.2185	0.2621
	Depression	0.0014	-0.2251	0.2445
	Negative beliefs about self	-0.0643	-0.3624	0.0641
	Negative beliefs about others	0.2352	0.0562	0.4958
Direct physical aggression	Rejection sensitivity	-0.0490	-0.2541	0.0488
	Anxiety	0.0694	-0.1121	0.3752
	Depression	0.0273	-0.1640	0.2971
	Negative beliefs about self	0.0057	-0.1578	0.2147
	Negative beliefs about others	0.1680	-0.0327	0.4140

\*BCa = bias corrected and accelerated bootstrapping confidence intervals that include corrections for both median bias and skew. Confidence intervals containing zero interpreted as non-significant.

**Table 7: Multiple Mediation of the Indirect Effects of Bullying on Persecution ( $N = 135$ ; 5000 bootstrap samples)**

Independent variable	Mediator variable	Point estimate	BCa* 95% Confidence Intervals	
			Lower	Upper
Indirect aggression	Rejection sensitivity	-0.0884	-0.2849	0.0112
	Anxiety	0.0809	-0.0058	0.2782
	Depression	0.1013	0.0037	0.3301
	Negative beliefs about self	0.1781	0.0329	0.4949
	Negative beliefs about others	-0.0004	-0.0628	0.0750
Direct verbal aggression	Rejection sensitivity	-0.0278	-0.2224	0.0387
	Anxiety	0.0041	-0.1802	0.2074
	Depression	0.0013	-0.2139	0.2386
	Negative beliefs about self	-0.0721	-0.4201	0.0673
	Negative beliefs about others	0.1135	0.0086	0.3615
Direct physical aggression	Rejection sensitivity	0.0713	-0.0062	0.2685
	Anxiety	0.0524	-0.0868	0.2931
	Depression	0.0260	-0.1479	0.3259
	Negative beliefs about self	0.0063	-0.1548	0.2668
	Negative beliefs about others	0.0811	-0.0111	0.2729

\*BCa = bias corrected and accelerated bootstrapping confidence intervals that include corrections for both median bias and skew. Confidence intervals containing zero interpreted as non-significant.

#### 4. Discussion

The results of this study provide further support for previous research findings into paranoid thinking. First, the majority of participants in this study reported experiencing paranoid thinking providing further evidence that the general population regularly experience paranoid thinking (Freeman, 2007). Interestingly, the participants in this study reported higher levels of conviction, pre-occupation and distress for ideas of social reference than non-clinical populations in other studies (e.g. Green et al., 2008). To achieve the mean score of 31.22 for ‘ideas of social reference’ a participant would have to have responded ‘*totally*’ to at least three items (e.g., ‘*I was convinced that people were singling me out*’; ‘*I was certain that people have followed me*’; ‘*People definitely laughed at me behind my back*’). Second, ideas of social reference were relatively more common than persecution thus providing further support for the notion that paranoid thinking is on a continuum (Freeman, 2007). Third, the study replicated previous findings that found significant associations between paranoid thinking and ‘anxiety’ (Freeman et al., 2008a), ‘depression’ (Freeman et al., 2008a), ‘interpersonal sensitivity’ (Freeman et al., 2008a), ‘negative beliefs about self’ (Fowler et al., 2006), ‘negative beliefs about others’ (Fowler et al., 2006) and bullying (Campbell & Morrison, 2007). Indeed, all of these variables accounted for a significantly large proportion of the variance, 49% and 42%, in ‘ideas of social reference’ and ‘persecution’, respectively.

With regards to the specific hypotheses, the results are mixed. In line with previous research that has found different types of bullying to have an effect on psychological well-being, such as perfectionism (Miller & Vaillancourt, 2007), hypothesis one predicted that one type of bullying may have more of an association with paranoid

thinking than the others. The results of the correlations suggested that there were relatively stronger relationships between ‘indirect aggression’ and ‘ideas of social reference’ and between ‘direct physical aggression’ and ‘persecution’. However, a violation of the parametric assumptions of the regression analyses, namely multicollinearity, specifically between ‘direct verbal aggression’ and ‘indirect aggression’, prevented this hypothesis from being explicitly tested.

In line with previous research that had found a mediating effect of anxiety between trauma and paranoid thinking (Freeman & Fowler, 2009), the threat anticipation cognitive model that states that emotions mediate the relationship between adverse early life experiences and paranoid thinking, and Chadwick (2006) who states that negative beliefs about self and others mediate the relationship between trauma and paranoid thinking, hypothesis two predicted that emotions and/or negative beliefs would mediate the relationship between bullying and paranoid thinking. The results of the study provide support for this hypothesis. Specifically, ‘negative beliefs about self’ and ‘depression’ significantly mediated the relationship between ‘indirect aggression’ and both ‘ideas of social reference’ and ‘persecution’ whereas ‘negative beliefs about others’ significantly mediated the relationship between ‘direct verbal aggression’ and both ‘ideas of social reference’ and ‘persecution’.

Interestingly, the results of this study are in stark contrast to that of the Freeman and Fowler (2009) study that also used a non-clinical population, as ‘negative beliefs about self’ and ‘depression’ were not found to be significant predictors in their study, whereas ‘negative beliefs about others’ was not even included as a research variable in their study. The only significant mediator in the Freeman and Fowler (2009) study,



'anxiety', was not even found to be a significant mediator in this study, which is surprising given the evidence for a relatively strong association between anxiety and paranoid thinking (Freeman, 2007). There may be a number of possible reasons for the discrepancy in the results of the two studies. Unlike the Freeman and Fowler (2009) study that measured a broad range of traumatic experiences, including victimisation and non-victimisation events, this study chose to focus on a specific form of victimisation, bullying. It may be that the nature of the traumatic experience may have a stronger impact on the mediating relationship. For example, research suggests that childhood sexual abuse is more strongly related to symptoms of psychosis than childhood physical abuse (Read et al., 2006).

Furthermore, Freeman and Fowler (2009) tested a temporally proximal mediating relationship, as they measured trauma that had been experienced within the last year whereas this study measured childhood experiences of bullying in a sample of adults and so measured a temporally distal mediating relationship. As Shrout and Bolger (2002) state, the temporal nature of a mediating relationship can have a significant effect on the strength of the causal relationship. Therefore, some mediators may have less of an effect over time than other mediators. Whilst there are clearly differences between the results of the two studies, theoretically one would expect negative beliefs about self and others to mediate the relationship between bullying and paranoid thinking.

Bowlby (1969) suggested that early dysfunctional relationships can lead to the development of dysfunctional internal representations of the self in relation to others, and Beck, Rush, Shaw and Emery (1979) suggested that problems in early

relationships can lead to the development of enduring negative beliefs that could predispose someone to psychopathology in their adulthood. Therefore, it may be the case that individuals who are bullied in childhood subsequently develop negative beliefs about themselves and others which in turn increase the likelihood of paranoid thinking regarding others behaviours. Beck (1967) stated that negative beliefs about the self and depression are closely related, which has been supported by empirical research (e.g. Evans, Heron, Lewis, Araya & Wolke, 2005), which explains why negative beliefs about self and depression both mediated the relationship between indirect aggression and paranoid thinking.

Whilst it is theoretically clear why negative beliefs mediate the relationship between bullying and paranoid thinking, it is less clear as to why different types of negative belief mediate different types of bullying. Indirect aggression is covert, involving social manipulation and social exclusion (Card et al., 2008; Archer & Coyne, 2005) whereas direct verbal aggression is overt (Card et al., 2008). When faced with direct and overt aggression it seems plausible that a person may be more likely to form negative beliefs about others rather than the self given that they would be experiencing overt aggressive behaviour easily attributable to the hostile person. In contrast, someone experiencing covert and indirect aggression in which they feel rejected and excluded from their peers may attribute it to the self, thus leading to the formation of negative beliefs about the self. Furthermore, one could argue that indirect aggression is more ambiguous in its presentation than direct aggression. Children and adolescents, who are typically egocentric (Piaget, 1954), may be more likely to attribute such ambiguous behaviour to the self.

Alternatively, the theory of 'poor me' and 'bad me' paranoia (Trower & Chadwick, 1996) might offer an explanation. It may have been the case that individuals were displaying different types of paranoia. For example, negative beliefs about self may have mediated the relationship between indirect aggression and 'bad me' paranoia, whereas negative beliefs about others may have mediated the relationship between direct verbal aggression and 'poor me' paranoia. Melo, Taylor and Bentall (2006) have found that individuals with 'poor me' paranoia are more likely to externally attribute negative events to the intentions of others than individuals with 'bad me' paranoia. Therefore, it could be argued that different forms of aggression may be attributed differently, with direct aggression being externally attributed to others and indirect aggression being internally attributed to the self. Thus, externally attributing negative events to others may lead to the development of negative beliefs about others and 'poor me' paranoia whereas internally attributing negative events to the self may lead to the development of negative beliefs about self and 'bad me' paranoia. Clearly, further research is needed to explore the processes and mechanisms that underpin these mediating relationships.

Equally perplexing is why some of the other research variables in this study failed to demonstrate significant results. For example, direct physical aggression did not feature in any mediating relationship. It is noteworthy that direct physical aggression was the least experienced form of bullying within the sample, suggesting possible floor effects that may have impacted on the results. Similarly, interpersonal sensitivity was not found to mediate the relationship between bullying and paranoid thinking. This is somewhat surprising considering that the rejection sensitivity model (Levy, Ayduk & Downey, 2001) predicts that specific early experiences of rejection, such as

bullying, leads a person to develop a range of affective processes such as interpersonal sensitivity to perceived rejection and anxiety associated with hypervigilance. It may be the case that interpersonal sensitivity does mediate the relationship between an adverse early life experience and paranoid thinking, but that the adverse early life experience is something other than bullying.

#### **4.1. Implications**

The results of the study have a number of important implications. Theoretically, the threat anticipation cognitive model emphasises the role of emotions in the development of paranoid thinking, characterised by the fact that anxiety, depression and negative beliefs are all labelled as emotions within the model. However, it may be beneficial for such theories to clearly distinguish negative beliefs from emotions, as some of the results of this study suggest that there is a greater emphasis on the role of negative beliefs rather than emotions in mediating the relationship between adverse early life experiences and paranoid thinking, which is consistent with the views of Chadwick (2006) and cognitive models of psychopathology, such as depression (Beck et al., 1979).

Clinically, mental health professionals working with individuals experiencing paranoid thinking can draw upon the results of this study to inform their therapeutic work. Recently there has been increasing recognition of the contribution of traumatic life events to the experience of psychosis with greater emphasis being placed on sexual and physical abuse (Manning & Stickley, 2009; Read, van Os, Morrison & Ross, 2005). The results of this study highlight the need for therapists to assess for a wide range of adverse early life experiences including bullying. For example, during

an assessment it would be beneficial to take a comprehensive account of an individual's childhood experiences of bullying, specifically exploring the different types of bullying that they may have been victim to and associated beliefs. Depression was found to mediate the relationship between indirect aggression and paranoid thinking, so it is important for clinicians to assess for co-morbid symptoms of depression in individuals presenting with paranoia and a history of bullying. The results of the study suggest that therapy, such as CBT, may be more beneficial if it aims to modify core beliefs rather than modifying the content of the paranoid thinking. Furthermore, incorporating measures such as the BCSS may be useful for evaluating treatment progress.

#### **4.2. Strengths**

There are a number of strengths to this study. An internationally recognised, validated and standardised measure of bullying for adults does not exist (Card & Hodges, 2008; Lund et al., 2008). Many studies investigating bullying simply used a single dichotomous question to elicit bullying which can lead to issues in construct validity. By including a widely used measure of bullying the study has increased the validity of the results. Furthermore, several studies have demonstrated consistent re-test reliability over long periods of time for retrospective measures of bullying (Rivers, 2001; Hock & Lutz, 2001), thus suggesting that the reliability of the results is robust. Research has shown that illegal drug use has significant associations with paranoid thinking (Freeman & Fowler, 2009). Yet, many studies fail to exclude or control for illegal drug use when investigating factors associated with paranoid thinking (e.g. Campbell & Morrison, 2007). By including exclusion criteria for recent illegal drug

use as well as current mental health status, the study can be considered to have a stronger research design.

### **4.3. Limitations**

There are a number of limitations that must be considered when interpreting the results of this study. The cross-sectional nature of the study makes causal claims weak. There were a number of violations of the parametric assumptions of the statistical analyses which negatively affect the interpretation of the correlations and regressions. By relying mainly on female psychology students it is unlikely that the sample used in the study is representative of the general population. Similarly, by using a non-clinical population the results of the study cannot be generalised to a clinical population. Some of the persecution experienced by participants may be genuine fears (Freeman & Fowler, 2009). It may have been beneficial to have included trait measures of anxiety in addition to the state measure deployed. Similarly, considering the issues around multi-collinearity, it may have been beneficial to include another measure of bullying.

### **4.4. Research Recommendations**

In summary, this study has illustrated that negative beliefs and depression mediate the relationship between bullying experienced in childhood and paranoid thinking in adulthood in a non-clinical population. There are a number of possible directions for future research. The study used a non-clinical sample so replication is needed within a clinical sample. This study focussed on a specific symptom of psychosis, but it would be interesting to explore other symptoms of psychosis, such as hallucinations. Measuring a wider range of mediators may also be beneficial. Clearly, longitudinal

research is required to establish causality and to identify the risk factors for developing paranoid thinking. As stated previously, it would be worthwhile to explore in further detail the processes and mechanisms that underpin specific mediating relationships, such as exploring why negative beliefs about self rather than negative beliefs about others mediates the relationship between indirect aggression and paranoid thinking.

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## **Appendix A**

### Clinical Psychology Review Guide for Authors

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## **Appendix B**

### **Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood**

### Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood

<b>Authors</b>	<b>Population</b>	<b>Assessment of being a victim of childhood bullying</b>	<b>Outcome variables</b>	<b>Results – Being bullied in childhood associated with:</b>
Butler, Doherty & Potter (2007)	Male and female undergraduate psychology students ( <i>N</i> = 104)	Teasing Questionnaire-Revised (TQ-R; Storch et al., 2004)	Rejection sensitivity	- Increased rejection sensitivity
Cash (1995)	Female undergraduate psychology students ( <i>N</i> = 111)	Created own questionnaire	Body image dysphoria	- Greater levels of body image dysphoria
Due, Damsgaard, Lund & Holstein (2009)	Men and women participating in a national survey ( <i>N</i> = 589)	Created a single-item measure of bullying with five response categories	Depression	- Higher levels of depression
Faith, Storch, Roberti & Roth-Ledley (2008)	Men and women surveyed from a high street ( <i>N</i> = 355)	TQ-R	Depression, fear of negative evaluation and loneliness	- Higher levels of depression - Higher levels of fear of negative evaluation - Higher levels of loneliness
Fosse & Holen (2004)	Male and female patients from a psychiatric outpatient clinic ( <i>N</i> = 160)	Olweus (1991) Inventory	Cohabitation, level of education, work status and occupation	- More likely to be single - Lower level of education - More likely to be receiving social benefits
Fosse & Holen (2004)	Male and female patients from a psychiatric outpatient clinic ( <i>N</i> = 160)	Olweus (1991) Inventory	Big five personality traits (openness to experience, conscientiousness, extroversion, agreeableness and neuroticism), self-esteem, locus of control	- Lower levels of self-esteem - Greater external locus of control

**Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.**

<b>Authors</b>	<b>Population</b>	<b>Assessment of being a victim of childhood bullying</b>	<b>Outcome variables</b>	<b>Results – Being bullied in childhood associated with:</b>
Gleason, Alexander & Somers (2000)	Male and female undergraduate students ( <i>N</i> = 164)	The Physical Appearance-Related Teasing Scale (PARTS; Thompson et al., 1991) and Perception Of Teasing Scale (POTS; Thompson et al., 1995)	Self-esteem and BID	- Lower levels of self-esteem - Higher levels of BID
Grilo & Masheb (2005)	Men and women diagnosed with Binge Eating Disorder (BED) ( <i>N</i> = 343)	PARTS	Body Image Dissatisfaction (BID)	<i>Females:</i> - Higher levels of BID
Grilo, Wilfrey, Brownell & Rodin (1994)	Obese women from an outpatient clinic for eating and weight disorders ( <i>N</i> = 40)	PARTS	BID and self-esteem	- Higher levels of BID - Lower levels of self-esteem
Gumpel & Ish-Shalom (2003)	Male and female undergraduate humanities and social sciences students ( <i>N</i> = 940)	Created own questionnaires	Quality of friendships (good relationships with peers, romantic partners and family)	- Decreased quality of friendships
Gunstad and colleagues (2006)	Men and women recruited from the Brain Resource International Database ( <i>N</i> = 696)	Child Abuse and Trauma Scale (CAT; Sanders & Becker-Lausen, 1995)	Obesity	<i>Males:</i> - Increased obesity
Guzick, Dorman, Groff, Altermatt, & Forsyth (2004)	Male and female undergraduate psychology students ( <i>N</i> = 581)	Created a single-item measure of bullying with five response categories	Social anxiety	- Higher levels of social anxiety



**Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.**

<b>Authors</b>	<b>Population</b>	<b>Assessment of being a victim of childhood bullying</b>	<b>Outcome variables</b>	<b>Results – Being bullied in childhood associated with:</b>
Haavisto and colleagues (2004)	Males longitudinally followed from age of eight through to adulthood and surveyed at National Military Call-up ( <i>N</i> = 2,348)	Created a single-item measure of bullying with three response categories	Depression	- Higher levels of depression
Hamilton, Newman, Delville & Delville (2008)	Male and female undergraduate psychology students ( <i>N</i> = 93)	Experiences with Bullying Questionnaire (EBQ; Newman et al., 2005)	Physiology (blood pressure and hormones)	<i>Males:</i> - Blunted blood pressure
Hock & Lutz (2001)	Mothers with children aged 18 months longitudinally followed until children aged two and a half years ( <i>N</i> = 88)	Mother-Father-Peer Scale (MFP; Epstein, 1983)	Depression, Child's behaviour and internal representations of self	- Higher levels of depression - More behavioural problems in children - Poorer internal representation of self
Jackson, Grilo & Masheb (2000)	Females diagnosed with Binge Eating Disorder (BED) ( <i>N</i> = 115)	PARTS	Eating disturbances (frequency of binge eating, frequency of vomiting, dietary restraint, eating concerns, shape concerns and weight concerns), BID, self-esteem and depression	- Increased weight concerns - Higher levels of BID - Lower levels of self-esteem - Higher levels of depression

**Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.**

<b>Authors</b>	<b>Population</b>	<b>Assessment of being a victim of childhood bullying</b>	<b>Outcome variables</b>	<b>Results – Being bullied in childhood associated with:</b>
Jackson, Grilo & Masheb (2002)	Females diagnosed with Binge Eating Disorder (BED) ( <i>n</i> = 32) and Bulimia Nervosa (BN) ( <i>n</i> = 32)	PARTS	Eating disturbances (frequency of binge eating, frequency of vomiting, dietary restraint, eating concerns, shape concerns and weight concerns), BID, self-esteem and depression.	<i>BED</i> - Higher levels of depression - Increased dietary restraint <i>BN</i> - Lower levels of self-esteem - Higher levels of depression - Higher levels of BID
Jantzer, Hoover & Narloch (2006)	Male and female undergraduate psychology students ( <i>N</i> = 170)	Bullying and Relationship Scale (BRS; Jantzer et al., 2006)	Shyness, satisfaction and trust in friendships and romantic relationships	- Increased shyness - Less trust and satisfaction in friendships
Kestila, Rahkonen, Martelin, Lahti-Koski & Koskinen (2009)	Men and women participating in a national health survey ( <i>N</i> = 1,369)	Created a single-item dichotomous measure of bullying	Obesity	<i>Females</i> - Increased likelihood of being obese
Klomek and colleagues (2008)	Males longitudinally followed from age of eight through to adulthood and surveyed at National Military Call-up ( <i>N</i> = 2,348)	Created a single-item measure of bullying with three response categories	Depression and suicidal ideation	- No significant associations
Landolt, Bartholomew, Saffrey, Oram & Perlman (2004)	Gay men from community interviewed ( <i>N</i> = 191)	MFP	Attachment anxiety and attachment avoidance	- Increased attachment anxiety - Increased attachment avoidance

### Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.

Authors	Population	Assessment of being a victim of childhood bullying	Outcome variables	Results – Being bullied in childhood associated with:
Lev-Wiesel, Nuttman-Shwartz & Sternberg (2006)	Male and female undergraduate humanities students ( <i>N</i> = 387)	Social Rejection Scale (Asher et al., 2001)	Post Traumatic Stress Disorder (PTSD) and depression	- Increased levels of PTSD - Higher levels of depression
Lund and colleagues (2008)	Males participating in a national survey ( <i>N</i> = 6,097)	Created a single-item measure of bullying with five response categories	Depression	- Clinical levels of depression
Matsui, Tsuzuki, Kakuyama & Onglatco (1996)	Male undergraduate psychology students ( <i>N</i> = 134)	Created own questionnaires	Depression and self-esteem	- Higher levels of depression - Lower levels of self-esteem
Matz, Faith, Foster & Wadden (2002)	Obese females participating in a clinical trial for weight-loss surveyed ( <i>N</i> = 79)	POTS	Self-esteem and BID	- No significant associations
McCabe, Antony, Summerfeldt, Liss & Swinson (2003)	Male and female patients from an anxiety disorders outpatient clinic diagnosed with social anxiety ( <i>n</i> = 26), Obsessive Compulsive Disorder (OCD) ( <i>n</i> = 26) and panic disorder (with or without agoraphobia) ( <i>n</i> = 26)	Created a single-item dichotomous measure of bullying	Age of onset of anxiety disorder, number of childhood problems, social anxiety, severity of primary disorder, co-morbidity	- Lower age of onset of anxiety disorder - Greater number of childhood problems - Increased social anxiety
Miller & Vaillancourt (2007)	Female undergraduate psychology students (study 1 <i>N</i> = 162; study 2 <i>N</i> = 196)	Direct and Indirect Aggression Scales (DIAS; Bjorkqvist et al., 1992)	Perfectionism (self-oriented, socially prescribed, other-oriented)	- Higher levels of perfectionism

### Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.

Authors	Population	Assessment of being a victim of childhood bullying	Outcome variables	Results – Being bullied in childhood associated with:
Pirkola and colleagues (2005)	Men and women participating in a national survey ( <i>N</i> = 4,076)	Created a single-item dichotomous measure of bullying	Depressive disorder, anxiety disorder and alcohol use disorder	- Diagnosis of depressive disorder - Diagnosis of anxiety disorder
Ronning and colleagues (2009)	Males longitudinally followed from age of eight through to adulthood and surveyed at National Military Call-up ( <i>N</i> = 2,540)	Created a single-item measure of bullying with three response categories	Psychiatric disorder	- Increased likelihood of being diagnosed with a psychiatric disorder
Rosenberger, Henderson & Grilo (2006)	Women who are extremely obese and awaiting bariatric surgery surveyed ( <i>N</i> = 131)	Created a single-item measure of bullying with five response categories	Self-esteem, shame, BID, depression, BMI, perfectionism and eating disturbances (frequency of binge eating)	- Lower levels of self-esteem - Higher levels of shame - Higher levels of depression
Rosenberger, Henderson, Bell, & Grilo (2007)	Men and women who are extremely obese and awaiting bariatric surgery surveyed ( <i>N</i> = 174)	Created a single-item measure of bullying with five response categories	Eating disturbances (frequency of binge eating, frequency of vomiting, dietary restraint, eating concerns, shape concerns and weight concerns), BID, self-esteem, shame and depression.	- Increased eating concerns - Increased weight concerns - Increased shape concerns - Higher levels of BID - Lower levels of self-esteem - Higher levels of shame - Higher levels of depression
Roth, Coles & Heimberg (2002)	Male and female undergraduate psychology students ( <i>N</i> = 514)	Teasing Questionnaire (TQ; Roth et al., 2002)	Anxiety, depression, fear of negative evaluation, worry and anxiety sensitivity	- Higher levels of anxiety - Higher levels of depression - Higher levels of anxiety sensitivity - Higher levels of fear of negative evaluation

### Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.

Authors	Population	Assessment of being a victim of childhood bullying	Outcome variables	Results – Being bullied in childhood associated with:
Roth-Ledley and colleagues (2006)	Male and female undergraduate psychology students ( <i>N</i> = 414)	TQ-R	Number of friends, self-esteem, attachment issues (less comfort with intimacy, trust, closeness and fear of being abandoned)	<ul style="list-style-type: none"> <li>- Lower levels of self-esteem</li> <li>- Greater attachment issues</li> </ul>
Schafer and colleagues (2004)	Male and female undergraduate students ( <i>N</i> = 884)	Retrospective Bullying Questionnaire (Schafer et al., 2004)	Self-perception (general self-esteem, self-esteem with regard to same sex, self-esteem with regard to opposite sex, emotional loneliness and social isolation), quality of friendships (utility value, ego-support value, self-affirmation value, security value and maintenance difficulties) and attachment style (secure, dismissing, pre-occupied and fearful)	<ul style="list-style-type: none"> <li>- Lower levels of self-esteem (all 3 sub-scales)</li> <li>- Higher levels of emotional loneliness</li> <li>- Increased maintenance difficulties</li> <li>- Increased likelihood of having a fearful attachment style</li> </ul>
Shelton & Liljequist (2002)	Surveyed males referred by courts for a psychological evaluation following a domestic violence conviction ( <i>N</i> = 95)	Peer Relations Questionnaire (PRQ; Rigby & Slee, 1992)	Body image satisfaction	<ul style="list-style-type: none"> <li>- Lower levels of body image satisfaction</li> </ul>
Smith, Singer, Hoel & Cooper (2003)	Men and women surveyed from various workplaces ( <i>N</i> = 5,288)	Created a single-item measure of bullying with five response categories	Victim of workplace bullying	<ul style="list-style-type: none"> <li>- More likely to be a victim of workplace bullying</li> </ul>

**Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.**

<b>Authors</b>	<b>Population</b>	<b>Assessment of being a victim of childhood bullying</b>	<b>Outcome variables</b>	<b>Results – Being bullied in childhood associated with:</b>
Sourander and colleagues (2007)	Males longitudinally followed from age of eight through to adulthood and surveyed at National Military Call-up ( <i>N</i> = 2,540)	Created a single-item measure of bullying with three response categories	Anxiety disorder, depressive disorder, anti-social personality disorder, substance abuse disorder and psychotic disorder	- Diagnosis of anxiety disorder
Storch and colleagues (2004)	Male and female undergraduate psychology students ( <i>N</i> = 414)	TQ-R	Fear of negative evaluation, depression, anxiety and loneliness	- Higher levels of fear of negative evaluation - Higher levels of depression - Higher levels of anxiety - Higher levels of loneliness
Strawser, Storch, & Roberti (2005)	Male and female undergraduate psychology students ( <i>N</i> = 303)	TQ-R	Depression, fear of negative evaluation, social anxiety, anxiety and loneliness	- Higher levels of depression - Higher levels of fear of negative evaluation - Higher levels of social anxiety - Higher levels of anxiety - Higher levels of loneliness
Striegel-Moore, Dohm, Pike, Wilfrey & Fairburn (2002)	Females diagnosed with Binge Eating Disorder (BED) ( <i>n</i> = 162), diagnosed with a DSM-IV psychiatric disorder ( <i>n</i> = 107) and healthy controls ( <i>n</i> = 251)	Created own interview questions	BED and DSM-IV axis I psychiatric disorder	- more likely to have BED or a DSM-IV psychiatric disorder

**Overview of Studies Investigating the Association between being Bullied in Childhood and Adverse Consequences in Adulthood Cont.**

<b>Authors</b>	<b>Population</b>	<b>Assessment of being a victim of childhood bullying</b>	<b>Outcome variables</b>	<b>Results – Being bullied in childhood associated with:</b>
Sweetingham & Waller (2008)	Women surveyed from a specialist eating disorders service ( <i>N</i> = 92)	Created three single-item dichotomous measures of bullying	Eating disturbances (drive for thinness and bulimia), fear of negative evaluation, shame and BID	- Higher levels of BID
Thompson, Covert & Stormer (1999)	Female undergraduate psychology students ( <i>N</i> = 173)	POTS	Eating disturbances (drive for thinness and bulimia) and BID	- Higher levels of BID - Increased levels of eating disturbances
Twemlow, Fonagy, Sacco, & Brethour Junior (2006)	Male and female teachers ( <i>N</i> = 116)	Created own questionnaire	Bullying and being bullied in adulthood	- More likely to be bullied and bully others
Van Dijk and colleagues (2007)	Male and female Retinoblastoma (RB) survivors recruited from the national RB register ( <i>N</i> = 87)	Created a single-item dichotomous measure of bullying	Quality of life	- Increased likelihood of impaired quality of life
Varhama & Bjorkqvist (2005)	Men and women in a training program for unemployed adults surveyed ( <i>N</i> = 68)	Created own questionnaires	Unemployment	- More likely to be unemployed

## **Appendix C**

### **Schizophrenia Research Guide for Authors**



# Guide for Authors

An International Multidisciplinary Journal of the [Schizophrenia International Research Society](#)

*Schizophrenia Research* provides rapid publication of new international research that contributes to the understanding of schizophrenia and related disorders. The journal brings together previously separated biological, clinical and psychological research on this disorder, and stimulates the synthesis of clinical and research data into cohesive hypothesis.

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- E-mail address
- Full postal address
- Telephone and fax numbers
- All necessary files have been uploaded
- Keywords
- All figure captions
- All tables (including title, description, footnotes)

## Further considerations

- Manuscript has been "spell checked"
- References are in the correct format for this journal
- All references mentioned in the Reference list are cited in the text, and vice versa
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## **Appendix D**

### Demographics Questionnaire



## Demographics

Please answer all of the following demographic questions

What is your gender?

Male	Female
<input type="checkbox"/>	<input type="checkbox"/>

---

How old are you in years (e.g. 21)?

What is your ethnic background?

**a) Black or Black British**

- Caribbean
- African
- Any other Black background within (a)

**b) White**

- British
- Irish
- Any other White background

**c) Asian or Asian British**

- Indian
- Pakistani
- Bangladeshi
- Any other Asian background within (c)

**d) Mixed**

- White & Black Caribbean
- White & Black African
- White & Asian
- Any other mixed background

**e) Other ethnic groups**

- Chinese
  - Japanese
  - Any other ethnic group
  - Do not state
- 

In the last month have you taken any medication or sought professional help in relation to any mental health problems (e.g. depression, anxiety, psychosis)?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

---

In the last month have you taken any illegal drugs (Class A, B or C) (e.g. Ecstasy, heroin, LSD, magic mushrooms, amphetamines, cannabis, GHB, ketamine)

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

## **Appendix E**

### Participant Information Sheet

# Paranoid thinking: what influences it?

**Study title: The relationship between childhood experiences of bullying, affective processes and paranoid thinking. Ethics reference: 943. Version 1 (27.10.09).**

**Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to tick a consent box at the bottom of the page.**

## **What is the research about?**

I am Christian Ashford, a Trainee Clinical Psychologist, studying at the University of Southampton. Paranoid thinking is a process that most people experience, yet research is still trying to find out more about what factors may influence a person to experience paranoid thinking. This research aims to explore how childhood experiences of bullying and emotional processes might impact on the development of paranoid thinking.

## **What will happen to me if I take part?**

If you agree to take part you will be presented with some demographic questions. You will be presented with some questions about your childhood experiences of bullying, some questions about emotional processes such as anxiety and depression and some questions about paranoid thinking. The questions should take about 15 to 25 minutes to complete.

## **Are there any benefits in my taking part?**

The results of this study will provide more insight into what processes may have an influence on the development of paranoid thinking. This will help to inform bullying prevention programmes and will help to improve therapy for people experiencing extremely high levels of paranoid thinking.

## **Are there any risks involved?**

There is a chance that you may find some questions difficult to answer or upsetting. If this happens you can choose to withdraw from the study or you can choose to speak to the researcher or supervisor about it. You may become aware that you are experiencing some levels of emotional distress, such as depression and anxiety or some levels of paranoid thinking. Emotional distress and paranoid thinking is commonly experienced by the general public but can vary in how it affects an individual. If you believe that you are experiencing a high level of emotional distress or paranoid thinking that is significantly impacting on your life you can contact me, my supervisor, the University Counselling Service or your local GP for further information and advice.

## **Will my participation be confidential?**

Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics. Participating in this study will have no consequences to your grade or to your treatment as a student in the University of Southampton.

## **What happens now?**

You will be asked to tick a consent box at the bottom of the page. By ticking this box you agree to participate in the rest of the study.

**What happens if I change my mind?**

Your participation is voluntary and you may withdraw your participation at any time. If you choose not to participate there will be no consequences to your grade or to your treatment as a student in the University of Southampton.

**What happens if something goes wrong?**

If you have questions about your rights as a participant in this research or if you feel that you have been placed at risk, you may contact the following person:

Chair of the Ethics Committee, Department of Psychology, University of Southampton,  
Southampton, SO17 1BJ

Phone: (023) 8059 5578

**Where can I get more information?**

If you have any more questions or wish to seek any advice you can contact any of the following:

Researcher: Christian Ashford, Trainee Clinical Psychologist, School of Psychology, University of Southampton

Email: [cda1v07@soton.ac.uk](mailto:cda1v07@soton.ac.uk)

Supervisor: Nick Maguire, Clinical Psychologist, School of Psychology, University of Southampton

Phone: (023) 8059 7760

Email: [nm10@soton.ac.uk](mailto:nm10@soton.ac.uk)

University of Southampton Counselling Service

Phone: (023) 8059 3719 (Internal: 23719)

Email: [counser@soton.ac.uk](mailto:counser@soton.ac.uk)

## **Appendix F**

### Mood Repair Task

## Jokes

Please read the jokes below and rate how funny they are.

Q. Why did the apple go out with the fig?

A. Because it could not find a date!

Worse joke ever	Made me chuckle	Best joke ever
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

Q. What did the astronaut see on the oven?

A. An unidentified frying object!

Worse joke ever	Made me chuckle	Best joke ever
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

Q. What did one elevator say to another elevator?

A. I think I am coming down with something!

Worse joke ever	Made me chuckle	Best joke ever
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

## **Appendix G**

### **Participant Debriefing Statement**



Thankyou for taking the time to complete this study.

It is natural for most people to experience some level of paranoid thinking. This study was interested in trying to determine what factors may predispose one person to experience higher levels of paranoid thinking when compared to another person.

It is expected that people who have experienced high levels of childhood bullying and who experience high levels of emotional processes including high levels of anxiety, depression, rejection sensitivity and negative beliefs about themselves and others, will be more likely to experience higher levels of paranoid thinking.

Once again the results of this study will not include your name or any other identifying characteristics. The research did not use any deception.

Once I have completed the study I can provide you with a brief summary of the results that we found if you want. Please email me (cda1v07@soton.ac.uk) if you wish to receive a summary of the results.

If you have any more questions or wish to seek any advice you can contact any of the following:

Researcher: Christian Ashford, Trainee Clinical Psychologist, School of Psychology, University of Southampton

Email: [cda1v07@soton.ac.uk](mailto:cda1v07@soton.ac.uk)

Supervisor: Nick Maguire, Clinical Psychologist, School of Psychology, University of Southampton

Phone: (023) 8059 7760

Email: [nm10@soton.ac.uk](mailto:nm10@soton.ac.uk)

Chair of the Ethics Committee, Department of Psychology, University of Southampton,  
Southampton, SO17 1BJ

Phone: (023) 8059 5578

University of Southampton Counselling Service

Phone: (023) 8059 3719 (Internal: 23719)

Email: [counser@soton.ac.uk](mailto:counser@soton.ac.uk)

Once again, thank you for your participation in this research.

## **Appendix H**

University of Southampton Research Ethics Committee Approval Email

This email is to confirm that your ethics form submission for "The relationship between childhood experiences of bullying, affective processes and paranoid thinking?" has been approved by the ethics committee

Project Title: The relationship between childhood experiences of bullying, affective processes and paranoid thinking?

Study ID : 943

Approved Date : 2009-10-16 08:45:44

[Click here to view Psychobook](#)

If you haven't already submitted the Research Governance form for indemnity insurance and research sponsorship along with your ethics application please be aware that you are now required to fill in this form which can be found online at the link below.

Research Governance Form:

[http://www.psychology.soton.ac.uk/psyweb/psychobook/admin/ethics/research\\_governance.doc](http://www.psychology.soton.ac.uk/psyweb/psychobook/admin/ethics/research_governance.doc)

This will need to be returned to the address provided on the form.

Please note that you cannot begin your research before you have had positive approval from the University of Southampton Research Governance Office (RGO). You should receive this by email in a maximum of two working weeks. If you experience any delay beyond this period please contact Barbara Seiter. More information about Research Governance can be found at the link below. (You will be prompted to log into sussed.)

<http://www.soton.ac.uk/corporateservices/rgo/index.html>

## **Appendix I**

University of Southampton Research Governance Office Approval Letter

Mr Christian Ashford  
School of Psychology  
University of Southampton  
University Road  
Highfield  
Southampton  
SO17 1BJ

RGO Ref: 6809

22 October 2009

Dear Mr Ashford

**Project Title The Relationship Between Childhood Experiences of Bullying, Affective Processes and Paranoid Thinking**

This is to confirm the University of Southampton is prepared to act as Research Sponsor for this study, and the work detailed in the protocol/study outline will be covered by the University of Southampton insurance programme.

As the sponsor's representative for the University this office is tasked with:

1. Ensuring the researcher has obtained the necessary approvals for the study
2. Monitoring the conduct of the study
3. Registering and resolving any complaints arising from the study

As the researcher you are responsible for the conduct of the study and you are expected to:

1. Ensure the study is conducted as described in the protocol/study outline approved by this office
2. Advise this office of any change to the protocol, methodology, study documents, research team, participant numbers or start/end date of the study
3. Report to this office as soon as possible any concern, complaint or adverse event arising from the study

Failure to do any of the above may invalidate the insurance agreement and/or affect sponsorship of your study i.e. suspension or even withdrawal.

**On receipt of this letter you may commence your research but please be aware other approvals may be required by the host organisation if your research takes place outside the University. It is your responsibility to check with the host organisation and obtain the appropriate approvals before recruitment is underway in that location.**

May I take this opportunity to wish you every success for your research.

Yours sincerely



Dr Lindy Dalen  
Research Governance Manager

Tel: 023 8059 5058  
email: [rgoinfo@soton.ac.uk](mailto:rgoinfo@soton.ac.uk)