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Understanding the role of parent factors and interpretation bias in children from military families who show symptoms of anxiety.

by

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ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES

Doctorate in Educational Psychology

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LITERATURE REVIEW: AN EXPLORATION OF RISK AND RESILIENCE ENVIRONMENTAL FACTORS IN THE DEVELOPMENT OF SEPARATION ANXIETY IN SCHOOL-AGED CHILDREN AND ADOLESCENCE.

EMPIRICAL PAPER: UNDERSTANDING THE ROLE OF PARENT FACTORS AND INTERPRETATION BIAS IN CHILDREN FROM MILITARY FAMILIES WHO SHOW SYMPTOMS OF ANXIETY.

Camilla Louise Jerrard

The aetiology of SA is complex; its onset is impacted on by several factors and their interaction including genetic (e.g., temperament), environmental risk (e.g., maternal over-protection) and cognitive risk. This review examined research that explores the impact of acute and chronic environmental risk and resilience factors (e.g., parenting style, SES, parental separation experiences, paternal absence and traumatic experiences) on the aetiology of SA symptoms and SAD, specifically for school-aged children and adolescents (aged 2-18). The review used three electronic databases for the literature search, a combined search in Psychinfo and Medline via EBSCO and ERIC. Following a systematic method, 18 papers were selected for analysis. Eight risk factors in school-aged children and adolescents were identified. These linked to themes of parenting styles, parent separation, traumatic experiences, socioeconomic status and early risk. Three potential resilience factors were also identified through the process of this review: parent-offspring relationship, access to therapeutic support and planned separation experiences. Findings

are discussed in relation to theory and research to inform intervention for SA and SAD in educational settings and Educational Psychologist's (EPs) practice. Limitations are explored and future research is discussed.

Cognitive models of anxiety propose a cognitive-behavioural representation of information processing biases, demonstrating the inter-relationship between the thoughts and actions of an individual. Theoretical models highlight family and parenting factors that contribute to intergenerational transmission of anxiety (parent to offspring) and cognitive processes. Little research has focused on the emergence of specific anxiety disorders in high-risk groups and investigated these interrelationships. Military families have been described as being at greater risk to threat exposure due to unique family and environmental factors (e.g., transitions and deployments). The present research explored the association between parent and offspring anxiety, interpretation biases and parenting variables in a military family population. Twenty-nine mother/child dyads (8-11 years) completed a word interpretation bias task of threatening (general and separation themes) and neutral words and reported their negative affects via questionnaires. Parenting was measured via the Five-Minute Speech Sample, which assesses expressed emotion (e.g., warmth and relationship). Positive and significant correlations between parent- and children's- self-reported negative affects were found (*ps*<.50). Child cognitive interpretation bias was associated with children's reports of anxiety. No associations for parent cognitive biases were found. Parent reports of child separation anxiety were positively and significantly correlated with number of deployments (*ps*<.50). Parenting variables were not associated with increased reports of negative affect in mothers or offspring. Mediation models explored the association with mothers' own anxiety and the development of biases in offspring via increases in the child's reports of their own anxiety. Two indirect effects approached significance. Findings are discussed in relation to the development of anxiety and explore the mechanisms involved in the transmission of anxiety from parent to offspring.

Keywords: *Parenting, Interpretation Biases, Separation Anxiety, Environmental Risk, Anxiety, Children, Military Families*

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DECLARATION OF AUTHORSHIP

I, Camilla Jerrard declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Literature Review: An exploration of risk and resilience environmental factors in the development of separation anxiety in school-aged children and adolescence.

Empirical Paper: Understanding the role of parent factors and interpretation bias in children from military families who show symptoms of anxiety.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signed: .....

Date: .....

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Chapter 1: Literature review: An exploration of risk and resilience environmental factors in the development of separation anxiety in school-aged children and adolescence.

1.1 Introduction

In typical development separation and stranger fears (e.g., increased distress at separation from the primary caregiver or when faced with an unknown person) and fears of the unknown (e.g., fear of the dark or imaginary creatures) emerge during the first few years of life, and are often experienced by children at low levels of negative affect, and typically continue through to middle childhood (Evans, Gray & Leckman, 1999). Separation distress is therefore considered to be an innate trait in humans and other species (Robertson & Robertson, 1971; Hinde & Spencer-Booth, 1970). Separation distress and stranger anxiety are characterised by different communicative functions. Separation distress is typically seen in infants as early as four months, peaking at 13 to 18 months and dissipating thereafter (Ainsworth, 1979; Bowlby, 1973). On the other hand, stranger anxiety can be seen at seven months, but peaks at 12 months, and the infant displays escape behaviours to communicate a feeling of fear (Thompson & Limber, 1990). All infants experience minimal stranger anxiety as part of typical development, which usually diminishes when an infant becomes a toddler, aged around two to three (Brooker et al., 2013). Furthermore, the amount of separation or stranger related distress an infant or toddler displays is likely to differ based on individual traits (e.g., temperament) and biological vulnerabilities (e.g., genetic factors) (Plomin & Rowe, 1979).

1.1.1 Separation Anxiety

Anxieties around separation are often observed in children and sometimes this anxiety may heighten or intensify for a short period, but typically do not merit a diagnosis of separation anxiety disorder (SAD; American Psychiatric Association (APA), 2013). This typical increase and decrease in anxiety, early in development, has been distinguished from SAD, which research shows emerges later, at around four to five years of age (Roberson-Nay et al., 2012), though its onset can occur in adulthood (APA, 2013). In development, fears and anxieties linked to separation occur when experiences become intensified and to a point that exceeds what is expected for the child's developmental level (Victor & Bernstein, 2009).

Cooper-Vince, Emmert-Aronson, Pincus and Comer (2014) defined SAD in school-age children (aged four to 15) as a fear or reluctance to be alone (including not wanting to go to sleep) without a major attachment figure (MAF). The APA (2013) defines SAD diagnostically as "inappropriate and excessive fear or anxiety concerning separation from those to who the individual is attached" (p. 190-195). Specific symptoms outlined here include distress on anticipation or actual separation from significant others, as well as children showing or reporting worry or concerns about something happening to themselves (e.g., being kidnapped) or to the MAF (e.g., having an accident) when they are not with them. For a diagnosis of SAD, these worries and concerns would have a significant negative impact on daily life leading to resistance to leave the family home (e.g., lowering school attendance) and engagement with social activities that takes the child away from home (Suveg, Aschenbrand, & Kendall, 2005). Fears and worries have also been associated with the child-reporting physical symptoms (e.g., feelings of sickness and headaches). In addition, for a diagnosis of SAD the fear or anxiety should persist for at least 4 weeks in children and adolescents and typically for 6 months or more in adults.

The APA (2013) and related research highlights two onset periods: Juvenile period onset (JSAD) and adult period onset (ASAD) (Kearney, Sims, Pursell & Tillotson, 2003; Silove et al., 2015). SA usually follows a developmental progression, with younger children experiencing fewer distressing symptoms whereas older children and adolescence experiences are often accompanied by anxiety or worry, which can lead to them displaying more avoidant-type behaviours, for example, not wanting to leave the house (Compton, Nelson & March, 2000).

The prevalence of SAD in children (aged five to seven) is around four per cent (Beesdo, Knappe & Pine, 2009), though figures vary between three and 6.8% (Victor et al., 2009). Further research has outlined increased prevalence (up to 50%) in children and adolescence aged eight, 12 and 17 who exhibited sub-clinical levels of SAD, but did not meet the criteria for a diagnosis (Kashani & Orvaschel, 1990). SAD is more prevalent in children (3%-5%) compared to adolescents (2%-4%) (Victor et al., 2009; Bowen, Offord & Boyle, 1990). Most studies show a higher rate of SAD in girls with a ratio of 6:1 (e.g., Bowen et al., 1990), though some research reports no gender differences (Victor et al., 2009).

SAD is the earliest emerging anxiety disorder and the prognosis of SAD is typically not stable, but has been associated with poorer mental health outcomes in adulthood (Manicavasagar, Silove, Curtis, & Wagner, 2000). Prospective studies show that the odds ratio of developing further anxiety disorders is greater than 2, and the most common comorbid outcome is panic disorder with an odds ratio of 3.45 (Kossowsky et al., 2013). Manicavasagar et al., (2010), for example, found that 75% of adults diagnosed with panic disorder, agoraphobia and generalised anxiety disorder (GAD) reported having SAD symptoms as a child.

The aetiology of SA is complex and its onset is impacted on by several factors and their interactions including genetic risk (e.g., temperament), environmental risk (e.g., maternal over-protection) and cognitive risk (e.g., Bögels & Zigterman, 2000).

1.1.2 Genetic Factors and Child Temperament

Early research highlighted that an individual's tendency to react with increased negative affect to novel or challenging situations can reflect individual differences in temperament (Rowe & Plomin, 1977). Thomas and Chess (1977) outlined nine dimensions, which are suggested to make up three profiles of temperament: slow to warm up, easy and difficult. A slow to warm up profile reflects infants who are more cautious to explore novel or challenging situations and an easy temperament profile is linked to an infant being more adaptable to a novel or challenging setting. A difficult profile is associated with infants who find it hard to adapt to a novel or challenging setting. Approximately 60% of one year olds are likely to have an easy temperament profile, with the other 40% accounting for the other two profiles (Caspi et al., 1995).

Children with a difficult temperament profile are more likely to display higher traits of behavioural inhibition (BI). Research suggests that children with a higher traits reflecting increased BI experience increased general fearfulness (i.e., heightened reactivity and poor emotional regulation) and lowered tolerance of novel and unfamiliar events or people (Kagan, 1997). Children with this profile are at increased risk of developing symptoms of anxiety pathology (Lonigan, Vasey, Phillips & Hasen, 2004; Forbes, Rapee, Camberis, & McMahon, 2016). This likelihood increases further if a child with BI also has a parent with an anxiety disorder (Biederman, Rosenbaum, Chaloff & Kagan 1995). While BI has been linked to different anxiety disorders including SAD, it has been most associated with social anxiety disorder in developmental literature (see e.g., Muris, Van Brakel, Arntz, & Schouten, 2011).

Further studies have considered the relative contribution of genetic and environmental influence on the development of SAD using twin studies. Feigon, Waldman, Levy and Hay (2001), for example, looked at symptoms of SAD in children from 3 to 18 years of age in 2043 twin pairs (1009; DZ and 1034; MZ) and non-twin siblings from Australia. Considering maternal-reported symptoms of SAD, they found that in their overall sample, genetic influences accounted for 47% of the variance in symptoms, whereas shared environmental influences (i.e., those aspects of the environment that are typically shared by twin pairs) accounted for 21% and with the rest being accounted for by non-shared environment (i.e., those aspects of the environment uniquely experienced by one twin). Further research, using a sample of 854-twin pairs (253; MZ, 601; DZ) aged 6 years of age and maternal-reported symptoms of SAD, found that the effect of the non-shared environment was large and significant (59%), with more modest non-significant heritability (21%) and the shared environment (20%) (Eley et al., 2008). A recent meta-analysis suggested that family and environmental factors play a greater role in understanding the development of SAD in childhood compared with genetic factors (Scaini et al., 2012), though it is likely that its emergence is most evident for young children who have genetic and/or temperamental vulnerability. A large body of research has, however, focused on understanding those aspects of the environment that are associated with the onset of SAD in children and adolescents, and where the focus has been on acute factors (e.g., the presence of maternal psychopathology) or more chronic aspects of the environment (e.g., characterising the attachment relationships between children and their primary caregiver, usually the mother or elements of parenting more generally).

1.1.3 Acute and Chronic Parental Factors

Bowlby (1982) described attachment as an emotional bond between an infant and their caregiver. Empirical research has found that the attunement of the caregiver to the

infant is positively associated with the development of a secure attachment relationship with the infant (Teser-Jones, O'Mahen, Watkins & Karl, 2015). Furthermore, attuned relationships are characterised by caregiver behaviours reflecting increased attentiveness, sensitivity, and responsiveness to their infant's cues. These interactions are associated with positive child outcomes, such as increased emotional regulation, more advanced language skills and the development of more effective social relationships through development (Legerstee, Markova & Fisher, 2007). However, some infants develop an insecure attachment as a result of inconsistent and insensitive caregiving. This type of attachment is categorised as ambivalent, resistant or disorganised. Childhood anxiety is mostly linked to ambivalent styles of attachment, where children experience increased rejection or abandonment from their caregiver (Muris, Meesters, Merckelbach & Hulsenbeck, 2000).

Considering approaches to parenting, a meta-analysis of 165 studies has shown that children and adolescents (aged 3 to 18 years) whose family life was characterised by low levels of parental warmth and support, and high levels of control and conflict were more likely to self-report increased internalising symptoms, including elevated levels of anxiety. This pattern of interaction within families is argued to result in a child feeling a poor sense of control or agency, which can develop as a psychological vulnerability (Madigan, et al., 2016). Child perceptions of poor control can perpetuate and reinforce the state of being anxious about being separated from a caregiver, which are impacted on by parenting styles and characteristics that perpetuate an ambivalent attachment style (Brown & Whiteside, 2008). Research has focused on understanding several characteristics of emotional relationships between children and their primary caregiver, usually the mother, and the psychosocial outcomes of children (Colonessi, et al., 2011).

Further research has highlighted that the presence of maternal anxiety is also associated with childhood anxiety. In this case, it is argued that offspring inherit genes that

place them at increased risk, in addition to an anxiogenic parenting style (Eley et al., 2015). For example, some research has considered maternal SAD as a risk factor for the development of this disorder in offspring, and reflects a mother's experience of an uncomfortable emotional state of panic, worry and guilt when she is apart from her infant that is qualitatively different from the general distress experienced by mothers postpartum. For example, Cooklin et al., (2013) explored the distinction between postpartum maternal SA from general distress and looked at the parallel and potential associations between maternal over-protective parenting and psychological distress and child outcomes (e.g., socio-emotional functioning) at 2 to 3 years. In this prospective study children of mothers (n=3,103) who displayed SA were more likely to have offspring with increased externalising, internalising and emotional dysregulation symptoms. Further research has shown that symptoms reflecting poor maternal mental health are associated with negative cognitive biases associated with the focus of the anxiety or concern, in this case separation (Perez-Olivas, Stevenson, & Hadwin, 2011). Theoretical frameworks have further highlighted that maternal interpretation biases can increase risk for the development of biases and associated negative affects in offspring (e.g., Creswell, Murray, Stacey & Cooper, 2011).

1.1.4 Environmental Risk

Although, the focus of chronic factors in empirical research has been regarding the impact of parenting styles and attachment on the development of anxiety disorders and the interrelationships with cognitive process, some research has looked at wider environmental risk with regards to the aetiology of anxiety (Rapee, 2001). The impact of socio-economic status (SES) and the quality of neighbourhood environments such as safety (Osofsky, Wewers Hann & Flick, 1993) and exposure to drugs has been linked to mental health difficulties in childhood, predominantly in the development of depression and internalising

behaviours (Xue, Brooks-Gunn & Earls, 2005). The interrelationship between fear and lack of resources is felt to lead to the development of maladaptive coping strategies and as a result the development of negative affects in childhood. However, little research has specifically looked at the outcomes regarding SAD in childhood.

The impact of traumatic experiences has also been associated with negative emotional outcomes for children. Limited research considering the impact of family violence has demonstrated independent associations with child negative affects when SES and parent psychopathology are controlled for (McDonald et al., 2007; Mongillo, Briggs-Gowan, Ford& Carter, 2009). Furthermore, research has demonstrated the negative impact of childhood neglect on emotional development, particularly in the development of internalising behaviours (Humphreys, et al., 2015). In addition, the impact of indirect and direct exposure to man-made traumatic events has been to shown to have positive associations with negative outcomes for children (Deeba & Rapee, 2015).

Parental separation has been shown to predict increased rates of anxiety disorder in 15 year olds if they had experienced many separations from a MAF between the ages of 0 to 15 (Fergusson, Horwood & Lynskey, 1994). Similar findings have been found in adults with anxiety disorders that had experienced the death of a parent before the age of 17 (Kendler et al., 1992). However, the specific impact of separation and loss on the aetiology of SAD has not been thoroughly explored.

Several models that consider the emergence of SAD in children highlight parenting factors as part of a complex set of risk factors. However it is difficult to ascertain the impact of parent psychopathology and parenting style on the aetiology of childhood SAD without considering the interactions and associations of additional environmental risk. The need to investigate the impact of the environment on the aetiology of SAD in childhood has been emphasised (Silove et al., 2015). Key factors as outlined by theory and research

that place children at risk for SAD are summarised in Figure 1, which highlights the interactions of biological risk with chronic and acute factors, moderated by age, gender and culture to determine child outcomes and the development of SAD and its severity. So, children with a genetic or temperamental predisposition to SAD are proposed to be more at risk of developing of SAD if they also experience environmental risk factors for SAD that impact on their development (e.g., emotional regulation skills).

This review examined research that explores the impact of chronic and acute environmental risk and resilience factors (e.g., parenting style, SES, parental separation experiences, paternal absence and traumatic experiences) on the aetiology of SA symptoms and SAD, specifically for school-aged children and adolescents (aged 2-18) cohort. In addition, it aimed to utilise the presentation of theory and research to inform intervention for SA and SAD in educational settings and Educational Psychologists' (EPs) practice.

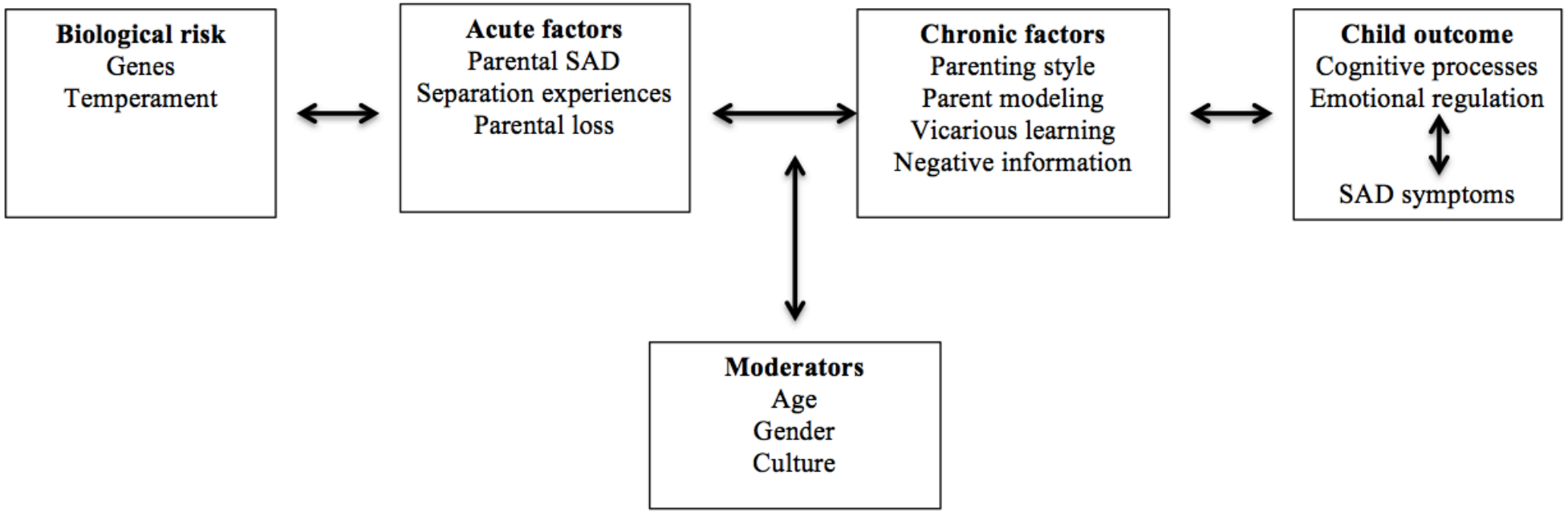

Figure 1: A proposed interactional model for the development of SAD, in which biological risks interact with chronic and acute factors, moderated by age, gender and culture to determine child outcomes and the development of SAD and its severity. Chronic factors account for those that are consistently reoccurring and acute factors account for those that are single severe experience.

1.2 Method

This review used three electronic databases for the literature search: a combined search in Psychinfo and Medline via EBSCO and ERIC. The same search terms were used in each database, the thesaurus' identifying related terms (see Appendix B). The initial search retrieved 1174 papers (789 PsychInfo and Medline and 385 ERIC).

Papers were initially excluded if they were books (n= 24), unpublished works (n=117 e.g., dissertations), electronic reviews (n=62) and reports (n=58). Furthermore, 262 papers published before 2000 were excluded as they pre- date the publishing of the DSM IV-TR (American Psychiatric Association, 2000). Papers that did not have human participants (n= 9), used a population over the age of 18 (n=69) and 70 papers that were not written in English were also excluded. This brought the total amount of included papers to 400. Case studies and duplicates were removed, which bought the total amount of included papers to 379.

Papers were further excluded if the focus of the research was not the aetiology of SAD (e.g., treatment/intervention, diagnostic tool), if SAD was the predictive factor (e.g., SAD predicting onset of panic attacks in adulthood), if the papers did not specifically measure SAD or if the papers did not specifically measure any predictive or preventative factors. A further 361 were discounted and final set of 18 papers remained for evaluation (see Figure 2 for method and Appendix A for a description of included studies). A 27-item quality checklist (Downs & Blacks, 1998) was used to qualitatively assess the robustness of the methodology and findings from the 18 studies. Questions 4, 8, 13, 14, 15, 17, 19, 21, 22, 23 and 24 were omitted because they related specifically to intervention studies and were irrelevant, leaving 16 questions. All of the 18 studies went on to be systematically reviewed. Following the systematic review, papers were divided in to six themes;

Chapter 1

Parenting, parent psychopathology and SAD in offspring, parent separation experiences and loss, traumatic experiences, socio-economic factors and early risk.

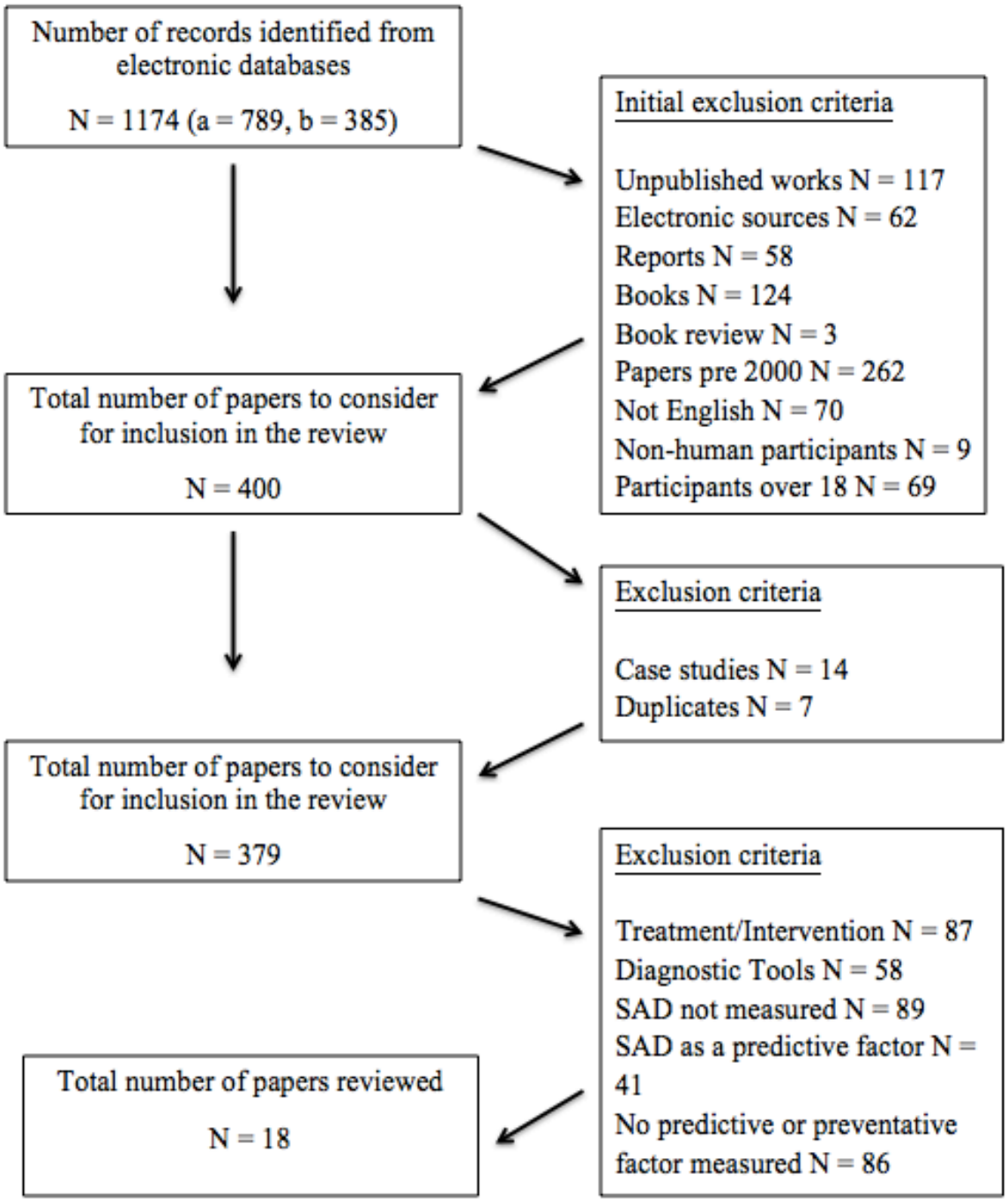

Figure 2: PRISMA diagram of systematic search

1.2.1 Parenting

Of the 18 papers reviewed, five looked at the impact of parenting styles (e.g., temperament characteristics, parent control, over protectiveness and intrusiveness) on the development of SAD symptoms in school-aged children (3, 7, 8 11, 13). Four papers focused on mostly maternal parenting (3, 8, 11, 13) and one paper focused on parenting from both parents (7). One paper (11) measured parenting by way of maternal temperament characteristics (e.g., irritable or anxious). Two papers (8, 13) measured parenting by exploring maternal intrusiveness (lack of dependency promoting techniques) in their care towards their children. Another paper measured parenting via perceived parental behavioural and psychological control (7). Lastly, one paper (3) paper explored the impact of an overprotective parenting style on the development of SA symptoms.

Erermiş et al., (2009) used a case control design to compare the temperamental characteristics (as a way of measuring parenting style) of mothers in a clinical sample of 4-7-year-old Turkish children (n=69), with a non-clinical sample (n=60). Groups were matched on sex, age, socio-economic level and important life events (e.g., moving to a new home and changing school). Mothers of the clinical group reported good mental health measured using the Structural Clinical Interview for DSM-III-R Disorders-Non-Patient Version (SCID-NP; Spitzer, Williams, Gibbon & First.1992**)**. The Child Behaviour Checklist-Parent version (CBCL-Parent; Achenbach and Edelbroch, 1978, 1979) was used to measure SA symptoms in offspring. The Temperament Evaluation of Memphis, Pisa, Paris and San-Diego-Auto Questionnaire (Vahip et al., 2005) measured maternal reports of their temperament moods: depressive, cyclothymic (i.e., changes between low and high mood), hyperthymic (i.e., exceptionally positive mood), irritable and anxious.

Analysis looked at the associations between CBCL scores (e.g., internalising and externalising behaviour) and the mothers' temperament in both the clinical and non-

clinical groups. Internalising behaviour symptoms of children from both groups were positively associated with maternal cyclothymic, irritable and anxious temperament scores. Between group analyses further showed that these temperament characteristics of the mothers in the clinical group were significantly higher ($p<.0001$) than those in the control group. No between group differences were found for SA symptoms in terms of SES, gender or significant life events (e.g., changing school, or birth of a sibling). The study highlights that parent temperament may impact of the development of SA symptoms despite differences in gender and wider environmental factors in children during early childhood. However, findings here may be affected by an age effect, but this is more direct measure of parenting style with a longitudinal design would allow further examination of the direction and impact of parenting on the development of SA symptoms in children over time.

An early longitudinal study hypothesised that early childhood SAD would be associated with parental overprotectiveness (3). Sixty children (boys; 31, girls; 29) from nine preschools in the United Sates of America (USA) took part in the study across two time points, at age three and six and half years. Following the time one assessment children were split into three groups; non-clinical, subclinical or clinical SAD. The Teacher's Report Form (Achenbach & Eldelbrock, 1986) was used to measure the children's internalising and externalising behaviours, and The Conners Parent Rating Scale–Revised (Conners, 1990) measured parent-reports. The Personality Inventory for Children (Lachar, Gdowski, & Snyder, 1982) was used to measure self-reported behaviour and cognitive abilities. Parental overprotectiveness was measured using the Parental Investment in Children (PICH; Bradley, Whiteside-Mansell, Brisby, & Caldwell, 1997). The results showed that parents of children in the clinical group were reported to have an increased overprotective parenting style, as reported by children and reflected in the higher scores in the PICH.

More recent longitudinal research investigated the direction of effects between perceived parental control (behavioural and psychological) and perceived adolescent SAD symptoms across three time points two years apart in older school-aged children (13). Dutch participants (n=1,313) were split into an early-to-middle adolescent cohort (n=923; 468 boys; 455 girls), and a middle-to-late adolescent cohort (n=390; 169 boys; 221 girls) with an average age of 12.4 and 16.7 years respectively. The Child Report of Parent Behaviours Scale (CRPBI; Schaefer, 1965) was used to measure perceived behavioural and psychological control, and the self-reported screen for child-related emotional disorders (SCARED; Birmaher et al., 1997) was used to measure self-reported SAD symptoms at each time point. At time one results showed no significant correlations between perceived parental control and SAD symptoms, however, cross paths analysis highlighted that SAD symptoms at time one had a significant impact on perceived parental behavioural control at time two. That is, adolescents with increased levels of self-reported SA also reported increased perceptions of parent behaviour as more psychologically and behaviourally controlling over time. Both longitudinal studies highlight the reciprocal relationship between anxiety in offspring and parent behaviour for wide age and development band, indicating that that more controlling or intrusive parenting styles can perpetuate the cycle of anxiety, reinforcing that certain experiences are not safe impacting on the development of SAD (see e.g., Creswell et al., 2011).

Similarly, Wood (2006) hypothesised that parent intrusiveness is specifically linked with SAD, but not other types of anxiety in childhood. This study also explored the relationship between maternal anxiety and intrusiveness. A clinical sample of 40 children with anxiety disorders aged between six and 13 years from the USA (Male = 60%, Female = 40%) and their parents were recruited for participation in a randomised, controlled trial of psychotherapy. The child and parent version of the Anxiety Disorders Interview Schedule (ADIS; Silverman Saaverdra & Pina 2001), as well as the Multidimensional

Anxiety Scale for Children (MASC; March et, al., 1997) were used to measure the child's anxiety and the ADIS (adult version) was used to measure the psychopathology of the parents. Intrusiveness was measured by an observation of a belt-buckling task completed by the dyad. This task was designed to be difficult for 6 – 13 year olds and intrusiveness was measured on the amount of parent intrusive physical help or touch, as opposed to parental scaffolding (i.e., mediation). As well as the observation the Parent–Child Interaction Questionnaire (PCIQ; Lange, Evers, Jansen, & Dolan, 2002) was used to measure intrusiveness. The Skills of Daily Living Checklist (Baker, Brightman, Blacher & Heifetz, 1997) was also used to assess the child's self-care skills, such as zipping up their coat.

A significant correlation was found between parent intrusiveness and both the child and parent version of the SA interview score, as well as the parent-reported MASC SA scale, indicating that the parents of children reporting higher SA symptoms had a more intrusive parenting style. The correlation between parent intrusiveness with the child self-reported MASC SA scale approached significance ($p < 0.06$). When controlling for the child's age both significant effects of the intrusiveness with parent-reported anxiety symptoms remained significant, however child self-reported anxiety symptoms did not, indicating some potential moderation by age in the development of SAD.

In a subsequent paper Wood, et al., (2007) also hypothesised that maternal intrusiveness would be associated with children's SA symptoms, which in turn would heighten dependent behaviours (i.e., asking for help, attention seeking) within school. 72 families, from the USA, whose children attended a state primary school, took part in the study. They measured parent- and child-reports of maternal intrusive behaviour using the

PCIQ (Lange et al., 2002). The child's dependency behaviours in school were measured using a novel checklist developed by the authors; The Caregiver Dependency Scale (CDS). The Social Engagement subscale of the CDS was used to measure how frequently children interacted with adult caregivers and SAD symptoms were measured using the self-reported MASC (March et, al., 1997). They found that parent-reported SAD scores were significantly associated with both parent and child-reports of intrusiveness. In addition, parents who rated their children as having more SA symptoms were perceived to be more intrusive in their children's daily activities (e.g., dressing and bathing, as reported by their child). Child self-reported SAD symptoms were associated with their reports of maternal intrusiveness, but not their parent's reports of their own intrusiveness. Further analysis considered the unique contributions of maternal intrusiveness and SAD symptoms to children's dependency on school caregivers. It showed that intrusiveness was the only significant predictor in the model for dependency on school caregivers. The results suggest that children who experienced intrusive caregiving behaviours develop an internal working model that close relationships are based on dependency and physical proximity. However, longitudinal and experimental studies are needed to test the direction of effects.

With most studies analysing early to middle childhood (3, 7, 8, 11) it is difficult to ascertain the long-term impact of parenting on the development of SA into adolescence. Interestingly the study using an older cohort (13) identified the impact of time on adolescent self-reported SA symptoms and then their perceptions of parental control, which suggested that children who present with more SA symptoms in early childhood actually impact on their parent's style of parenting, as parents become more protective and/or intrusive in order to dissipate their offspring's anxiety. Additionally, this parenting style can also reinforce fears of separation in offspring, creating a vicious cycle. Further research has looked at the underlying mechanism linking chronic and acute factors that might place children at risk of SAD.

1.2.2 Parent Psychopathology and SAD in Offspring: An Exploration of Mediating Factors

Of the 18 papers reviewed, three looked at factors that potentially mediate associations between parenting factors and child symptoms of SAD. These include some consideration of parenting style (i.e., over protectiveness intrusiveness and emotional over involvement), cognitive processes (9), acute risk (6,16) and parent psychopathology (e.g., anxiety or depression). Mediation analyses allow researchers to explore the underlying mechanisms that explain why two variables are linked with each other.

One study (6) considered whether associations between parental and child symptoms of SA were mediated via mother-child relationship (e.g., attachment style) or parenting characteristics (e.g., maternal sensitivity). American mother-child dyads (n=99) from the NICHD Study of Early Childcare took part in this longitudinal study. The Strange Situation procedure (Ainsworth & Bell, 1970) was used to assess attachment security at 15 months old. Separation-reunion episodes between mothers and their infants were recorded and coded and observations were assigned an attachment classification: secure, insecure-avoidant, insecure-ambivalent, and disorganised. In addition, three free play interaction tasks at 6, 15, and 24 months of age and a structured interaction task at six years were videoed and used to measure maternal sensitivity. SA was measured using the SA Scale of the Maternal Separation Anxiety Scale (Hock, McBride, & Gnezda, 1989). Child SA was measured at 6 years old using a modified version of the BPI (Measelle, Ablow, Cowan & Cowan, 1993). Parent-reports of child negative affects were also measured at six months (temperament) and 54 months (externalising and internalising behaviours).

The findings showed that maternal SA did not directly predict children's SA at six years, but that three out of four categories of child–mother attachment security (insecure-avoidant, insecure-ambivalent and disorganised) and maternal sensitivity did contribute to

the prediction of children's SA at age 6. Children in insecure-ambivalent attachment security scored the highest levels of SA of any category. Further analysis was carried out to test for mediation and showed the relation between mothers' and children's SA was entirely mediated through maternal sensitivity and attachment security demonstrating that parenting sensitivity and attachment mediated symptoms of separation in mothers and their offspring.

In contrast, similar research has explored associations between SAD symptoms in mothers and children via parental psychological control (intrusiveness) (16). Here it was hypothesised that maternal SA symptoms would predict child SAD in early childhood and that this relationship would be mediated by psychological control. It was also hypothesised that mothers would be more intrusive and controlling in their approach to their daughters. This longitudinal study recruited 287 mother/child dyads (aged 5-8 years). Children were interviewed at 2 different time points, a year apart using the Berkeley Puppet Interview (BPI; Measelle et al. 1998); an interactive interviewing technique used to elicited child self-perceptions including symptoms of child SA). The 'Psychological Control' Scale-Youth Self-Report (Barber, 1996), 'Parental Regulation Scale'-Youth Self-Report (Barber, 2002), and the Acceptance Rejection scale from the CRPBI (Schaefer, 1965) were used to measure the children's perceptions of dependency oriented psychological control.

They found that maternal SA and dependency-oriented psychological control were positively marginally related (p = .059). Furthermore dependency-oriented psychological control was positively related to child SA at each time point and across genders. However, the association between maternal SA and child SA was not statistically mediated by dependency-oriented psychological control. The results also showed that age was negatively correlated with SA symptoms (see also Poulton et al., 2001), highlighting age as a moderator, but not gender.

Other research has explored the role of cognitive factors in understanding the development of SA in middle childhood (9), and where aspects of parenting are assumed to be associated with symptoms of SA in offspring. This study tested the proposition that maternal over-involvement would contribute to a child's SA via an enhanced vigilance for threat. The study fits with cognitive models of anxiety, which suggest that poor attentional control, and increased attention biases for the detection of environmental threat can cause or maintain anxious states (e.g., Eysenck, Derakshan, Santos, & Calvo, 2007; Bar-Haim et al., 2007; Hadwin et al., 2016).

A community sample of British children-mother dyads (n=129; 69 children were 10 years or under and 60 were > 10 years) took part in the study. Child-and parent-reported SA was measured using The Revised Child Anxiety and Depression Scales (RCADS; Chorpita et al., 2000). Vigilance to threat was measured using a visual search task (see Hadwin et al., 2003) where children were asked to decide whether an angry, neutral or happy face was present or absent, and where faces were presented with three, five or seven distractors. The Five Minute Speech Sample (FMSS; Magana et al., 1986) was used to measure maternal emotional over involvement (EOI). In the FMSS EOI is reflected in a high number of positive comments made during the sample as well as the parent's warmth and relationship with her child, which is inferred from the tone and spontaneity of the parent. In this sample, mothers were categorised as low or borderline EOI.

The results showed that borderline EOI was associated with symptoms of SA in offspring (for child and maternal reports) and faster times to locate angry faces ($p<.05$). The mediation model supported the role of attention biases in understanding links between maternal characteristics and symptoms of SA in the child. These findings are supported by previous findings that mothers' self-reported fear of going out alone and being alone, correlated with offspring SA at age seven ($p<0.035$) and nine ($p<0.001$) respectively

(Poulton et al, 2001). Although not through mediation analysis, these findings add other support that vicarious conditioning or modelling could impact on the development of SA and that maternal SA is a potential risk factor because of its influence on the development of chronic risk factors, such as cognitive processes and interpretation biases of ambiguous information.

This body of work has been important in demonstrating links between chronic and acute factors. In addition, it has made some progress in understanding mechanisms that can explain links between parental psychopathology and parenting characteristics with the development of SAD in children. Further research has looked at more acute factors that might place children at risk for SAD through direct experience and that typically link to the notion of parental loss and separation.

1.2.3 Parent Separation Experiences and Loss

Three further papers have looked at the impact of parent separation experiences and the loss of a parent on the development of SA symptoms and SAD (1, 5, 18). These included the longitudinal impact of paternal absence and death (5), and the longitudinal impact of family-wide factors, such as parental separation, divorce, and death (18). Furthermore, two of these papers examined the longitudinal impact of medical admissions and hospitalisations as a separation experience on the aetiology of SA (1,18). Symptoms of SA were taken from self-, parent- and teacher-reports. The measures of separation experiences vary across the studies from time spent away from parents (5) to number of separations (1).

Cronk et al., (2004) explored the impact of paternal absence and death on the development of SA in a population of same sex female twin pairs, registered with the Missouri Adolescent Female Twin study, from the USA. A retrospective design was used

to interview 1,887 biological mothers (1,055 MZ and 832 DZ twin pairs) by telephone. To be included in the study the twins had to have lived with their biological mother from birth to 13 years old. SAD symptoms were measured using the diagnostic interview for children and adolescents (DICA; Reich, 2000). Mothers were asked questions regarding their twins' behaviour from the age of six onwards and their answers were categorised and analysed using a novel category method: Category A, presence of three of more symptoms; Category B, presence of three of more symptoms occurring together and lasting for at least one month; Category C, presence of three of more symptoms that had impacted on social functioning (e.g., school attendance) and category D, was the same criteria as category C but young people had actively sought treatment.

Paternal absence was measured through interview to establish the presence of a male father figure, as well as the timings of any absences. Data was computed into four categories; 'father always present', 'gained a father', 'lost a father' and 'father never present'. Of the 'lost a father category', 7.3% (n=28) accounted for twin pairs that had lost a father due to death and in the 'father never present' category 2.4% (n=4) accounted for twin pairs that had lost a father due to death. In order to indicate loss as a potential risk factor in the coding the 'loss of a father' category superseded the 'gaining a father' category. The data was analysed using logistic regression (Independent Variable (IV)= race, socio-economic disadvantage and paternal absence; Dependant Variable (DV) = SAD categories). Data was controlled for shared variance with socio-economic disadvantage (annual household income) and race (86% White and 14% African American). Paternal absence was found to be a significant predictor of SAD symptoms in the three most severe categories, suggesting that paternal separation experiences and death are a potential risk factor for its emergence in girls.

In contrast, further research looked at the impact of family wide factors, such as divorce and parental separation on the development of SAD. Battaglia et al., (2016) explored these factors in association with SA aetiology and SAD stability using a longitudinal design. They looked at a window of risk from one and a half years to six years. 2120 Canadian families took part in this longitudinal study, which used a representative sample of children born between 1997-98. The factors explored in this study could highlight different associations with SA/SAD trajectories when applied to different ages (e.g., parental psychopathology, maternal characteristics, low SES). These risk factors may be enhanced when experienced as a combination or experienced during certain time in development. Data was collected across nine time points, spanning six years. SA symptoms were assessed at six time points (from 1 year to 6 years) by multiple informants (e.g., teachers and parents) using the CBCL (Achenbach, 1991). Parental interviews at 5, 17 and 29 months explored postnatal individual and family-wide factors to include, familial employment, parental separation, divorce, and death, and medical admissions.

Four developmental trajectories were established in the data: high-increasing, high-decreasing, low-increasing, low persistent. A multivariate multinomial regression tested predictors of SA, using longitudinal association with the SA trajectories. Parental divorce was not associated with either high-increasing or high-decreasing SA, and contributed only marginally to the low-increasing SA trajectory. Experiences of parent death or separation by medical admissions (at least one) were not found to be associated with any SA trajectory.

Conversely, research (1) using a similar design measured how different types of separation experiences (e.g., hospitalisation, parental death) impacted on the development of SA in a longitudinal study across three time points (ages, 3, 11 and 18 years), from participants (n=1037). At age three SA was measured using the Behaviour Profile five-

point scale (1970), to measure children's coping skills when being physically separated from their mother. The parent was also asked to give an account of any separation experiences between the first week of birth to three or more months and if the mother figure had changed in two half year prior to data collection. At age 11 and age 18 the child version of the Diagnostic Interview Schedule for Children (DISC-C; Costello et al., 1982) and the DIS (Robins, Helzer, Cottler & Goldring, 1989) were used respectively to measure self-reported symptoms of SA.

The numbers of planned and unplanned hospitalisations were recorded at ages three, seven, nine, 11 and 13; these were graded in length by number of days (0 to < 30 days). Further parental separations of three months or more were recorded at ages 13 and 15, which included the previous two years. Parental deaths were also recorded in two categories: before 11 years of age and between 11 and 18 years of age. At age five and seven teachers of participants were asked if mothers presented as anxious and/or over-protective using a single Yes/No question. At age seven and nine the child's mother was asked questions regarding her feelings of fear and worry using Yes/No questions. Mothers were also asked at ages five, seven and nine if they had threatened their child with separation the day before using a single Yes/No question. Pre-school attendance was collected at age five including the length of time spent at preschool, measured in half days.

The results showed that symptoms of SA at age 11 significantly correlated with SA symptoms at 18 years, highlighting stability from late childhood through to early adolescence. Symptoms at age 3 were not correlated with any other time point. In addition, at age 11 and 18 years (but not age 3) girls self-reported significantly more SA symptoms than boys, highlighting increased risk for girls. With respect to experiences of separation being a risk factor for the development of SAD, the study showed that experiencing a parental death prior to age 11 was positively correlated with SA symptoms

at age 11 and parental death experienced between age 11 and 18 years was positively associated with SA at 18 years, highlighting that parental death increases the risk for the development of SAD in late childhood and adolescence. Further results showed that children who experienced early separation (via attendance at preschool) had significantly more SA symptoms at 18 years. Moreover, while planned overnight hospitalisations were not a risk factor for SA at 11 or 18 years, children who experienced unplanned hospitalisations at age 9 had higher levels of SA at 18 years.

Longitudinal studies that have focused on specific experiences of loss and its relationship to the development of SAD in childhood and adolescence have demonstrated that unplanned separation experiences, early separation experiences and parental death are risk factors for the persistence of SA symptoms across childhood and their emergence into adolescence. Further research has looked at wider environmental factors, typically linking to the notion of traumatic experiences.

1.2.4 Traumatic Experiences

Three papers have considered individual experiences with respect to trauma and SAD, including the impact of a terrorist attack on school children in America by (4), a range of traumatic events (e.g., car crash or exposure to violence) (12) and the impact of severe neglect and institutionalised care (17). Six months following the World Trade Centre attacks in New York in 2001, Hoven et al., (2004) examined the impact that the exposure to this trauma had on development of SAD in a representative sample of New York public school children and college students (n= 8,236) aged between nine and 21 years. These students were from 94 schools at different geographic points in the city. It was hypothesised that proximity to the attack and direct exposure would generate greater feelings of insecurity and increased SA symptoms. It was also hypothesised that any attachment figures that were in potential danger would increase the prevalence of SAD in

children; this study also measured the impact of media coverage exposure on the development of SA symptoms.

Schools were divided into three zones, Ground zero, high-risk (not just proximity, but also where a high proportion of first responders lived e.g., fireman) and finally, other areas. Classrooms were randomly selected from each school and students' parents had the opportunity to opt out of participating in the study. The gender and ethnicity of the students taking part closely matched the New York public school population at the time. The DISC predictive scales (DPS; Lucas et al., 2001) were used to measure probable SAD (a report of four or more symptoms). As well as the school's proximity to the attack, the child's exposure to the attack was recorded through questionnaires under four categories; direct exposure (e.g., personally witnessing the event, being evacuated, being hurt, having difficulty getting home), family exposure (e.g., knowing someone who was killed or injured), media exposure (e.g., watching a lot of television coverage) and previous exposure (e.g., experiencing or witnessing injury in violent circumstances, witnessing a death to a person close or living through a major disaster).

Of the sample, 12.3% of children assessed had probable SAD, which is a higher prevalence compared with the general population. In addition, probable SAD was associated with (younger) age, (female) gender and having experience of previous trauma (e.g., institutionalised care or car accident) prior to the attack. Furthermore, children who had watched 'a lot' of news coverage, been directly exposed or who had a relative (not a parent) who had been exposed to the event were more likely to show probable SAD. Further analysis showed that knowing other people who were at the World Trade Centre buildings on September 11th was significantly associated with number of SAD symptoms.

The geographical proximity of the school did not significantly increase the likelihood of probable SAD, in fact it seemed to be a protective factor. The researchers

proposed that mental health service resources were allocated geographically, children whose schools were located closest to ground zero had greater access to support. Although, no data was collected regarding this potential explanation, it is possible that this access represented an important protective factor to consider against the development of SAD following traumatic events involving loss and high levels of community impact.

Further research has looked at a broader range of traumatic events (e.g., car crash, abuse or witnessing a death) by examining the associations between exposure to potentially traumatic events (PTEs) and clinical patterns of SA symptoms and a diagnosis of SAD in two to four year olds (12). It also examined clinical patterns in other internalising and externalising disorders (e.g., anxiety or depression). 213 referred and non-referred English and Spanish speaking American children participated in the study. Lifetime exposure to potentially traumatic events and recent stressful life events were assessed with the Preschool Age Psychiatric Assessment (PAPA; Egger et al., 2006) and Child Life Events Scale (CLES Unpublished; Carter & Briggs-Gowan, 1998) respectively. These events were categorised into five groups: Non-interpersonal events (e.g., car crash, poisoning and accidental burning), exposure to violence (e.g., physical abuse, physical violence from a non-family member), witnessing events causing or having potential to cause death/severe injury, witnessed family violence and exposure in the last three months and 'stressful' life events, not likely to be traumatic (e.g., new children in home or parental separation/divorce). Child SA symptoms were assessed with parent-reports in the PAPA and parent self-reported negative affects were measured with the Centre for Epidemiologic Studies Depression Inventory (CESD; Radloff, 1977) and the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The results showed that only exposure to violence significantly predicted SA in two-four year olds, even when controlling for socio-economic disadvantage, parental mood and psychopathology.

Using a different design, research has looked at the impact of exposure to severe neglect and institutional care on amygdala function and the development of SA (17). The authors hypothesised that the extent to which the amygdala exhibits a differential response to facial trustworthiness (i.e., facial expressions that had been categorised in into trustworthy or untrustworthy via stimuli testing) would predict age-related increases in SA. This was measured at two time points two years apart, using a between groups design. Seventy-four young people from the USA aged between six and 18 with (n=33) and without (n=41) previous institutional care experiences participated in the study. They participated in a computerised fMRI task designed to examine differential amygdala response to trustworthy versus untrustworthy faces. Children and adolescents were shown 12 faces in total, which also included three faces expressing an emotion (e.g., happy, sad and neutral) and they were asked to rate them on a scale of one to nine (1 = not at all trustworthy, 9 = extremely trustworthy). Parents reported on the children's SA symptoms at the time of scan and again 2 years later using the RCADS (Chorpita et al., 2000) and scale items specific to a SA were used in this study. Parents also rated their own anxiety using the State–Trait Anxiety Inventory (STAI; Spielberger, 1970).

The results showed that experience of institutionalised care was associated with poor sensitivity towards distinguishing between untrustworthy and trustworthy faces. This outcome was a predictor of future SA as a diminished differentiation of trustworthiness predicted more severe SA symptoms 2 years later ($p < .001$). Furthermore, older adoption ages were associated with diminished differentiation of amygdala responses and SA symptoms. These findings provide a possible mechanism for the association between early traumatic caregiving experiences and the development of SA.

Traumatic acute and chronic factors are associated in the literature with poor psychosocial outcomes for school-aged children. There is limited literature exploring the

impact specifically on SAD development and the mechanisms by which they influence, for example, via media publications (4) or other mechanism such as neurological development (8). Furthermore, these studies demonstrate that continued exposure to traumatic events is likely to perpetuate the development of SAD. Further research has looked at chronic factors that typically link to the notion of socio-economic disadvantage.

1.2.5 Neighbourhood, Community and Socio-economic Factors

Most of the studies reviewed have controlled for socio-economic difference within the study designs, however, three papers considered collective socio-economic status (SES) as an environmental factor on the development of SAD (1, 5, 18). One previously discussed longitudinal study collected data on family SES during an interview with parents when children were 5 months, and considered broad risk factors for SAD including perinatal and early-life, family income, family size and residential area (9). They found that one of the strongest differences across SAD development trajectories linked to indices of low SES (e.g., unemployment, low household income) and that parental unemployment was uniquely associated with the high-increasing trajectory. This suggests that low SES could be linked to the maintenance of anxiety in childhood.

Similarly, a previously described study (7) measured SES, based on the father's occupation and scaled using the six-point Eley and Irving scale (1972). The results suggested that lengthy separations of more than three months experienced at age 3 by participants from high socio-economic backgrounds resulted in reduced SA symptoms. It highlighted that long non-threatening separation experience could act as a preventative factor in the development of SA. This pattern was contingent on families having access to appropriate support. Likewise, another previously described study found that socio-economic disadvantage, based on the mother's self-reported annual household income, was significantly associated with SAD symptoms ($p<.05$) (5).

These studies suggest that SES, as a risk factor, is contingent on the level of support available to the families. A cluster of important factors could be inferred from household income including parental absence, illness (mental or physical) and environmental variables, such as exposure to violence and neighbourhood security. Two papers investigated the impact of neighbourhood and community factors on the development of SAD. One paper (14) looked at the impact of high drug and alcohol use, gang activity, high levels of violence and graffiti in a neighbourhood on the development of SAD. The other paper (2) looked at the relationship between children's feeling of relatedness to their community and parent-reported symptoms of SAD. Both papers included children and young people from the USA living in urban neighbourhoods

Furr-Holden et al., (2011) longitudinally explored the relationship between neighbourhood disorder (high drug and alcohol use, gang activity, high levels of violence and graffiti) and the development of anxiety disorders symptoms, including SAD, in a sample of 104 males and 68 females (mean age 11 years) one year apart. The RCADS (Chorpita et al., 2000) was used to measure the self-reported mental health of the children participating in the study as well as a novel measure examining risk-taking propensity, mental health, risk behaviours, and delinquent behaviours. Neighbourhood disorder was measured using the Neighbourhood Inventory for Environmental Typology (Furr-Holden et al., 2008), which measures exposure to violence, drugs and alcohol. The results showed that SA was not significantly associated with neighbourhood disorder. This result could reflect that stressors identified by the researchers (e.g., alcohol and drugs) may not have been perceived to be stressors by the children. In addition, the study did not account for the amount of community or family support available to the families in this study and where these variables could have moderated outcome.

In other research, the construct of relatedness (the need to feel connected) has been used to examine links between exposure to community violence, parent-child relationship and parent-reported symptoms of SA (2). 127 children (male; 68, female; 59, aged 7-13 years) participated in the study from low-income neighbourhoods. The Community Violence Survey (Richters & Martinez, 1993) measured the frequency with which the participants had witnessed, or heard about diverse acts of violence in their community. The author developed a Relatedness Questionnaire based on an assessment package (see Wellborn & Connell, 1987), a self-reported measure for relatedness examining a child's closeness to their maternal caregiver. The children were also asked to the complete the Parent Perception Inventory (Hazzard, Christensen, & Margolin, 1983). SA was measured using the SCARED (Birmaher et al., 1997).

Initial investigations showed that children who reported a need for greater psychological proximity (subscale of the RQ) to their maternal caregiver also reported higher levels of SA, as well as perceptions of increased negative maternal behaviour. Further analysis showed that victimisation (subscale of the CVS) was linked to increased feelings of generalised SA. There was also a main effect of witnessing violence (subscale of the CVS) on the self-reported emotional quality of children's relationships and feelings of SA. These findings support previously discussed research (e.g., 18) where exposure to violence (traumatic experience) significantly predicted SA.

These studies highlight the importance of the quality of parent - offspring relationships in the development of SAD as a positive parent-offspring relationship may be a protective factor for children living in disordered neighbourhoods, as it will be source of support. It can be inferred from victimisation that a fear of being discriminated against impacts on feelings of safety in the community and the development of SA. Linked to this theme further research has looked at the impact, early risk as acute factors associated with

the development of SAD in school-aged children.

1.2.6 Early risk Factors

Of the 18 papers reviewed, three examined the long-term impact of early risk factors on the development of SAD in school-age children, examining prenatal cocaine exposure (10), maternal life style (e.g., physical illness, stress, tobacco use and alcohol consumption) during pregnancy (14) and the prenatal exposure of tobacco on the longitudinal development of SAD in school-aged children (18).

The relationship between prenatal cocaine exposure (PCE) and the risk of developing several DSM-IV Disorders of Childhood, including SAD in children was explored using a between group design (cocaine-exposed; 253, non-cocaine-exposed; 223) (10) in 476 infants and their mothers, from the USA, took part in this study. Caregiver interviews were conducted to assess SAD at 5-years using the DISC (Shaffer, Fisher, Dulcan & Davies, 1996). Maternal self-report and one positive biomarker (maternal or infant urine) were used to identify PCE, alcohol, marijuana and tobacco exposures. Postpartum maternal interviews ascertained patterns of drug and alcohol use before and during pregnancy and the frequency (daily or weekly). The initial analysis for associations with SAD (n= 6) diagnoses was not significant, indicating no cocaine, or drug associated increase in risk for developing SAD. This is a small sample size and generalisation of these findings to wider populations and ages is therefore uncertain. The use of self-report for prenatal drug exposure may not be reliable despite using biological tests.

On a similar vein, the role of maternal prenatal lifestyle has been explored in the aetiology of SAD in addition to intense early stranger anxiety and parental pathology (13). Children aged between four and 14 years were recruited through mental health professionals and 44 children were not diagnosed with mental health difficulties (22 girls,

22 boys) and 106 children had received a diagnosis of SAD (57 girls, 49 boys). A SAD diagnosis was ascertained using the Diagnostic Interview for Mental Disorders (DIPS; Schneider & Margraf, 2006) and pregnancy risk (maternal physical illness, tobacco use and alcohol consumption) and pregnancy stress (social, work-related, and legal) were measured using a questionnaire. Mothers were also asked to indicate (yes/no) whether their child had stranger anxiety as an infant. Both mother and father completed the Beck Depression Inventory (BDI; Beck, 1996) and the BAI, (Beck et al., 1988) to measure their psychopathology.

A hierarchical logistic regression was conducted to explore the effect of maternal depression and anxiety and stranger anxiety on diagnostic group. The results showed that children who had had a period of high levels of stranger anxiety and maternal depression predicted group (i.e., these were higher in the diagnosed SAD group). There were no significant effects for prenatal risk factors or parental stress.

In contrast, a previously discussed study (18) measured perinatal and early-life factors including prenatal maternal smoking and alcohol exposure on the development of SAD. The strongest differences across trajectories pertained to indices regarding smoking in pregnancy, tobacco exposure in pregnancy were uniquely associated with a high-increasing trajectory of SAD over a six year time period.

1.3 Discussion

1.3.1 Conclusion

This review aimed to explore environmental risk factors for the development of SAD in children and adolescents. Across the studies, risk factors in school-aged children were identified. These included an intrusive, overprotective or control parenting style (3, 7,

8, 10, 16), paternal absence (5), unplanned parental separations (1), early separation (1) early caregiver experiences (6, 17), low SES, specifically, victimisation, exposure to violence, parental unemployment (2, 15 respectively), exposure to a large scale traumatic event (4) and prenatal exposure to tobacco (18). Three potential resilience factors were also identified through the process of this review; parent-offspring relationship in terms of child perceived support and feelings of relatedness (2), access to therapeutic support following large-scale traumatic event (4) and planned separation experiences from the MAF (1).

It is clear from this body of research that family and environmental factors play a substantial role in understanding the development of SAD in childhood (Scaini et al., 2012). This review has highlighted the specific impact of parenting styles on the development of SAD as is replicated in other investigation into its impact on negative affect in childhood (Madigan, et al., 2016). Specifically, one study has contributed to the wider body of research regarding the inter-relationships between parent- and offspring-anxiety, parenting and cognitive process (e.g., Eysenck et al., 2007; Perez-Olivias, et al., (2011); Creswell et al., 2011; Bar-Haim et al., 2007; Hadwin et al., 2016). Two studies (6,17), have contributed evidence highlighting the importance of early experiences and interactions with primary caregivers in the development of positive social and emotional outcomes (Humphreys, et al., 2015). Moreover, they emphasised the impact of parental loss, absence and separation (1, 5) in early childhood on the development of SAD in middle childhood and adolescence already present in the literature (Fergusson et al., 1994; Kendler et al., 1992).

Previous research has highlighted a strong association between anxiety and insecure attachment styles (review by Manassis, 2011), and more specifically, links between childhood anxiety and ambivalent styles of attachment, where children experience inconsistent caregiving from the primary caregiver (e.g., Bar-Haim, Dan, Eshel, & Sagi-

Schwartz, 2007; Brumariu & Kerns, 2008). Consistently, in a metaanalytic review across 46 studies, Colonnesi et al., (2011) highlighted a moderate association between attachment relationships and anxiety; this was most evident for an ambivalent attachment style (mean r = 37 across children and adolescents). The review highlighted that there is little research related to understanding associations between attachment and specific anxiety disorders and that research is most sparse for SAD. One paper did, however, demonstrate a positive association between attachment insecurity and SA symptoms over time. Specifically, it showed that the attachment relationship between mothers and offspring early in development predicted child-reported symptoms of separation anxiety at age 6, and that this relationship was strongest for children who were categorised as having an ambivalent attachment relationship (Dallaire & Weinraub, 2005).

While the link between an ambivalent insecure attachment relationship has been consistently associated with concurrent and future symptoms of anxiety in childhood and adolescence, studies exploring the specific relationships between attachment and the emergence of different anxiety disorders across development, including SA disorder, are needed in order to make the emerging findings of this review more robust.

Further investigation into the specific factors (e.g., exposure to violence, victimisation and feeling safe and parental unemployment) has been made clear through the review, which link to SES as a risk factor (Osofsky et al., 1993; McDonald et al., 2007; Mongillo et al., 2009). Furthermore, the direct and indirect (via television) impact of a man-made traumatic experience (4) on the development of negative affects, including SA, was corroborated (Deeba et al., 2015). Interestingly, smoking during pregnancy has been highlighted in this review as potential risk (18), although this should be interpreted with caution, as several studies (10, 14) found no prenatal risk related to drugs in the development of SAD in school-aged children.

There are several strengths to this body of research. Half of the studies in this review are longitudinal in design, which provides evidence for predictive factors (1, 3, 5, 6, 11, 12, 15, 16, 17). The second is that most studies used questionnaire measures that have been shown to be reliable and valid. Thirdly some studies had equal representation of gender, an age span covering the primary school-aged range, and multiple informants, permitting for cross-informant validity analyses (7, 8). Recent meta-analysis research has suggested the more informants of symptomology in a study allow for more robust findings (Cooklin, et al., 2013). Finally, this is the first review to look specifically at research with a focus on SA, drawing together the risk and resilience environmental factors researched in the last 16 years and how they impact the development of SAD in school-aged children.

These findings support an integrationist model (see Figure 1); for example, the result of separation experiences, often impact on the family unit (e.g., grieving, reduction in income etc.), which in turn could impact on parenting style and the social and emotional wellbeing of the family. Several interactions need to be examined further, for example, the role of support (parent level and community level) and its availability needs to be evaluated in context with neighbourhood violence and large-scale traumatic events. In addition the inter-relationships between biological vulnerability and acute and chronic risk factors need to be explored, future research should focus on longitudinal designs that examine different trajectories of SAD (e.g., high decreasing and low increasing SA) in order explore this further.

1.3.7 Limitations and future research

There are several overarching limitations to the literature in this review. Most of the samples reviewed are from a Western population with one exception (11) so it is difficult to ascertain any cultural moderators as risk or resilience factors, findings should therefore be generalised with caution. One study's sample consisted only (5) of girls and the impact

of paternal absence should be generalised with caution. Parenting was the most researched area, perhaps because of the specificity with which you can narrow down a parenting construct (e.g., overprotectiveness) as opposed an overarching factor, such as SES. Other studies require a population sample e.g., experience of large-scale traumatic event (4) or traumatic early caregiving experiences (17), which are harder to recruit for and replicate due to the multiple variables associated with at-risk groups. Future research needs to consider the inter-relationships between multiple variables within at risk groups, such as parenting, trauma and SES in order to unpick these interactions.

There were some differences in terms of how core variables were measured. For example, child-reports of parental behaviour and psychopathology (e.g., 13) may not have been a true reflection of actual symptomology or parental behaviour. Parental behaviour was typically measured collectively, as opposed to focusing on maternal and/or paternal behaviour separately. This was the case for studies that focused on parenting style and where parenting was self-reported (7,8). For some studies it was difficult to ascertain the full definitions of parenting style constructs, which in turn makes it difficult to infer to practice, i.e., what overprotectiveness looks like. Observations of parent-child interactions in addition to questionnaire data regarding parenting behaviour and perceptions would have given a more rounded assessment (see 6, 7) The incorporation of multiple symptom informants (e.g., teachers, family, and professionals) would, therefore, make the research more robust (see 3 and 18). The use of child self-reported measure (1, 2, 7, 8, 13, 15, 16) across different constructs allows for the possibility of shared-method variance. Future research may like to consider a range of informants (including mother and father, see 7) and focus on using a variety of measures to triangulate the construct being measured.

Studies used a reliable range of measures for SAD and parent and child negative affects. Although, some studies adapted scales, for example, a modified version of the BPI

(Measelle et, al., 1993) was used to be able to administer it to younger children, therefore questioning the validity of this measure as no reports of validity were made (6). One study used dichotomous (only asked yes/no question) measures, which does not enable the research to explore a scale of scores reducing the accuracy of the measure (1). Measures, such as the DPS (Lucas et al., 2011) are only a screening tool for SA and not diagnostic measure, meaning that findings cannot be applied to a clinical aetiology (4, 9). Future research will need to consider the measurement accuracy of variables in order to produce robust findings.

Some non-longitudinal studies had wide age bands, making it difficult to consider the overall impact of development on the aetiology of SAD (2, 5, 14, 15). For example, longitudinal prospective research is needed to determine causative interpretations, such as, the impact of exposure to violence in early childhood as a risk factor in the development of SAD, which would then inform our understanding of neurodevelopmental mechanisms and pathways (see 17). Furthermore, studies using a retrospective design may be limited by participants' memories of prior events, which could have altered with time and therefore not truly reflected the symptomology or experiences they were reporting (10, 11).

There were some limitations regarding the specificity of risk measured. Findings showed that hospitalisations (separation event) experienced by a sample were not associated with any predictions of developmental trajectories of SA, yet the nature, reasons and timings for hospitalisations were not reported (7). Thus, the research has not considered whether these risk factors are associated with sensitive periods in development, i.e., are somehow moderated by age. In other studies, the intensity and frequency of violence experienced by children was not considered (2, 14). Exposure to violence and the impact on wider environmental violence needs further investigation in order ascertain the degree to which exposure to violence could be a risk factor in the development of SAD.

Considering studies regarding separation and loss, paternal absence was not measured holistically as it did not account amount of time spent with the father outside of the home in terms of quantity or quality (5). Furthermore, paternal death was not distinguished in the analysis from loss, making it hard to unpick specificities about each factor (5, 18). Consequently, separation studies did not explore the remaining parent's psychopathology, quality of relationship, parenting styles or the presence (or not) of alternative supportive role (e.g., grandparent) in or nearby the home. The number of separation experiences from these figures was also not accounted for. This makes it difficult to compare findings across this body of research and in the absence of these additional variables these results need to be interpreted with caution (1, 5, 18). Future research should consider these additional variables in order to ensure findings are robust, in addition they could highlight potential resilience factor which inform proactive support and practice.

One study that examined the impact of traumatic events did not control for prior pre-trauma experiences (17). Factors such as the children's mental health, multiple home placements or abuse could have impacted on the results found in this study. A specific design limitation to this section of the review was that a study group design was used to measure the impact of early traumatic caregiver experiences where the study group was different on many levels from the comparison group, as they were not matched (17). Future research could consider comparing different types of adversity rather that no adversity vs. adversity to overcome this limitation.

SES was determined and measured by a range of factors, maternal perceptions and annual income (5, 11), early-life family income, family size and residential area (18) and paternal occupation (1), making it difficult to ascertain specific links. Future research should examine resilience factors that may buffer children and families against the

negative effects of neighbourhood violence, such as: access to support, what form this support takes and quality of family and parental relationships.

1.3.8 Implications for theory and practice

There are six main implications of these finding that are pertinent to EP practice. The first is the emphasis on caregiver experiences and the impact that that this can have on their internal working models of adults and facial expressions (17) as well as the quality of offspring-parent relationships. Therefore, this poses an implication for EPs providing training to educational settings. Although there is currently an emphasis on poor social and emotional mental health in schools, EPs are well placed to provide training on environmental factors, such as supporting children with attachment needs, in order to be proactive and preventative in reducing possible SAD development. Furthermore, an EP is well placed to champion the importance of key worker role in schools, not just in early years' settings, but for all ages for children at risk to reinforce positive and supportive relationships with adults. Likewise, EPs could commission social care multiagency working, with, for example, health visitors or social workers to highlight these risks to more vulnerable parents as well as foster carers and adoptive parents.

Secondly, where EPs work primarily with schools and children this review highlights implications for advocating for a joint system approach, when working with children displaying potential SA (e.g., school refusal). Working with school and families, implementing a consistent approach would be the strongest way to advocate for positive outcomes and reducing possible SAD development, in that it would be providing support to parents as well as schools. Thirdly, and a continuation from a joint system approach is that this review provides evidence for EPs work in community projects, specifically regarding parent-child interaction. This could be carried out in a variety of ways, such as, linking with parenting programmes for example, Pillars of Parenting (Cameron, & Maginn,

2009) or direct intervention work with parents, such as video interactive guidance (VIG; Kennedy, & Sked, 2008). In addition, VIG could also be used in schools to promote attuned relationships between key workers or teaching assistants and children. This type of intervention would complement training opportunities aimed at reducing dependency promoting or intrusive teaching practice and promote scaffolding and mediated approaches to learning.

In addition, EPs are well placed to advocate for at-risk groups of children, such as, asylum seekers and refugees who may have had exposure to high levels of violence, children from military families who may have prolonged periods of absence from a parent, with minimal contact and children looked after who are likely to have had early traumatic caregiver experiences. Finally, EPs working with educational settings, supporting critical incidences, such as the loss of a parent or teacher should emphasise the impact such an event could have on the development of child negative affects and advocate for the implementation of a joints systems approach, over time in order to prevent poor psychosocial outcomes for a child later in life.

Chapter 2: Empirical Paper: Understanding the role of parent factors and interpretation bias in children from military families who show symptoms of anxiety.

2.1 Introduction

The prevalence of child and adolescent social and emotional mental health (SEMH) needs has substantially increased in England over the last 20 years (Collishaw, Maughan, Natarajan & Pickles, 2010). Recent reports indicate that approximately one in ten school-aged children in Britain has a diagnosis associated with conduct or hyperactivity behavioural difficulties (Snell et al., 2013) and one child in every classroom (average size, 30 pupils) will have an anxiety disorder (Ford, Goodman & Meltzer, 2003). One of the most prevalent disorders for children below the age of 12 is SAD (Cartwright-Hatton, McNicol & Doubleday, 2006). The mental health of children and young people survey in Great Britain (2004) found that teachers are often the main source of help and support for children with SEMH needs, with almost a third (32.13%) of children, seeking their primary support from a teacher, meeting clinically significant criteria for an anxiety disorder (Newlove-Delgado et al., 2015).

Research has highlighted a complex causal pathway to anxiety that recognises genetic, cognitive and environmental factors in its onset. For example, twin studies have reported the estimated heritability of anxiety symptoms and disorders to range between 23% and 40% (Hettema, Kneale & Kendle, 2001; Mosing et al., 2009; Tambs et al., 2009), with additional variance pointing to the role of shared and non-shared environmental

factors that are significant in the aetiology of anxiety (Eley, 2011). Furthermore, several avenues of research have demonstrated the role of cognitive processing biases for threat that may be associated with poor attentional control more generally in the onset of anxious affect in children and adolescents (Bar-Haim et al., 2007; Hadwin et al., 2016).

Cognitive models of anxiety propose a cognitive-behavioural representation of information processing biases, demonstrating the inter-relationship between the thoughts and actions of an individual (Kendall, 1985; Dodge, 1991). Cognitive processes, involved in encoding and interpretation, are suggested to become bias, due to an over-active schema that prioritises the processing of threat-related information. Schemas are argued to partially reflect a temperamental vulnerability in anxiety (Rapee, 2001) that can develop as a result of childhood experiences and where children work to code information so that it can be interpreted in a meaningful way (Beck, 1976). Muris and Field (2008) proposed a theoretical information-processing model for children and adolescents to depict the influence of cognitive biases on the processing of threat-related information (see Figure 3). Once schemas are activated, they impact on the following stages of information processing: Attention, memory and interpretation bias. Thus, the over-active schema primes the cognitive system towards threat in the environment. Consequently, an individual's rational (goal driven) thinking processes are likely to be reduced, due to experiencing a heightened emotional arousal. This, in turn, impacts on their ability to implement successful coping strategies, which reinforces a negative emotional state.

Widely, attentional models of anxiety have applied Muris et al's., (2008) model to further the understanding of the emergence of anxiety, in the context of familial anxiety and processing biases (e.g., Creswell et al., 2011). For example, a parent who may respond to potential threat with shouts or cries and signals to move away from possible threat in front of their child, is likely to instil worry and helplessness, rather than a parent who

responds to a threatening situation in a more neutral manner. This will impact on a child's schema if repeated across several scenarios, and is likely to reinforce negative interpretations of threat (Askew & Field, 2007). Several pathways to anxiety have been investigated to explore intergenerational transmission of anxiety via cognitive biases, including vicarious behaviour, the transmission of anxious affect via negative verbal information, and parent modelling (Beck, Daley, Hastings & Stevenson, 2004; Hudson et al., 2004; Rapee, 2001; Field, 2006; Rachman, 1991). Theoretical models have emphasised the role of family factors in addition to cognitive processes in the aetiology of childhood anxiety (e.g., Hudson & Rapee, 2001; Rapee, 2002), highlighting that parenting is a prominent environmental factor, which could contribute to intergenerational transmission. (Hadwin, Garner & Perez-Olivas, 2006).

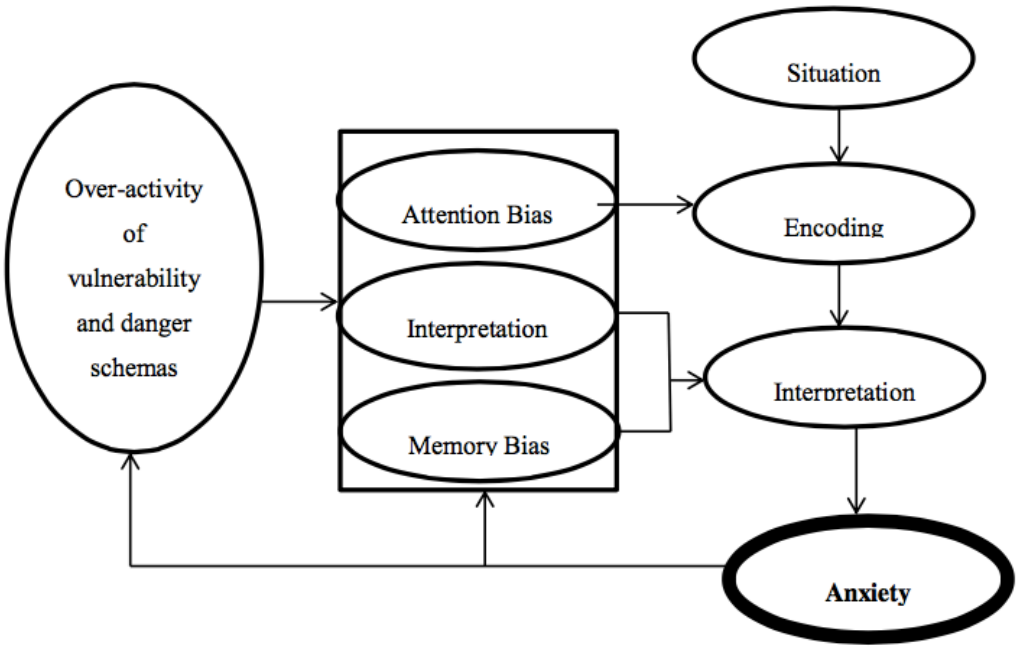

Figure 3: Theoretical model showing the processing of threat-related information and the influence of cognitive biases. (Muris & Field, 2008, p.398).

Murray, Creswell and Cooper (2009) developed a cognitive-behavioural model

representing the intergenerational transmission (parent to offspring) of anxious interpretation biases, contributing to subsequent information processing biases for children (see Figure 4). This framework explores the relationship between parent and child cognitive processes of threat related information, which lead to anxious interpretation biases and how they are manifested and are maintained. It suggests that parents' behaviour when interacting with their child will be directly or indirectly influenced by their cognitions and threat interpretations. Additionally, parents' expectations regarding their child's responses to threat will be influenced by their own anxiety and cognitive processes, becoming intrusive or over protective, impacting on their child's ability to cope and reinforcing avoidance or disengagement behaviour. These behaviours serve to immediately reduce anxiety, but perpetuate their child's susceptibility toward threat interpretation biases.

Parenting variables, such as, lack of warmth, critical and overprotection have been identified as having significant associations with childhood anxiety (McCarty & Weisz, 2002; Degnan, Almas & Fox, 2010). However, intrusiveness has been shown to be more strongly associated with anxiety compared to other parenting variables (e.g., sensitivity Dallaire et al., 2005). Intrusiveness is defined within the literature as over-involvement and excessive control from parents, which impacts on the amount of autonomy experienced by a child (Drake & Ginsburg, 2012). This combination of parenting behaviours foster children's over-reliance on their parents for support, and reinforces children to model their parent's behaviour in new situations. This cycle of experiences primes their cognitive processes to attune to verbal information and cues concerning potential threat (Lester, Seal, Nightingale & Field, 2010). The interrelationships between anxiety, cognitive processing (interpretation bias) and parenting variables have been explored with both clinic and community samples (Hadwin et al., 2006; Fliek, Dibbets, Roelofs & Muris, 2016). Some research has specifically looked at SA and has shown some support for cognitive biases in

non-referred children (Stirling, Eley & Clark, 2006) that are linked to parenting factors. (Perez-Olivias, et al., 2008).

The aim of this study was to explore the understanding of associations between parenting factors (i.e., high levels of emotional over-involvement and expressed emotion) and parents' reports of their own symptoms of negative affect, including increased feelings of anxiety and depression, SA and hopelessness, and how these were associated with children's self-reported anxious affect. In addition, the study aimed to understand whether cognitive biases in parents and offspring were associated with symptoms of negative affect and were important in relation to understanding any potential association between parents' and children's reports of their own mental health. It was hypothesised that parenting characterised by high expressed emotion and emotional over involvement would be associated with increased reports of negative affect in mothers and offspring. It was anticipated that mothers' reports of their own negative affect would be positively associated with child self-report and that cognitions related to threat would be important in understanding these relationships. Furthermore, it was hypothesised that child interpretation bias will mediate the association between maternal and offspring negative affect. In the context of repeated separations in the family the study focused on symptoms of anxiety and SA in mothers and offspring, and these themes were reflected in the cognitive interpretation task (considering separation threat and general threat ambiguous words). Because SA in children is often linked to social anxiety disorder and GAD (see Franz et al., 2013), these symptoms were considered in offspring. The research will provide valuable information regarding interrelationships between the presence of anxiety disorders and emotional relationships within families in a high-risk population and will inform interventions for individual children and their families.

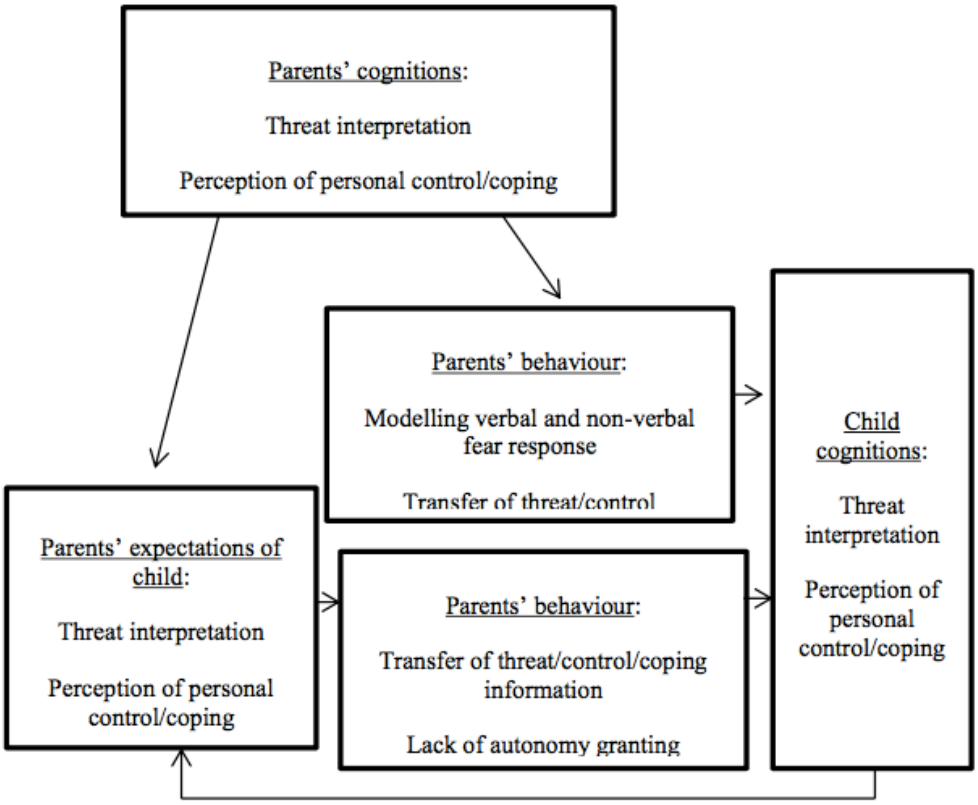

Figure 4: A cognitive-behavioural model portraying the transmission of anxious interpretation biases from parents to offspring. Based on Murray, et al., (2009), sourced from Hadwin & Field (2010) Information Processing Biases and Anxiety. A Developmental Perspective p.289

While research has developed and explored associations between parents and offspring, little research has focused on the emergence of specific anxiety disorders, such as SAD, in high-risk groups to investigate these interrelationships. Research with potential high-risk populations would enable the development of a clearer understanding of the role of threat processing biases in the aetiology of specific anxiety disorders in childhood. Reports published by Ofsted (2011) and the Ministry of Defence (MOD; 2013) described military families as being at greater risk to threat exposure. Research within this population has often focused on the serving military personnel in order to meet their needs during and following deployment, but less research has focused on the experiences of their families. There are several environmental and family factors, which indicate that military families

are at greater risk of exposure to threat. Being part of a military family necessarily entails frequent and lengthy separation from partners during deployment or training exercises, which includes exposure to threat and danger. In addition, during these absences family members have limited direct contact. Families can also experience frequent transitions as they move house and between different schools and communities. Furthermore, changes in familial roles can also occur, as the family is in a state of flux between a one and two parent household. (Andres & Moelker, 2010; Park, 2011; White, de Burgh, Fear & Iversen, 2011). These environmental factors have been linked to anxiety with in the literature (Fergusson, et al., 1994) and specifically with SAD (e.g., Cronk et al., 2014).

There is further debate in the literature as to whether children from military families are at risk of lower educational outcomes, compared to their peers (Engel, Gallagher & Lyle, 2010; Lyle, 2006). However, a large body of this research links positive educational outcomes to military children who have positive family structures and higher levels of resilience, which is representative of general population research (e.g., Arnold et al., 2015). Nevertheless, the numerous and continuous transition cycles and worrying nature of the deployed personnel's job is known to impact on military family's social and emotional wellbeing (Rowe, Keeling, Wessley & Fear, 2014).

Card et.al (2011) carried out a meta-analytical review of the associations between deployment and child internalising symptoms in offspring of military personnel. Across 12 studies a medium effect size was reported for associations between parental deployment and the internalising symptoms of service children in 'middle childhood' (7-12 years). Positive associations were also found between the degree of home parental stress and children's psychosocial functioning during deployments (Flake, Davis, Johnson & Middleton, 2009; Lester et al., 2010). Positive associations have also been found between the effectiveness of a child's coping strategies during the temporary absence of a serving

parent and low levels of internalising and externalising behaviours, as well as higher levels of academic attainment (Siegel & Davis 2013). However, the perceived quality of school support for children's social and emotional needs varies amongst military parents and children (Mccullouch & Hall, 2016). The Service Pupil Premium (SPP) is available to state schools in England as additional funding for service children to address their distinct needs (Jarrett 2014; MoD, 2015). Service children may need more pastoral support than that which is provided through whole class support by schools. Furthermore, support for families holistically may be required to reduce parental stress and anxiety (Mustillo, Wadsworth & Lester, 2016), thereby reducing the child's exposure to family factors associated with the development of anxiety.

Additional aims of the present study was to extend current research to understand risk factors associated with the presence of anxiety symptoms in children in military families. Following previous research it also considered links between number of deployments and the experience of negative affect in parents and offspring.

2.2 Method

2.2.1 Participants

Military Hives and organisations were approached regarding participation in the present research, but none responded. Thirty schools were identified by geographical location and proximity to a military base in the South of England and approached. Of the schools approached, six agreed to take part and distribute a letter and study advert to parents who met the criteria (at least one parent in the armed forces, with at least one deployment experience) inviting them to participate in the research (other schools did not respond or could not support the project at this time). From these six schools, 142 parent-child dyads were invited to participate, 19 parents expressed an interest to participate from

five schools, with 10 declining, not returning consent forms. All parent-child dyads that completed data collections were sent a 20-pound amazon gift voucher for their participation in the research.

A further 20 parent-child dyad data sets were used in the data analysis from a previous unpublished study (Owen & Hadwin, 2015). The current research wanted to extend this piece of research and contribute to research aiming to explore spouses' perceptions of their partner's job and mental health (see footnote 1). All dyads were recruited via the same means (see Appendix C), so as to ensure that they were comparable demographically.

The final sample consisted of 29 non-referred children, aged 8-11 years (M = 9.4 years, SD = 1.01). Participants were white British (n=27), black British (n=1) and Asian British (n=1) and all parents were mothers (n= 29). Children had one parent serving in the British Armed Forces (Army n= 17; RAF n= 12), fathers were reported to have been deployed on average 3.6 times for a mean length of 4.9 months. All demographic information is presented in Table 2 for the initial data set (Owen et al., 2015) and the final sample.

Table 1: Demographic Information: Frequencies, Percentages and Means

Demographic Information		**N**		**Percentage (%)**		**Mean**	
		Initial data set	**Final sample**	**Initial data set**	**Final sample**	**Initial data set**	**Final sample**
Child age (years)	8.00	5	5	25	17	9.1 Yrs	9.4 Yrs
	9.00	10	12	50	41		
	10.00	2	6	10	21		
	11.00	3	6	15	21		
Child Gender	Male	6	10	30	35		
	Female	14	19	70	65		

Demographic Information		N		Percentage (%)		Mean	
		Initial data set	Final sample	Initial data set	Final sample	Initial data set	Final sample
Ethnicity	White British	20	27	100	93.1		
	Asian British	0	1		3.4		
	Black British	0	1		3.4		
Parent	Mother	20	29	100	100		
	Father	0	0	0	0		
School	A	8	8	40	28		
	B	1	1	5	3		
	C	2	2	10	7		
	D	5	8	25	28		
	E	4	6	20	21		
	F	0	1	0	3		
	G	0	1	0	3		
	H	0	2	0	7		
Military Branch	Army	11	17	55	59		
	RAF	9	12	45	41		
Number of times deployed	1.00	1	1	5	3		
	2.00	6	8	30	28		
	3.00	5	8	25	28	3.65 Times	3.6 Times
	4.00	2	4	10	14		
	5.00	2	3	10	10		
	6.00	2	3	10	10		
	7.00	1	1	5	3		
	8.00	1	1	5	3		
Length of deployment (months)	1.50	0	1		3		
	2.50	0	1		3		
	3.00	2	2	10	7		
	3.50	1	3	5	10		
	4.00	5	6	25	21	5.18 Months	4.9 Months
	4.50	1	2	5	7		
	4.60	0	1	0	3		
	5.00	2	2	10	7		
	6.00	4	5	20	17		
	6.50	2	2	10	7		
	7.00	2	2	10	7		
	8.50	1	1	5	3		
	9.50	0	1		3		

2.2.2 Measures

2.2.2.1 Childhood anxiety

Sate anxiety. The State-Trait Anxiety Inventory – Child version (STAI-C; Spielberger & Edwards, 1973) was used to measure children's state anxiety. Research has shown the STAI-C to have good reliability (Barnes, Harp & Jung, 2002), and the internal consistency in the present study was good, α = .89. This child self-report questionnaire is appropriate for children aged 9-12 years, as well as younger children. Participants are asked to respond to 20 individual items, "how they feel right now" on a 3-point scale (e.g. "I feel very worried, worried or not worried"). Scores range of 20-60, with higher scores indicating greater state anxiety.

Trait anxiety. The Spence Children's Anxiety Scale - child version (SCAS-C; Spence, 1998) has good reliability within the research (Essau et al., 2011). This questionnaire is a self-report measure for children aged 8-15 years. It is comprised of 44 questions, which ask participants to rate the frequency with which they experience each symptom. Participants give their answer on a 4-point scale '(Never' = 0 to 'Always' = 3, e.g. I am scared of the dark). Six questions are filler items and are positively worded; these are not included in the scoring. The remaining items (38) are divided across six domains of anxiety: GA (6); panic/ agoraphobia (6); social phobia (6); SA (6); obsessive-compulsive disorders (6). For these domains, each has a possible score of 0-18. The sixth domain, physical injury fears (5) has a possible score of 0-15. Therefore scores can range between 0 and 114, with higher scores indicating greater levels of anxiety. In the present study we focused on separation and social symptoms as well as total scores and the internal consistency for these scales was good (αs > .70).

The current study also used the SCAS-P (parent version) (Spence, 2000) to measure parent-reported separation and total anxiety symptoms for offspring. This version

of the SCAS differs from the child's version, only in the wording of the questions from 'I' to 'My child' and it does not contain any filler items. The internal consistency in the current data was good, α = .93, (see also Nauta et.al, 2004).

2.2.2.2 Maternal measures

State anxiety .The State Trait Anxiety Inventory – Adult Version (STAI; Spielberger et al., 1983) was used to measure parent state anxiety. The STAI is similar to STAI-C; it contains 20 items, scores range of 20-60, with higher scores indicating greater state anxiety. The STAI has good reliability within the research (Marteau & Bekker, 1992) and the internal consistency in the present study was good (α = .92).

*Anxiety and depressio*n. The Hospital Anxiety Depression Questionnaire (HADS; Zigmond & Snaith, 1983) was developed for 16-65-year-olds and used to measure self-reported maternal anxiety and depression symptoms. The scale consists of two subscales, each containing seven items related to anxiety and depression symptoms. Participants give their answers on a 4-point likert scale (0-3), answers reflecting the frequency that they feel or experience each item (e.g. 'I get a sort of frightened feeling like 'butterflies' in my stomach). A possible total score of 42 (21 on each subscale) can be obtained with greater scores indicating higher levels of anxiety and/or depression. Scores from 0-7 indicate 'normal or no anxiety/depression, 8-10 mild anxiety/depression, 11+ moderate to severe anxiety/depression. The HADS has good internal consistency and construct validity within the research (Bjelland, Dahl, Haug & Neckelmann, 2002). The internal consistency in the present study was very good, α = .91.

Separation anxiety. The Severity Measure for Separation Anxiety Disorder for Adult Questionnaire (SADA; Craske et.al, 2013*)* was used to measure maternal SA. The SADA is a self-reported measure appropriate for participants aged 18 years and older. It

contains 10 items that ask participants to report the severity of their separation from 'home or people who are important to them' within the past 7 days (e.g. 'Have you ever, felt a racing heart, sweaty, trouble breathing, faint, or shaky when separated?'). Participants give their answer on a 5-point scale from (never = 0 to all of the time = 4). Total scores range from 0-40, with higher scores indicating greater severity of SA. An average score can be determined, reducing the severity of separation to 5 groupings (none = 0; mild = 1; moderate = 2; severe = 3; extreme = 4). The SADA total score has shown good reliability within the research (Craske et.al, 2013) and in the present study $\alpha = .91$.

Hopelessness. The Beck Hopelessness Scale (BHS) (Beck, 1974) was used to measure maternal hopelessness (pessimistic views about the future, motivation and expectations). The BHS is a self-reported measure containing 20 items that ask participants to report how they feel at that present time (e.g. 'I might as well give up because I can't make things better for myself') and is appropriate for use with 17-80 year olds. Participants answer 'true' or 'false' to each statement, total scores ranging from 0-20 with higher scores indicating greater levels of hopelessness. Scores can sit in one of five categories according to the severity of depression (none, minimal, mild, moderate and severe). The BHS has shown good reliability within the research (Steed, 2001). The internal consistency in the present study was good, $\alpha = .81$, following the removal of question 2, which had zero variance.

2.2.2.3 Maternal report of their spouse[1]

The spouse perceptions scale (SPS; Renshaw, Rodrigues & Jones, 2008) was used to assess a mother's perception of their partner's job and mental health. It has good reliability

1 Only six mothers completed the trio of questionnaires forming the spouse SPS and therefore researchers were not able to analyse it further. This was due to the previous data (25734571) set not including the questionnaire in their data collection and one of the schools asking that this measure was not given to parents.

within the literature (Renshaw et al., 2008). The SPS is a self-reported measure comprising of three sets of questionnaires: The PTSD checklist (PCL; Weathers et al., 1993), the Combat Exposure Scale (CES; Keane et al., 1989), and the Centre for Epidemiologic Studies Depression Scale (CESD; Radloff, 1977). Modification of these questionnaires is used to obtain information about perceptions of the spouse. For example, the CES modification requires spouses to answer each question 'best describes your understanding of your spouse's experience...' and the PCL-M asks spouses to 'indicate how much you think your spouse has been bothered...' The internal consistency in the present study was good for the CESDS, $\alpha = .93$, PCL, $\alpha = .88$ and CES, $\alpha = .90$.

2.2.2.4 Parenting

The Five Minute Speech Sample (FMSS; Magana et al., 1986; Daley, 2014) was used as an indicator of the parent-child relationship by assessing expressed emotion (EE) by the parent toward their child. The FMSS has good reliability within the literature (Daley, Songuga-Barke & Thompson, 2003). Parents are required to provide their thoughts and feelings about their child, uninterrupted, for five minutes. The researcher can prompt the parent as per the administration guidelines, should they enquire as to how much time they have left or if they feel that they don't have anything else to say. All samples were audio-recorded to enable transcription and coding.

Several relationship variables are assessed using this tool, including the initial statement (IS), parental warmth (WAR), parent-child relationship (REL) and emotional over-involvement (EOI) and EE. The number of positive comments and the number of negative (or critical) comments made by the parent are also recorded. EE is rated as high, borderline or low; high EE is coded if a parent reports greater criticism (either negative initial statement, low warmth or negative relationship) or gives more negative than positive comments. Borderline EE was scored if participants made more than 2 negative comments.

Alternatively High EE can be rated if the parent is deemed to have high EOI. EOI is also rated in three categories; high, borderline and low. High EOI is coded for if the participant displays self-sacrificing/over protective behaviour (e.g., 'I do not go away anymore because I do not want her to be alone') or if the participant outwardly displays emotions (e.g., cries). Furthermore, a high EOI score can be given if two of the following are present: excessive detail about the past, one or more statement of attitude (e.g., 'She is my world') or excessive praise (more than 5 positive comments). Borderline EOI is scored if one of these is present. If these criteria are not met, Low EE is coded (see Table 3).

Table 2: Examples of the Five Minute Speech Sample (FMSS) subscales, scores and associated transcripts.

Subscales	Examples	Scores
Initial Statement	'*Tracy, she'll be 10 in the Summer.'*	Neutral, transcript 10
Relationship	*'Danny and I are really close, it has been me and him since the day he was born, because obviously with his Dad's job, his Dad is away all the time.'*	Positive, transcript 29
Warmth	*'Shelly is a loved and wanted child.'*	High, transcript 42
EOI categories		
Self-sacrificing and over-protective behaviour	*'I don't let her go out and play with her friends in the street and things, I'd rather she stayed with us.'*	Present, transcript 4
Lack of objectivity (excessive detail about the past)	*'Lucy was born just a little over nine years ago after a very very difficult labour. She was born by keyline forceps so had a few little difficulties after she was born and needed to have cranial therapy because she cried a lot and had some pain in her skull and she also suffered from colic.'*	Present, transcript 4
High Emotional displays	Crying during speech sample	Present, transcript 6
Statement of attitude	*'He is my inspiration, he is my rock.'*	Present, transcript 5
Positive comments	*'She's very kind and very caring'*	Transcript 2
Negative comments	'She always has to be the first, she always has to be better than her sister, she can be a bit aggressive towards her sister'	Transcript 39

Table note: Names have changed to protect the identity of participants.

2.2.2.5 Cognitive Processing

Cognitive processing biases for both mothers and children were measured using a word interpretation bias task. Words comprised of ambiguous and unambiguous threatening and neutral words were selected from previous research (see Hadwin, Frost,

French & Richards, 1997; Mathews, Richards & Eysenck, 1989; Richards & French, 1992). This method of measuring interpretation bias reduces the influence of demand bias, an implication of other measures, for example, an ambiguous vignette task (Barrett, Rapee, Dadds & Ryan, 1996), as it does not rely on self-report. Words were selected to ensure that children would understand the meaning of the words and unambiguous threat and neutral filler words were matched with ambiguous words (Owen & Hadwin, 2015) according to word frequency in the English language (Leech, Rayson & Wilson, 2001) (frequencies are reported in Appendix D).

Ambiguity was designed using homophones (words which sound the same, but have different meanings and may have different spellings) and homographs (words spelt the same, but which have different spoken meanings) with both a threatening and a neutral meaning (e.g. banned vs. band). Threat words were split into general-related threat and separation-threat words. A total of 60 words were generated; 10 ambiguous separation threat and 10 ambiguous general threat words; 10 unambiguous separation words, 10 unambiguous general threat words and 20 unambiguous neutral words (see, Table 4).

All participant responses were audio-recorded and administered using audio-recorded lists and each dyad was administered the words in one of four fixed random orders. The same instructions were given to each participant and an example was provided before the administration began. Participants were asked to listen to the word (repeated twice) and to use the word in a short sentence (e.g., Book: 'The book was in the library'). The researcher used a prompt if participants struggled to create a short sentence; they were asked to say what came into their head when they heard the word.

Responses were scored for the 10-separation threat and 10-general threat ambiguous words (1 = threat interpretation and 0 = neutral interpretation). Participants could score a possible 10 for each subscale and overall threat interpretation score of 20, with higher proportions

indicating greater threat interpretations.

Table 3: Homophones and homographs presented to participants in the 'word task' (Owen et al., 2015).

Separation threat (ambiguous)	**Separation threat (unambiguous)**	**Neutral**	**General threat (ambiguous)**	**General threat (unambiguous)**	**Neutral**
Bye (/Buy)	Away	Man	Banned (/Band)	Argue	Apple
Here (/Hear)	Go	Work	Bark (dog/tree)	Dark	Ball
Leaves (/Goes vs. leaf plural)	Care	Tree	Blow (Fist vs. mouth)	Ill	Candle
Meet (/Meat)	War	Carrot	Box (punch vs. storage)	Fall	Plant
Missed (/Mist)	Far	Boot	Break (/Brake)	Scared	Fence
Plane (/Plain)	Alone	Duck	Flu (/Flew)	Hit	Zip
Train (Transport vs. Gym)	Apart	Stairs	Lose (/Loos – toilets)	Punch	Wheel
Wait (/Weight)	Went	Hat	Sink (drop to the bottom (underwater) versus a basin)	Spider	Dinner
Where (/Wear)	Time	Sell	Weak (/Week)	Ghost	Big
Write (/Right)	Worry	People	Witch (/Which)	Wasp	Day

2.2.3 Procedure

Schools that agreed to take part in the study sent an advert and initial information letter to parents. Upon receiving interest to participate, via email, from families who met the inclusion criteria, an initial study pack with a parental consent form, demographics form and 4 parent-report questionnaires (HADS, BHS, SADA, spouse perception and SCAS-P) was sent. Following its completion parents were asked to send them back to the researcher.

On receipt of the study pack (parental consent) a date was arranged with the parent to complete the 'word task', FMSS and the STAI over the telephone. Furthermore, a date was arranged with the relevant school to work with the child, if informed assent by the child was given. The children completed the SCAS-C, 'word task' and the STAI-C, individually with the researcher, in a quiet area of their school. To avoid individual differences in reading ability, the questionnaires were read aloud to children and their responses circled by the researcher. Following the completion of the variables participants were debriefed.

2.2.4 Ethics

Ethical approval was sought and granted from the School of Psychology and Research Governance[2] for the proposed research. Written consent was sought from parents for their participation as well as their child's. Children were asked to give their own assent to participate in the word task and other self-report measures (Appendix E).

Participants were made aware of their right to withdraw prior and during the research process. Participants were debriefed following their participation in the research. As the purpose of the 'word task' was not disclosed prior to starting it was explained in full during the debriefing statement for all participants. Furthermore all participants were signposted to support during the debriefing process and at this information was sent on to participants following their participation in the study (Appendix F).

Questionnaire and audio data was kept securely on a password-protected computer. Participant data was anonymised and each mother-child dyad was be given a unique code. Consent forms were stored separately and securely from all raw and audio data.

[2] Ethics ID: 19741

2.3 2.3 Results

2.3.1 Preliminary analysis

Calculations of skewness and kurtosis (z-scores and boxplots) and a one sample Kolomgrov Smirnov test was used to check questionnaires for normality. These indicated that six of the measures were not normally distributed (HADS total score, SADA, SCAS-P revised BHS and STAI-C) (see Appendix G). For these questionnaires measures non-parametric statistics and bootstrapping methods were used.

2.3.2 Descriptive statistics

2.3.2.1 Demographics

Families reported 17 spouses serving in the Army (58.6%) and 12 spouses in the RAF (41.4%). The number of deployments ranged from 1 to 8 (M = 3.62, SD = 1.74) and from an average of 1.5 months to 9.5 months in length (M = 4.93, SD = 1.79). Child participants were all British, from three ethnic groups (white = 27, black = 1, Asian= 1). All children participated with their mothers. Children were recruited from eight schools and the final sample consisted of 19 girls and 10 boys age ranging from 8 to 11 years (M = 9.4, SD = 1.02).

2.3.2.2 Anxiety and depression measures

With respect to parent and self-reported child anxiety (total, separation, GA, social anxiety and state anxiety symptoms), descriptive statistics (mean, SD, range) are reported in Table 5 for the total sample. Preliminary analysis for each questionnaire showed no difference between genders for parent-reported or child self-reported symptoms (for all child and parent-

reported comparisons, *t*s < 1.5 and *p*s > .1 and for child self-reported state anxiety $U = 84$, $p = .61$). Consideration of clinical cut-offs indicated children self-reported clinically significant symptoms for total anxiety (n=7) and the anxiety subscales (n= 3-6). Respective numbers for the parent-report of child anxiety was (n= 2: n=3-4) (see Table 5). With respect to the self-reported state anxiety for n= 5 children and n= 3 mothers scored above the clinical cut-off.

Table 5 also shows the descriptive statistics for mother reports of their own symptoms (HADS, separation and state anxiety and hopelessness). The table also shows that for the HADS anxiety scale, 'mild' symptoms were reported for n=5 mothers and 'severe' clinical symptoms for n=3 mothers. Respective numbers for the depression scale were n=5 mothers reported 'severe' clinical symptoms and all other symptom scores were within the typical range. Mothers (n=4) reported symptoms of SA that were 'mild' and n=1 'moderate'. Considering self-reported maternal hopelessness indicated that n= 18 and n= 1 mothers reported 'minimal' hopelessness and mild hopelessness respectively.

2.3.2.3 Cognitive Processing

The proportion of threat interpretations for the separation and general words (and the proportion of the total number) is shown in Table 5. Appendix H records the number of times each target word was interpreted as threatening by participants. Comparisons of threat interpretations were explored to understand differences within groups (mothers and children) with respect to the proportion of separation bias versus general biases, as well as between mothers and offspring for each bias category. The results showed that mothers made significantly more separation (Mdn=.5) versus general threat (Mdn=.4) interpretation words ($Z = -2.14$, $p = 0.033$, $r = 0.40$). In addition, further analysis showed that offspring (Mdn=.5)

made more general threat interpretations compared to mothers (Mdn=.4; *U*= 291, *p*= 0.039, *r* = .38) (see Figure 5). All other comparisons were not significant.

Table 4: The mean, standard deviation (SD) and score range for all anxiety questionnaires (mother and child) and interpretation of ambiguous threat words.

Variable	Mean	*SD*	Range	Clinical significance (N)
		Mother measures		
HADS Anxiety	5.69	*4.07*	0-15	8
HADS Depression	4.24	*4.59*	0-17	5
Total HADs	10.10	*8.54*	0-31	13
Separation anxiety	4.17	*5.83*	0-27	5
State anxiety	30.17	*9.69*	20-55	5
Hopelessness	3.38	*3.19*	0-16	9
		Child anxiety measures – self reported		
Total anxiety	32.24	*8.55*	0-86	7
Separation	5.90	*3.90*	0-17	6
Social	5.24	*3.61*	0-14	3
Generalised	6.31	*2.85*	0-12	5
State anxiety	30.21	*5.68*	21-44	3
		Child anxiety measures – mother reported		
Total anxiety	20.65	*14.02*	2-68	2
Separation	4.79	*3.38*	0-13	4
Social	5.31	*3.38*	0-12	3
Generalised	4.48	*2.98*	1-12	3
		Percentage proportion of threat interpretations–child (%)		
Separation	50	*18*	0 -90	
General	50	*13*	0-80	
Total	50	*10*	25-75	

Variable	Mean	*SD*	Range	Clinical significance (N)
Percentage proportion of threat interpretations – mother (%)				
Separation	53	*14*	30-80	
General	43	*13*	20-70	
Total	47	*9*	50-70	

Table note. HADS = Hospital Anxiety and Depression Scale

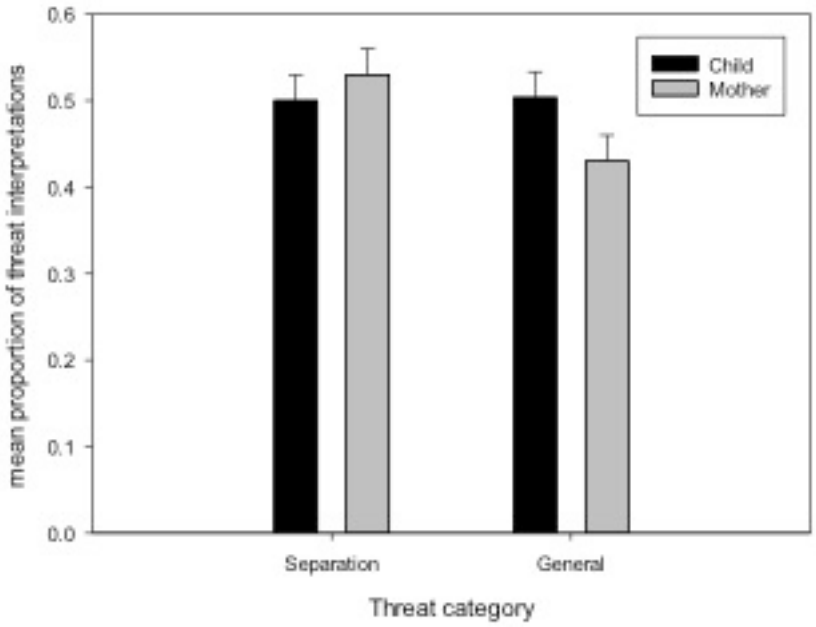

Figure 5: The mean proportion of threat interpretations for mothers and offspring and for separation and general threat categories

2.3.2.4 Parenting

Table 6 reports the frequencies of the FMSS results obtained within each subscale. More neutral initial statements (n=16) than positive (n=11) and negative (n=2) were reported. A high number of participants illustrated high (n=13) or moderate (n=13) warmth; there were 3 indicators of low warmth between mother and child. A majority of positive relationships were reported (n=16), neutral relationships were reported in 11 cases and there were two reports of a negative relationship. The frequency of positive comments ranged between 0 and 11 (M= 4.59, SD=2.58) and the frequency of negative comments ranged between 0 and 7 (M=1.83, SD=1.85). In addition considering outcome measures associated with EE and EOI, both variables were initially coded into three categories. The data showed that for EE only three responses were borderline, therefore these were collapsed with low scores to generate a binary variable of high and low. Similarly, the results of the EOI index from low (1) to high (3) showed that only 5 fell into the high category. So these were collapsed with the borderline score to create a binary variable of low and borderline. These binary variables were used for the rest of the analyses.

Table 5: Frequencies and percentages of the five-minute speech sample scores (N29).

FMSS Subscale	Scoring	Frequency	Percentage (%)	Mean	Range	SD
EE Variables						
Initial Statement	Positive	11	37.9			
	Neutral	16	55.2	2.31	3.00	.60
	Negative	2	6.9			
Relationship	Positive	16	55.2			
	Neutral	11	37.9	2.48	3.00	.63
	Negative	2	6.9			

FMSS Subscale	Scoring	Frequency	Percentage (%)	Mean	Range	SD
Warmth	High	13	44.8			
	Moderate	13	44.8	2.34	3.00	.67
	Low	3	10.3			
Self-sacrificing/over-protective behaviour		1	3.4	.03	1.00	.18
Emotional display		1	3.4	.03	1.00	.18
Lack of objectivity/ Excessive detail about the past		2	6.9	.07	1.00	.26
Statements of attitude		3	10.3	.10	1.00	.31
Total Expressed Emotion (EE)	High	7	24.1	1.24	1.00	.43
	Low	22	75.9			
Critical		6	20.7	.21	3.00	.41
Emotional Over Involvement (EOI)	Borderline	14		48.3		
	Low	15		51.7		
		Total	Lower Upper			
Positive comments		143	0 11	4.59	11.00	2.58
Negative comments		53	0 7	1.83	7.00	1.85

Table note: EOI was rated into two binary categories, borderline and low. Borderline EOI was coded for if the participant had displayed self-sacrificing/ over protective behaviour (e.g., 'I do not go away anymore because I do not want her to be alone') or if the participant outwardly displayed emotions (e.g., cries). Furthermore a high EOI score was given if two of the following were present: excessive detail about the past, one or more statement of attitude (e.g., 'She is my world') or excessive praise (more than 5 positive comments). If these criteria were not met, Low EOI was coded. Expressed Emotion is rated as high or low (binary variables); high EE was coded if a parent-reported greater criticism (either negative initial statement, low warmth or negative relationship) or gave more negative than positive comments. Alternatively High EE was rated if the parent had given excessive praise and (more than 5 positive comments) and one of the four EOI categories. If these criteria was not met, Low EE was coded.

2.3.3 Inter-rater reliability - parenting measures

Inter-rater reliability was calculated on five of the 29 speech samples (17%). Five transcripts with accompanying audio recordings were given to a trained second coder who independently rated the same measures as the first coder. The codes were then compared for similarities; to measure the agreement between the two coders, Cohen's Kappa was calculated on, initial statement, relationship, warmth, and EE and EOI categories. A score of .61 is considered good (Altman, 1999), in order to assume reliability is not by chance. Scores for all categories were greater than .61; therefore it can be assumed that the FMSS was reliably interpreted (see Table 7).

Table 6: Cohen's Kappa (κ_w) scores in EE categories.

Measures	Inter-rater reliability score (κ_w)	Reliability Category
Initial Statement	1.0	Very Good
Relationship	.62	Good
Warmth	1.0	Very Good
EOI	.67	Good
EE	.78	Good

2.4 Correlation Analysis

A bivariate correlational analysis was carried out to explore association between key variables and to inform subsequent model testing (see Appendix I for a full of table of results). Due to the likelihood of a small effect size and the non-normal distribution of some questionnaire measures, bootstrapping was applied to the analysis. One thousand bootstrap

samples were created with this model. This method is used to determine significance of an effect, mainly when small samples are used or data is not normally distributed (Field, 2009). Pearson's correlation coefficients, r is equivalent to large (>.50), moderate (>.30) or small (>.10) (Field, 2009). Further to the investigation of overall total scores from parent and child reports, the main focus of correlation analysis was on subscales of the SCAS linked to separation, social and GA symptoms. In addition, to the consideration of associations between key variables, exploratory analyses also considered links between maternal and child symptoms of psychopathology with military factors (i.e., branch of military and length of deployment).

2.4.1 Associations between maternal measures and mother- and child-reported child anxiety symptoms.

Correlations between variables are shown in Table 8. With respect to mother and child-reporting of the child's anxiety symptoms, this table shows that for total anxiety and for all anxiety subscales children self-reported symptoms were correlated with parent-reported symptoms on the same measure (i.e., the SCAS) and in all cases $r > .38$ and $p < .05$). Considering mothers' reports of their own symptoms of negative affect, Table 7 shows that mother's report of her own anxiety and depression symptoms were significantly associated with children's reports of their own anxiety (rs > .40 and ps < .05). Mothers' reports of hopelessness were not linked to children's reports of their own anxiety symptoms. In contrast, mothers' reports of SA were only linked to children's reports of their own SA, GA, total anxiety and social anxiety symptoms ($rs < .30$ and $ps > .05$). In addition, mother's reporting of their own symptoms of anxious and depressed affects increasing was associated with their

own reporting of symptoms in offspring in all cases (*rs* > .30 and *ps* < .05). With respect to maternal reports of her own hopelessness, this was only associated with her reporting of child GA. Maternal state anxiety was positively associated with child reports of SA and GA (*r*s > .47 and *p*s < .05) (See Table 7). Taken together, mothers' reports of anxious affect were largely consistent with their children's own reports of their own symptoms and with mother reporting of symptoms in offspring.

2.4.2 Associations between maternal measures (parenting and symptoms of psychopathology) and mother- and child-reported child anxiety symptoms with interpretation bias.

Table 7 shows that the proportion of interpretation biases for separation and general threat words were not correlated with each other both within mothers and children (*rs* < .12 and *ps* >.05). In addition, mothers' interpretation biases were not associated with interpretation biases in children (*rs* < .21 and *ps* >.05) or with mother own report of their own symptoms of psychopathology and hopelessness (*rs* < .33 and *ps* > .05). In contrast, there were some links between children's self-reported anxiety and their own interpretation biases. Table 7 highlights that these were significant and positive between child separation and total threat interpretation bias scores with child self-reported total anxiety scores and the social anxiety subscale (*rs* > .42 and *ps* < .05).

Considering links between parenting indices (the binary variables linked to EE and EOI) with symptoms of psychopathology in mothers and children, and with interpretation biases, Table 7 highlights that EE was negatively associated with child's self-reported social anxiety (*rs* =-.38, *ps* < .05) and positively associated with maternal general threat interpretation bias

(*rs* = .48, *ps* <. 001), indicating that mothers that reported high EE reported also reported high general threat interpretations, however children reported lower scores of social anxiety.

2.4.3 Exploration of military measures and associations between maternal measures and mother- and child-reported child anxiety symptoms.

A significant difference was found between the branch of military and the length of deployment whereby fathers in the Army tended to be deployed on average for longer durations (Mdn=6.0) than fathers in the RAF (Mdn=4.0; *U*=26.0, *p* = 0.000, *r* = -3.39) Partners of personnel in the RAF reported significantly higher SA (Mdn=4.0), than those in the Army (Mdn=1.0; *U*= 50.5, *p* = 0.021, *r* = -2.32). Moreover, parent reports of child total anxiety were found to be significantly higher for children whose fathers were in the RAF (Mdn=25.0) compared with those in the Army (Mdn=13.0; *U*= 58.5, *p* = 0.053, *r* = -1.92), as well as parent-reports of child SA (RAF Mdn=6.5; Army Mdn=4.0; *U*= 47.0, *p* = 0.014, *r* = -4.25; see Figure 6). No other statistically significant differences were found between military branches.

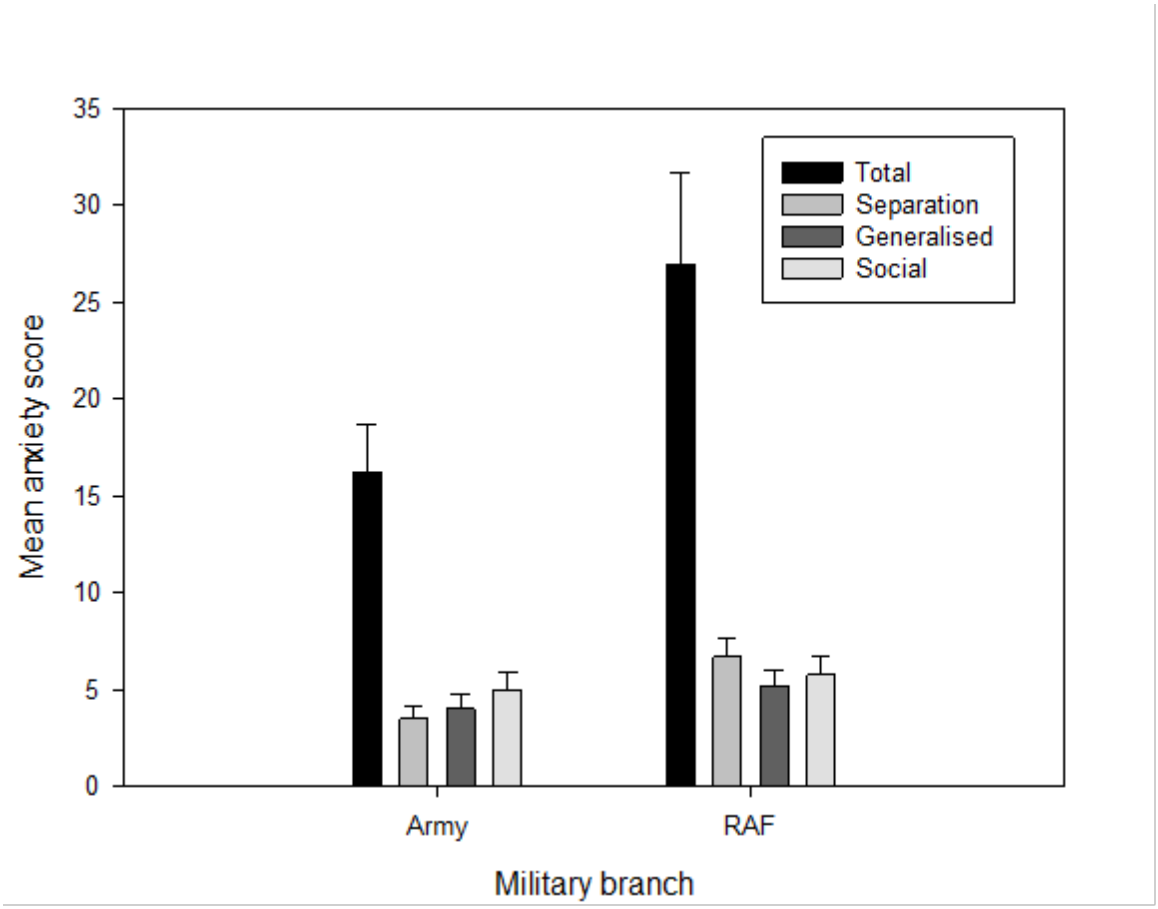

Figure 6: Mean (and standard error) parent-reported total anxiety and anxiety subscales (separation, generalised anxiety, social anxiety) for offspring between the military branch that their fathers serve in.

Considering associations between symptoms of psychopathology in mothers and children, exploration of the data showed that parent reports of children's SA symptoms were positively associated with the number of deployments experienced (r = .45, p = <. 05; r^2 = .21; see Figure 7). No other correlation was significant (in all cases rs < .19 and ps > .05).

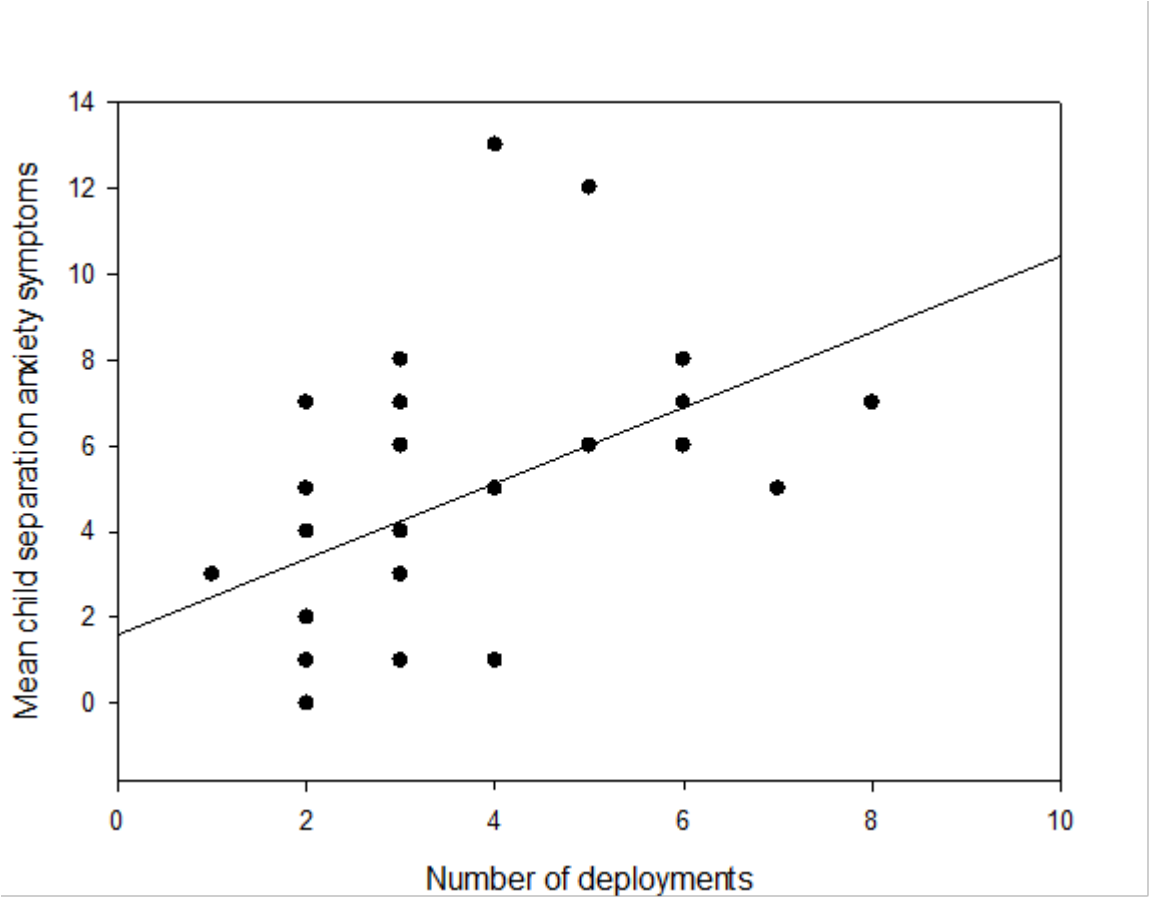

Figure 7: Linear trends illustrating the association between parent reports of children's separation anxiety symptoms and the number of military deployments.

Table 7: Correlations between the main variable explored during analysis: Parent anxiety measures (HADS, SADA, STAI and BHS), child anxiety measure (SCAS, SCAS-P and STAI-C), interpretation biases (separation, general and total) and parenting variables (EE and EOI).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mother measures																							
1. HADS Anxiety	1																						
2. HADS Depression	.76**	1																					
3. Total HADS	.94**	.93**	1																				
4. Separation	.53**	.46*	.49**	1																			
5. State anxiety	.80**	.82**	.85**	.50**	1																		
6. Hopelessness	.53**	.450**	.61**	.02	.54**	1																	
Child anxiety measures – self reported																							
7. Total anxiety	.51**	.54**	.55**	.24	.36	.29	1																
8. Separation	.48**	.52**	.52**	.38*	.47*	.20	.87**	1															
9. Social	.42*	.47*	.47*	.20	.29	.27	.90**	.73**	1														
10. Generalised	.57**	.60**	.61**	.40*	.48**	.31	.88**	.70**	.80**	1													

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
11. State anxiety	.21	.34	.27	.31	.11	-.10	.37*	.22	.43*	.44*	1												
Child anxiety measures – mother reported																							
12. Total anxiety	.62**	.52**	.58**	.80**	.49**	.15	.58**	.65**	.52**	.59**	.27	1											
13. Separation	.48**	.37*	.42*	.70**	.44*	.07	.39*	.54**	.24	.42*	.11	.83**	1										
14. Social	.51**	.31	.42*	.58**	.38*	.17	.32	.35	.38*	.36	-.08	.71**	.46*	1									
15. Generalised	.63**	.62**	.66**	.68**	.52**	.38*	.51**	.53**	.45*	.53**	.28	.86**	.70**	.59**	1								
Proportion threat interpretations– mother																							
16. Separation	.34	.10	.26	.05	.03	.21	.05	.01	-.05	-.00	-.05	.07	.17	.12	.12	1							
17. General	.08	.17	.12	.05	.25	-.09	-.13	-.05	-.07	-.01	-.06	-.01	.04	.06	.08	-.15	1						
18. Total	.26	.05	.18	.00	.06	.07	-.14	-.11	-.18	-.13	-.08	-.01	.11	.10	.04	.72**	.50**	1					
Proportion threat interpretations –child																							
19. Separation	.23	.16	.18	.04	.09	.09	.44*	.27	.52**	.30	.17	.29	.18	.20	.26	-.10	-.06	-.17	1				
20. General	.20	.02	.12	.22	.09	-.01	.03	.11	.08	.09	-.06	.12	.02	.06	.08	.01	-.03	-.08	-.19	1			
21. Total	.33	.16	.24	.18	.14	.07	.42*	.31	.52**	.32	.12	.34	.18	.22	.29	-.08	-.07	-.21	.78**	.46*	1		
Parenting																							

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
22. EE	-.13	-.12	-.14	-.14	.08	-.14	-.26	-.11	-.38*	-.26	-.24	-.12	.03	-.10	-.20	-.11	.48**	.28	.000	-.33	-.21	1	
23. EOI	-.01	.04	-.00	-.16	-.03	-.16	-.21	-.35	-.03	-.06	.22	-.09	-.12	-.01	.01	-.04	.17	.07	-.08	-.03	-.08	-.06	1

Table note: *p < .05, **p < .01.

2.5 Mediation analysis

The aim of this project was to consider associations that allow existing theoretical frameworks to be tested. Process regression programme (Hayes, 2016) was used to explore the significance between the independent variable (X) and a dependent variable (Y) when a mediator (M) was entered into the model (e.g., see Figure 8). Bootstrapping was applied in the mediation analysis, due to the likelihood of a small effect size (see Field, 2009). Initially, this study set out to explore associations between key variables (maternal factors, child factors and child cognitive factors) and hypothesised that child interpretation bias would mediate the association between maternal and offspring negative affect. However, the associations between these variables were found to be non-significant, so a data driven approach was used to explore the relationships between factors that were significantly correlated in order to understand any mediating effects.

Six models were tested; the DVs were child separation interpretation bias or total interpretation bias, the mediators were child self-reported total anxiety or social anxiety and the IV was mothers' total anxiety (HADS total). These models explored the association with mothers' own anxiety and the development of biases in offspring via increases in the children's reports of their own anxiety. Two indirect effects approached significance: Maternal total anxiety and child separation interpretation bias, mediated by child-reports of social anxiety *b*= .006 BCa CI [.0010-.0145] and maternal total anxiety and child overall interpretation bias, mediated by child-reports social anxiety *b*= .002 BCa CI [.0009-.00067] (see figures 8 and 9 respectively).

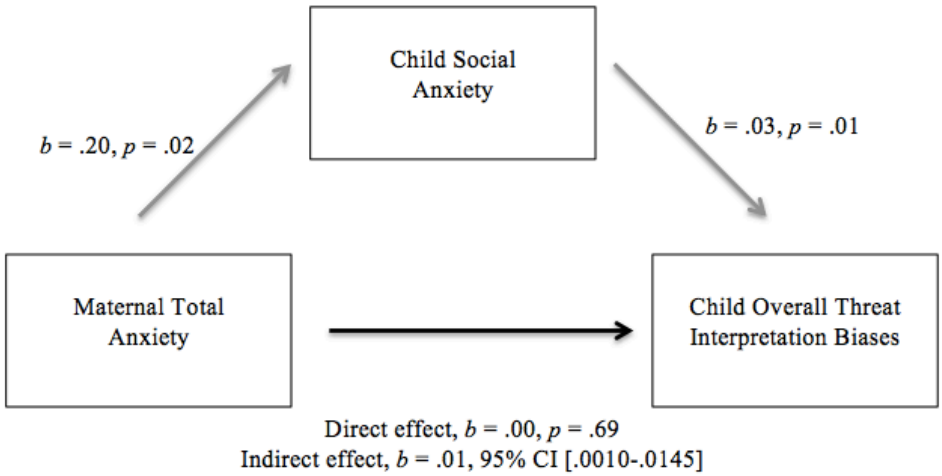

Figure 8: Mediation Model: Exploring the relationship pathway between maternal total anxiety and children's separation interpretation threat biases with child social anxiety as the mediator

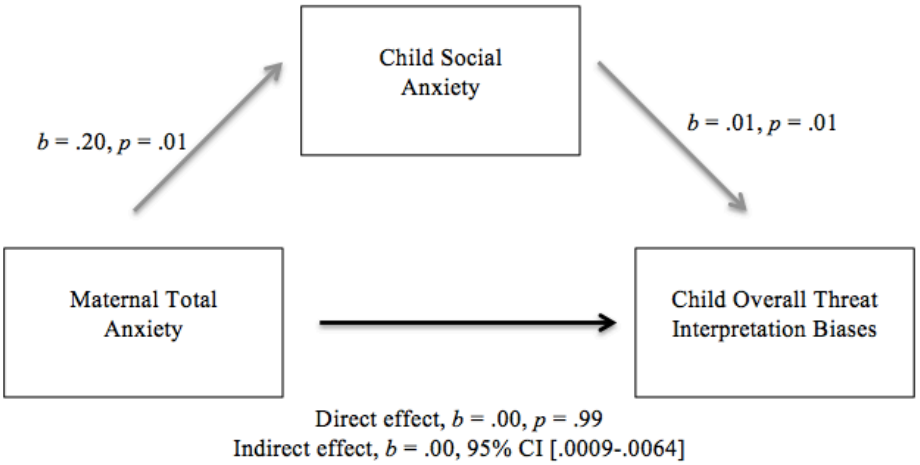

Figure 9: Mediation Model: Exploring the relationship pathway between maternal total anxiety and children's overall interpretation threat biases with child social anxiety as the mediator

2.6 Discussion

2.6.1 Main findings

The main findings found positive associations between parents' reports of their own symptoms of negative affect and children's self-reported negative affects, taken together, mothers' reports of anxious affect were largely consistent with the children's own reports of their own symptoms and with mothers' reporting of symptoms in offspring. These findings mirror those of previous research in that maternal negative affects were a predictive factor for the development of anxiety in offspring (Cooklin et al., 2013; Eley, 2015). Furthermore, this supports research that has highlighted links between SA, social anxiety disorder and GAD in children (see Franz et al., 2013).

The focus of the present study was on understanding associations between parenting factors (i.e., high levels of emotional over involvement and expressed emotion) and parents' reports of their own symptoms of negative affect, including increased feelings of anxiety and depression, SA and hopelessness, whether these were linked to children's self-reported negative affect and whether the presence of interpretation bias for separation or general threat mediated this relationship. The present study hypothesised that parenting variables (high EE and EOI) would be associated with increased reports of negative affect in mothers and offspring. Parenting factors were not associated with parents' reports of their own symptoms of negative affect or with children's self-reported negative effects with exception of EE being negatively associated with children's self-reported social anxiety. This hypothesis was not substantiated, despite a wide range of negative affect (non-clinical – clinical) reported and is unable to add to current theoretical models which suggests that parenting/parent indices would

be associated with child behavioural outcomes. This could be in part due to a small sample size and previous research has found small effect sizes to exist between parent EOI and child anxiety (McLeod, Wood, & Weisz, 2007).

The present study also aimed to understand whether cognitive biases in parents and offspring were associated with symptoms of negative affect and were important in relation to understanding any potential association between parents' and children's reports of their own mental health. Parent cognitive bias was not associated with child or parent negative affects, only child overall and separation threat interpretation bias was associated with children's reports of total anxiety and social anxiety. These findings fit with cognitive models of anxiety, which suggest that poor attentional control, and increased attention biases for the detection of environmental threat can cause or maintain anxious states (e.g., Eysenck, et al., 2007, Bar-Haim et al., 2007; Hadwin et al., 2016).

The present study anticipated that mothers' reports of their own negative affect would be associated with child self-report and that cognitions related to threat would be important in understanding these relationships. A data-driven approach found two mediation analyses to be approaching significance: Firstly, an indirect effect of maternal total anxiety and child separation interpretation bias, mediated by child reports of social anxiety, and, secondly, an indirect effect of maternal total anxiety and child overall interpretation bias, mediated by child-reports of social anxiety. Previous work has found that biases mediate intergenerational transmission of anxiety (e.g., Hadwin et al., 2011; Stirling et al., 2006). Correlation analysis showed that mothers' anxiety increases anxiety in offspring leading to the development of biases, thus biases did not act as a causal mechanism but as an output of anxiety. These exploratory findings tentatively support the argument that vicarious conditioning or modelling

impact on the development of anxiety and that maternal negative affect indirectly influences the development of risk factors in children, such as interpretation biases of ambiguous information. These findings could still, therefore, provide initial contributory evidence for a cognitive-behaviour model of intergenerational transmission of anxious interpretation biases (Murray, et al., 2009).

Links between number of deployments and the experience of negative affect in parents and offspring were explored and findings showed that the number of deployments was positively associated with parent reports of child SA. Interestingly, the present study found RAF families reported greater self- and parent-reported child anxiety and SA than Army families, indicating a military branch difference in family reports of negative affects. Consequently, RAF families experienced more deployments and Army families experienced longer deployments. These findings support previous research regarding the impact of multiple transitions on families' social and emotional wellbeing (Flack et al., 2009), as well as, the impact of paternal absence (Cronk et al., 2004) and separation experiences (Poulton et al., 2001). Therefore further investigation into transition patterns for military families is warranted.

2.6.2 Limitations and future research

Considering limitations to design this study has a small sample size. Despite finding significant correlations between parenting, child and parent anxiety and interpretation threat bias, this study's findings should only be considered exploratory at this initial stage. Furthermore, the present study did not recruit families from the Royal Navy, so findings cannot be generalised to this branch of the British Armed Forces. Future research could consider a cross-sectional design with a larger sample size of dyads, which would be more

robust, allowing for a greater generalisation of findings to this population. Or, a case-control design with an at-risk group, would allow for a retrospective approach using a referred group (cases) and non-referred group (control group) of matched participants. Both of these design would allow for the exploration of differences in interpretation bias and contributing factors such as parenting and family stress.

In this present study there were large numbers of correlations explored with relatively few statically significant relationships between variables. An implication of correlation analysis is that is cannot be taken to imply causation and at this stage the results of this study should be described as exploratory. Multiple testing also has its implications and caution must be taken when interpreting these findings. This is because the more inferences of the data that are made, the more likely inaccurate inferences may occur and produce 'false discovery' (Field, 2006), which could be misleading.

The present study explored factors in relation to 'middle childhood' (8-11 years); therefore findings are limited in their generalisation to younger children or adolescents. Previous research, however, has found the existence and greater severity of anxiety and interpretation biases within this cohort (Cooklin, et al., 2013). A longitudinal design could explore the interrelationships of variables measured across age groups or developmental stages, which would further our understanding regarding risk factors and the non-linear progression of anxiety (Ollendick & Grills, 2016) in an at-risk group.

In the present study only mothers were recruited. The recruitment of fathers may need a different approach in order to ensure their participation in similar research. As a result the relationship between children's anxiety and interpretation biases, in the present research, should only be inferred to the mothers' transmission of anxious information. Among the larger

body of anxiety related research few findings exist regarding fathers' impact on childhood anxiety, however in the research that looked at paternal influence significant findings have been found (Aktar, Majdandzic, de Vente and Bogëls 2013).

Additionally, the present study did not ascertain if the serving parent was currently deployed at the time of data collection. This may have impacted on the affective factors of participants during data analysis, particularly state anxiety. Research has shown that parental deployment can impact on the affective factors of children (Alfano, et al., 2016). Future research may want to consider and control for this in future analysis when investigating negative affects in a military population.

The present study only generated a 6.3% return on invitation to participate; this at-risk population could be hard to reach and in an at-risk sample, concerns regarding their self-selection to take part should be considered. Families who did participate may have been more resilient and less anxious in comparison to families not wishing to take part, forming a less representative sample of military families. Consequently, the recruitment process used in the present study to contact military families' needs further consideration and exploration in order to understand the interrelationships between severity of anxiety symptoms, cognitive processes, affective factors and parenting within this population.

The impact of wider environmental influences on the aetiology of children's anxiety disorders, symptoms and interpretation biases should be considered alongside parenting and family factors. Some research has already explored the influence of televised coverage on threat-related information and the aetiology of SA in school-aged children with positive associations (Hoven et al., 2004). The publication of threat-related information such as wars and conflicts is more readily available in today's society. The frequency of and access to

updates is likely to impact on military families, particularly those who have a family serving in the location affected. Research that is able to explore the impact of the media on the severity and aetiology of anxiety symptoms would meaningfully add to the research exploring wider environmental risk factors.

Considering the cognitive measures, there is a small, but consistent body of research that demonstrates that this methodology, quite successfully, measures interpretation bias in anxiety, in children, adolescents and adults (Hadwin, et al., 1997; Mathews, et al., 1989 and Richards et al., 1992). This study looked to extend this methodology to SA specifically. Certain words in the word task elicited a more threatening or neutral interpretation, overall a mix of interpretations were made. Two words stood out in the preliminary data analysis that may require further consideration. The word 'box' (punch vs. storage), a general threat homophone was interpreted in the majority of cases as a storage box. Participants would interpret this word in the context of moving house or packing, often referring to the frequency with which they had done this. This word may imply more of an ambiguous separation threat within this population. Similarly, the filler and non-ambiguous separation threat word 'war' was interpreted as 'wore' by several of the participants, suggesting perhaps that this word was more ambiguous than originally thought. Therefore, these findings should be interpreted with caution and careful consideration of the homophone and homograph list should be made before its use in future research to ensure it is a valid index for measuring interpretation bias in relation to SA.

An indicator of child-coping skills would add an additional dimension to future research. Children who display more anxiety symptoms often demonstrate poorer coping skills and strategies compared to their less anxious peers (e.g., Poulton et al., 2001). These children are

therefore susceptible to interpreting ambiguous information, in a threatening way as they are less equipped to manage the situation. Future research may also like to consider a child-report measure on parenting and parent relationships to allow triangulation of the data.

2.6.3 Implications for Theory and Practice

The present study has provided valuable information regarding interrelationships between the presence of anxiety disorders and emotional relationships within families in a high-risk population and can inform interventions for individual children and their families. It has extended researcher's understanding of the development of anxiety in childhood and the role of threat information processing in a population at greater risk of developing anxiety. The negative emotional states of participants ranged considerably from no anxiety to clinical levels of anxiety in a relatively small sample, hence, exploring a sample from military families in the context of anxiety contributes new information to the literature. Interestingly, there was a significant difference in anxiety reported between the two military branches: RAF families reported greater self- and parent-reported child anxiety and SA than Army families. Furthermore, the number of deployments was positively associated with parent-reports of child SA. Army families experienced longer deployments, which suggests the number of changes and transitions could be key which, and is supported by other research (Flake, et al 2009; Lester et al., 2010)

Therefore an implication of this study, which is in line with legislation (MoD, 2013; MoD, 2014), is that schools should provide necessary provision for service children because they are a population at risk of developing a bias towards threatening information as well as developing anxiety disorders. The awareness of educational staff is likely to be key in their ability to be proactive in their provision. Additionally, by extension of the findings, schools'

consideration for other at-risk populations that experience multiple transitions can be implied; children looked after, children of prisoners, children exposed to violence, refugees, asylum seekers and children from travelling communities are also susceptible to anxiety and threat interpretation biases. Future research should consider extending this research design to a range of at-risk groups.

In the context of this research, EPs can work at a whole-school systemic level in order to make wider environmental changes that are proactive in promoting the social and emotional well-being of service children, such as building nurturing relationships, offering opportunities to talk about the difficulties their families are experiencing and identifying a key person within the school that supports military families. This way of working encourages a joint systems approach and gives families a voice promoting their social and emotional well being (Lester et al., 2015; Mustillo et al., 2016). These changes can be supported by the SPP funding and monitored in order to demonstrate the impact of the systemic work and positive outcomes. Furthermore, EPs can advocate for military children within an educational setting, raising their profile to staff so that their needs are not over looked, which is a considerable vulnerability of this population given the state of flux their families can experience due to multiple transitions.

In the context of this research, it may be appropriate for an EP to work directly with a child; however, the importance of including parents in the strategies developed and in evaluating outcomes must be highlighted. Intervention for direct work could consider a cognitive behavioural framework to support children to develop their regulation skills by helping them to understand the relationship between their thoughts, feelings and actions. The main focus of direct work would be teaching the child new skills to manage their uncomfortable emotions. In the same way, direct work with parents may be appropriate.

Working with parents to understand attuned interactions with their child, via VIG for example, this may support them to support their child to develop successful regulation skills. In addition, offering consultations to parents from military families, following a structured problem solving discussion regarding the needs of their child, when they have a concern, would afford them the opportunity to be heard as well as work collaboratively in developing strategies to support them. This type of intervention has been shown to positively impact on the social and emotional well being of military families, providing support vicariously to the child, through their parents (Hogg, Hart & Collins, 2014).

Finally, EPs are well placed to provide training to school staff on subjects such as anxiety, cognition, cognitive-behavioural processes, and associated strategies. As well as developing their understanding of the impact of the unique factors of military families e.g., number of transition and family dynamics. By skilling staff up in both of these areas they will be able to tailor support to individual children and their families. An example of this may be setting up groups in school for children of military families to attend. The purpose of these clubs would be to enable children to spend time with peers, establishing social support networks for children experiencing similar situations as well as developing their skills in resilience and emotional regulation.

Appendices

Appendix A Search terms for systematic review

The same search terms were used across the three databases.

Population Search terms		**Subject Search terms**		**Outcome Search terms**
Child* OR Adolescen* OR Teen* OR "Young People"	**AND**	DE "Separation Anxiety" OR DE "Separation Anxiety Disorder"	**AND**	"Life Change" "Life Event" Resilien* Predict* Prevent* Relation* Environment Social
Overall yield n= 1174				
Limiters: Age (18 and less) Date (2000 and post) Language (English) Publication (Academic Journals) Human Participants				
n= 400				
Further Exclusion Criteria: Duplicates Case Studies Studies – not suitable				
n= 18				

Table note: * = truncation,"" = assume adjacency searching, DE = exact subjects

Appendix B Description of included studies in the literature review: An exploration of risk and resilience of environmental factors in the development of SAD in school-aged children.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
1	Poulton, Milne, Craske, & Menzies, 2001	*Child* 1037 American 3 - 18 years old Gender Demographics = Unknown *Parent* Demographics Father occupation (for SES)	Community Sample	Longitudinal (T1, T2, T3)	Separation Experiences and Loss: (1) Early separation experiences (2) Hospitalisations (3) Parent death	DISC C/P	(1) Parental death increased SAD in late childhood and adolescence. (2) Early separation (via attendance at preschool) had significantly more SA symptoms at 18 years. (3) Unplanned hospitalisations at age 9 had higher levels of SA at 18 years.

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Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
2	Lynch & Cicchetti, 2002	*Child* 127 American 7 - 13 years old Male= 68 Female = 59 *Parent* Single parents 46% Demographics = Unknown	Community Sample	Self-reported Interviews	Neighbourhood and community factors: (1) Exposure to community violence (2) Relatedness to community and family	SCARED	(1) High levels of self-reported community violence were associated with high self-reported SA, dissatisfaction with maternal relationship and negative maternal behaviour than children who reported exposure to less violence. (2) High levels of relatedness were negatively associated with self-reported SA.
3	Kearney et al., 2003	*Child* 60 Mean age 3.5 years Males = 31, Female = 29 American = 80% *Parent* 60 Demographics = Unknown	Clinical Sample	Longitudinal (T1, T2) Clinical, subclinical and non-clinical SAD groups	Parenting: (1) Overprotectiveness	ADIS C/P	(1) Parental overprotectiveness was higher in the clinical group.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
4	Hoven et al., 2004	*Child* 8,236 American 9 - 21 years old Male = 3920 Female = 4316	Community Sample	3 Groups: proximity to terrorist attack (geographical location)	Traumatic Experience: (1) Terrorist attack involving a primary attachment figure	DISC predictive scale (DPS)	(1) Probable SAD was associated with direct exposure and/or "a lot" of TV exposure to the terrorist attack.
5	Cronk, Slutske, Madden, Bucholz & Heath 2004	*Child* 1887 American MZ twins = 1055 DZ twins = 832 Female = 100% *Parent* 1887 Mothers = 100% (2) SES: Mother's self-reported annual household income	Community Sample	Twin study: Retrospective parental interviews	Separation Experiences and Loss: (1) Parental absence and parental loss	DICA	(1) Paternal absence increased vulnerability for SAD (2) Socio-economic disadvantage did not influence vulnerability for SAD.

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Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
6	Dallaire & Weinraub, 2005	*Child* 99 American 6 months - 6 years old Male = 52% Female = 48% *Parent* 99 American Demographics = Unknown	Community Sample	Longitudinal (T1, T2, T3, T4, T5)	Mediation of Parent Psychopathology via proximal factors: (1) Maternal sensitivity, infant-mother attachment security mediating Maternal SA and Child SA	BPI	(1) Child–mother attachment security and maternal sensitivity did contribute to the prediction of children's SA at age 6. Relation between mothers' and children's SA was entirely mediated through maternal sensitivity and attachment security.
7	Wood, 2006	*Child* 40 American 6 - 13 years old Male = 60% Female = 40% *Parent* 40 American Mothers = 35%	Clinical Sample	Questionnaire Within sample	Parenting; (1) Intrusiveness	MASC	(1) Maternal intrusiveness was associated with children's SA in children with a diagnosed anxiety disorder.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
8	Wood, Kiff, Jacobs, Ifekwunigwe & Piacentini, 2007	*Child* 72 American 5 - 11 years old Male = 64% Female = 36% *Parent* 72 American Mothers = 94.4%	Community Sample	Questionnaire Within sample	Parenting; (1) Intrusiveness	MASC	(1) Parental intrusiveness was linked to SA, both of which were associated with dependency on school caregivers.
9	Perez-Olivas et al., 2008	*Child* 129 British 6.3 - 14.5 years old Male = 62 Female = 67 *Parent* 129 British Mothers = 100%	Community Sample	Questionnaire Within sample	Mediation of Parent Psychopathology via Proximal factor: (1) Maternal over involvement Mediating children's cognitive process and maternal SA	RCADS RCADS/P	(1) Vigilance for threat partially mediated the association between maternal over involvement and symptoms of childhood SA.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
10	Morrow et al., 2009	*Child* 400 American 5 years old No - PCE Male = 51.6% Female = 48.4% PCE Male = 49% Female = 51% *Parent* 400 American Mothers = 100%	Community Sample	Between groups	Early Risk Factors: (1) Prenatal cocaine exposure (PCE) (2) Prenatal alcohol exposure (3) Prenatal marijuana exposure	DISC	(1) No prenatal cocaine, alcohol or marijuana associated increase in risk for developing SAD.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
11	Erermiş et al., 2009	*Child* 120 Turkish 4 - 7 year olds Non Clinical – 60 Clinical - 60 *Parents* 120 Turkish Mother = 100%	Community Sample	Control group	Parenting: (1) Temperamental characteristics of mothers (i.e. depressive, cyclothymic (i.e., changes between low and high mood), hyperthymic (i.e., exceptionally positive mood), irritable and anxious)	CBCL	(1) Internalising symptoms in both groups were positively associated with cyclothymic (changes between high and low moods), irritable and anxious temperament scores. (2) Temperament characteristics of mothers in the clinical group were significantly higher than the non-clinical group.

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Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
12	Briggs-Gowan, 2010	213 American (English and Spanish speaking) 2 - 4 years old Male = 71.4% Female = 27.6%	Clinical Sample	Questionnaire	Traumatic Experiences: (1) Non-interpersonal events (e.g., car crash) (2) Exposure to violence (e.g., physical abuse, physical violence from a non-family member) (3) Witnessed events causing or having potential to cause death/severe injury (4) Witnessed family violence and exposure in the last three months (5) 'Stressful' life events, not likely to be traumatic (e.g., new children in home)	PAPA	(2) Only exposure to violence significantly predicted SA.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
13	Sakia et al., 2011	*Child* 1, 313 (T3) Mean age 16.4 years Male = 637 Female = 676 Dutch = 84.9% *Parent* 1, 313 (T3) Demographics = Unknown	Community Sample	Longitudinal (T1, T2, T3)	Parenting: (1) Behavioural and Psychological control	SCARED	(1) Adolescents with high initial levels of self-reported anxiety perceive their parents to become more controlling (behavioural and psychological) over time. (2) SAD symptoms were more strongly linked to parental psychological control than parental behavioural control.

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Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
14	Lavallee et al., 2011	*Child* 150 German 4 - 14 years old Clinical = 106 Non Clinical = 44 2.6.4 Male = 71 2.6.5 Female = 79 *Parent* 150 Mothers = 100%	Clinical Sample	Two groups Retrospective	Early Risk Factors: (1) Pregnancy risk (maternal physical illness, tobacco use and alcohol consumption) (2) Pregnancy stress (social, work-related, and legal)	DIPS	(1) Prenatal factors were not associated with a diagnosis of SAD, but were linked to parent-reports of stronger stranger anxiety
15	Furr-Holden et al., 2011	*Child* 172 American Mean age =11 years old Male = 104 Female = 68	Community Sample	Questionnaire	Neighbourhood and community factors: (1) Neighbourhood disorder (high drug and alcohol use, gang activity, high levels of violence and graffiti)	RCADS	(1) SA was not significantly associated with neighbourhood disorder as a collective construct, however at T2 participants reported higher levels of stress and depression.

Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
16	Stone, Otten, Soenens, Engels, & Janssens, 2015	*Child* 298 Dutch, 5 - 8 year olds Male = 149, Female =149 *Parents* 298 Dutch Mother = 92.9%	Community Sample	Longitudinal (T1 and T2)	Mediation of Parent Psychopathology: Psychological control mediating parents negative affects and child SA	BPI	(1) Dependency oriented control was positively associated with SA in Children (2) No support for a mediating role of psychological control.
17	Green et al., 2016	*Child* 74 9 - 11 years old Study Group = 33 Comparison Group = 41 Gender Demographics = Unknown	Community Sample	Longitudinal and FMRI (T1, T2)	Traumatic experience: (1) Traumatic experience of early caregiver (experience of institutionalised care)	RCADS	(1) Experience of institutionalised care increased amygdala activation for untrustworthy and trustworthy faces. Diminished differentiation predicted more severe SA symptoms at T2.

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Paper Number	Author(s)/Date	Participants (Age, Gender)	Population	Design	Risk factor	SA Measure	Key results
18	Battaglia et al., 2016	*Child* 1933 Canadian 1.5 - 6 years old Gender Demographics = Unknown *Parent* 1933 Mothers = 99.7% SES: Early-life family income Family size Residential Area	Community Sample	Longitudinal (T1, T2)	Separation Experiences and Loss: (1) Parental absence and divorce (2) Parental Death Other Risk Factors: (3) Exposure to prenatal tobacco smoke (3) Parental unemployment	CBCL	(1) Parental divorce was not associated to either high-increasing or high-decreasing SA, and contributed only marginally to the low-increasing SA trajectory. (2) Experiences of parent death or separation by medical admissions (at least one) were not associated with any SA trajectory. (3) Parental unemployment was uniquely associated with the high-increasing trajectory. (4) Smoking in pregnancy, tobacco exposure in pregnancy was uniquely associated with the high-increasing trajectory.

Table note: BPI= Berkley Puppet Interview, CBCL = Child Behaviour Checklist, DISC = Diagnostic Interview Schedule for Children, DIPS = Diagnostic Interview for Mental Disorders, PAPA = Preschool Age Psychiatric Assessment, RCADS = Revised Child Anxiety and Depression Scales, SCARED = child-related emotional disorders, T = Time.

Appendix C Attrition Flow Chart

Appendix D 'Word Task' Frequencies[3]

Separation threat, ambiguous words

Word Number	Separation threat	Word Frequency	Neutral	Word Frequency
1	Bye	264	Buy	415
2	Here	2003	Here	306
3	Leaves	20	Leaves	<10
4	Meet	58	Meat	<10
5	Missed	72	Mist	<10
6	Plane	<10	Plain	<10
7	Train	<10	Train	<10
8	Wait	<10	Weight	<10
9	Where	1649	Wear	144
10	Write	178	Right	1160

[3] Originally sourced from Owen, S. L. & Hadwin, J. (2015). *Exploring the interrelationship between anxiety, interpretation bias and parenting factors in military families* (Doctoral dissertation, University of Southampton).

General threat, ambiguous words.

Word Number	General threat	Word Frequency	Neutral	Word Frequency
11	Bark	<10	Bark	<10
12	Blow	<10	Blow	<10
13	Banned	<10	Band	<10
14	Break	60	Brake	<10
15	Flu	<10	Flew	<10
16	Lose	76	Loos	<10
17	Sink	<10	Sink	<10
18	Box	<10	Box	201
19	Weak	<10	Week	774
20	Witch	<10	Which	818

Appendix D

Filler words and non-ambiguous separation threat: (matched for frequency and word type (threat / neutral)

Word Number	Separation threat	Word Frequency	Word Number	Neutral	Word Frequency
21	Away	488	31	Man	436
22	Go	4192	32	Work	323
23	Care	31	33	Tree	<10
24	War	45	34	Carrot	<10
25	Far	78	35	Boot	<10
26	Alone	<10	36	Duck	<10
27	Apart	<10	37	Stairs	<10
28	Went	<10	38	Hat	<10
29	Time	1712	39	Sell	25
30	Worry	142	40	People	1114

Filler words and non-ambiguous general threat: (matched for frequency and word type (threat / neutral)

Word Number	General threat	Word Frequency	Word Number	Neutral	Word Frequency
41	Argue	<10	51	Apple	<10
42	Dark	<10	52	Ball	<10
43	Ill	<10	53	Candle	<10
44	Fall	53	54	Plant	<10
45	Scared	<10	55	Fence	<10
46	Hit	112	56	Zip	<10
47	Punch	<10	57	Wheel	<10
48	Spider	<10	58	Dinner	198
49	Ghost	<10	59	Big	772
50	Wasp	<10	60	Day	876

Appendix E Parent consent and Child assent forms

University of Southampton

CONSENT FORM – Parent Version (Version 1, 01.03.2016)

Study title:

Researcher name: Camilla Jerrard
ERGO Study ID number: 19741

If you have read the participant information sheet, are happy with the details provided and are willing to participate in the research, please read the statements below and initial/sign the boxes to indicate your agreement with the statements.

I have read and understood the information sheet (version 1) and have had the opportunity to ask questions about the study	☐
I agree to take part in this research project and agree for my data to be used for the purpose of this study	☐
I agree for my son/ daughter to take part in this research project and agree for their data to be used for the purpose of this study	☐
I agree to the tasks being audio-recorded and used as part of the study	☐
I agree to the researcher contacting my child's school to collect Information about their attendance and attainment.	☐
I understand my participation is voluntary and I may withdraw at any time during the data collection period without my legal rights being affected	☐
I agree to include contact details so that I may be contacted by the researcher in order for the study to be completed and to receive information about the research findings at the end of the study.	☐

Name of participant (print name).....

Signature of participant.....

Name of son/ daughter (print name).....

Date.....

Please return to:
Camilla Jerrard (Trainee Educational Psychologist), Building 44a, Educational Psychology, The University of Southampton, SO17 1BJ.

UNIVERSITY OF Southampton

ASSENT FORM – Child Version
(Version 1, 01.03.2016)

TITLE:
ERGO Study ID number: 19741

If the researcher has read you the information about the project and you are happy to take part, please answer the questions below and write your name.

Have you had information about this project?	Yes/ No
Do you understand what this project is about?	Yes/ No
Have you asked any questions that you may have?	Yes/ No
Do you understand it's OK to stop taking part at any time?	Yes/ No
Are you happy for the task to be recorded?	Yes/ No
Are you happy to take part?	Yes/ No

If you want to take part, please write your name below

Your name _____

Date _____

The person who explained this project to you needs to sign too:

Print Name _____

Sign _____ Date _____

THANK YOU FOR YOUR HELP!

Appendix F Child and Parent debriefing scripts

UNIVERSITY OF Southampton

Exploring the relationship between parent and child interpretations.
Debriefing Statement – Child Version
(Version 1, 01.03.2016)

The researcher wanted to find out if you and your parents think about words and new information in the same way.

Did you notice that some of the words had two or more meanings *e.g. flu – the illness or the birds flew*, so a neutral and a threatening meaning.

I was interested to see which way you thought about the words and if this is the same as the way your mum/dad does.

I didn't tell you at the start that the words had more than one meaning because that might have made you only tell me all the neutral words and that wouldn't really be what you first thought of.

The questionnaires I asked you to complete mentioned worry quite a lot. I know that your dad is in the Armed Forces and I thought therefore that might make you worry a bit more.

I hope you're feeling okay after the questionnaires and the word task. If later on you think you might want to talk to someone about this, I would recommend talking to your mum/dad or your teacher or another adult you trust in school. They should be able to listen and help you.

Hopefully all your information when I put it together with other mums and children will help me and other researchers to learn more about the way that parents and their children interpret and think about new information.

I wanted to remind you that all your information will be kept securely and if you did want to leave the project, let me know now, or your mum/dad soon so they can tell me.

You can have a copy of this letter.
Thank you very much for your help.

Camilla Jerrard. (Trainee Educational Psychologist, University of Southampton, cp1g14@soton.ac.uk).

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 Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: 02380 593856, email: fshs-rso@soton.ac.uk

UNIVERSITY OF Southampton

Exploring the relationship between parent and child interpretations.
Debriefing Statement – Parent Version
(Version 1, 01.03.2016)

The researcher aimed to explore the relationship between parent characteristics and the presence of anxiety symptoms in themselves and their children. Additionally, the research aimed to explore the type of interpretations that parents and children from armed forces families made.

Some of the words that were presented in the word association task had two or more meanings. Those of particular interest were those words, which had a neutral or a threatening interpretation *e.g. flu the illness or the birds flew.*

It was hypothesised before the start of the research that parents who were 'more emotionally over involved' with their children, would have higher self reports of anxiety symptoms. Secondly, it was thought that parents with greater emotional over involvement would have children who expressed greater symptoms of anxiety, specifically separation anxiety. Finally, it was predicted that there would be a relationship between greater anxiety symptoms and greater anxious/threat word interpretations.

Your data will help our understanding of the factors that contribute to greater anxious or threatening interpretations of ambiguous information. As anxiety is more likely to be prevalent amongst spouses and children of individuals serving in the armed forces on deployment, it is expected that the results will support the need for a greater awareness of the impact of these situations and contribute to the support spouses may receive during times of deployment.

Once again, I wanted to reassure you that results of this study will not include your name or any other identifying characteristics. If you have changed your mind about your results being used in the analysis, please let the researcher know as soon as possible. After DATE, it will not be possible to remove your information from the collated data and analysis.

You also need to be made aware that the research did use deception during your participation. The researchers did not tell you the true purpose of the word association task as it may have influenced the answers that you gave, thinking more about the ways in which you could have interpreted the word.

You may have a copy of this summary if you wish and also of the research findings once the analysis has been completed.

If you have any further questions please contact me *Camilla Jerrard* at *cp1g14@soton.ac.uk* or my supervisor Julie Hadwin at J.A.Hadwin@soton.ac.uk

Thank you for your participation in this research.

Signature _____ Date _____

Appendix F

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 Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: 02380 593856, email: fshs-rso@soton.ac.uk

If you have felt affected by any of the material used during the research project and wish to speak to someone about this please refer to some of the support services listed below:

- Your local GP surgery
- The Samaritans (08457 90 90 90)
- ARMY HIVES: http://www.army.mod.uk/welfare-support/23438.aspx
- Big White Wall: http://www.bigwhitewall.com/landing-pages/default.aspx?ReturnUrl=%2f

Appendix G Calculations of Skewness and Kurtosis Calculations of Skewness (S) and Kurtosis (K) Z scores, in order to identify normal distribution of measures

Variables	Mean	Standard Deviation	Skewness (S)	Std. Error (S)	Z-Score (S)	Kurtosis (K)	Std. Error (K)	Z-Score (K)	Significant at p<.05 if Z > 1.96
Child Trait Anxiety (SCAS-C, self-report)	32.24	18.55	.842	.434	1.94	1.388	.845	1.64	-
Child Trait Anxiety (SCAS-P, parent-report)	20.65	14.02	1.345	.434	3.10	3.204	.845	3.79	S&K
Child Separation anxiety (Subscale, self report)	5.896	3.903	.691	.434	1.592	.980	.845	1.160	-
Child Separation anxiety (Subscale, parent-report)	4.793	3.384	.482	.434	1.11	.076	.845	.089	-

Appendix G

Variables	Mean	Standard Deviation	Skewness (S)	Std. Error (S)	Z-Score (S)	Kurtosis (K)	Std. Error (K)	Z-Score (K)	Significant at p<.05 if Z > 1.96
Child General anxiety (Subscale, self report)	6.310	2.854	.118	.434	.271	-.257	.845	-.304	-
Child General anxiety (Subscale, parent-report)	4.482	2.983	.707	.434	1.62	-.017	.845	.020	-
Parent Trait Anxiety HADS (total score)	10.10	8.54	1.275	.434	2.94	.518	.845	.613	S
Anxiety Subscale HADS	5.69	4.07	.896	.434	2.06	.201	.845	.24	S
Depression Subscale HADS	4.24	4.59	1.318	.434	3.04	.884	.845	.1.05	S
Separation Anxiety (SADA)	4.17	5.83	2.413	.434	5.56	7.532	.845	8.91	S&K
Parent State Anxiety STAI	30.17	9.69	.952	.434	2.19	-1.19	.845	-1.14	-
Child State Anxiety STAIC	30.21	5.68	.750	.434	1.73	.717	.845	.84	-

Variables	Mean	Standard Deviation	Skewness (S)	Std. Error (S)	Z-Score (S)	Kurtosis (K)	Std. Error (K)	Z-Score (K)	Significant at p<.05 if Z > 1.96
Maternal Hopelessness Revised BHS	3.38	5.83	2.423	.434	5.58	8.026	.845	9.50	S&K
Cognitive Bias									
Separation Homophones - Child	.50	.18	-.290	.434	-.67	1.168	.845	1.38	-
Separation Homophones - Parent	.53	.14	.044	.434	.10	-1.023	.845	1.21	-
General Homophones - Child	.50	.13	.568	.434	1.13	.334	.845	.39	-
General Homophones- Parent	.43	.13	.584	.434	1.34	.032	.845	.04	-
Total Homophones-Child	10.03	.13	-.373	.434	-.86	.334	.845	.38	-
Total Homophones-Parent	9.65	1.80	.45	.434	1.04	.316	.845	.845	-
Parenting									
Positive comments	4.586	2.583	.680	.434	1.567	.199	.845	.235	-

Appendix G

Variables	Mean	Standard Deviation	Skewness (S)	Std. Error (S)	Z-Score (S)	Kurtosis (K)	Std. Error (K)	Z-Score (K)	Significant at p<.05 if Z > 1.96
Negative comment	1.828	1.83	1.139	.434	2.624	1.133	.845	1.340	K

Appendix H Child and Parent Total and Proportion of Threat Words

	Adult	Child	Total
		Separation Threat	
Bye	6	3	9
Here	11	8	19
Leaves	6	2	8
Meet	19	9	28
Missed	17	12	29
Plane	28	23	51
Train	21	23	43
Wait	11	23	34
Where	15	21	36
Write	20	21	41
Total	154	145	299
Proportions	0.52	0.48	
		General Threat	
Bark	26	21	27
Blow	0	0	0
Banned	1	13	14

Appendix H

	Adult	**Child**	**Total**
Break	18	22	30
Flu	21	15	36
Lose	24	27	51
Sink	6	6	12
Box	2	1	3
Weak	9	16	25
Witch	20	26	46
Total	118	147	265
Proportions	0.44	0.56	

Appendix I Correlations Table for Full Results

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Demographics																													
1. Gender	1																												
2. Age	.34	1																											
3. Ethnicity	.11	.15	1																										
4. Military	-.17	-.24	-.23	1																									
5. Times Deployed	-.05	-.16	-.09	.06	1																								
6. Length of Deployment	.01	.10	-.36	-.58**	.06	1																							
Mother Measures																													
7. HADS Anxiety	.11	.13	-.15	-.04	.18	.07	1																						

Appendix I

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
8. HADS Depression	.11	.27	-.22	-.04	-.12	.14	.76**	1																					
9. Total Trait Anxiety	.09	.24	-.19	-.06	.02	.09	.97**	.93**	1																				
10. Hopelessness	-.04	.06	-.21	-.03	-.17	-.02	.53**	.50**	.61**	1																			
11. Separation Anxiety	.00	-.12	-.17	.35	.19	-.16	.53**	.46*	.49**	.016	1																		
Child anxiety measures – self reported																													
12. Total Anxiety	.07	-.23	-.26	.08	-.08	.10	.51**	.54**	.55**	.29	.24	1																	
13. Separation	-.15	-.29	-.30	.24	-.05	.04	.48**	.52**	.52**	.20	.38*	.87**	1																
14. Social Anxiety	.11	-.18	-.12	-.04	-.21	.09	.42*	.47*	.47*	.27	.20	.90**	.71**	1															
15. General Anxiety	.26	-.11	-.40*	.11	-.03	.10	.57**	.60**	.61**	.31	.40*	.90**	.70**	.80**	1														
Child anxiety measures – mother reported																													
16. Total Anxiety	-.07	-.28	-.24	.38*	.18	-.16	.62**	.52**	.58**	.15	.79**	.58**	.65**	.52**	.59**	1													

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
17. Separation Anxiety	-.06	-.32	-.33	.47**	.45*	-.18	.48**	.37*	.42*	.07	.70**	.39*	.54**	.24	.42*	.83**	1												
18. Social Anxiety	.04	-.10	-.06	.11	.23	-.10	.51**	.31	.42*	.17	.58**	.31	.35	.38*	.36	.71**	.46*	1											
19. General Anxiety	.00	-.13	-.27	.20	.02	-.07	.63**	.62**	.66**	.38*	.68**	.51**	.53**	.45*	.53**	.86**	.70**	.59**	1										
State anxiety																													
20. Parent State Anxiety	.07	.09	-.19	.08	.02	-.05	.80**	.82**	.85**	.54**	.49**	.37*	.47*	.29	.48**	.49**	.44*	.38*	.52**	1									
21. Child State Anxiety	.04	.00	-.22	.01	-.09	.29	.21	.34	.27	-.10	.31	.37*	.22	.43*	.44*	.27	.11	-.08	.28	.11	1								
Parenting																													
22. EOI	.31	.26	.03	-.25	.01	.27	-.01	.04	-.00	-.16	-.16	-.21	-.35	-.03	-.06	-.09	-.11	-.01	.01	-.03	.22	1							
23. EE	-.07	-.01	-.15	.18	.12	-.18	-.14	-.12	-.14	-.14	-.14	-.26	-.11	-.38*	-.26	-.12	.03	-.10	-.20	.08	-.24	-.06	1						
Proportion threat interpretations – child																													
24. Separation Bias	.20	-.21	.07	.00	-.10	-.05	.23	.16	.18	.09	.04	.44*	.27	.52**	.30	.29	.18	.20	.26	.09	.17	-.08	.00	1					
25. General Bias	.04	.10	.19	-.24	-.07	-.06	.20	.02	.12	-.01	.23	.03	.11	.08	.09	.12	.03	.06	.08	.09	-.06	-.03	-.33	-.19	1				

Appendix I

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
26. Overall Bias	.20	-.13	.18	-.15	-.14	-.09	.33	.16	.24	.07	.18	.42*	.31	.52**	.34	.34	.18	.22	.29	.14	.12	-.08	-.21	.78**	.46*	1			
Proportion threat interpretations–mother																													
27. Separation Bias	-.04	.41*	-.16	-.12	.16	.20	.34	.10	.26	.21	.050	.05	.01	-.05	-.00	.07	.17	.12	.12	.03	-.05	-.04	-.11	-.10	.01	-.08	1		
28. General Bias	.09	.07	-.17	-.28	.09	.16	.08	.17	.13	-.09	.05	-.13	-.05	-.07	-.01	-.01	.04	.06	.08	.25	-.06	.17	.48**	-.06	-.03	-.07	-.15	1	
29. Overall Bias	-.08	.28	-.22	-.27	.26	.33	.26	.04	.18	.07	.00	-.14	-.11	-.18	-.13	-.01	.11	.10	.04	.06	-.08	.07	.28	-.17	-.08	-.21	.72**	.50**	1

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