

Associations between family factors, childhood adversity, negative life events and child anxiety disorders: An exploratory study of diagnostic specificity

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**Abstract**

*Background:* Chronic childhood adversity, negative life events, and anxiogenic parenting behaviours have all been implicated in the development and maintenance of childhood anxiety disorders.

However, few studies have addressed whether these factors are associated with particular types of childhood anxiety disorders.

*Aims:* The aims of this study were to investigate whether specific associations were obtained between specific types of childhood anxiety disorder – namely, Social Anxiety Disorder (SOC), Separation Anxiety Disorder (SEP) and Generalized Anxiety Disorder (GAD) – and the nature of particular forms of psycho-social risk – namely, chronic childhood adversity, negative life events, and particular forms of parenting behaviours.

*Methods:* Two-hundred and ten children (aged 7-12 years) who met diagnostic criteria for SOC, SEP or GAD and their primary caregivers completed questionnaire measures on chronic childhood adversity and negative life events. In addition, dyads participated in two laboratory-based assessments of parent-child interactions.

*Results:* We found little evidence for disorder specificity for chronic childhood adversity and negative life events, except in the case of separation anxiety disorder. Anxious children with separation anxiety were more likely than children with other forms of anxiety disorders to live with a single parent, experience more frequent parent arguments, and more negative life events. No group differences in observed parenting behaviours were found.

*Conclusions:* Childhood SEP may be particularly associated with family challenges which may need specific consideration to optimize prevention and/or treatment. Beyond this, there is limited evidence of specific associations between family- and environmental factors and specific types of childhood anxiety disorders.

*Keywords:* Childhood adversity, negative life events, parenting behaviours, childhood anxiety

### **Introduction**

Anxiety disorders are the most common psychiatric problems in childhood (Essau, Lewinsohn, Lim, Ho, & Rohde, 2018) with as many as 6.5% of pre-adolescent children meeting diagnostic criteria for at least one anxiety disorder at any one time (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). This high prevalence is of serious concern given that childhood anxiety disorders have been shown to have an adverse impact on children's family life, social functioning, and academic development (Essau, Conradt, & Petermann, 2000; Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001). These disorders often co-occur with depression and behavioural difficulties (Lewinsohn, Zinbarg, Seeley, Lewinsohn, & Sack, 1997) or precede the presence of other mental health problems later in life, i.e. depression, suicidal behaviours, and substance abuse (Bittner et al., 2007; Costello, Egger, & Angold, 2005). Psychological treatments for childhood anxiety disorders have been developed and are broadly effective (James, James, Cowdrey, Soler, & Choke, 2013; Reynolds, Wilson, Austin, & Hooper, 2012), however, although recovery rates vary for specific anxiety disorders (Compton et al., 2014; Knight, McLellan, Jones, & Hudson, 2014; Wergeland et al., 2016), a significant minority of children with anxiety disorders do not recover following treatment (James et al., 2013). In order to better understand these variable outcomes and ultimately improve treatment outcomes, a better understanding of factors that contribute to the development and maintenance of specific childhood anxiety disorders is required.

Theoretical models of anxiety have highlighted that experiencing stressful events is a potential contributing factor to the development and maintenance of anxiety in children (Chorpita & Barlow, 1998; Hudson & Rapee, 2004; Rapee, 2001). For example, Chorpita and Barlow (1998) propose that the experience of stressful events early in life, in particular

uncontrollable events (e.g. chronic abuse, neglect, impoverished environments) increases a child's vulnerability to interpret future situations as uncontrollable. Consistent with this hypothesis, there is some evidence to suggest that, compared to non-anxious children, children with anxiety disorders experience both more chronic adversities (i.e. enduring stressors, such as neighbourhood problems, and parental relationship dysfunction) and negative life events (i.e., discrete and time limited events, such as bereavement) (Allen, Rapee, & Sandberg, 2008; Boer et al., 2002; Gothelf, Aharonovsky, Horesh, Carty, & Apter, 2004). In addition, social factors such as living in a dangerous neighbourhood have been implicated as a risk factor for the development of childhood anxiety disorders (Shanahan, Copeland, Costello, & Angold, 2008). However, only one study has addressed whether there is specificity in the relationship between types of stressful events in childhood and particular subtypes of anxiety disorders. Tiet et al. (2001) asked children and adolescents (9-17 years) whether they had experienced 26 negative life-events and found a degree of specificity. That is, 'starting a new school' and a 'parent getting a new job' were significantly associated with separation anxiety disorder (SEP), while 'a parent going to prison' and 'getting a new step parent' were associated with generalized anxiety disorder (GAD). There was no specificity in relation to events and either social anxiety disorder (SOC) or agoraphobia. Notably, the study was limited to investigating associations between discrete negative life events and particular anxiety disorders and did not examine chronic childhood adversities. This is a notable limitation given that it has been suggested that specific negative life events and chronic adversity may have different associations with different disorders (Phillips, Hammen, Brennan, Najman, & Bor, 2005). The principal aim of the current study was to examine the relationship between both chronic adversity and negative life events and sub-

types of childhood anxiety disorder, in order to identify whether these factors may have a potential role in the development or maintenance of childhood anxiety disorders.

Another factor that has been implicated in the development and maintenance of childhood anxiety disorders is negative parenting behaviours. This includes: (i) over-control (e.g. excessive regulation of children's activities and routines, overprotection, instruction how to feel and think, and discouragement of independence) (Barber, 1996; Steinberg, Elmen, & Mounts, 1989); (ii) high expressed anxiety; and, (iii) negativity (e.g. parental criticism, rejection, and lack of warmth) (Hudson & Rapee, 2001; McLeod, Weisz, & Wood, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Such negative parenting behaviours have been found to be associated with anxiety disorders in children and adolescents (McLeod et al., 2007; van der Bruggen, Stams, & Bögels, 2008). Notably, however, significant associations have not always been found when samples of pre-adolescent children have been studied (Waite & Creswell, 2015). One explanation for inconsistency in findings across studies may lie in the heterogeneity of the sample studied. Samples commonly include children with a wide range of anxiety disorders, and it is possible the anxiogenic parenting behaviours apply to different degrees to different forms of child anxiety disorder. Indeed, recent studies suggest that mothers of children with SOC show greater parental over-protection (but not elevated levels of negativity) than mothers of non-anxious children during parent-child interaction tasks (Asbrand, Hudson, Schmitz, & Tuschen-Caffier, 2017). Also, higher levels of maternal over-control towards 7 year old children predicts higher rates of SOC in these children when in adolescence (Lewis-Morrarty et al., 2012). Furthermore, in a small sample of anxious children, Wood (2006) found there to be a significant association between level of parental intrusiveness and level of separation anxiety symptoms. To date, no studies have compared parenting behaviours across different childhood anxiety

disorders in a sample of sufficient size to detect whether particular parenting behaviours are associated with specific anxiety disorders. As such, the second aim of this study is to examine whether the different forms of parenting behaviour that have been implicated in the development of childhood anxiety disorders are specifically associated with different types of childhood anxiety disorder.

In summary, the current study constitutes an examination, using a large clinic sample, of whether children with SOC, SEP, or GAD differ in terms of: (i) number of chronic childhood adversities; (ii) number of negative life events; and (iii) level of negative parenting behaviours, including (a) over-control, (b) expressed anxiety and, (c) negativity.

There is high comorbidity between different types of childhood anxiety disorders (Kendall et al., 2010), and selecting groups to study on the basis of having only one disorder would therefore result in small and unrepresentative groups. Therefore, for the current study, from within a clinic sample of children with anxiety disorders, comparisons were made between:

- i. Children who met criteria for SOC and those without SOC (SOC vs. NO SOC)
- ii. Children who met criteria for SEP and those without SEP (SEP vs. NO SEP)
- iii. Children who met criteria for GAD and those without GAD (GAD vs. NO GAD)

## **Methods**

### *Participants*

In total, 210 children, aged 7-12 years and their primary caregiving parent (all mothers) were recruited for the study. Potential participants were invited for an initial assessment following a referral by local health and educational services to a specialist UK anxiety clinic and research centre. Children were included if they presented with SOC, SEP, or GAD as their primary anxiety diagnosis, or if they presented with other anxiety disorders

as their primary problem (i.e. specific phobia, agoraphobia, panic disorder, or anxiety disorder not otherwise specified), as long as SOC, SEP, or GAD featured within their diagnostic profile.

### *Procedure*

All procedures received University and National Health Service ethical approval. Participating parents and children completed questionnaire measures and a laboratory-based assessment which included two commonly used parent-child interaction tasks to assess parenting behaviours. That is, a social anxiety-provoking task, 'speech task' , (following procedures used by Murray et al. (2012) and a non-social anxiety-provoking task, 'tangram puzzle' task (following the procedures of Hudson and Rapee (2001).

### ***Measures***

#### *Diagnosis*

Children were assigned diagnoses on the basis of the Anxiety Disorders Interviews Schedule for DSM-IV for Children – Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996) which has well established psychometric properties (Silverman & Eisen, 1992; Silverman & Rabian, 1995; Silverman et al., 2001). Clinical Severity Ratings (CSR; 0 = no diagnosis to 8 = severe diagnosis) were assigned according to the higher score derived from parent and child report. A CSR of 4 or above was required to allocate a diagnosis. Assessors (psychology undergraduates) were trained on the standard administration and scoring of the ADIS-C/P through verbal instruction, listening to assessment audio-recordings and participating in diagnostic consensus discussion. Inter-rater reliability statistics for CSRs ( $\alpha$ ) and diagnoses ( $\kappa$ ) for the team were excellent - all 0.97 or above.

*Symptom measures*

Parent and child reported anxiety symptoms were assessed using the 38-item Spence Children's Anxiety Scale (SCAS-P/C; Spence, 1998) in which items are rated on a 5-point Likert scale (0 = never, to 4 = always). The total score and subscale scores relating to SOC, SEP and GAD were used here. The SCAS-P/C has been shown to have satisfactory internal consistency, sub-scale validity and test-retest reliability (Nauta et al., 2004; Spence, 1998). Internal consistency in this study was at least adequate for all scales (Parent/Child Cronbach's total  $\alpha = .92/.92$ ; SOC  $\alpha = .81/.76$ ; SEP  $\alpha = .76/.72$ ; GAD  $\alpha = .70/.74$ ). Symptoms of low mood were assessed (to describe participant characteristics and check for potential differences between groups) with parent and child report on the Short Moods and Feelings Questionnaire (SMFQ-P/C; Angold et al., 1995) which each have thirteen items rated on a 3-point scale (0 = not true in the past two weeks, to 2 = always true in the past two weeks). The SMFQ has established good psychometric properties with children from 7 years of age (Sharp, Goodyer, & Croudace, 2006). Internal consistency in this study was high (parent/child Cronbach's  $\alpha = .93/.90$ ). Higher score on both symptom measures indicates greater psychopathology.

*Chronic childhood adversities*

We administered two commonly used measures of social adversity (e.g. Benjet, Borges, & Elena Medina-Mora, 2010; Dunn et al., 2018; McLaughlin et al., 2011; Tracy, Zimmerman, Galea, McCauley, & Stoep, 2008): (i) mothers' perceptions of neighbourhood adversity (i.e. crime and disorder) and (ii) family environment (i.e. socio-economic status (SES), marital status and family conflict).

*Neighbourhood adversity:* Mother's perceptions of neighbourhood adversity were assessed using the modified Community Characteristics Questionnaire – Adult version (CCQ-A; McGuire, 1997; Simchafagan & Schwartz, 1986). It consists of two subscales; seven items scored using a 3-point Likert scale (0 = good-excellent/less dangerous/never, to 2 = very poor-poor/more dangerous/often) relating to perceptions of problems in neighbourhoods (e.g. unemployment, litter); these seven items are summed to produce a 'total neighbourhood disorder' score. Twelve items are scored on a 2-point Likert scale (0 = no/false, to 1 = yes/true) relating to negative perceptions regarding danger and crime in the neighbourhood (e.g. physical assaults); these twelve items are summed to produce a 'total neighbourhood crime' score. Both sub-scales have reasonable psychometric properties (McGuire, 1997). Internal consistency in the present study was good (Cronbach's  $\alpha = .84$  'total crime',  $\alpha = .74$  'total disorder').

*Family environment:* A demographic questionnaire recorded employment status and occupation types for mothers and fathers (where applicable). Employment and occupations were then used to derive a family SES code using the Office for National Statistics Socio-Economic Classification Guidelines (HMSO, 2005). SES classifications ranged from 1 (including managers and senior official occupations) to 9 (including elementary occupations such as waitressing and cleaning). Where both parents within a family worked, the higher SES code was used. The frequency of the SES scores was non-normally distributed, so these were dichotomized as this was the best fit to the distribution; families were divided into either a 'High' SES group (SES codes 1 to 3) or an 'Other' SES group (SES codes 4 to 9 and families with unemployed parents). The demographic questionnaire also recorded mothers' marital status; classified into: 'single parent' (i.e. single, divorced or widowed) or 'in a relationship' (i.e. married, re-married or living with partner). Finally, the modified Family

Conflict Questionnaire-Parent/Child version (FCQ-P/C; Hetherington et al., 1992) measured levels of parental arguments. Both mothers and children (that lived with both parents) completed the questionnaire. The questionnaire has six items, each rated using a 5-point Likert scale (0 = never, to 4 = always). Only responses on a single five-point item (i.e. 'How often do you and your partner argue?' (parent report) and 'How often do your parents argue?' (child report)) were used to assess the frequency of parental conflict in this study, as the remaining questions were irrelevant to the study hypotheses.

### *Negative life events*

Mothers and children completed a modified version of the Life Events Checklist-Parent/Child report (LEC-P/C; Brand & Johnson, 1982; Coddington, 1972; Tiet et al., 2001) to identify which of a series of significant life events had occurred over the preceding 12 months of a child's life, including: moving home, changing school, gaining a new sibling/step-parent, a sibling leaving home, serious illness to a family member/friend/self, death of family member/friend, disaster event (e.g. fire, flood, burglary), change in household income, parental separation/divorce, parental loss of old/gain of new job, parent/self in trouble with police, parent in prison (mothers reported on 21 items and children reported on 24 items). Previous studies using the LEC-P/C have demonstrated satisfactory reliability (Brand & Johnson, 1982; Gray, Litz, Hsu, & Lombardo, 2004).

### *Observed maternal behaviours*

Maternal behaviours in the two interaction tasks were rated using observational coding schemes developed by Murray et al. (2012) and adapted for use with this age range [reference removed for blind review] (for coding schemes, see [reference removed for blind

review]). Videotapes of the interaction were observed and coded for each minute of the task on a 5-point scale (1 = no behaviour observed, 5 = strong behaviour observed) and a mean score was calculated for specific parental behaviours associated with over-control (overprotection, promotion of avoidance, intrusiveness), positivity/negativity (warmth, engagement, encouragement) and expressed anxiety (e.g. fearful expression, rigid posture, rapid, nervous, or inhibited speech).

Levels of child anxiety (e.g. facial expressions, body movements) were also observed and coded during the presentation and tangram task in order to determine levels of observed child anxiety during the tasks; coded on a 5-point scale (1 = no anxious behaviour, 5 = strong anxiety) for each minute of the task, and a mean score was calculated (see further [reference removed for blind review]).

Coders were all graduate psychologists, blind to child anxiety diagnosis. After thorough training (i.e. reading the schemes, observing expert coding, and receiving feedback on coding) each coder independently coded 25 videotapes in order to check inter-rater reliability against an 'expert coder' (postgraduate psychologist with extensive experience in using and training in the coding schemes). All coders reached a satisfactory level of reliability across all codes (range Cronbach's  $\alpha = 0.62 - 1.00$ ; mean = 0.84).

### *Data Analyses*

Prior to analyses, parenting behaviour variables that were infrequently observed were removed (i.e. <10%). Specifically, 'overprotection' was removed as it was only observed in 3.8% of mothers during the tangram task and 6.4% during the presentation task. 'Promotion of avoidance' was also removed from further analysis of the presentation task, as it was only observed in 3.3% of mothers. Due to high levels of skewness, expressed

anxiety and promotion of avoidance during the tangram task were converted to a categorical variable to indicate presence/absence of behaviour as this best reflected the distribution of scores. For other variables analyses were bootstrapped if continuous variables did not adhere to a normal distribution. Correlations between codes that were theoretically similar were examined to facilitate a reduction of the number of variables. Warmth, encouragement and engagement all correlated highly for both tasks ( $r = .41 - .74$ ,  $df = 242 - 246$ ,  $p < 0.01$  for all) so were combined by calculating an average score across the three codes to produce a 'positive behaviours' code. Similarly, as the neighbourhood crime and neighbourhood disorder variables were highly correlated ( $r = .66$ ,  $df = 179$ ,  $p = .01$ ) they were combined to produce a 'neighbourhood adversity' variable. This was done by transposing the total scores from the neighbourhood disorder subscale to make them comparable to the crime subscale.

Prior to hypothesis testing, differences in demographic characteristics (age, gender and ethnicity) and levels of observed child anxiety during the tasks were examined in order to identify potential confounds. As a consequence of high levels of comorbidity between child anxiety disorders, research questions were addressed within three separate sets of binary logistic regression in which the dependent variable was presence/absence of each of the three anxiety disorder diagnoses (i.e., SOC, SEP, GAD) in turn. Separate models were run for neighbourhood problems, parental arguments and maternal behaviour. Given the novelty of the hypotheses, initially a forced entry regression analyses were run and reported. If significant differences were found, analyses were repeated with potential confounds entered into the logical regression model first, followed by the main effect predictor variables, using a hierarchical method. In these cases, the results from the hierarchical logistic regression are reported (Field, 2013). As the anxiety disorder subgroups

may not have always been the child's primary diagnosis, a further set of sensitivity analyses were conducted in which each of the SOC/SEP/GAD groups comprised only those children who had SOC/SEP/GAD as their primary disorder. Some measures had missing data, and this is reflected in the differing degrees of freedom. If less than or equal to 25% of item values were missing for a particular measure or sub-scale, these values were replaced with the mean item score for the sub-scale/measure (calculated from the remaining items on that measure for that individual). If more than 25% of responses on a measure were missing, these cases were excluded from the relevant analysis. Missing data was generally low (i.e. less than 5% of respondents) with the exception of family Socio-Economic Status (11.4%) mother reported child low mood symptoms (13.3%) and mother reported life events (36.2%) and neighborhood adversity (13.3%).

## **Results**

### *Preliminary analyses – Demographics, Symptoms and Observations of Psychopathology*

As shown in Table 1, the anxiety disorder sub-groups did not differ significantly in terms of child age, gender, or ethnicity. As expected, both children and mothers reported significantly higher levels of social anxiety symptoms for children in the SOC compared to the NO SOC group, higher separation anxiety symptoms in the SEP group compared to the NO SEP group, and higher generalized anxiety symptoms in the GAD compared to the no GAD group. However, notably, child and maternal reports on all SCAS subscales were significantly higher in the SOC group compared to the NO SOC group (with the exception of child reported GAD symptoms). Maternal reported generalized anxiety symptoms were higher for the SEP than the NO SEP group, and both children and mothers in the GAD group reported significantly higher social anxiety symptoms than reported by the NO GAD group.

With regards to symptoms of depression, both children and mothers reported significantly lower child mood in the SOC and GAD groups (but not SEP) compared to the NO SOC/GAD groups. There were no significant group differences on levels of observed child anxiety during the presentation and tangram tasks. On the basis of these preliminary analyses, symptoms of additional disorders (i.e. symptoms of gad, social anxiety and depression) were controlled for in subsequent analyses where these differed between groups.

### TABLE 1 TO APPEAR HERE

#### Main Analyses

##### *Chronic childhood adversities*

As shown in Tables 2, 3 and 4, there were no significant differences between anxiety disorder subgroups on maternal reported neighbourhood adversity. For family environment factors, however, while there were no significant group differences in family SES, children with SEP were more likely to have a single parent than children in the NO SEP group.

Differences in single parent status remained significant in the sensitivity analysis, where the SEP group comprised only children who had SEP as their primary disorder ( $\chi^2(1) = 5.46, p = .02$ ). In addition, mothers (but not children) in the SEP group reported significantly more frequent parental arguments than mothers of children without SEP ( $R^2 = .04, OR = 1.55$ ), accounting for 4.3% of the variance in child SEP status. This finding remained significant after controlling for mother report of child anxiety symptoms of generalized anxiety ( $R^2 = .08, OR = 1.57$ ), but was no longer significant when only examining mothers of children with a primary disorder of SEP compared to children with NO SEP ( $R^2 = .03, OR = .7$ ).

Finally, children (but not parents) in the GAD group reported significantly higher levels of parental arguments than children in the NO GAD group ( $R^2 = .04, OR = 1.46$ ),

accounting for 4.2% of the variance in the presence or absence of child GAD. However, findings were no longer significant, when child comorbid social anxiety and low mood symptoms were controlled for, or when children with GAD as their primary problem were compared to NO GAD children ( $R^2 = .15$ , OR = 1.33 and  $R^2 = .05$ , OR = .7, respectively) (see Tables S2-S7 in the online supplementary material for further statistical information for sensitivity analysis).

#### *Negative life events*

Mothers of children with SEP reported significantly higher frequency of negative life events than mothers of children without SEP ( $R^2 = .06$ , OR = 1.54), accounting for 6.3% of the variance in the presence or absence of child SEP (see Tables 2, 3 and 4). This association was still significant after controlling for child comorbid generalized anxiety symptoms and marital status ( $R^2 = .10$ , OR = 1.47), but was no longer significant when the SEP group consisted of children with SEP as their primary problem ( $R^2 = .04$ , OR = .718). No other group differences emerged for levels of negative life events.

Exploratory analysis for specific life events indicated limited group differences. Children and mothers in the SOC group were significantly more likely to report that the mother had got a new job than children/mothers in the NO SOC group ( $\chi^2(1) = 5.896$ ,  $p = .02$  and  $\chi^2(1) = 4.601$ ,  $p = .03$ , respectively); and, mothers of children (but not children) in the GAD group were significantly more likely than mothers of children in the NO GAD group to report that their child had experienced a 'family bereavement' ( $\chi^2(1) = 6.592$ ,  $p = .01$ ). No other significant group differences emerged ( $p > .05$ ) see online supplementary material (Table S1) for frequency of individual events.

#### *Observed maternal parenting behaviours*

As shown in Tables 2, 3 and 4, the groups did not differ on any observed maternal parenting behaviours during the presentation or tangram task.

**TABLE 2, 3 AND 4 TO APPEAR HERE**

**Discussion**

The aims of this study were to investigate whether specific associations were obtained between specific types of childhood anxiety disorder – namely, SOC, SEP and GAD – and the nature of particular forms of psycho-social risk – namely, chronic childhood adversity, negative life events, and particular forms of anxiogenic parenting behaviours. We found little evidence for disorder specific relationship, except in the case of SEP. The current findings suggest that anxious children with SEP may be more likely than children with other forms of anxiety disorder to live with a single parent, or, where they do not, to experience more frequent parental arguments. In addition, mothers of children with SEP reported that their child had experienced more negative life events over the preceding 12 months compared to mothers of children without SEP. No other associations with specific anxiety disorders were robust when comorbid symptoms of other anxiety disorders were controlled for. Notably none of the significant associations with specific disorders remained significant when we limited our analyses to children who had a primary diagnosis of a particular disorder. This may reflect the reduced sample size as effects sizes were not notably reduced for the primary disorder analyses when compared with the disorder occurring in the context of other anxiety disorders.

There are a number of potential explanations for the specificity findings in relation to SEP that warrant further research attention. Perhaps the experience of negative life events, and in particular challenging family environments, causes children with separation anxiety

to view the world as threatening and lead them to seek proximity to their caregiver in an attempt to stay safe (Scheeringa, Zeanah, Myers, & Putnam, 2003). For example, children who live with one parent may feel more vulnerable due to being reliant on just one parent and/or from experience of prior separation from another parent. It is also possible that the absence of a supportive relationship with a partner may make it difficult for parents to manage helping their highly anxious child to separate and develop independence. Further, having a child with SEP may create a risk for strained parental relationships.

Exploratory analyses for specific life events indicated that childhood SOC was specifically associated with the mother getting a new job, and childhood GAD was specifically associated with family bereavement. These findings were not consistent with the one previous study that examined associations between specific negative life events and childhood anxiety disorders in which no significant associations were found between specific negative life events and SOC (Tiet et al., 2001). Indeed, in that study the mother getting a new job (and the child starting a new school) were associated with SEP, while getting a new step-parent and a parent being incarcerated were significantly associated with GAD (neither of which were found in the present study). This discrepancy might be accounted for by differences in study setting (community and clinical) – with those families with more adverse circumstances potentially being less likely to reach traditional mental health services (Saxena, Thornicroft, Knapp, & Whiteford, 2007). The larger sample size included in Tiet et al. (2001) study also allowed for greater variability in the occurrence of specific social stressors. Indeed, the mean number of life events reported across all groups was low in the current study.

With regards to negative parenting behaviours, this study is, to our knowledge, the first to directly compare behaviours of parents of children with different anxiety disorders.

Our findings did not support the hypothesis that particular forms of parental response are associated with particular types of child anxiety disorders (e.g. Asbrand et al., 2017; Wood, 2006). It is important to note, however, that patterns of findings have differed in the literature when different observational tasks have been used (see further Murray, Creswell, & Cooper, 2009). While we provided a challenging puzzle task, Wood (2006) administered a difficult 'belt-buckling' task and an assessment of daily-living tasks that the child engaged in independently (e.g. bathing, dressing). As such, further research is warranted to elucidate this important question.

Strengths of this study include a large clinically representative sample which allowed for the consideration of three specific types of childhood anxiety disorder diagnosed on the basis of systematic and reliable assessments. In addition, this study adds to a very limited literature examining the role of chronic adversity, negative life events, and various family factors in different childhood anxiety disorders. However, our results should be considered preliminary and interpreted in the light of various methodological limitations. Our assessments of chronic childhood adversity and negative life events relied on parent (and in some cases child) report, and, in the case of parental conflict we were limited solely to reports of frequency of parental arguments. While widely used, potential problems with the validity of these measures are highlighted by marked differences between parent and child report (even for events that might be considered to be highly memorable - e.g. family bereavement). It is possible that an interview based approach (as opposed to relying on questionnaires) may have provided more reliable information (Allen, Rapee, & Sandberg, 2012). Furthermore, the questionnaire data for negative life events (and the exploratory analysis for specific life events) needs to be interpreted with caution given the large amount of missing data on this measure. Due to the novel nature of the research study and

restriction to planned comparisons, we did not formally correct for multiple testing, however the relatively large number of tests should be taken in to account when interpreting the strength of the significant findings.

With regards to parenting behaviours, although we used widely used paradigms for observing and coding parental behaviours, these tasks rarely elicited parental overprotection and promotion of avoidance. The laboratory setting can provide only mildly stressful scenarios which are not likely to elicit extreme parental behaviours (e.g. Hudson, Comer, & Kendall, 2008), and it is possible that more naturalistic observations of real-life stressors may identify different patterns of parental responding.

Critically, our sample did not include fathers. This is an important omission as there is evidence to suggest that fathers' and mothers' behaviours may be differentially associated with child anxiety (Breinholst, Tolstrup, & Esbjørn, 2019; van der Bruggen et al., 2008; Verhoeven, Bögels, & van der Bruggen, 2012). Our study was also restricted in the variability of life events experienced, as participating families were largely homogeneous in terms of ethnicity and socio-economic backgrounds. Indeed, they were most unlikely to live in extreme adverse conditions, such as in poor housing or within threatening and dangerous neighbourhoods. As such, these factors limit the generalizability of the current findings, particularly given recent findings that financial means have a moderating effect on the association between parenting behaviours and child anxiety (Cooper-Vince, Pincus, & Comer, 2014). The current study also focused on children in mid to late childhood (7-12 years) and it is plausible that particular family and environmental factors may be of greater relevance at different developmental stages. For example, Waite and Creswell (2015) reported that the association between parental intrusiveness and low warmth and offspring anxiety status was significantly greater among adolescents than children. Furthermore,

where we have found disorder-specific associations, the direction of these associations cannot be determined by this cross-sectional study. For example, while the uncertainty caused by a parent starting a new job might precipitate the onset of SEP in a child, equally, having a child with SEP may lead a parent to change jobs in order for them to manage their child's anxiety differently. Prospective longitudinal studies are clearly required. Finally, and critically, the high level of comorbidity among children with anxiety disorders may have masked potential disorder-specific effects. While we controlled for overlapping symptoms and conducted sensitivity analyses on the basis of 'primary disorders', it is still possible that differences may be clearer between 'pure' diagnostic groups. In the current study only 26 children met criteria for a single anxiety disorder; not only would these comparisons be limited by small sample sizes but they would also not represent a typical clinical population. The lack of a healthy control group also means that while we can draw conclusions about how different anxiety disorders may differ, we cannot draw conclusions about how these differences relate to the 'baseline'.

In summary, the current findings suggest that, compared to children with other anxiety disorders, children with SEP are more likely to experience family challenges in the form of more single-parent families, more frequent parental arguments, and more parent reported negative life events. These findings suggest that family factors may need specific consideration to optimize prevention and treatment of childhood SEP. However, prospective longitudinal studies are required to establish the direction of the association between family factors and SEP in children, in order to ultimately inform improved prevention and treatment. Beyond this we found no clear and consistent evidence of specific associations between family and environmental factors and specific types of childhood anxiety disorders.

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### **Conflict of Interest**

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PARENTING FACTORS & CHILDHOOD ADVERSITY

Table 1: Demographics, Symptoms and Observations of Psychopathology

	SOC (N = 147)	No SOC (N = 63)	Test statistic	SEP (N = 123)	No SEP (N = 87)	Test statistic	GAD (N = 140)	No GAD (N = 70)	Test statistic
Age mean (SD)	9.50 (1.55)	9.63 (1.50)	t(208)=-.57	9.42 (1.52)	9.71 (1.55)	t(208)=1.35	9.49 (1.54)	9.64 (1.52)	t(208)=-.67
Gender n (% male)	65 (44.20)	33 (52.40)	$\chi^2(1)=1.18$	54 (43.90)	44 (50.60)	$\chi^2(1)=.91$	65 (46.40)	33 (47.10)	$\chi^2(1)=.01$
Ethnicity n (% white)	135 (93.80)	54 (87.10)	$\chi^2(1)=2.53$	110 (90.90)	79 (92.90)	$\chi^2(1)=.27$	129 (94.20)	60 (87.00)	$\chi^2(1)=3.15$
SCAS-C Total^	41.56 (18.20)	34.94 (17.03)	t(204)=-2.45*	41.57 (18.59)	36.58 (16.97)	t(204)=-1.96^	42.12 (18.31)	34.41 (16.55)	t(204)=-2.94**
SCAS-C-Soc.	7.29 (3.96)	5.11 (3.62)	t(204)=-3.68**	6.52 (4.07)	6.73 (3.86)	t(204)=.371	7.20 (3.97)	5.41 (3.74)	t(204)=-3.13**
SCAS-C-Sep.	7.90 (4.02)	6.52 (4.10)	t(206)=-2.25*	8.59 (3.91)	5.87 (3.81)	t(206)=-4.99**	7.71 (3.91)	7.01 (4.41)	t(206)=-1.16
SCAS-C-Gad	8.13 (3.74)	7.56 (3.44)	t(204)=-1.05	8.22 (3.66)	7.57 (3.63)	t(204)=-1.26	8.31 (3.82)	7.26 (3.22)	t(204)=-1.95*
SCAS-M Total	43.56 (15.27)	35.65 (14.77)	t(207)=-3.46**	44.20 (15.42)	37.01 (14.73)	t(207)=-3.39**	43.80 (15.48)	35.96 (14.31)	t(207)=-3.53**
SCAS-M Soc.	10.13 (3.79)	6.89 (3.63)	t(205)=-5.68**	9.05 (4.11)	9.34 (3.91)	t(205)=.520	9.86 (3.93)	7.80 (3.87)	t(205)=-3.58**
SCAS-M-Sep	9.53 (3.99)	8.14 (3.75)	t(207)=-2.35*	10.77 (3.40)	6.79 (3.52)	t(207)=-8.22**	9.28 (3.77)	8.79 (4.33)	t(207)=-.85
SCAS-M-Gad	8.48 (3.30)	7.40 (3.19)	t(207)=-2.18*	8.63 (3.20)	7.51 (3.34)	t(207)=-2.46*	8.58 (3.33)	7.32 (3.08)	t(207)=-2.64**
SMFQ-C Low Mood^	8.50 (6.49)	5.39 (4.74)	t(205)=-3.85**	7.27 (6.10)	8.00 (6.30)	t(205)=.836	8.47 (6.37)	5.71 (5.34)	t(205)=-3.09**
SMFQ-M Low Mood	9.89 (6.51)	6.18 (6.64)	t(180)=-3.51**	9.34 (7.09)	7.99 (6.21)	t(180)=-1.34	10.09 (6.82)	6.02 (5.73)	t(180)=-3.96**
Child Anx. – Present.	3.61 (.70)	3.50 (.46)	t(197)=-1.13	3.60 (.61)	3.53 (.68)	t(206)=.09	3.55 (.67)	3.63 (.56)	t(206)=.78
Child Anx. - Tangram	1.49 (.51)	1.40 (.66)	t(206)=-.95	1.46 (.54)	1.47 (.59)	t(197)=-.73	1.44 (.48)	1.50 (.69)	t(197)=-.82
ADIS-C/P % SOC	/	/	/	87 (70.7)	60 (69.0)	$\chi^2(1)=.08$	108 (77.1)	39 (55.7)	$\chi^2(1)=10.20**$
ADIS-C/P % SEP	87 (59.2)	36 (57.1)	$\chi^2(1)=.08$	/	/	/	84 (60.0)	39 (55.7)	$\chi^2(1)=0.35$
ADIS-C/P % GAD	108 (73.5)	32 (50.8)	$\chi^2(1)=10.20**$	84 (68.3)	56 (64.4)	$\chi^2(1)=.35$	/	/	/
ADIS-C/P % phobia	64 (43.5)	31 (49.2)	$\chi^2(1)=5.72$	53 (43.1)	42 (48.3)	$\chi^2(1)=.55$	62 (44.3)	33 (47.1)	$\chi^2(1)=.15$
ADIS-C/P % Other anx.	139 (94.6)	32 (50.8)	$\chi^2(1)=55.85**$	112 (91.1)	59 (67.8)	$\chi^2(1)=18.20**$	133 (95.0)	38 (54.3)	$\chi^2(1)=51.15**$
ADIS-C/P % mood dis	27 (18.4)	2 (3.2)	$\chi^2(1)=8.55**$	20 (16.3)	9 (10.3)	$\chi^2(1)=1.49$	25 (17.9)	4 (5.7)	$\chi^2(1)=5.78*$
ADIS-C/P % ODD/CD/ ADHD	57 (38.8)	9 (14.3)	$\chi^2(1)=12.27**$	41 (33.3)	25 (28.7)	$\chi^2(1)=.50$	51 (21.4)	15 (21.4)	$\chi^2(1)=4.87*$

Note: Ethnicity, family socio-economic status and marital status data was missing for 4 (1.9%) 21 (10.0%), and 2 (1.0%) participants respectively. SCAS-C = Spence Children’s Anxiety Scale – Child Report. SCAS-M = Spence Children’s Anxiety Scale – Mother Report. SMFQ-C = Short Moods and Feelings Questionnaire – Child Report. SMFQ-M = Short Moods and Feelings Questionnaire; +e – Mother Report. SOC= Social Anxiety Disorder. SEP = Separation Anxiety Disorder. GAD= Generalized Anxiety Disorder. Mood disorders = depression / dysthymia. ODD = Oppositional Defiant Disorder. CD= Conduct Disorder. ADHD = Attention deficit and Hyperactivity Disorder; \*\* p < .01. \* p < .05; ^ Pearson’s correlations between child and parent report: SCAS, r=.37, n=205 p<.01; ^ SMFQ = r=.30, p<.01.

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Table 2: Associations between Chronic Childhood Adversity, Life Events, Parental Behaviours and Child SOC

	SOC Group	No SOC Group				
<b>Neighbourhood Problems</b>	<i>Mean (SD)</i>	<i>Mean (SD)</i>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Neighbourhood Crime/Disorder score <sup>^</sup>	.99 (1.47)	.83 (1.14)	0.09 (.127)	0.55	1.10	0.86 – 1.41
R <sup>2</sup> = .01 (Nagelkerke). Model $\chi^2(1) = .59, p = .44$						
<b>Family SES</b>	<b>n (%)</b>	<b>n (%)</b>	<b>Test statistic</b>			
'High' SES group	75 (57.70) <sup>a</sup>	38 (64.40)	$\chi^2(1) = .76$			
<b>Marital status</b>	<b>n (%)</b>	<b>n (%)</b>	<b>Test statistic</b>			
Single parent	33 (22.80)	8 (12.70)	$\chi^2(1) = 2.81$			
<b>Parental arguments<sup>^^</sup></b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Child report	1.31 (1.01)	1.20 (1.03)	0.11 (0.17)	0.47	1.12	0.81 – 1.55
Maternal report	1.56 (0.92)	1.41 (0.69)	0.22 (0.20)	1.19	1.25	0.84 – 1.69
R <sup>2</sup> = .01 (Nagelkerke). Model $\chi^2(1) = .47, p = .49$ (child report) / R <sup>2</sup> = .01 (Nagelkerke). Model $\chi^2(1) = 1.2, p = .27$ (maternal report)						
<b>Negative Life Events<sup>°</sup></b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Negative Life Events – child report	1.94 (1.83)	1.71 (1.54)	0.08 (0.09)	0.77	1.08	0.91 – 1.30
Negative Life Events – maternal report	.99 (1.17)	.70 (.91)	0.26 (0.19)	1.91	1.30	0.90 – 1.89
R <sup>2</sup> = .01 (Nagelkerke). Model $\chi^2(1) = .80, p = .37$ (child report) / R <sup>2</sup> = .02 (Nagelkerke). Model $\chi^2(1) = 2.01, p = .15$ (maternal report)						
<b>Maternal Behaviour</b>						
<b>Presentation Task</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Intrusiveness	1.33 (0.40)	1.45 (0.54)	-0.54 (0.33)	2.75 <sup>^</sup>	0.58	0.31 – 1.10
Expressed Anxiety	2.17 (0.57)	2.17 (0.59)	0.06 (0.27)	0.06	1.07	0.63 – 1.80
Positive Behaviour	3.01 (0.38)	3.01 (0.41)	-0.04 (0.40)	0.01	0.96	0.44 – 2.12
R <sup>2</sup> = .02 (Nagelkerke). Model $\chi^2(3) = 2.74, p = 0.43$						
<b>Tangram Task</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Intrusiveness	1.52 (0.64)	1.54 (0.65)	-0.05 (0.24)	0.05	0.95	0.60 – 1.52
Positive Behaviour	2.83 (0.51)	2.85 (0.53)	-0.01 (0.30)	0.01	1.00	0.55 – 1.80
	<b>N (%)</b>	<b>N (%)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Expressed Anxiety	42 (29.0)	14 (22.2)	0.38 (0.36)	1.10	1.46	0.72 – 2.95
Promotion of Avoidance	38 (26.2)	11 (17.5)	0.53 (0.39)	1.89	1.70	0.80 – 3.62
R <sup>2</sup> = .02 (Nagelkerke). Model $\chi^2(4) = 3.13, p = .54$						

Note: OR = Odds Ratio, CI = Confidence Interval.

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

<sup>^</sup> Figures are based on transposed scores.

<sup>^^</sup> Only mothers and children (that lived with both parents) completed the questionnaire; n=163 for child report and n=155 for maternal report

<sup>°</sup> Pearson's correlations between child and parent report,  $r = .32, p < .01$ .

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Table 3: Associations between Chronic Childhood Adversity, Life Events, Parental Behaviours and Child SEP

	SEP Group	No SEP Group				
<b>Neighbourhood Problems</b>	<i>Mean (SD)</i>	<i>Mean (SD)</i>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Neighbourhood Crime/Disorder score <sup>^</sup>	.96 (1.32)	.92 (1.45)	0.02 (0.11)	0.03	1.02	0.82- 1.23
R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = .03, p = .86$						
<b>Family SES</b>	<b>n (%)</b>	<b>n (%)</b>	<b>Test statistic</b>			
'High' SES group	65 (59.60)	48 (60.00)	$\chi^2(1) = .01$			
<b>Marital status</b>	<b>n (%)</b>	<b>n (%)</b>	<b>Test statistic</b>			
Single parent	31 (25.40)	10 (11.60) <sup>a</sup>	$\chi^2(1) = 6.05^*$			
<b>Parental arguments<sup>^^</sup></b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Child report	1.27 (1.01)	1.29 (1.02)	-0.02 (0.16)	0.01	0.98	0.72 – 1.34
Maternal report	1.65 (0.88)	1.35 (0.79)	0.44 (0.20)	4.87*	1.55	1.05 – 2.30
R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = .01, p = .92$ (child report) / R <sup>2</sup> = .04 (Nagelkerke). Model $\chi^2(1) = 5.09, p = .02$ (maternal report)						
<b>Negative Life Events<sup>°</sup></b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Negative Life Events – child report	1.90 (1.74)	1.82 (1.76)	0.02 (0.08)	0.07	1.02	0.87 – 1.20
Negative Life Events – maternal report	1.10 (1.15)	0.63 (0.98)	0.43 (0.18)	5.72*	1.54	1.08 – 2.20
R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = .08, p = .79$ (child report) / R <sup>2</sup> = .02 (Nagelkerke). Model $\chi^2(1) = 2.08, p = .15$ (maternal report)						
<b>Maternal Behaviour</b>						
<b>Presentation Task</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Intrusiveness	1.39 (0.47)	1.34 (0.43)	0.21 (0.32)	0.40	1.23	0.65 – 2.32
Expressed Anxiety	2.23 (0.57)	2.09 (0.57)	0.40 (0.25)	2.54	1.50	0.91 – 2.45
Positive Behaviour	3.02 (0.38)	2.99 (0.39)	0.23 (0.37)	0.38	1.26	0.61 – 2.61
R <sup>2</sup> = .02 (Nagelkerke). Model $\chi^2(3) = 3.62, p = .31$						
<b>Tangram Task</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Intrusiveness	1.51 (0.59)	1.55 (0.72)	-0.11 (0.22)	0.25	0.90	0.58 – 1.38
Positive Behaviour	2.83 (0.49)	2.83 (0.54)	0.01 (0.96)	0.01	1.01	0.58 – 1.77
	<b>N (%)</b>	<b>N (%)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Expressed Anxiety	36 (29.5)	20 (23.3)	0.33 (0.33)	1.03	1.40	0.73 – 2.66
Promotion of Avoidance	28 (23.0)	21 (24.4)	-0.07 (0.34)	0.05	0.93	0.48 – 1.79
R <sup>2</sup> = .01 (Nagelkerke). Model $\chi^2(4) = 1.32, p = .86$						

Note: OR = Odds Ratio, CI = Confidence Interval.

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

<sup>^</sup> Figures are based on transposed scores.

<sup>^^</sup> Only mothers and children (that lived with both parents) completed the questionnaire; n=163 for child report and n=155 for maternal report

<sup>°</sup> Pearson's correlations between child and parent report,  $r = .57, p < .01$ .

PARENTING FACTORS & CHILDHOOD ADVERSITY

Table 4: Associations between Chronic Childhood Adversity, Life Events, Parental Behaviours and Child GAD

	GAD Group	No GAD Group				
<b>Neighbourhood Problems</b>	<i>Mean (SD)</i>	<i>Mean (SD)</i>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Neighbourhood Crime/Disorder score <sup>^</sup>	.98 (1.40)	.87 (1.32)	0.06 (.121)	0.27	1.07	0.84 – 1.35
R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = .28, p = .60$						
<b>Family SES</b>	<b>n (%)</b>	<b>n (%)</b>	<b>Test statistic</b>			
'High' SES group	79 (62.70) <sup>^</sup>	34 (54.00) <sup>a</sup>	$\chi^2(1) = 1.33$			
<b>Marital status</b>	<b>n (%)</b>	<b>n (%)</b>	<b>Test statistic</b>			
Single parent	30 (21.60)	11 (15.90)	$\chi^2(1) = .93$			
<b>Parental arguments<sup>^^</sup></b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Child report	1.40 (1.05)	1.04 (0.89)	0.38 (0.17)	4.67*	1.46	1.04 – 2.05
Maternal report	1.52 (0.86)	1.49 (0.83)	0.04 (0.20)	0.04	1.04	0.70 – 1.54
R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = 4.9, p = .03$ (child report) / R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = .04, p = .85$ (maternal report)						
<b>Negative Life Events<sup>°</sup></b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Negative Life Events – child report	1.94 (1.81)	1.73 (1.60)	0.07 (0.09)	0.65	1.08	0.90 – 1.28
Negative Life Events – maternal report	.91 (1.09)	.88 (1.14)	0.03 (0.17)	0.04	1.03	0.74 – 1.45
R <sup>2</sup> = .01 (Nagelkerke). Model $\chi^2(1) = .67, p = .42$ (child report) / R <sup>2</sup> < .01 (Nagelkerke). Model $\chi^2(1) = .04, p = .85$ (maternal report)						
<b>Maternal Behaviour</b>						
<b>Presentation Task</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Intrusiveness	1.36 (0.46)	1.37 (0.44)	-0.02 (0.33)	0.01	0.99	0.52 – 1.89
Expressed Anxiety	2.15 (0.58)	2.22 (0.57)	-0.25 (0.26)	0.88	0.78	0.49 – 1.31
Positive Behaviour	3.04 (0.35)	2.94 (0.43)	-0.89 (1.34)	3.34	2.03	0.95 – 4.36
R <sup>2</sup> = .03 (Nagelkerke). Model $\chi^2(3) = 4.13, p = .25$						
<b>Tangram Task</b>	<b>Mean (SD)</b>	<b>Mean (SD)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Intrusiveness	1.51 (0.61)	1.55 (0.72)	-0.08 (0.23)	0.13	0.92	0.59 – 1.45
Positive Behaviour	2.85 (0.53)	2.79 (0.48)	0.27 (0.30)	0.84	1.31	0.73 – 2.36
	<b>N (%)</b>	<b>N (%)</b>	<b>B (SE)</b>	<b>Wald</b>	<b>OR</b>	<b>95% CI for OR</b>
Expressed Anxiety	41 (29.7)	15 (21.4)	0.50 (0.35)	1.99	1.64	0.82 – 3.27
Promotion of Avoidance	32 (23.2)	17 (24.3)	-0.01 (0.35)	0.01	0.99	0.50 – 1.95
R <sup>2</sup> = .02 (Nagelkerke). Model $\chi^2(4) = 2.78, p = .60$						

Note: OR = Odds Ratio, CI = Confidence Interval.

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

<sup>^</sup> Figures are based on transposed scores.

<sup>^^</sup> Only mothers and children (that lived with both parents) completed the questionnaire; n=163 for child report and n=155 for maternal report

<sup>°</sup> Pearson's correlations between child and parent report, r=.32, p<.01.

PARENTING FACTORS & CHILDHOOD ADVERSITY

Table S1. Frequency of negative life events

	SOC n (%)	NO SOC n (%)	SEP n (%)	NO SEP n (%)	GAD n (%)	NO GAD n (%)		SOC n (%)	NO SOC n (%)	SEP n (%)	NO SEP n (%)	GAD n (%)	NO GAD n (%)
	Parent report							Child self-report					
<b>Mother new job</b>	22 (18.6)	3 (5.9)	12 (12.6)	13 (17.6)	20 (17.4)	5 (9.3)		38 (26.6)	7 (11.3)	27 (22.3)	18 (21.4)	33 (23.9)	12 (17.9)
<b>Family member died</b>	20 (16.8)	8 (15.4)	20 (20.6)	8 (10.8)	13 (11.3)	15 (26.8)		41 (18.7)	15 (24.2)	35 (28.9)	21 (25.0)	33 (23.9)	23 (34.3)
<b>New house</b>	18 (15.1)	7 (13.5)	16 (16.8)	9 (11.8)	19 (16.4)	6 (10.9)		25 (17.4)	8 (12.9)	17 (13.9)	16 (19.0)	24 (17.4)	9 (13.2)
<b>New sibling</b>	0 (0)	2 (3.8)	2 (2.1)	0 (0)	2 (1.7)	0 (0)		5 (3.5)	3 (4.8)	6 (4.9)	2 (2.4)	6 (4.3)	2 (2.9)
<b>New school</b>	34 (28.1)	10 (19.6)	28 (29.2)	16 (21.1)	31 (26.5)	13 (23.6)		35 (24.3)	10 (16.1)	24 (19.7)	21 (25.0)	35 (25.4)	10 (14.7)
<b>Illness in family</b>	23 (19.3)	9 (17.3)	22 (22.9)	10 (13.3)	21 (18.1)	11 (20.0)		47 (32.6)	22 (35.5)	46 (37.7)	23 (27.4)	45 (32.6)	24 (35.3)
<b>Parents separated</b>	11 (9.3)	1 (1.9)	8 (8.5)	4 (5.3)	9 (7.8)	3 (5.6)		10 (7.0)	4 (6.5)	9 (7.4)	5 (6.0)	11 (8.0)	3 (4.5)
<b>Mother lost job</b>	8 (6.8)	3 (5.8)	6 (6.4)	5 (6.6)	6 (5.2)	5 (9.3)		9 (6.3)	3 (4.8)	6 (5.0)	6 (7.1)	7 (5.1)	5 (7.5)
<b>Father lost job</b>	11 (9.2)	6 (11.5)	8 (8.3)	9 (12.0)	12 (10.2)	5 (9.4)		13 (9.8)	3 (4.8)	8 (6.6)	8 (9.5)	14 (10.1)	2 (3.0)
<b>Friend died</b>	7 (5.9)	0 (0)	5 (5.3)	2 (2.7)	6 (5.2)	1 (1.9)		8 (5.6)	1 (1.6)	1 (1.6)	5 (6.0)	7 (5.1)	7 (5.1)
<b>Sibling left home</b>	2 (1.7)	1 (2.0)	3 (3.2)	0 (0)	3 (2.6)	0 (0)		4 (2.8)	2 (3.2)	4 (3.3)	2 (2.4)	6 (4.3)	0 (0)
<b>Mother trouble w. police</b>	1 (0.9)	1 (2.0)	1 (1.1)	1 (1.4)	2 (1.8)	0 (0)		6 (4.2)	3 (4.8)	5 (4.1)	4 (4.8)	4 (4.8)	2 (3.0)
<b>Father trouble w. police</b>	6 (5.1)	0 (0)	3 (3.2)	3 (4.1)	5 (4.4)	1 (1.9)		7 (4.9)	3 (4.8)	8 (6.6)	2 (2.4)	9 (6.5)	1 (1.5)
<b>Father new job</b>	10 (8.5)	4 (7.8)	5 (5.3)	9 (12.3)	10 (8.7)	4 (7.5)		19 (13.3)	5 (8.1)	15 (12.4)	9 (10.7)	18 (13.0)	6 (9.0)
<b>New stepmother</b>	4 (3.4)	2 (3.9)	4 (4.3)	2 (2.7)	4 (3.5)	2 (3.8)		3 (2.1)	1 (1.6)	3 (2.5)	1 (1.2)	4 (2.9)	0 (0)
<b>New stepfather</b>	7 (6.0)	1 (2.0)	6 (6.3)	2 (2.7)	6 (5.2)	2 (3.8)		4 (2.8)	2 (3.2)	4 (3.3)	2 (2.4)	5 (3.6)	1 (1.5)
<b>Mother to prison</b>	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
<b>Father to prison</b>	1 (0.9)	0 (0)	1 (1.1)	0 (0)	1 (0.9)	0 (0)		3 (2.1)	1 (1.6)	2 (1.7)	2 (2.4)	3 (2.2)	1 (1.5)
<b>Financial difficulties</b>	31 (26.5)	9 (17.6)	22 (23.4)	18 (24.3)	29 (25.4)	11 (20.4)		44 (30.8)	18 (29.0)	38 (31.4)	38 (31.4)	47 (34.1)	15 (22.4)
<b>Child trouble w. police</b>	2 (1.7)	0 (0)	1 (1.1)	1 (1.4)	1 (0.9)	1 (1.9)		1 (0.7)	0 (0)	0 (0)	1 (1.2)	0 (0)	1 (1.5)
<b>Child seriously ill</b>	7 (5.9)	1 (2.0)	6 (6.3)	2 (2.7)	3 (2.6)	5 (9.4)		27 (18.8)	12 (19.4)	23 (18.9)	16 (19.0)	26 (18.8)	13 (19.1)

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Table S2: Statistical analysis of parental arguments in the SEP and No SEP groups, controlling for child GAD symptoms.

	B (SE)	Wald	OR	95% CI for OR
<b>Model 1</b>				
Constant	-0.71 (0.44)	2.63	0.49	
Child GAD symptoms	0.11 (0.05)	4.24*	1.11	1.01 – 1.23
<b>Model 2</b>				
Constant	-1.41 (0.55)	6.58**	0.24	
Child GAD symptoms	0.11 (0.05)	4.45*	1.12	1.01 – 1.24
Parental arguments	0.45 (0.20)	4.90*	1.57	1.05 – 2.33
<b>Model 1:</b> Note R <sup>2</sup> = .04 (Nagelkerke). Model $\chi^2(1) = 4.43, p = .04$				
<b>Model 2:</b> Note R <sup>2</sup> = .08 (Nagelkerke). Model $\chi^2(2) = 9.57, p = .008$				
** = sig at 1% level, * = sig at the 5% level				

Table S3: Comparing frequency of parental arguments reported by mothers of children with a primary disorder of SEP vs No SEP

	Primary SEP Group	No SEP Group				
	Mean (SD)	Mean (SD)	B (SE)	Wald	OR	95% CI for OR
Parental arguments	1.59 (.89)	1.35 (0.79)	-.356 (.243)	2.160 <sup>^</sup>	.70	0.43 – 1.13

<sup>^</sup>p = .14

Table S4: Statistical analysis of parental arguments in the GAD and No GAD Groups, controlling for child social anxiety and depression symptoms

	B (SE)	Wald	OR	95% CI for OR
<b>Model 1</b>				
Constant	-0.97 (0.46)	4.34	0.38	
Child social anxiety symptoms	0.11 (0.04)	6.46*	1.12	1.03 – 1.22
Child depression symptoms	0.08 (0.03)	6.81**	1.09	1.02 – 1.16
<b>Model 2</b>				
Constant	-1.27 (0.51)	6.07*	0.28	
Child social anxiety symptoms	0.12 (0.5)	6.77**	1.12	1.03 – 1.23
Child depression symptoms	0.73 (0.03)	4.82*	1.08	1.01 – 1.15
Parental arguments	0.28 (0.19)	2.19	1.33	0.91 – 1.93
<b>Model 1:</b> Note R <sup>2</sup> = .14 (Nagelkerke). Model $\chi^2(2) = 16.58, p < .01$				
<b>Model 2:</b> Note R <sup>2</sup> = .15 (Nagelkerke). Model $\chi^2(3) = 18.83, p < .01$				
** = sig at 1% level, * = sig at the 5% level, <sup>^</sup> = sig at the 10% level				

Table S5: Comparing frequency of parental arguments reported by children with a primary disorder of GAD vs No GAD

	Primary GAD Group	No GAD Group				
	Mean (SD)	Mean (SD)	B (SE)	Wald	OR	95% CI for OR
Parental arguments	1.40 (1.01)	1.04 (0.89)	-.406 (.216)	3.546 <sup>^</sup>	.67	0.44 – 1.02

<sup>^</sup>p = .06

Table S6: Statistical analyses of negative life events in the SEP and No SEP Groups, controlling for child GAD symptoms and marital status.

	B (SE)	Wald	OR	95% CI for OR
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<b>Model 1</b>					
Constant	1.23 (1.08)	1.31	3.42		
Child GAD symptoms	0.08 (0.06)	2.27	1.09	0.98 – 1.21	
Marital status	-0.88 (0.52)	2.93	0.41	0.15 – 1.14	
<b>Model 2</b>					
Constant	0.44 (1.15)	0.15	1.55		
Child GAD symptoms	0.08 (0.06)	2.05	1.08	0.97 – 1.21	
Marital status	-0.62 (0.54)	1.31	0.54	1.01 – 1.55	
Negative life events	0.39 (0.19)	4.11	1.47*	1.01 – 2.13	

**Model 1:** Note R<sup>2</sup> = .06 (Nagelkerke). Model  $\chi^2(2) = 5.82, p = .05$   
**Model 2:** Note R<sup>2</sup> = .10 (Nagelkerke). Model  $\chi^2(3) = 10.23, p = .02$   
 \* = sig at the 5% level

**Table S7: Comparing rates of negative life events reported by mothers of children with a primary disorder of SEP vs No SEP**

	Primary SEP Group	No SEP Group				
	<i>Mean (SD)</i>	<i>Mean (SD)</i>	<i>B (SE)</i>	<i>Wald</i>	<i>OR</i>	<i>95% CI for OR</i>
Negative life events	0.97 (1.06)	0.49 (0.98)	-.331 (.207)	2.558 <sup>^</sup>	.72	0.48 – 1.08

<sup>^</sup>*p* = .11

Abbreviations: OR = Odds Ratio, CI = Confidence Interval.

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