

**Parent-child interaction and childhood post-traumatic stress:
A prospective study**

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Vol. 1

**2004
D.Clin.Psy
University College London**

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Acknowledgments

This research was supported by a grant from the UCL Graduate School.

First and foremost I'd like to thank all the parents and children who took part in this research for kindly talking to us about their experiences. I gratefully acknowledge my supervisors, Dr. Pasco Fearon and Dr. Cathy Creswell, for their valuable opinions, contribution, and endless encouragement, Jo Potier de la Morandiere for her indispensable assistance in coding the videotapes, and Georgina Desbruslais and Sarah Howard for their help with the data. This research would not have been possible without the contribution from the medical staff at the four A&E departments who supported our research, especially those who helped with recruitment. Finally, I would like to thank Barney, Anna, Dan, Catherine and Sarah for their ideas and painstaking eye for detail, Richard for his constant support and sense of humour, and of course, a big thank you to my family and friends who have shown amazing support, patience and encouragement throughout the past couple of years.

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Abstract

There is to date no comprehensive theoretical account of how PTSD develops in children. Theories of adult PTSD (e.g. Brewin, Dalgleish & Joseph, 1996, Ehlers & Clarke, 2000) exist yet their applicability to childhood PTSD is somewhat limited, as they fail to account for the developmental level of the child and the child's context (dependency on their parent/s). Previous research in the field has demonstrated the influential role of family risk factors. Further, parent-child interaction has been found to be influential in many other childhood mental health problems, though has not been studied in children who have experienced a trauma. The present study aims to investigate the influence of parent-child interaction on the development of PTSD using observational methods. The current sample of children presenting to A&E following a traumatic event was observed completing two interaction tasks with their primary caregiver within four weeks of the event. The tasks consisted of a difficult anagram task and a discussion task about the trauma. Both interactions were analysed and coded for warmth/criticism and over-involvement. The discussion task was also analysed for parental avoidance, help in re-appraising the child's sense of threat, and parental management of fear. The parents and children were re-assessed at a 3-month follow up. Parental avoidance, poor management of fear and little help with re-appraising threat were strongly associated with child PTSD symptoms at Time 1. Warm/critical and over-involved parenting behaviours were not significantly associated with child PTSD symptoms. None of the parenting behaviours significantly affected the rate of change of the child's symptoms, yet there was a trend between parental involvement in the discussion task and change in child PTSD symptoms over time.

Introduction

The emotional impact of trauma on children is considerable and perhaps greater than on adults (Fletcher, 1996). Traumatic experiences include rare and extreme events such as war, terrorism and natural disasters and more commonly occurring ones, such as road traffic accidents. Indeed, current public health advertising campaigns aimed at young people quote that two teenagers are killed or seriously injured from crossing a road in London every day. Last year 2132 children (7- 14 years of age) were injured in road traffic accidents in London (London Accident Analysis Unit, Transport for London, 2003; 2004).

Despite the existence of a large body of research on the impact of trauma on adults, unfortunately little is known in relation to children. This is especially true when considering the important but poorly understood role of family relationships in adjustment to trauma. In this introduction it will be argued that parent-child interactions are likely to have an important influence on a child's adjustment to trauma. The most convincing theories of posttraumatic stress disorder (PTSD) in adults implicate the importance of memory and information processing of the event as well as the individual's cognitive appraisal of what happened. What is clear from the empirical evidence available is that there is a consistent association between undesirable parental / family variables and child PTSD (Scheeringa & Zeanah, 2001). Yet no study to date has observed the parent – child relationship directly in children exposed to trauma, even though parent-child interaction factors have been found to play an important role in the development and maintenance of various childhood psychological problems. Owing to the child's emotional and cognitive

dependence on their primary caregiver (especially with the preadolescent age group), parent–child relational factors (emotional, cognitive and behavioural) are likely to influence the child’s ability to appraise, encode, process and thus resolve the traumatic event. More specifically, the importance of parenting behaviours and parent–child conversations about the trauma are implicated in order to uncover the relationship between parenting factors and child PTSD.

1.1 Post-traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) is the most frequently studied psychological problem in relation to trauma and appears to be the most common adverse response to traumatic events (Salmon & Bryant, 2002; Vogel & Vernberg, 1993). It is classified as an anxiety disorder in the Diagnostic Statistical Manual – *DSM-IV* (American Psychiatric Association, 1994). The diagnosis is unique in that one of the diagnostic requirements is exposure to a traumatic experience, which the child perceives to be physically or emotionally threatening for themselves or others, prior to the development of symptoms of the disorder. No other diagnosis requires the occurrence of an external event prior to the onset of symptoms, nor specifies the cause of the symptoms. A ‘traumatic experience’ encompasses a variety of events, which may constitute a single event or repeated trauma such as abuse. The types of traumatic events commonly found in the literature are natural disasters, road traffic accidents (RTAs), witnessing or experiencing violence, and assaults/ kidnapping to name but a few. The key elements are that there are both subjective and objective features of formally defined traumatic experiences. The relationship between objective and subjective characteristics of the trauma and their influence on the development of PTSD in children is unclear raising the possibility that the child’s

subjective experience of the traumatic event is at least as important as the objective circumstances (Perrin, Smith & Yule, 2000). General objective factors have been outlined as: threat to one's life or bodily integrity; severe physical injury or harm; receipt of intentional injury or harm; exposure to the grotesque; violent, sudden loss of a loved one; witnessing or learning of violence to loved ones; learning of exposure to a noxious agent; and being the cause of death or severe harm to another (Vasey & Dadds, 2001).

Subjective trauma factors focus on the individual's reaction to the traumatic event. Perceived threat to life or personal integrity is commonly found to be associated with PTSD outcome. Indeed, the *DSM-IV* (American Psychiatric Association, 1994) diagnostic criteria for PTSD include a response of intense fear, helplessness or horror. The criteria for PTSD in the *DSM-IV* are outlined in Tables 1, 2, 3, 4, and 5.

Related symptoms that are not included in the three clusters but are often present include feelings of shame or guilt, dissociation, somatic problems, hopelessness or helplessness, hostility, impaired emotional regulation, and impaired relationships with others (APA, 1994). It is interesting to note that the *DSM-IV* has placed more importance on subjective threat factors compared to the diagnostic criteria in the *DSM-III*. Another modification is that the differences in the way that children express symptoms are more clearly defined (see criteria A in Table 1, B1 and B2 in Table 2). There has also been ongoing debate in regards to the required number of symptoms in each category that is appropriate for children (Cohen, 1998). The diagnostic criteria, in relation to children, will be discussed in more detail in section 1.4.

Table 1

<i>Diagnostic criteria for PTSD – traumatic event</i>
<p>A. The person has experienced, witnessed, or been confronted with an event that involved actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others and that the person's response involved intense fear, hopelessness or horror. In children this may be expressed by disorganised or agitated behaviour.</p>

Table 2

<i>Diagnostic criteria for PTSD – re-experiencing symptoms</i>
<p>B. The traumatic event is persistently re-experienced in at least one of the following ways:</p> <ol style="list-style-type: none"> 1. Recurrent, intrusive and distressing recollections of the event including images, thoughts and perceptions, or repetitive play about the trauma for young children. 2. Recurrent nightmares of the event. Note: In children content may be unrecognisable. 3. Acting or feeling if the event were recurring, or trauma specific re-enactment in children. 4. Intense psychological distress at exposure to internal/external cues. 5. Physiological reactivity at exposure to internal or external cues.

Table 3

Diagnostic criteria for PTSD – avoidance symptoms

C. Persistent avoidance of stimuli associated with the trauma and numbing as indicated by at least three of the following:

1. Efforts to avoid thoughts, feelings, or conversations about the trauma.
 2. Efforts to avoid activities, places or people that are reminders of the trauma.
 3. Inability to recall an important aspect of the trauma.
 4. Decreased interest or participation in activities.
 5. Feelings of detachment from others.
 6. Restricted affect.
 7. Sense of foreshortened future
-

Table 4

Diagnostic criteria for PTSD – hyperarousal symptoms

D. Persistent symptoms of increased arousal as indicated by at least two of the following:

1. Sleep difficulties
 2. Irritability/anger
 3. Difficulty concentrating
 4. Hypervigilance
 5. Exaggerated startle response
-

Table 5

Diagnostic criteria for PTSD – duration/impairment

E. Duration of disturbance is longer than one month.

F. The disturbance causes significant distress or impairment in social, occupational, or other areas of functioning.

Post-traumatic reactions are therefore more dependent on the individual's subjective perception of an event and their subsequent reaction to it than the qualities of the event itself. Perhaps owing to logistic constraints, the majority of research in this field tends toward focusing on individual's responses to the same (or same sort of) trauma with the bulk of the research centred on children who have been sexually abused, especially in treatment efficacy trials (see Cohen, 1998 for a review). Other large areas of research focus on the aftermath of natural disasters and war related experiences (e.g. Smith, Perrin, Yule, Rabe-Hesketh, 2001; LaGreca, Silverman, Vernberg & Prinstein, 1996; Yule, Bolton, Udwin, Boyle, O'Ryan & Nurrish, 2000). The literature on the psychological consequences following single event trauma is less widespread. The most commonly researched single event trauma appears to be road traffic accidents.

1.2 Road Traffic Accidents

Road Traffic Accidents (RTAs) can lead to physical injury, psychological trauma, and social disruption (Stallard et al, 1998). Among children, RTAs account for 50% of injury-related deaths in childhood and adolescence in the UK and are the leading cause of childhood injury deaths in the UK, yet little is known about the psychological consequences for the survivors (Keppel-Benson, Ollendick & Benson, 2002). Keppel-Benson and colleagues (2002) reviewed a number of adult studies of RTAs and discovered that a majority of RTA survivors experience considerable psychological distress and disruption to their lives with 15% to 50% of those seeking medical attention (post RTA) presenting with PTSD or other anxiety related problems directly related to the accident. Nonetheless, a recent study of children who

were involved in a RTA in the UK reports prevalence rates of PTSD at 35% (Stallard, Velleman & Baldwin, 1998); other studies of child RTAs report PTSD rates as high as 50% (Milgram, Toubiana, Klingman, Raviv & Goldstein, 1988). Interestingly, Stallard and colleagues (1998) found that previous experience of trauma, subjective appraisal of threat, and gender (girls) were associated with PTSD symptoms (at 22 – 79 days post accident), whereas type of accident, severity of injuries and age of the child were not. Conversely, Keppel-Benson and colleagues (2002) found that injury severity was a significant predictor of PTSD symptomatology among children involved in RTAs at nine months (on average) post accident. One reason that may account for these conflicting findings regarding the relationship between injury severity and PTSD may be that the Keppel-Benson et al (2002) study was conducted nine months after the RTA. This is considered a long-term follow up in this field of research and thus injury severity may in fact be a predictor of chronic PTSD (as PTSD is considered chronic if it lasts longer than six months) or delayed onset symptoms. It makes sense that more severe injuries would result in more functional impairment, thus complicating the recovery process.

1.3 Other single incident traumatic events

Residential fires and community violence are often ignored in the trauma literature yet they affect large numbers of children on a daily basis and the children who experience such events tend to display similar reactions as children exposed to large natural or man-made disasters (Silverman & LaGreca, 2002), many of whom experience post-traumatic symptoms (Schwartz & Proctor, 2000). Similarly, children attending A&E who have fallen from heights display high levels of emotional distress that can persist for several months, yet these children are rarely regarded as

having emotional needs requiring extra support (Child Accident Prevention Trust, 1996). Burns, near drowning and dog bites have also been linked to child PTSD (Pynoos, Steinberg & Piacentini, 1999; Rossman, Bingham & Emde, 1997).

1.4 Psychological responses to trauma

Not only do children who have experienced trauma sometimes experience quite debilitating emotional reactions, they may also be consequently exposed to greater environmental stressors such as missed school, reduced academic functioning, missed social opportunities, and other family stressors such as family illness, divorce, and family violence (Silverman & LaGreca, 2002). Furthermore, the emotional, social and environmental consequences of trauma may become mutually exacerbating and contribute to the development of chronic maladjustment.

It is recognised that children may respond differently in the event of exposure to a traumatic event than adults; for example, children may demonstrate disorganised or agitated behaviour rather than expressing fear or helplessness (American Psychiatric Association, 1994). Owing to cognitive, social, experiential and verbal factors, it is likely that PTSD manifests itself differently at different developmental stages (Salmon & Bryant, 2002; Lonigan, Phillips & Richey, 2003). Indeed, Fletcher's (1996) meta-analysis indicates that preschool children display fewer cognitive and avoidant symptoms than older children. Instead, symptoms of numbing and avoidance may be expressed as externalising behaviours (Cohen, 1998). Scheeringa, Zeanah, Drell & Larrieu (1995) propose that because younger children have difficulties providing verbal reports of internal states, assessment of symptoms such as effortful avoidance and memory symptoms should be replaced or supplemented,

depending on age, with play re-enactment, separation anxiety, nightmares and aggression.

A small number of studies have explored the specific applicability of the DSM-IV PTSD criteria to children. Some studies (Terr et al, 1999) have found differing expression of symptoms depending on the age of the child with younger children expressing more avoidance symptoms and older children suffering from more hyperarousal and re-experiencing symptoms. Research with younger children typically relies on parental report, due to children's limited (verbal) ability to report internal states. Studies including both parental and objective reports of children's distress show that more often than not, parents underestimate levels of their children's distress, particularly with younger children (Vogel & Vernberg, 1993). Vogel & Vernberg (1993) propose four possible explanations for the age differences in post-trauma reactions: (1) age differences in ability to appraise the trauma; (2) differences in coping strategies; (3) age differences in children's beliefs about determinants of control over events; and (4) increases in social support outside of the family for older children. Age, it seems, can have a considerable impact on a child's response to trauma, yet the majority of the current research on children's reaction to trauma focuses on older children, with samples of children up to 16 years of age and the majority being adolescents (Ehlers, Mayou & Bryant, 2003; Keppel-Benson et al, 2002). Stallard and colleagues' (1998) study contained a sample with broader age categories (5 to 18 years of age) but only conducted preliminary analyses on the influence of age, concluding simply that 'age may be associated with the presence of PTSD' (p.1622).

Owing to the difficulties in applying a specific set of diagnostic criteria to children it may be more useful in some circumstances to refer to posttraumatic symptoms (PTS) rather than a PTSD diagnosis per se. Indeed, much can be learned from approaching PTSD from a dimensional – rather than categorical – perspective (Lonigan et al, 2003) as well as considering it within the context of other coexisting psychological problems such as anxiety and depression, which often correlate with PTSD symptoms, at least for girls (Yule & Udwin, 1991).

1.5 Acute Stress Disorder

The DSM-IV (APA, 1994) introduced the diagnosis of Acute Stress Disorder (ASD) to describe acute responses to trauma that occur within a month after the traumatic event (when it is not possible to receive a diagnosis of PTSD). The diagnostic criteria for ASD are very similar to those outlined for PTSD, the difference being the emphasis on dissociative symptoms in ASD. To receive a diagnosis, three of the following dissociative symptoms need to be present: emotional numbing, reduced awareness of surroundings, derealization, depersonalisation, and dissociative amnesia. The main rationale for developing this diagnosis was to identify those who were likely to suffer from chronic PTSD, however the relationship between the two is unclear, fairly contentious and has not been investigated in children (Salmon & Bryant, 2002).

1.6 Psychological responses to trauma other than PTSD

Although PTSD has been estimated to be a highly prevalent response to traumatic experiences, it is notable that responses to trauma do not appear to be restricted to PTSD symptoms, particularly in children. Other psychological problems have also

been reported amongst children who have experienced trauma. These include depression, separation anxiety, generalised anxiety, complicated bereavement, sleep disorders, attachment disorders, substance misuse and phobias (Pynoos et al, 1999). Highly traumatised children often meet the criteria for these depressive and anxiety disorders when exposure to the trauma is high (longer or more intense periods of exposure) and many risk factors are present (Vernberg & Varela, 2001), though less attention has been given to these post trauma reactions.

Older children (often referring to children around seven or eight years or above) and adolescents who are traumatised have been found to display high levels of depressive symptoms or anxiety disorders in addition to PTSD (Vernberg & Varela, 2001). Traumatic events that involve the loss or injury of the child's family or significant other may be especially likely to lead to a depressive reaction (Silverman & LaGreca, 2002) arising from bereavement (Vernberg & Varela, 2001) and unresolved PTSD (Fremont, 2004; Silverman & LaGreca, 2002). Indeed, Fremont's review (2004) of the child trauma literature concludes that common adolescent responses to trauma such as depression, substance misuse, shame, guilt and self-blame are more similar to adults than younger children. Anxiety symptoms have frequently been reported amongst children following a trauma regardless of whether PTSD symptoms are present (e.g. Goenjian et al, 1995; LaGreca, Silverman & Wasserstein, 1998). These symptoms may be related to increased concerns about safety and security and manifest themselves as separation difficulties (Silverman & LaGreca, 2002). Phobias are often considered to be a likely outcome following a traumatic event, where the child develops a phobic response to stimuli associated with the trauma they were exposed to (Vogel & Vernberg, 1993). For example,

children may fear travelling in cars having been in a road traffic accident. Younger children (less than five or six years) may exhibit anxiety symptoms unrelated to the trauma such as fear of monsters (Drell, Siegel, & Gaensbauer, 1993), separation anxiety and wanting to sleep in the parents bed (Perrin, Smith & Yule, 2000).

Not only do factors such as age and developmental abilities need to be taken into consideration when considering the prevalence and range of post-trauma symptoms, but children's levels of difficulties before the traumatic event may be critical too, something that many studies have neglected. Most of the research focuses on post trauma reactions and so it is difficult to determine whether psychological symptoms are strictly reactions to trauma or were to some extent present prior to the traumatic event. Studies of natural disasters, however, point to the likelihood that higher levels of anxiety prior to the traumatic event predict post-trauma anxiety symptoms, for example following a hurricane (e.g. LaGreca et al, 1998). Pre-trauma levels of depression also predict depressive and stress symptoms following an earthquake (Nolen-Hoeksema & Morrow, 1991). Also, pre-existing anxiety symptoms have been found to be a significant risk factor in the development of PTSD (Lonigan et al. 1994). Nevertheless, this does not necessarily mean that psychological symptomatology was present to the same level prior to the trauma, but that higher scores predict more extreme increases in symptoms following trauma. Prospectively designed studies are clearly essential in order to further investigate this issue.

1.7 Prevalence

Research on PTSD in children is limited (Vasey & Dadds, 2001) as is epidemiological information on the prevalence of PTSD in childhood. It is probably

more meaningful to examine prevalence rates of PTSD amongst those who have experienced a traumatic event rather than in the general population per se (see Carr, 1999). Research has generally been carried out following accidents, community violence, burns, natural disasters, war, domestic violence, physical abuse and sexual abuse and most of the research is retrospective. Reported prevalence rates of PTSD in children vary according to a variety of factors such as the use of different measures, severity and chronicity of the trauma, and time elapsed since the traumatic event (Salmon & Bryant, 2002). Prevalence rates also vary according to type of trauma. Studies of natural disasters tend to report lower rates; for example, Lonigan and colleagues (1994) reported PTSD rates at approximately 5%; however in studies of natural disasters, the impact of the event is often confounded by other factors such as injury, bereavement, and loss of property (Koplewicz et al, 2002). PTSD rates of 34.5 % have been reported following road traffic accidents (Stallard et al, 1998) and community violence (Cohen, 1998) and higher figures tend to be reported following exposure to war. Goldstein, Wampler and Wise (1997) for example reported prevalence rates of PTSD at 93% in a group of 364 displaced children in Bosnia, whereas other prevalence rates of PTSD following exposure to war are reported to be lower, for example, 58% (Smith, Perrin, Yule & Rabe-Hesketh, 2001). There are mixed findings with regards to whether there are gender and age differences in prevalence rates (see Vogel & Vernberg, 1993 for a review) and numerous studies have documented that PTSD occurs across cultural and ethnic groups (Cohen, 1998).

Many of the prevalence rates are calculated from self-report or significant other-report questionnaires and are therefore less accurate than diagnostic interviews and may overestimate rates of clinical disorder. Discrepancies between child self reported

symptoms and parent reported child symptoms are commonplace across a range of childhood psychological problems (Hay et al, 1999; Jenson et al, 1999). In the field of trauma, school-aged children tend to report higher levels of distress post-trauma than parents report for them (Vogel & Vernberg, 1993). Furthermore, there are few studies of child PTSD available that use diagnostic interviews, arguably the gold standard of measurement of PTSD diagnosis (Smith et al, 2001). Nevertheless, Fletcher's (1996) meta-analysis of 34 samples of children who had experienced trauma (n = 2607) provides evidence that PTSD rates are relatively high among children (in comparison to rates of PTSD among adults). Following a variety of traumatic events, 36% met criteria for PTSD (compared to 24% in adults) and the rates of diagnosis did not differ with developmental level.

1.8 Risk factors

Aside from prevalence studies, the bulk of research into PTSD in children has explored risk and predictive factors for adverse psychological consequences following trauma. Results from studies investigating risk factors in the development of PTSD are complicated by methodological differences and limitations such as retrospective reporting (Lonigan et al, 2003). Silverman and La Greca (2002) propose that the majority of research into risk factors looks at variables falling within one or more of the following categories: aspects of the traumatic exposure, pre-existing child characteristics, characteristics of the post disaster recovery environment and the child's psychological resources. A study of a shipping disaster experienced in adolescence (Udwin, Boyle, Yule, Bolton & O' Ryan, 2000) found that developing PTSD was significantly associated with gender (female), learning difficulties, psychological difficulties, violence in the home ("pre-disaster factors")

and severity of exposure to the disaster. Survivors' subjective appraisal of the experience, adjustment in the early post-disaster period, and life events and social supports ("post-disaster factors") were also found to be significant predictors of PTSD outcome. Prior exposure to trauma, prior psychiatric disorder, and family functioning are also emerging as predictors in more recent research (Meiser-Stedman, 2002).

Risk factors may indicate those who are more likely to develop PTSD following exposure to trauma and thus direct resources for intervention, however they do not facilitate our understanding of *how* PTSD develops in children. As LaGreca, Silverman, Venberg & Roberts (2002) state:

the field needs to move beyond asking what factors predict outcomes and begin to ask *why certain variables are important* and by what processes certain variables influence children's reactions. We also need to ask *how these processes vary* as a function of children's development
(pp.407. Italics are authors' own).

Research has yet to investigate more complex interactions between risk factors and outcome (Silverman & LaGreca, 2002) and our understanding of the actual mechanisms or mediational processes involved in the development of posttraumatic reactions is currently limited. Conceptualisations of theoretical models of PTSD in children *are* beginning to emerge (Meiser-Stedman, 2002), but there is a definite lack of theory in this area. It would therefore be useful to refer to adult theoretical models of PTSD and examine them within a developmental framework, such as that outlined by Salmon and Bryant (2002). The three most convincing and widely accepted models of the development of PTSD in adults are Brewin, Dalgleish & Joseph's

(1996) dual representation theory, Ehlers and Clarke's (1999) cognitive model and Foa and Hearst-Ikeda's (1996) information processing and emotional dissociation approach. There is some degree of overlap between the three models. The former two are more relevant to the current research question, and, owing to the limited scope of this thesis, the latter approach will not be covered here.

1.9 Dual representation theory (Brewin, Dalgleish & Joseph, 1996)

Brewin and colleagues' dual representation theory (1996) takes into account both the conscious and non-conscious processing that occurs when an individual experiences a traumatic event. Evidence that sensory input is subject to both conscious and non-conscious processing is widespread (Brewin et al, 1996). Hence, dual representation theory posits that the individual has two memory systems that operate in parallel, each representing different levels of conscious information processing. One system may take precedence over the other at different times (Brewin & Holmes, 2003). What Brewin and colleagues term the 'verbally accessible memory' system, or the VAM system, incorporates oral or written narrative memories of the trauma. These memories can be deliberately accessed and are integrated with other autobiographical memories. They contain information that the individual has attended to before, during and after the trauma and have therefore been processed consciously and can be deliberately retrieved. These memories of the trauma are situated within a complete personal context and timeframe. It follows that these memories are somewhat incomplete in that they only contain information that has consciously been attended to. This means that elements of the trauma will have been neglected due to cognitive avoidance at the time, for instance. Because the memories are situated within a timeframe, they include both 'primary emotions' i.e. emotions occurring at

the time of the trauma, and ‘secondary emotions’, which refer to emotions triggered by appraisal of the trauma after it occurred.

The ‘situationally accessible memory’ (SAM) system contains information that has been subject to a lower (less conscious) level of perceptual processing. This information may include visual and auditory elements of the trauma that may have been very briefly attended to and thus did not enter the VAM system. It also contains information regarding the individual’s internal physiological response to the trauma such as increased heart rate and shallow breathing. The SAM system is responsible for the occurrence of re-experiencing symptoms such as flashbacks, which are detailed emotional memories that feel as though they are being experienced in the present. The emotions here are primary in that they are limited to the emotions experienced during the trauma. SAM memories are not verbal and therefore are not incorporated into an autobiographical memory. They are difficult to control and are triggered by internal or external cues relating to the trauma.

Brewin and colleagues (1996) argue that in order for the trauma to be resolved emotional processing needs to take place. They describe emotional processing as “a largely conscious process in which representations of past and future events, and awareness of associated bodily states, repeatedly enter into and are actively manipulated within working memory” (pp.677). It encompasses two separate processes: a resolution of negative beliefs and associated emotions, and the management of flashbacks. The resolution of negative emotions can occur through a variety of cognitive processes: reinstating perceived control, reattribution of responsibility, and integrating new information with pre-existing beliefs. The other

process necessary to resolve the trauma is the prevention of continued reactivation of SAMs about the trauma. This is thought to occur by a gradual replacement of the fear-inducing SAMs with newer and more benign ones that can be retrieved more easily. These new SAMs would consist of original trauma images paired with states of lowered arousal and negative affect, which can be developed through habituation or cognitive restructuring.

There is empirical evidence supporting the existence of VAMs and SAMs in 'normal' adult populations (Holmes, Brewin & Hennessey, 2002) and with adult participants suffering from PTSD (Hellawell & Brewin, 2002; Hellawell & Brewin, 2004). Memory is therefore implicated in the development and maintenance of PTSD in adults. However, there is no research testing the applicability of this model to children. When applying this model to children, a developmental framework is needed to assess the influence of the child's cognitive ability on the development of trauma memory. First, in order to begin the information processing sequence, the child will need to encode the traumatic event (Salmon & Bryant, 2002). Younger children tend to encode less information and to encode information more slowly, resulting in less information being available for retrieval than older children or adults (Brainerd, Reyna, Howe & Klingma, 1990 as cited in Salmon & Bryant, 2002). Second, other factors, such as the child's knowledge of the world and their linguistic ability, would influence how the traumatic event is encoded, appraised, and represented in memory (Salmon & Bryant, 2002). Considering their relatively limited knowledge base and linguistic abilities, Salmon and Bryant (2002) argue that younger children's memory of events will be encoded with less detail and will be more vulnerable to forgetting than older children or adults. Their limited

understanding and appraisal of the traumatic event will also result in a less detailed verbal account, potentially resulting in a memory of the event that contains omissions and errors about what actually happened.

Although current theory is very limited in terms of helping us to understand whether the child's developmental limitations impinges on the development of VAMs or SAMs, it seems probable that the child's VAMS will be more affected, in that they would be less well developed compared to adults or older children. This is because the development of VAMS is more dependent on language and knowledge than SAMs. Empirical evidence is however beginning to emerge that lends support to the relevance of VAMs and SAMs in children. Azarian, Lipsitt, Miller and Skriptchenko-Gregorian (1999) found differences in memory quality across age ranges in children who had experienced an earthquake. Younger children had no verbal memories of the earthquake yet possessed nonverbal memories of the event at the same rate as older children.

As yet the impact of these developmental differences in cognitive processing is unclear. It could be argued that they might decrease the child's vulnerability to posttraumatic stress reactions, although considering the elevated rates of posttraumatic stress responses among children (Fletcher, 1996) this seems unlikely. If the previous assertion, regarding a child's limited ability to develop VAMs (which are considered to be protective), is correct then according to Brewin et al's (1996) theory, it would follow that children (especially younger children) would be more vulnerable to posttraumatic distress as they would not have a coherent autobiographical memory of the event.

An ecological perspective may also be useful when considering developmental processes related to memory and PTSD in children. Children often look to their parents or other adults in order to understand the world and thus facilitate their cognitive processing (Salmon & Bryant, 2002). This is likely to have some impact on the child's development of memories of the event. So, if a child is with their parent/s during the traumatic event, or talks to them about the event afterwards, the impact of the parent's reaction (in terms of their behaviour) and the way they talk about the event is likely to influence the child's encoding of the event. In other words, a supportive adult may scaffold the child's processing of the event. However, there have been no studies that have directly addressed this issue in children.

1.10 Cognitive theory (Ehlers and Clarke, 2000)

Ehlers and Clarke's (2000) cognitive theory proposes an alternative model of the development and maintenance of PTSD. They argue that persistent PTSD will only occur when individuals process the traumatic event and/or its sequelae in a manner in which a sense of current threat prevails. This sense of current threat may be internal, for example, a threat to their mental or emotional health, or external thus representing a sense of danger about the world or the future. The model suggests that two processes lead to this sense of current threat: (1) the appraisal of the trauma and/or its sequelae; and (2) the nature of the memory of the event and its relationship to other autobiographical memories.

Individuals who appraise the trauma and/or its sequelae in a way that produces a current sense of threat may be unable to perceive the trauma as a time-limited event,

or they may ascribe global negative implications about the future. The individual may over generalise the sense of threat, for example, by perceiving normal activities as dangerous, predicting an increased probability of dangerous events occurring in the future, or seeing themselves in the role of victim where further traumatic events are likely to happen to them. Appraisal of trauma sequelae may also maintain a sense of current threat. For example, negative interpretations of symptoms, others' reactions, or consequences of the trauma in terms of life opportunities may serve to maintain a negative current perception of the trauma and its consequences. These processes are hypothesised to lead to problematic coping mechanisms such as avoidance.

Ehlers and Clarke propose that an additional process can lead to a sense of current threat - the nature of the memory of the event and how it fits with other autobiographical memories. They claim that in persistent PTSD "the trauma memory is poorly elaborated and inadequately integrated into its context in time, place, subsequent and previous information and other autobiographical memories" (pp325). This accounts for problems with intentional recall, the reason why re-experiencing symptoms such as flashbacks feel as though they are occurring in the present, the absence of links to other relevant information (e.g. I survived), and the easy triggering of memories by perceptually similar cues. They posit that retrieval from associative memory is both unintentional and cue driven and the individual may therefore be unaware of the triggers for re-experiencing symptoms. These strong associations result in a reduced perceptual threshold for trauma-related stimuli.

Ehlers and Clarke outlined a number of peri-traumatic factors that influence the encoding of trauma memory. They argue that conceptual processing (the meaning of the situation, organising the information, and placing it in context) facilitates the integration of the trauma memory into the autobiographical memory. Conversely, data-driven processing (focusing on sensory impressions) leads to strong perceptual priming and memories that are difficult to intentionally retrieve. Other peri-traumatic factors include dissociative phenomena and an inability to accurately evaluate aspects of the traumatic event. There are obvious similarities of this part of the model and Brewin and colleagues' dual representation theory and there is good empirical evidence available that supports aspects of the model. Brewin and Holmes (2003) reviewed the evidence supporting this model and concluded that the following factors have been found to be associated with PTSD symptoms after controlling for the level of initial symptoms: negative interpretations of initial PTSD symptoms; mental defeat; safety behaviours and avoidance. Also, consistent with the model, negative interpretations of initial PTSD symptoms were found to be related to increased distress, increased ruminating and thought suppression.

Recent research has investigated the applicability of various elements of Ehlers and Clarke's model to children. A prospective study of children and adolescents following a RTA (Ehlers, Mayou & Bryant, 2003) investigated whether the cognitive predictors identified in Ehlers and Clarke's (2000) model were applicable to children. It was found that data-driven processing during the accident, negative interpretation of intrusive memories, alienation from other people, persistent rumination, anger about the event, thought suppression and persistent dissociation at initial assessment predicted symptom severity at three and six months. This study

provides initial evidence that the adult cognitive models of PTSD have some applicability to children and adolescents. It is noteworthy however, that 50% of the sample were teenagers and analyses did not take age into account. Therefore the applicability of the cognitive factors may be limited for younger children due to their immature cognitive functioning. This study also only used child self-report measures of PTSD (except for 'young children'¹, p.4, whose mothers provided information on repetitive play). And, in some cases the constructs in question were measured by only one item on a questionnaire.

Further evidence of the role of cognitive factors in the development and maintenance of PTSD in children can be found in the Jupiter cruise ship disaster study (Yule, Udwin & Murdoch, 1990). Jupiter survivors with more intrusive thoughts and depressive symptoms one year post disaster tended to report more internal causal attributions (Joseph, Brewin, Yule & Williams, 1993). Again, this study was with adolescent participants and so the generalisability of the results to pre-adolescents is debatable. In a sample involving younger children as well as adolescents, avoidant coping strategies (i.e. distraction and social withdrawal) were correlated with PTSD eight months after a RTA (Stallard, Velleman, Langsford & Baldwin, 2001).

In Stallard's retrospective analysis of his sample of children who had been in a RTA, ten of the fourteen selected questionnaire items identifiable as cognitive and behavioural variables related to the Ehlers & Clarke model of PTSD were significantly related to PTSD outcome (Stallard, 2003). These items included: perception of the trauma as life threatening and/or having an enormous effect on

¹ The authors do not define the age ranges of whom they refer to as 'young children'.

them, considering themselves to be emotionally and/or physically unrecovered, stopping going to places and doing certain activities, feeling less sociable and/or socially withdrawn, cognitive distraction, and rumination. Nevertheless the findings of this study have three major drawbacks, which limit its generalisability. First, the analysis was retrospective and the variables used to test the cognitive factors associated with Ehlers and Clarke's (2000) model may have limited validity. Second, the questionnaire was administered once approximately six weeks after the accident so in actual fact it may be measuring features of posttraumatic symptomatology rather than (antecedent) factors associated with the onset of PTSD. Third, the sample consisted of mostly older children (7 to 18 years of age) with a mean age of 14.62 years implying that the findings may have limited generalisability to younger pre-adolescent children.

Preliminary evidence therefore points to the applicability of some aspects of Ehlers and Clarke's cognitive model of PTSD. Some of the evidence however is contradictory. For example, Ehlers and colleagues (2003) found that thought suppression predicted symptom severity, but Stallard (2003) did not find a significant correlation between thought suppression and PTSD symptoms. Also, because the model has yet to be tested on a younger sample of children it can only be concluded that Ehlers and Clarke's cognitive model of PTSD has some applicability to older children.

One factor that is likely to be very important for PTSD in children is the child's support from, and relationship with, their parents. The parent's influence is obviously not accounted for in adult models, and has not been tested in any of the

studies (mentioned above) that apply the adult models to children. The following two sections examine how parents may be implicated in the child's memory processes and their ability to resolve the traumatic event.

1.11 Resolving the trauma

By examining in closer detail what needs to occur for the trauma to be resolved, as outlined by current theories of adult PTSD, additional factors that increase our understanding of child PTSD may be uncovered. Salmon and Bryant (2002) propose three developmental factors influencing the child's ability to resolve a traumatic experience - their ability to: regulate emotion, retrieve information from memory, and engage in conversation with adults. Each of these factors will be examined in turn.

(i) emotion regulation Emotion regulation is the process of “initiating, sustaining, modulating, or changing the occurrence, intensity, or duration of internal feeling states and emotion-related physiological processes” (p.6. Eisenberg, 1998). Emotion regulation involves monitoring one's emotional state, evaluating it and modifying it if necessary (Thompson, 2001). Typically, children depend on their parents to manage their distress and as they develop they are able to achieve this process more independently. Salmon and Bryant (2002) propose that by around age eight, children have some independent capability of regulating their own emotions and cognitions following a traumatic experience. They go on to say that their ability to use various coping strategies will depend on their understanding of emotion and thinking and their ability to inhibit undesirable cognitive processes. Their literature review suggests that these processes begin to occur in middle childhood, in other

words, around the ages of seven to ten years. The caregiver's role in emotional regulation is important when thinking about children. The caregiver is needed to teach and reinforce strategies of emotional regulation appropriate to the situation. They can also structure the child's life so that the situations they would generally encounter are matched to the children's developmental ability. The caregiver also helps to regulate the child's emotions by offering nurturing support and advice and by imparting knowledge of emotion. (Thompson, 2001).

Research evidence points to the importance of attachment and its influence on emotional regulation (Thompson & Raikes, 2003). It is believed that the individual differences in attachment security in children derives primarily from the adult's sensitivity toward the child. A parent who is sensitive to their child's needs will support them to make sense of threatening situations and enable them to regulate their emotions and foster feelings of competence (Eisenberg, Fabes & Murphy, 1996). These experiences will allow the child to use the parent as a secure base in times of stress (Bowlby, 1969; 1973) and will contribute to healthy internal working models of relationships, which will enable the child to regulate their own emotions when they are more developmentally independent.

The child's ability to regulate emotions mediates the effect of some aspects of parenting on the child's social functioning (Eisenberg et al, 2001). The available evidence suggests a clear link between parenting styles and the child's capacity for emotion regulation (Chang, Schwartz, Dodge & McBride-Chang, 2003). (This will be further discussed in section 1.15)

(ii) memory retrieval Children have difficulties spontaneously retrieving memories and are reliant on adults and their surroundings for cues (Salmon & Bryant, 2002). This again implicates the role of the caregiver in resolving the traumatic experience. Language factors seem pertinent here, not only (as covered earlier) in terms of their ability to encode the trauma event into an autobiographical memory, but also in relation to communicating their experience to others. Their linguistic ability will affect the nature of the adult-child conversations that can occur. If a child's memory limits their spontaneous memory retrieval (as discussed before) they will be unlikely to engage in spontaneous discussion of the trauma. It may therefore be the caregiver's responsibility to initiate conversation about the trauma so that the child can incorporate the experience into an autobiographical memory thus aiding the resolution of the trauma. As well as initiating discussions about the trauma, the caregiver's role in terms of the way that they facilitate the discussion may also be crucial. Parents vary in the way that they discuss prior emotional experiences with their children and this variance may be accounted for by the quality of the parent-child relationship, which in turn may influence the content and structure of the child's autobiographical memory (Farrar, Fasig & Wech-Ross, 1997).

(iii) engaging in conversation with adults The child's ability to engage in conversation with adults is likely to influence how the trauma is resolved (Salmon & Bryant, 2002). Theoretical reflections of adult-child discussion of traumas, and a review of relevant empirical data, reveals three possible positive outcomes of discussing the traumatic experience: (1) the event may be instated in memory thus avoiding forgetting details of the trauma; (2) the child will have the opportunity to reappraise the experience and have misconceptions corrected; and (3) discussion may

also help the child to regulate their emotions about the trauma thus providing emotional support (Salmon & Bryant, 2002). Adult-child discussion about the trauma should therefore improve the child's ability to cope with the experience. Yet children may be reluctant to discuss the trauma for a variety of reasons. They may not want to upset their parents and so parents may be unaware of the full extent of the child's distress. Children may also be reluctant to discuss the event with peers because they feel that they are different, or that they have encountered something outside of the 'normal' range of experience. Peers may also be reluctant to ask the child about the traumatic event through fear of further upsetting the child. As a consequence, the child may feel rejected (Perrin et al, 2000).

Equally, parents differ in the extent to which they are willing to discuss the trauma with their child for various reasons such as a belief that discussing the event will frighten the child, or because they feel too challenged by the traumatic material (Pynoos et al, 1999). Salmon and Bryant (2002) suggest that their willingness to discuss the trauma is influenced by attachment status (this will be covered in section 1.15). Perry and colleagues' early study looked at parent child communication following the Vicksburg tornado (Perry, Silber & Bloch, 1956 as cited in Vogel & Vernberg, 1993). A sub group of parents who were described as showing strong emotional distress and were unable to help their children (because they were dependent on them instead) reported that they believed the best strategy in dealing with the disaster was to avoid talking about it with their children. The researchers suggested that this contributed to symptom expression. More recent research of a large sample of older children from Bosnia-Herzegovina proposed that when the mother and child avoid discussing the trauma, they are, in effect, negatively

reinforcing each other for doing so, thus maintaining their trauma symptoms (Smith et al, 2001).

1.12 Parent-child conversations about emotional events

Not only does parents' willingness to talk about traumatic events appear to be important but current theory also suggests that the way in which parents talk about traumatic events with their children is vital. Two styles of parental conversational style have emerged from studies of memory talk. *Elaborative* parents may provide a rich narrative structure developing the scope of the conversation by asking their children questions and responding to their child's recall. In contrast, *repetitive or low-elaborative* parents talk about experiences in concrete terms, providing less information and focusing on specific details rather than developing a narrative (Farrar et al, 1997; Reese & Fivush, 1993). There is preliminary evidence suggesting that attachment status affects these differences, at least for female dyads (Farrar et al, 1997).

Unfortunately research has yet to address the way in which parents discuss traumatic events with their children, however some studies have addressed the way that parents talk to their children about emotional events. Farrar and colleagues (1997) conducted a study where parents talked with their young children about four previous experiences; two positive and two negative, based on the premise that parent-child discussions of past emotional experiences is crucial in forming and establishing the attachment relationship. Farrar and colleagues found that insecurely attached mother-daughter dyads engaged in more negative emotion talk than secure dyads but the mothers were more likely to ignore or avoid initiations of negative themes. Secure

mother-daughter dyads were more open to exploring negative emotion topics than insecure dyads. These differences were not significant for boys however. The authors state that these conversations are important contexts where parents can help their children to regulate their emotions by providing them with coping strategies for dealing with negative experiences and that their ability to do so is usually dependent on attachment status and thus the quality of the parent –child relationship.

The review of the theoretical literature outlined above points towards three ways in which parent-child conversations about the traumatic event could lead to its resolution, namely, by regulating the child's emotions, assisting them in developing a coherent narrative and autobiographical memory of the event, and providing an opportunity where misconceptions can be corrected and the event can be re-appraised. For these processes to be helpful, the literature suggests that the parent would need to help the child to reduce their sense of internal and external threat. This would in turn help the child to regulate their emotions. Further, it could also be hypothesised that parents could help their child to develop a more coherent autobiographical memory by correcting misconceptions or omissions the child has of the traumatic event. Pynoos and colleagues (1995) argue that parental support in cognitive and emotional reappraisals may assist in the child's adjustment by providing a co-constructed narrative of the context and meaning of the event as well as validating the child's emotional experience. This raises the possibility that the primary issue is not so much whether the parent-child discussion of the traumatic event takes place, but rather the way in which it is done. Some parent-child discussions of the trauma would not be containing or helpful for the children because, for example, a traumatised parent may reinforce the child's sense of threat

and increase or reinforce their anxiety, perhaps through modelling poor emotion regulation (Chang et al, 2003) or failing to assist the child in regulating their own emotions. On the other hand discussions that are characterised by low avoidance, facilitating re-appraisal of the event and correcting misconceptions about it, while helping the child to regulate their emotions through containing their anxiety are likely to be helpful in resolving the trauma. It is these inter-related hypotheses that form the focus of the present study (see section 1.18).

1.13 Family factors in child PTSD

When situating child PTSD in a developmental framework it becomes clear that family factors, in particular the role of parents, are likely to be highly influential, yet there is a paucity of research investigating relational factors in child PTSD. Pynoos and colleagues (1995) speculate that the parent's response (if present) during the trauma is a crucial mediator of the child's distress because, for example, a reduction in the child's level of anxiety after the event is likely to occur if the parent remains calm and appears to be in control. Some studies have found links between children's post-trauma symptoms and parents' trauma-related symptoms (Foy, Madvig, Pynoos & Camilleri, 1996; Smith et al, 2001). Bryce, Walker, Ghorayeb, and Kanj (1989) found that the most important predictor of child PTS² among five to seven year olds was their mother's level of depressive symptomatology. Similar results have been found in Australian families who experienced bushfires (McFarlane, 1987a,b). One must be cautious in interpreting the results of these studies however, as parents are often the informants regarding their child's health and functioning and if the parent is traumatised or suffering from other psychological problems they may be prone to

² PTS indicates Post-traumatic symptoms, as mentioned previously.

either over-reporting or under-reporting the child's level of distress. There is evidence to suggest that this is the case with maternal depression (e.g. Boyle & Pickles, 1997). In the case of PTSD, one could speculate that parents may over-report distress as a way of communicating their own distress, perhaps as a help-seeking behaviour. Conversely, parents preoccupied by their own symptoms may have not noticed the extent of their child's distress and thus under-report child symptoms. Under-reporting may also occur because many posttraumatic symptoms are internally experienced and the child may avoid reporting them through fear of discussing the trauma (Pynoos et al, 1995).

Taking account of this predicament, Smith and colleagues (2001) took measures of both independent reports of the child's mental health, mothers' reports of their own mental health and mothers' reports of their children's adjustment in a large sample of older children who survived three years of war in Bosnia-Herzegovina. They discovered that child distress (PTSD symptoms, depression, anxiety and grief) was positively correlated with their mother's level of distress, especially avoidance symptoms, after controlling for shared exposure levels. In speculating why avoidance symptoms had the strongest association with child distress, Smith and colleagues (2001) proposed that parents and children might get into a cycle of not talking about the event in an attempt to avoid upsetting one another. Each member of the dyad is therefore negatively reinforcing the other for avoiding processing their traumatic memories, which in turn, is likely to maintain the symptoms for both of them.

Other explanations accounting for the co-occurrence of distress in parent-child dyads include scenarios whereby the parent is overwhelmed by their own reactions to the

traumatic event and so have a diminished ability to effectively parent their child by being both sensitive and responsive to the child's needs. For example, parental anxiety, trauma, or grief may result in an inability to notice or tolerate their child's distress (Appleyard & Osofsky, 2003; Pynoos et al, 1995). Pynoos and colleagues (1999) argue that anxiety sensitivity, prior traumatic loss, maternal avoidance, and overt anxious parental responses mediate the relationship between parental responsiveness and the child's ability to adapt to the trauma in a way that exacerbates the child's distress. Although little empirical research has been carried out that examines the influence of parental posttraumatic distress on parenting ability, clinical evidence suggests that PTSD symptoms, because of their effect on the parent's stress levels, can negatively impact on their ability to parent effectively (Appleyard & Osofsky, 2003).

The literature reviewed above therefore highlights the impact of the parent's distress on the child. Indeed, most of the discussion in the literature focusing on the relationship between parent and child distress gives most attention to the influence of the parent's distress on the child (Vogel & Vernberg, 1993). It would also be important to extrapolate the underlying mechanisms of this relationship, which have yet to be tested empirically. In fact only one theoretical account (Scheeringa & Zeanah, 2001) considers this issue in some detail.

Scheeringa and Zeanah (2001) reviewed the seventeen studies that simultaneously assessed parental and child functioning following trauma and consequently proposed a relational perspective of PTSD in early childhood. Sixteen of the seventeen studies reviewed demonstrated a significant association between parental functioning and

child functioning following traumas. The child outcomes that were associated with poorer parental or family adjustment included: higher rates of PTSD, increased number of PTSD symptoms, higher internalising and externalising symptoms, higher levels of depressive symptoms, and more aggressive and antisocial behaviours. The review also uncovered a variety of parental variables associated with poorer child outcome, but the most precise variables that predicted poor outcome in two regression analyses were maternal avoidance, inducing guilt and anxiety, and perceived rejection by the parents. Scheeringa and Zeanah conclude that there is clear evidence for a relational link between parental/family functioning and child functioning following trauma, and that the heterogeneity of measures used in the seventeen studies serve to strengthen this assertion because of the consistency of association across studies. They also propose that the relational components of post trauma adjustment may be most significant in preschool children - due to their higher level of dependence on their caregivers - than for older children.

Scheeringa and Zeanah's (2001) review suggests the usefulness of a relational model of PTSD. Yet, none of the cited studies have observed the parent-child relationship directly. Instead, the majority of the measures were self-reports and/or questionnaires, tending to measure perceived parenting rather than actual parenting. Objective studies of parent-child interaction are considered to be more reliable measures of actual parenting (Hudson & Rapee, 2001) as they do not rely on either the parent or child's perceptions. Objectively measured parent-child interaction factors have been studied and found to play an important role in the development and maintenance of other childhood psychological problems such as anxiety (e.g. Hudson & Rapee, 2001; Woodruff-Borden, Morrow, Bourland & Cambron, 2002), conduct

problems (e.g. Winsler, Diaz, McCarthy, Atencio & Chabay, 1999; Hay et al, 1999) and ADHD (e.g. Brophy & Dunn, 2002). It would be useful to look at the literature on the impact of parent-child interaction factors on other psychological problems in order to formulate the potential impact of general parenting factors on children who have experienced a trauma while acknowledging that there may be certain subtle differences in the processes investigated.

There are a number of reasons why it may be useful to look at studies of parent-child interaction and child anxiety problems in addition to understanding important methodological issues in this area. PTSD is indeed classified as an anxiety disorder (DSM-IV, APA, 1994). As anxiety disorders, they share common cognitive, emotional, physiological and behavioural features such as beliefs around threat and danger, an affective state characterised by tension, restlessness and uneasiness, and avoidant behaviours as well as avoidant cognitive processes. Furthermore, some of the risk factors for non-PTSD anxiety disorders are similar to risk factors (unrelated to the traumatic event) for PTSD. These include anxious attachments, a family history of anxiety, learning difficulties, previous psychological problems and parental conflict (see Carr, 1999; Dadds & Barrett, 1996; Dadds & Powell, 1991; Scheeringa & Zeanah, 2001; Udwin et al, 2000). Also, various studies have found that some children respond to trauma with anxiety disorders in addition to or instead of PTSD. It seems that in some ways the two disorders are difficult to separate and this may be because they actually share some features. Indeed, some of the studies of anxiety and parent-child interaction include dyads with PTSD in their samples (Woodruff-Borden et al, 2002). Moreover, Pynoos and colleagues (1999) speculate that many aspects of parent-child interactions that have been found to moderate the

development of childhood anxiety disorders are also evident both during and after a child's exposure to trauma.

The literature supports the idea of familial transmission of anxiety disorders (Dadds & Barrett, 1996). The mechanisms of transmission are not yet clear but biopsychosocial models have been proposed to explain this phenomenon. Dadds and Roth (2001) propose that the following four processes contribute to the transmission of anxiety in the family: inherited temperament, learning that emphasises threat and avoidance, high parental control and low levels of secure attachment, thus highlighting the influence of two psychological models: social learning theory and attachment theory, which predominate this area of research. The relevance of each will briefly be reviewed.

1.14 Social learning theory

Parent-child interaction research (in childhood anxiety) is often derived from social learning theory and focuses on two specific processes: verbal instruction and modelling. Ehlers's (1993) retrospective research of anxious adults provides an example of the influence of verbal instruction. Adults who scored high on fear of physical sensations reported more reinforcement from their parents in response to sick role behaviour than did non-clinical subjects. An adoption study exploring the role of modelling in phobic presentations (thus controlling for genetic transmission) demonstrated that infant shyness was negatively correlated with the degree of sociability of their adoptive mothers (Daniels & Plomin, 1985). Rapee (2001) suggests that parental verbal instruction related to threat, along with parental modelling of anxious behaviour interact and increase the child's tendency to

associate specific stimuli with threat or danger, exaggerates the degree of expected danger, and promotes a sense of lack of control over threatening situations. The verbal instruction factors are well incorporated into cognitive models of PTSD. The modelling factors however, are less well investigated.

1.15 Attachment theory

Attachment describes the establishment of early significant relationships with one or more primary caregivers, and the internalisation of these relationships. These internalisations are thought to form the basis of a psychological model (often referred to as internal working models) of attachment relationships, which guides functioning in close interpersonal relationships throughout the lifespan (Bowlby, 1969). Attachment status has been measured both in children and adults using observational measures such as Ainsworth's strange situation (Ainsworth, 1989), semi-structured interviews and self-report measures of both current and past relationships (Main, 1996). A large body of literature has been conducted in the attachment field, which has consistently shown that insecure early attachments are associated with poorer social competence and later behavioural and psychological problems (e.g. van Ijzendoorn, Schnagel & Bakermans-Kranenberg, 1999). Conversely, children who are securely attached tend to be more self-confident, trusting in close relationships, and more competent in social understanding (than children who are insecurely attached) (Thompson, 2001). Furthermore, Bowlby (1973) originally proposed that many forms of childhood anxiety disorders were associated with insecurity over the availability of an attachment figure. This is consistent with more recent outcome research, which has shown that parent-child relational factors have a significant influence on anxiety disorders (to be discussed in section 1.17).

There are different categories of poor attachments (insecure, dismissive/avoidant, preoccupied/anxious, ambivalent, disorganised) but consistent patterns have yet to be found between these specific attachment styles and specific psychological problems (see van Ijzendoorn & Bakermans-Kranenburg, 1996 for a meta-analytic review). More recent research however has confirmed the relationship between anxious/resistant attachment in the child with later anxiety disorders (Warren et al., 1997; Rosenstein & Horowitz, 1996) and avoidant attachment and later internalising problems (Lyons-Ruth, Easterbrooks & Davidson Cibelli, 1997). The relationship between insecure attachment and emotional regulation could provide an explanation for this association. Insecure attachment, particularly disorganization, has been found to be associated with autonomic dysregulation in later childhood and is thought to represent a particularly high-risk group for later emotional disorders (see Burgess, Marshall, Rubin & Fox, 2003; Spangler & Grossman, 1993). Also, avoidant attachment strategies are characterised by relatively little expression of distress and anger where the individual attempts to self regulate negative affect and limited help-seeking. This is what Lyons-Ruth and colleagues (1997) name the “hallmark of an internalising stance” (pp.689) thus linking avoidant attachment with internalising problems. The mechanisms underlying these associations are the focus of a large body of research.

Thompson and Raikes’ (2003) review of attachment research proposes a developmental psychopathology perspective whereby multiple risk factors in individual, family and ecological domains converge to provide a strong prediction of attachment security. So, the existence of insecure attachment coupled with maternal

depression, for example, would better predict child emotional problems than attachment insecurity alone (Lyons-Ruth, Easterbrooks & Cibelli, 1997). Thompson and Raikes (2003) also highlight the flexibility of attachment status throughout the lifespan and argue that negative family events (which have been found to be moderately associated with changes in attachment) can indirectly alter the caregiver's sensitivity and responsiveness or directly affect attachment security when, as a result of the event, the child needs the parent's support with emotion regulation and adaptive coping. This issue is particularly pertinent to the present study in that the traumatic event may in fact modify the security of the child's attachment.

Attachment theory posits that the caregiver's responsiveness, sensitivity and ability to help their child to regulate their emotions influences the child's attachment security and the development of later emotional problems such as anxiety. Dadds and Barrett (1996) propose that these attachment models of anxiety complement coercive operant models of parenting (Patterson, 1982). Furthermore, one can consider the models to be complementary in that attachment theory emphasises the importance of the quality of the parent-child *relationship* and social learning theory focuses on the parent-child interaction behaviours and the microprocesses involved in the transmission of anxiety.

1.16 Anxiety and parent-child interaction

Many features of parent-child interactions that have been described as moderating the development of anxiety disorders in childhood are also evident both during and after a child's exposure to trauma (Pynoos et al, 1999). Both external factors such as

family factors and socio-environmental factors, and internal factors such as genetic and cognitive factors can be considered, within a developmental psychopathology framework, as contributing to the process and outcome of child anxiety problems. Rapee's (2001) model asserts that there is a reciprocal relationship between parent behaviour and child anxiety that is responsible for the development and maintenance of anxiety disorders. The model assumes that the parent is also anxious, which causes them to be overinvolved in interacting with their child and thus reinforcing the child's vulnerability to anxiety. Rapee (2001) argues that this process occurs by increasing the child's perception of threat, reducing the child's sense of control over threat and increasing the child's avoidance of threat. Overinvolvement, parental restrictiveness and criticism may diminish the child's sense of control and self-efficacy thus decreasing their perceived agency in dealing with difficult situations (Pynoos et al, 1999). Similarly, Wood et al (2003) suggest four possible pathways linking parenting (as a risk factor) to childhood anxiety problems: (1) some parenting styles may directly cause anxiety; (2) the child's anxiety symptoms or expression of fear may elicit particular types of parenting; (3) genetic transmission; and (4) genetic factors, parenting factors, children's anxiety symptoms and other risk and protective factors may in fact moderate or reinforce each other in a circular (rather than linear) process.

An overview of the parent-child interaction literature suggests that over-involved, controlling and rejecting parenting styles are linked to child anxiety problems, although the latter association is less consistent. Many of these studies however have relied heavily on self-reports or retrospective accounts. Nevertheless a number of recent studies have used objective measures of parenting with childhood anxiety.

Observational studies of parent-child interaction have generally revealed that mothers of anxious children are more likely to use more aversive control exchanges than positive control exchanges, respond less often to their children and show less warmth and more criticism in interactions. Hudson & Rapee's (2001) study found that mothers of anxious children (and oppositional defiant children) were overinvolved during interaction tasks with their children than mothers of non-clinic children. Also, mothers of anxious children were more negative during the interactions than non-clinic children dyads. These results support the association between anxiety and overinvolved parenting style but suggests that the relationship may not be specific to anxiety. This study is one of the few that uses a comparison group of children with other mental health problems. Parent-child interaction studies of children with behaviour problems have also found interactions to be characterised by more over-involvement and less praise (Winsler, Diaz, McCarthy, Atencio & Chabay, 1999), and more criticism and less responsive communication (Brophy & Dunn, 2002) than non-clinic controls. Similar parenting behaviours may therefore be occurring in parent-child interactions where the child has a mental health problem other than anxiety.

In contrast to Hudson & Rapee's (2001) findings Woodruff-Borden, Morrow, Bourland and Cambron (2002) found a link between withdrawn parenting and anxiety. They asked anxious and non-anxious parent-child dyads to complete two interaction tasks - unsolvable anagrams and a speech preparation and delivery exercise. The group of anxious parents were significantly less productively engaged and more withdrawn than the control group. The authors suggest that parents

allocating most of their resources to alleviating their own anxiety are more unavailable to help their child, or, parents may lack effective coping skills that they can pass on to their children in difficult situations.

It seems that, across observational parent-child interaction studies, anxiety is also associated with more negativity and less warmth (although this association may be less consistent than that between overinvolvement and anxiety). Mothers of anxious children are likely to agree less with their child and are less likely to point out positive consequences than non-clinic mothers (Barrett, Dadds & Rapee, 1996; Barrett, Rapee, Dadds & Ryan, 1996; Dadds, Barrett, Rapee & Ryan, 1996). Still, another drawback of this research base is that more often than not, the parent's difficulties are not thoroughly assessed. In relation to anxious samples, it is often hypothesised that *parental* anxiety is associated with an overinvolved parenting style, however Hudson & Rapee's (2001) study found that the mother's anxiety was not significantly correlated with the level of involvement or the negativity of the parent-child interaction. Nevertheless, one weakness of this study was that the mothers were not thoroughly assessed for psychopathology, using only two brief self-report measures of anxiety and depression. It remains unclear whether these types of behaviour were caused by the parent's own anxiety or were in response to the children's anxiety, or a combination of the two.

Whaley and colleagues' study (1999) of anxious mothers and their children addressed this issue of the bi-directionality of anxiety. They examined parent child interaction between anxious mothers and anxious children, anxious mothers and non-anxious children and non-anxious mothers and non-anxious children using

observational techniques and including a diagnostic assessment of the mother's anxiety. The results of regression analyses demonstrated that maternal anxiety contributed more to maternal behaviour than did child anxiety and that the behaviour exhibited by the mother in the interaction accounted for the largest portion of variance in child anxiety. They concluded that parent-child interaction characteristics are more salient predictors of child anxiety status than maternal diagnosis or level of ongoing strain. These interaction characteristics included catastrophizing, criticism, less granting of autonomy, less positivity and less warmth. The study also highlighted the importance of mutual dyadic influences on maternal behaviour in parent-child interaction, for example, child anxiety status significantly contributed to maternal granting of autonomy and maternal anxiety status alone was not the sole predictor for maternal behaviour.

1.17 PTSD and parent-child interaction

As stated previously, parent-child interaction has not been observed directly in children who have specifically been exposed to a trauma. The anxiety literature and the implications from theories of PTSD demonstrate the significance of parent-child interaction factors. Furthermore, the PTSD literature has demonstrated a link between family/parenting factors and child factors in the development of PTSD symptoms (Scheeringa & Zeanah, 2001, LaGreca et al, 1996). It follows that studying parent-child interaction factors in children who have been exposed to trauma would help to uncover important information about the development and maintenance of childhood PTSD.

Building on the empirical evidence of relational factors in child PTSD, Scheeringa and Zeanah (2001) developed a theoretical model - the Compound model - encompassing the relational aspects of PTSD with younger children and their parents. The model outlines three types of parenting behaviours that may occur in dyads where the child (and/or parent) has been exposed to a traumatic event, and incorporates what they term moderating effects and vicarious traumatization effects. Moderating effects describe the parent-child relationship as a moderating variable affecting the strength of the association between the traumatic event and the child's symptomatic responses, i.e. the magnitude of the effect of the trauma can be moderated by the parent's response to the child. An example would be caregivers who avoid reminders of the trauma thus limiting their ability to respond to either the child's attempts to discuss the trauma or their play re-enactments. Empirical evidence exists supporting this assertion (Laor et al., 1997). A 30-month follow up study of Israeli preschool children displaced after the missile attacks in the Gulf war demonstrated a link between maternal avoidance and child PTSD over and above the mother's level of symptoms, her capacity for image control (intrusions), family functioning, personality domains, and distance from missile impact (Laor et al, 1997). The authors speculated that a high level of avoidance symptoms undermined the mother's capacity to support her child.

The vicarious traumatization effect describes a situation where the caregiver experienced a traumatic event (but the child did not) and the caregiver's symptoms preoccupy them to the extent that they impact on their behaviour, in particular their ability to respond to the child. In the compound model, both the caregiver and child are traumatized and their own symptoms have a relational impact in that they

exacerbate each other's symptoms. Their model asserts that young children are so dependent on their caregiver's responsiveness that when young children are themselves traumatized they are especially vulnerable to insensitivity in the caregiver which may be caused by the caregiver's own posttraumatic symptoms.

The compound model advocates understanding PTSD in a relational context and outlines three types of relational patterns that underscore this context. Indeed the first two patterns are equivalent to the parenting behaviours reviewed earlier in relation to child anxiety. The patterns are: (1) withdrawn/unresponsive/unavailable pattern, (2) overprotective/constricting pattern and (3) re-enacting/endangering/frightening pattern. Each will be briefly reviewed.

1. Withdrawn/unresponsive/unavailable pattern This describes a situation whereby the caregiver is avoidant or withdrawn in their interaction with the child and is therefore unable to respond sensitively to them. One possible cause is parents being traumatized themselves. Indeed, Scheeringa and Zeanah (2001) propose that this situation is more likely to happen with caregivers who have been previously traumatized and here the child's trauma triggers painful memories of their own trauma. They also suggest that this situation may occur with caregivers who are depressed or who are experiencing complicated grief reactions. Furthermore, parents who experienced the same traumatic event as their child may also be affected by it in that they overlook their child's needs or are unable to help the child cope in the aftermath (Silverman & LaGreca, 2002).

2. Overprotective/constricting pattern Parents may be preoccupied by the fear that their child may be traumatized and so behave in a way that is overprotective or

constricting. The authors acknowledge that this type of relating may occur regardless of whether or not a trauma had occurred but assert that it is one way of responding to traumatization. This pattern can occur where the parent was or was not with the child during the traumatic event. Scheeringa and Zeanah (2001) propose that in the case of the parent being present during the trauma, they may feel guilty for being unable to protect them. Similarly, they may feel guilty when absent (during the trauma) for being unable to protect their child and may even reconstruct an imagined scene of the child experiencing the trauma which may in itself be re-experienced intrusively by the parent.

3. Re-enacting/endangering/frightening pattern This pattern describes a situation where the caregiver usually experienced the trauma and becomes so preoccupied with reminders of it that they repeatedly ask the child questions about the event or repeatedly discuss the trauma and that this can traumatize or re-traumatize the child. Frightening parental behaviours have previously been studied in relation to disorganised attachment (for example Lyons-Ruth, Bronfman & Parsons, 1999). Frightening behaviours are diverse and may include a failure to recognise the child's emotional state, and mistimed or poorly regulated caregiving behaviour (Fearon & Mansell, 2001). It is worth bearing in mind however, that frightening parental behaviours have on the most part been described in relation to infants and some modifications may need to be taken into account when considering their applicability to older children.

The compound model therefore highlights three different ways in which relational factors may manifest themselves in parent-child interaction following trauma and

how this may impact on the child's own symptoms. Despite the fact that the model was developed with preschoolers in mind, it also appears relevant to older children. Indeed the body of research (looking at family factors following child trauma) that Scheeringa and Zeanah based the theory upon contained samples of children from a wide range of age groups. And, two of the relational patterns (numbers 1. and 2.) outlined by Scheeringa and Zeanah have been widely investigated with older children in the anxiety research reviewed earlier.

These conceptualisations will therefore be used in the present study in observing parent-child interaction in a population of children who have been exposed to a trauma. The first and second pattern will be measured with levels of involvement (ranging from withdrawn to intrusive) and the third pattern will be measured in terms of the way the parent manages fear. The three patterns of parenting will be used in conjunction with other types of parenting behaviours that have been demonstrated to be correlated with adverse child outcomes in the anxiety literature. Whilst this incorporates a wide range of parenting behaviours, some of which may appear somewhat contradictory, the attachment literature advocates that *sensitive* parenting is associated with secure attachment, which promotes resilience in the child (Thompson, 2001). Hence withdrawn parents and over-controlling parents may both fail to meet the child's needs but in qualitatively different ways.

1.18 Current model and hypotheses

Parent-child interactions are likely to impact on the child's ability to adjust to a traumatic experience. Owing to the child's emotional and cognitive dependence on their primary caregiver, parent-child relational factors (emotional, cognitive and

behavioural) will influence the child's ability to appraise, encode, process and thus resolve the traumatic event (see Brewin et al, 1999). More specifically, parent-child conversations about the trauma are likely to influence the child's memory for the traumatic experience and the child's capacity to cope (Salmon & Bryant, 2002). Hence an avoidant parental style may reinforce the child's own avoidance in discussing the trauma, therefore minimising the opportunities to accomplish the necessary task of processing the traumatic experience. Parents are expected to play an important role in processing the trauma by helping the child to re-appraise their sense of threat and correcting misconceptions of the event while containing the child's fears and thus assisting emotion regulation. Furthermore, the way in which the parent responds to the child, whether that may be rejecting, controlling, critical, supportive, or accepting is also expected to influence the child's adjustment to the trauma and their consequent level of distress. Thus observing parent-child interaction, including a discussion about the trauma, is essential in order to uncover the relationship between parenting factors and the development and maintenance of child PTSD.

The current model predicts that parent child interaction factors will have a moderating effect on the relationship between exposure to trauma and child outcome. This means that negative interaction factors increase the risk of poor outcome in terms of child adjustment to the trauma. Within this conceptual framework, specific parenting behaviours and parent-child interaction patterns are considered to pre-date the trauma, but may in fact be exacerbated by the traumatic event. The parent-child interaction tasks will include a cognitive task and a discussion task whereby the dyad will be asked to talk about the traumatic event.

It is hypothesised that:

1. Parenting behaviours characterised by greater intrusiveness, criticism and avoidance, and less warmth and granting of autonomy will be associated with higher levels of post-traumatic stress symptoms (PTS) and/or anxiety and depression symptoms.
2. In the discussion task, parenting behaviours that are avoidant and increase the child's fear will be associated with higher levels of child PTS. Conversely, children with low levels of PTS will be more likely to have conversations where their parents help the child to reappraise the trauma in a way that decreases their sense of threat or corrects misconceptions about the trauma.
3. Distressed parents will be more likely to show the parenting behaviours (mentioned above) that are predicted to be associated with child PTS. Parents who are distressed will be more emotionally withdrawn *or* preoccupied during the tasks. Some distressed parents will be more re-enacting, and less responsive to their child, and thus more likely to induce fear in the child during the discussion task.

In order to assess the specific impact of the parenting behaviours on child adjustment post-trauma, variables that have been consistently associated with poor outcome in previous research will be controlled for in the present study. These risk factors include trauma severity, social class, pre-existing mental health problems, and prior trauma exposure. It is anticipated that the associations between the parenting behaviours and child PTS will remain after controlling for demographic factors, trauma related factors and parent mental health.

Method

2.1 Participants

The sample consisted of 50 participants, of whom 25 were children aged between 7 and 14 years old who were each recruited with a primary caregiver from Accident and Emergency departments of four central London hospitals over a period of 8 months. Children who had presented to A&E following a traumatic event were contacted and invited to participate in the study and then attend a 3-month follow up (Time 2). At 3-month follow-up, 17 of the 25 children participated. The traumatic events comprised of RTAs (52%, $n=13$), serious falls (24%, $n=6$), assaults (20%, $n=5$), and being attacked by an animal (4%, $n=1$). The mean age of the participants was 10.52 years (SD 2.69). The sample was equally divided in terms of gender (boys 52%, $n=13$; girls 48%, $n=12$). Over this period 44 children were approached and invited to participate in the study of which 19 declined. Parents or children who could not speak English were excluded ($n = 2$) due to validity issues in the self-report questionnaires and interviews. The overall response rate was 57%, which is equivalent or higher than that of the other major studies in this field (43% Stallard, Velleman & Baldwin, 1998; 56% Keppel-Benson, Ollendick & Benson, 2002; Stallard study, 58% Ehlers, Mayou & Bryant, 2001). Demographic data and information about the injuries sustained of those who declined to participate was compared with the participants and no differences were found in age, gender, trauma severity, or trauma type. The demographic details of each participant, including information about whether the parent was present during the trauma are presented in Table 2.1.

Table 2.1

Demographic details of participants by trauma type

Trauma type	Gender	Age	Triage rating	Parent present	Parent who participated
Fall	F	9	2	N	Mother
Fall	M	12	2	N	Mother
Fall	M	7	3	N	Father
Fall	M	8	2	N	Mother
Fall	F	11	3	N	Father
Fall	M	8	2	Y (mother)	Mother
Animal attack	F	8	3	Y (mother)	Mother
RTA	F	7	1	Y (mother)	Mother
RTA	M	12	4	Y (mother)	Mother
RTA	M	11	3	N	Mother
RTA	F	11	4	N	Mother
RTA	M	7	1	N	Mother
RTA	M	8	1	Y (mother)	Mother
RTA	M	11	1	N	Mother
RTA	M	7	4	N	Mother
RTA	F	13	1	N	Mother
RTA	F	14	1	N	Mother
RTA	F	14	2	N	Mother
RTA	M	10	1	N	Mother
RTA	F	14	1	N	Mother
Assault	F	13	3	N	Mother
Assault	F	8	1	N	Mother
Assault	M	13	4	N	Mother
Assault	M	14	4	N	Father
Assault	F	14	4	N	Mother

When examining the differences in demographic data grouped according to the type of trauma, there appears to be little variation in mean triage ratings. Injuries resulting from RTAs (as measured by triage rating) tended to be slightly more serious (1.9) than falls (2.3) and assaults (3.2)³. Similarly, there was little variation in mean age grouped by trauma type. The children who had been assaulted (12.4 years) were slightly older than those who experienced an RTA (10.7 yrs) or fall (9.2 yrs).

³ Triage ratings are given at A&E and used by the hospitals to indicate trauma/injury severity. They are scored on a scale of 1-5 with 1 being the most serious. Further explanation of triage ratings can be found on page 71.

Potential participants and their parents were given an information sheet about the study whilst at A&E. The participants were phoned a week later and invited to participate. In the case of the Royal London Hospital, potential participants were approached by the clinical teams and were asked if they agreed to be contacted about the research. If in agreement they filled in a 'consent to be contacted' form and were later contacted by one of the researchers and informed about the study. The variation in the procedure was due to the requirements outlined by the East London and the City research ethics committee. On agreement to participate, written consent was acquired from both the parent and child prior to the data collection.

2.2 Ethics

Ethical approval was obtained from University College London Hospitals Research Ethics Committee and East London and the City Research Ethics Committee (copies of approval letters are shown in Appendix J).

2.3 Procedure

Having agreed to take part, the child and their parent were seen by two researchers within one month of the traumatic event and then again 3 months later for a follow-up assessment. The data collection either occurred at the participant's home or at the psychology department in the university (according to the preference of the family). Two of the three researchers involved in the study carried out the data collection on a rotational basis. At the beginning of the session the parent and child were separated (in different rooms), each with one researcher. The researchers then administered a diagnostic interview and the participants completed the questionnaires. All the members of the research team were trained in administering the diagnostic interviews

before collecting the data. The child was interviewed separately from the adult to ensure that both were able to speak freely. The researchers remained in the same room as the participants throughout their completion of the measures providing the opportunity to seek clarification of how to complete the measures. The child questionnaire was read out to the child if they preferred. The parent and child were then reunited and videotaped completing the discussion task and then the anagram task. The researchers left the room during the tasks. The same measures were used for the data collection at follow-up except the interaction tasks were not re-administered. In cases where the child was showing significant distress at follow-up, their parents were given information about accessing local child and adolescent psychology services for therapeutic help or were offered a referral to a specialist child CBT centre for PTSD.

Parent-child interaction tasks: In order to address the research questions particular to parent-child interaction where the child has experienced a trauma, two interaction tasks were used. One of the tasks was a difficult puzzle task, which has previously been used in anxiety research (Woodruff-Borden et al, 2002). The other was a discussion task (Whaley et al, 1999; Hudson, Angelosante, Comer, Robin & Kendall, 2003) in which the parent and child were asked to talk about the traumatic event together. Both assessed parenting factors (warmth/criticism and involvement), while the discussion task also addressed the hypotheses specific to PTSD (avoidance, re-appraising and parental management of fear).

a) Discussion task. Children were seated at a table with their mother (or in some cases their father) and asked to talk about the traumatic situation together for seven minutes. They were told that once five minutes had passed they would be given some

prompt cards which they could use if they were running out of things to say, although this was optional. The six prompt cards read: *“What was happening just before the frightening event? What happened after the frightening event and before you arrived at hospital? How did you feel at the time? Did you also notice any feelings in your body? What sorts of things were going through your mind during the frightening event? Who was there at the time and what were they doing”*. The experimenters left the room during the discussion task.

b) Anagram task: The second task consisted of a list of difficult anagrams. The task was adapted from Woodruff-Borden et al’s (2002) unsolvable anagram task. The parent was given the following task instructions in a written format and asked to explain the task to the child:

‘Your child will now be given a set of puzzles to do. The puzzles are anagrams. This means we’ll give your child sets of letters that make a word, but the letters are in the wrong order. Your child’s task is to work out what the word should be and to put the letters in the right order in the box provided. Your child will be given 10 minutes to get as many of the puzzles right as s/he can.

You will be with your child whilst s/he does this task. First we would like you to explain the task to your child so they know what to do. During the task you are free to help your child in whatever way you think is appropriate, but we would ask you not to give your child the actual answer if you work it out first. We would like your child to try and solve the problem him/herself. You and your child will be videoed whilst you do this task. We (the experimenters) will leave the room.’

The experimenters then left the room. The anagram task was designed so that it was too difficult to complete in the time given and for the target age group. The children were then offered some age appropriate anagrams so that they did not finish the session with a sense of failure. This was optional.

2.4 Design

The study was a prospective correlational design. The participants were recruited and seen within 4 weeks of the traumatic event occurring (Time 1). The participants were seen a second time (Time 2) three months after they were seen at Time 1. A parent and child semi-structured diagnostic interview is recommended for assessment (Perrin et al, 2001) and was administered to both the parent and child, along with questionnaires at both Time 1 and 2. Questionnaires measuring child distress included both self-report and parent-report as children may not report the full range or extent of their symptoms (Perrin et al, 2000) and parents and children rarely agree on the presence of symptoms or diagnostic conditions (Jenson, Rubio-Stipec, Canino et al, 1999). The interaction tasks were only administered at Time 1.

2.5 Measures

The PTSD sections of The Anxiety Disorders Interview Schedules (child and parent versions, ADIS-C and ADIS-P) (Brown, DiNardo & Barlow, 1994; Silverman & Nelles, 1988) were used for the diagnostic interviews, conducted during both assessment visits. The ADIS-C for children and adolescents aged 7 – 17 years old, is a modification of the Anxiety Disorders Interview Schedule (ADIS; DiNardo, O'Brien, Barlow, Waddell, & Blanchard, 1983). It was written to be consistent with the American Psychiatric Association's classification system (the *DSM-IV*; 1994). It

is a semi-structured diagnostic interview appropriate for both clinical and research settings. The questions are grouped into re-experiencing symptoms, avoidance symptoms and hyperarousal symptoms with a question at the end ascertaining the level of interference the symptoms have caused in the child's life. The questions are clinician administered and the responses are a 'yes/no' format. Examples of questions include:

'Do you have a lot of thoughts that you don't want to have about [frightening event]?''

'Since [event] have you stopped doing things you used to enjoy? E.g. playing games, going on outings, doing hobbies?'

Silverman and Nelles (1988) assessed the psychometric properties of the interview schedule and found an overall Kappa coefficient of .75. Silverman and Eisen (1992) investigated test re-test reliability and reported an overall Kappa coefficient of .75 and the test re-test reliability of the symptom summary scores to be satisfactory ($r = .71$).

The ADIS-P (parent version) interview schedule is also a diagnostic tool (for anxiety disorders) suitable for both clinical and research purposes and written to be consistent with the DSM-IV classification criteria. Questions are grouped according to the three categories outlined in the diagnostic criteria: re-experiencing symptoms, avoidance symptoms and hyperarousal symptoms. Most questions are organised in two parts. The first part enquires about frequency of symptoms and the second part about severity. Examples of questions include:

'How often do you experience dreams of the event? How much distress does this cause?'

'Since the event occurred how often have you experienced avoidance of activities, situations or people that are reminders of the event? To what degree have you experienced avoidance of activities, situations or people that are reminders of the event?'

'Since the event occurred how often have you experienced difficulty falling or staying asleep? To what degree have you experienced difficulty falling or staying asleep?'

Each response is rated on two scales from 0-8 measuring frequency and severity with 0 indicating no experience of symptom, or no distress, and 8 indicating constantly experiencing symptom, or extreme distress. Silverman, Saavendra and Pina (2001) assessed the reliability of both the child and parent versions of the ADIS and reported excellent reliability for anxiety disorders as well as excellent test-retest reliability. The ADIS-IV is also available in a lifetime version (ADIS-IV-L) and has good reliability of lifetime diagnoses of anxiety disorders ranging from $\kappa 0.36$ to $\kappa 0.83$ ($\kappa 0.61$ for PTSD) (Brown, Di Nardo, Lehman & Campbell, 2001). All researchers were trained in administering the diagnostic interview.

The Anagram task: The videotapes were coded using Hudson's coding criteria (Hudson, 2001). Each parent-child interaction was rated on nine global scales measuring the degree of parental involvement and warmth/negativity during the interaction. The global scales consisted of a nine-point continuum ranging from 0 to 8, where 4 represented a neutral point on the scale. The ten scales measured: (i) degree of unsolicited help (intrusiveness); (ii) general degree of help; (iii) touching of the anagram sheet; (iv) parent's focus during the interaction (towards the child or towards the task); (v) parent's posture; (vi) parent's degree of positive affect; (vii)

general mood/atmosphere of the interaction; (viii) parent's tension; (ix) parent's degree of verbal and non-verbal encouragement/criticism. These global scales were constructed to incorporate the two main theoretical constructs in the child anxiety literature: parental control and rejection. The first five scales measured degree of parental control illustrated by the parent's involvement during the task. The following four scales measured parental rejection, illustrated by the degree of negativity of the interaction.

A postgraduate trainee in clinical psychology rated the anagram task interactions. The observer had not met the families and was unaware of the level of distress of all the dyads prior to watching the videos. The observer watched each task twice, once to rate warmth/negativity and the second time to rate involvement. The author (who was also completing postgraduate training in clinical psychology) also rated 25% of the videos to assess inter-rater reliability. Every fourth video was double rated to prevent observer 'drift' away from the original coding definitions (Patterson, 1982). This observer was also blind to the level of distress of all the dyads she rated (the dyads chosen to second rate were those who the author had not assessed at Time 1). Training in the coding system was given to both observers until they reached an acceptable level of inter-rater reliability. Intraclass correlations were calculated to determine the reliability of the two observers. The intra-class correlation co-efficient for the involvement scale was .94, ($p=.0003$). The inter-rater reliability for the negativity scale was .93, ($p=.0005$).

The Discussion Task: The discussion task was coded according to Hudson's (2001) coding criteria for behavioural observations of family discussions of anxious, angry

and happy situations. Each parent-child discussion was rated on two sets of scales. In the first set, each scale consisted of a 5 point continuum (1 – 5) measuring: (i) warmth; (ii) parent and child's affect during the interaction; (iii) involvement; (iv) intrusiveness of parent. The scales were uni-directional measuring the degree of each construct. Three scales were also added to the coding criteria relating specifically to trauma (see appendix G). They were developed by the author to measure constructs specific to PTSD based on current theory on the development of PTSD in children (see Ehlers and Clarke, 1999; Salmon & Bryant, 2002; Scheeringa & Zeanah, 2001). The three scales measured: (i) degree of parental avoidance of discussing the trauma; (ii) parental management of fear; (iii) parental assistance in re-appraising the trauma and reducing the child's sense of threat. The first two of the three scales were also 5-point uni-directional likert scales measuring the degree of each construct. The latter scale was also a 5 point scale however had a mid point (3) which represented neutral behaviour.

Hudson's coding criteria (Section B) of what happened in the situation they were discussing was not used in this study because the parents were often not present during the traumatic event.

The author coded the discussion task. The author had not observed the discussions prior to coding them and was blind to the level of distress of two thirds of the children (n=17, 68%). The videotapes were each watched twice. The second rater of the anagram tasks also coded 25% of the discussions (every fourth video) to assess inter-rater reliability. Again, this observer was blind to the level of distress of the whole sample. Correlation co-efficients ranged from .85 ($p=.003$) to .92 ($p=.0006$).

Self-report Questionnaires At time 1 the child completed the following questionnaires:

1. *The Impact of Event Scale* (IES; Horowitz, Wilner & Alvarez, 1979). The IES is a widely used 15 item self-report measure of specific responses to trauma. It has a 4-point response scale indicating current frequency of symptoms. It has two subscales that measure intrusion and avoidance and in sum provide an indicator of the extent to which the traumatic event is resonant in the mind. Horowitz reported satisfactory reliability (split half reliability for the total score was 0.86). Internal consistency was found to be high with Cronbach's Alpha for intrusion = 0.78 and for avoidance = 0.82. Test re-test reliability for total score was reported at 0.87. Other research has confirmed these findings (Summarised by Weiss and Marmar, 1997). Further, Stallard, Velleman and Baldwin (1999) found that using the IES in conjunction with the R-CMAS and DSRS produced good sensitivity in relation to the diagnosis of PTSD. The three scales identified 90% of children with PTSD and 73% borderline cases. When using the IES alone, a cut-off score of 30 has been reported to maximise both sensitivity and specificity with respect to children involved in RTAs (Stallard et al, 1999). Alternatively, a cut-off score of 35 has been used to identify 89% of individuals with PTSD (Neal et al, 1994). A cut-off score of 35 will be used in the present study to err on the side of caution.
2. *Revised Children's Manifest Anxiety Scale* (RCMAS; Reynolds & Richmond, 1978; 1994). The RCMAS is a self-report measure of generalised non-specific anxiety containing 37 true/false items, nine of which comprise a lie

scale (to measure social conformity). The measure consists of 3 subscales: (i) physiological anxiety; (ii) worry/oversensitivity; and (iii) social concerns/concentration. The measure has demonstrated adequate test-retest reliability and validity (Reynolds, 1982; Reynolds & Richmond, 1985), good concurrent validity (Reynolds, 1980), good internal consistency and the items have good face validity (James, Reynolds & Dunbar, 1994). The scale has been validated on children aged 6-19 years and a cutoff point of 19 is recommended to identify children experiencing significant levels of anxiety (Stallard et al, 1999).

3. *Birleson Depression Self-Rating Scale* (DSRS; Birleson, 1981). This 18-item scale; also known as the *Birleson Depression Inventory (BDI)*, measures the degree of depressive feelings in children and adolescents. It is scored on a 3-point scale measuring frequency of symptoms (8 items are reversed for scoring). The scale has been validated for use on children aged 7-18 years (Firth & Chaplin, 1987). It has been reported to be moderately efficient at discriminating between depressed and non-depressed children, with specificity of between 77% and 88%, and sensitivity of 64% - 67% among British children (Asarnow & Carlson, 1985; Birleson, Hudson, Buchanan, & Wolff, 1987). Good internal consistency has also been reported (Birleson, 1981). Birleson (1981) recommends a cut-off score of 15.

The parent completed the following questionnaires:

1. The traumatic events checklist from the *Clinician Administered Post-traumatic Stress Disorder scale (CAPS)*; Nader, Kriegler, Blake, & Pynoos,

1994). The checklist comprises of 17 types of traumatic events of which the respondent reports whether they have any experience. The possible responses include: 'happened to me', 'witnessed it', 'learned about it' (happening to someone close to them), 'not sure', and 'doesn't apply'. The parents reported both for themselves and for their children.

2. *General Health Questionnaire* (GHQ-28; Goldberg & Hillier, 1979). The GHQ-28 is a 28 item self-report questionnaire designed to detect adult psychiatric disorders in community settings. It is divided into 4 sections assessing anxiety/insomnia, somatic symptoms, social dysfunction, and severe depression. Each item is rated on a 4-point scale (less than usual, no more than usual, rather more than usual, or much more than usual scored 0,0,1,1). Good internal consistency has been reported in a number of studies with Cronbach's alpha coefficients of .82 to .90 (Goldberg & Williams, 1988). Studies reporting the scale's sensitivity range from 44% to 100% with specificity reported between 74 and 93% (Goldberg & Williams, 1988). The authors recommend a cut off score of 4/5 to identify clinical cases in community samples.

3. *Strengths and Difficulties Questionnaire* (SDQ Parent version; Goodman, 1994). This questionnaire measures psychological morbidity and is designed to detect behavioural, emotional or relationship difficulties in children and adolescents based on the past 6 months. It is comprised of 25 items divided into 5 scales measuring: hyperactivity, emotional problems, conduct problems, peer problems and pro-social behaviour on a 3-point Likert scale.

The total score is a summation of the subscales. In a large-scale community child survey, the SDQ identified individuals with a psychiatric disorder with a specificity of 94.6% and a sensitivity of 63.3% (Goodman, Ford, Simmons, Gatward & Meltzer, 2000). The SDQ has equivalent predictive validity to the Rutter Questionnaire (Goodman, 1997) from which it was modified. It also has a high internal reliability score of .82 for total difficulties (Goodman, Meltzer & Bailey, 1998). In a large-scale psychometric evaluation of the measure, the subscales were found to be associated with the relevant *DSM-IV* diagnoses except for the prosocial subscale. The emotional subscale and impact score were most strongly associated with disorders in the parent-report version (Goodman, 2001). The extended version of the SDQ was selected for this study as it contains an impact supplement that measures the effect of the symptoms on the child's functioning.

4. *Parent reports of the IES, R-CMAS and DSRS.* The author constructed the parent report scales from the child self-report scales. The language was changed from the originals to report in the third person (for example 'I had dreams about it' was changed to 'My child had dreams about it'. No changes to the content were made.
5. Information about the type of injury and severity of trauma were also taken from the child's hospital records. The severity of trauma was measured by the triage rating, a 5-point scale indicating the timescale in which the child should be seen by a doctor. All the hospitals used a 5-point triage rating scale with the highest score (5) indicating the injuries are non-urgent to the lowest

score (1) that specifies urgent medical attention. The triage rating is often used as an index of severity of trauma (e.g. Stallard et al, 1998). Socio-economic status was measured in the questionnaire through parental report of parental education and parental employment status. Demographic indicators also measured in the questionnaire, included date of birth, sex and ethnicity. Parents were also asked about their child's general health, whether their child had any significant educational needs or if there were any early complications during pregnancy and birth.

Time 2 follow up visits were booked by telephone for 3 months after the time 1 visit. Typically one researcher conducted these visits and they lasted around 40 minutes. At time 2 the following measures were re-administered to the child: ADIS-C, R-CMAS, IES, BDI. The ADIS-P, SDQ, GHQ, and parent report R-CMAS, IES and BDI were administered to the parents. The parents were also asked whether they (including their child) had experienced another traumatic event since the Time 1 appointment. At the end of the Time 2 appointment the participants were thanked for their time and effort, the child was given a £5 book token. Parents of children expressing significant levels of distress at the Time 2 appointment were advised to request a referral for psychological intervention from the local CAMHS (Child and Adolescent Mental Health Team) team via their GP.

Power The power analysis for the current study was derived from an estimate of effect size from a study on parental mental health and children's adjustment to trauma (Smith, et al., 2001). It was estimated that a sample size of 55 participants

would be required to detect a similar effect size ($r = .37$) with 80% power using a correlation, with $\alpha = .05$.

Statistical methods The data were analysed using correlations, independent samples t-tests, paired samples t-tests and repeated measures ANOVAs using SPSS 11.5 statistical package.

Results

3.1 Overview

This results section will test in turn the following primary hypotheses generated in the introduction regarding the relationship between parent-child interaction and child PTSD outcome:

1. Children who go on to develop PTSD symptoms and/or other psychological problems will have interactions with their parents characterised by greater intrusiveness, criticism, and less warmth and granting of autonomy.
2. Parental avoidant strategies and poor parental management of fear will be associated with higher child PTSD symptoms. Conversely, children showing less PTSD symptoms will be more likely to have conversations in which their parents help them to reappraise the trauma in a way that decreases fear or corrects misconceptions about the traumatic event.
3. Distressed parents will be more likely to exhibit the negative parenting behaviours than non-distressed parents.

In line with these hypotheses section 3.8 tests the first and second hypotheses. Following this, section 3.9 addresses whether parent mental health influences parenting behaviours (hypothesis 3). Throughout the analysis controls will be made for any potential confounding factors such as demographics and trauma related factors where necessary. For the most part, the analysis will focus on child outcome at Time 1 for two reasons. First, the hypotheses are not specific to initial levels of symptoms or changes in symptoms over time. Second, the sample size at Time 2 is limited. The analysis will therefore address whether the parenting behaviours are

related to child symptoms at Time 1, and following this, section 3.10 will focus on whether the parenting variables influence the rate of change in symptoms from Time 1 to Time 2.

Prior to the main sections the results begin with checks on the basic distributions of the key dependent variables and provides descriptive data concerning the means and ranges of the central outcome variables (section 3.2). Then, because of the large number of child outcome variables, associations between these variables will be examined (section 3.4) so that highly correlated outcomes measures can be merged in order to increase reliability. The next section (3.6 & 3.7) will examine the main dependent variables in relation to possible confounding demographic variables and background factors (socio-economic status, child academic ability, birth/ early childhood health complications, gender, age and ethnicity, injury severity, trauma history, pre-existing mental health problems) that may need to be controlled for in later analyses.

3.2 Distributions of key outcome variables

In order to check for distributional assumptions required for parametric statistical analysis, all main dependent variables were checked for skewness and kurtosis. All of the variables that showed significant skewness or kurtosis ($p < .05$) were transformed. Of the Time 1 variables, 4 showed significant skewness: adult CAPS; child CAPS; parent report BDI; Parent ADIS total score. For adult CAPS, child CAPS and parent report BDI, square root transformations reduced skewness to below significance. At Time 2 there were six skewed variables: conduct sub-scale of the SDQ; GHQ total score; parent report IES total score; child IES total score; child

ADIS total score; and parent ADIS total score. Square root transformations were performed on all variables, except the parent report IES total score and the parent ADIS (this will be addressed later), which reduced skewness to below significance. Further, any variables transformed in Time 1 that were also used at Time 2 were transformed for the Time 2 data (and vice versa). For these variables square root transformed scores were analysed in the remainder of the analysis.

The adult CAPS also contained 1 outlier (more than 3 standard deviations from the mean), which was changed to one point above the second highest score in the distribution, following the recommendations of Tabachnik & Fidell (1996). The GHQ total score (Time 2) contained an outlier which was changed using the same method.

In the case of the parent ADIS, an examination of the data showed that there were a large number of scores of zero indicating that the parent had no symptoms of posttraumatic stress so it was not possible to improve the distribution using transformations. The situation was similar for the parent-report IES. The parent report IES total score and the parent ADIS scales were therefore split into two groups: those who reported/presented with no symptoms of traumatic stress and those who did report/present with symptoms.

Table 3.1 displays the means, standard deviations and ranges of the key outcome variables⁴. At Time 1, 40% (n=10) of the children reported PTSD symptoms of clinical significance. At time 2, only one child fulfilled the diagnostic criteria for

⁴ The SDQ measures pre-existing mental health problems but will be included here to present information about symptom distribution despite being considered a background factor in the analysis

PTSD. A significant proportion of the children also presented with clinical levels of anxiety (36%; $n=9$) and depression (32%, $n=8$) symptoms at Time 1. Indeed, the mean BDI (depression) score ($M=11.2$, $SD=7.6$) at Time 1 was high compared to published norms for a group of 11 to 14 year olds (Yule et al, 1992). The parent report mean BDI score was in fact within normal range ($M=7.4$, $SD=6.4$). The mean total score on the SDQ for the sample was relatively high ($M=12.3$, $SD=7.7$) compared to published norms of parent report scores for a similar age range ($M= 8.4$, $SD= 5.8$, Meltzer, Gatward, Goodman & Ford, 2000). This was also the case for all of the subscales with the exception of the prosocial behaviour scale, which was equivalent.

There appeared to be evidence of change from Time 1 to Time 2 for all of the variables in the expected direction (more distress to less distress). While the subscales of the SDQ decreased slightly at Time 2 they remained more consistent than other variables, except for the emotional problems subscale, which decreased by a greater degree. (Formal tests of change are presented later).

Table 3.2 displays the means, standard deviations and ranges of the key parenting variables. The mean parental involvement score in the discussion task was equivalent to the mean score for parental warmth/ negativity. In the anagram task however, the involvement score was one standard deviation above the mean score for warmth/ negativity.

Table 3.1

Means, Standard Deviations and Ranges of Child Outcome Variables

Variable	Means, standard deviations and ranges					
	Mean		SD		Range	
	T1 (n=25)	T2 (n=17)	T1	T2	T1	T2
<i>ADIS total score</i>	7.6	4.2	4.5	3.7	15	14
ADIS re-experiencing score	1.9	0.7	1.5	1.2	5	4
ADIS avoidance score	3.4	1.9	2.2	1.6	7	7
ADIS hyperarousal score	2.4	1.5	1.6	1.6	5	5
IES intrusions score	13.1	6.0	12.1	9.2	35	29
IES avoidance score	16.3	10.4	11.4	13.1	35	38
P report IES intrusions	8.8	4.3	7.1	7.6	25	27
P report IES avoid	8.2	7.3	10.5	11.8	32	32
RCMAS	13.9	10.7	9.0	9.3	27	28
P report RCMAS	10.2	7.7	7.2	7.2	26	25
BDI	11.2	9.5	7.6	7.1	26	24
Parent report BDI	7.4	5.3	6.4	4.0	24	13
SDQ Total score	12.3	10.9	7.7	8.1	28	28
Emotion subscale	3.2	2.4	2.6	2.6	8	8
Conduct subscale	2.2	2.5	1.6	1.0	6	3.4
Hyperactivity subscale	4.8	4.5	3.1	3.3	10	9
Peer problems subscale	2.1	2.0	1.8	2.0	6	7
Prosocial subscale	8.4	8.5	1.66	1.4	5	4

Note: SD indicates Standard Deviation. ADIS = PTSD diagnostic interview. IES = Impact of events scale. RCMAS = Revised child manifest anxiety scale. BDI = Birleson Depression Inventory. SDQ = Strengths & Difficulties questionnaire.

Table 3.2

Means, Standard Deviations and Ranges of Parenting Measures

Means, Standard Deviations and Ranges			
Parenting measure (n=25)	Mean	SD*	Range
Anagram task			
Warmth/ negativity	14.7	7.2	25
Involvement	23.1	7.8	27
Negativity and involvement	37.8	13.2	43
Discussion task			
Warmth / negativity	6.5	2.0	7
Involvement	6.5	1.8	6
Avoidance	2.6	1.2	4
Management of fear	2.3	1.2	4
Re-appraising threat	2.8	1.1	3
Merged avoidance, management of fear and re- appraising threat	7.8	3.2	10

Note: *SD indicates Standard Deviation.

3.3 Parent-child agreement

As stated in the method section, the key outcome measures of this study were collected from both parents and children in order to increase reliability of measurement and also to check for possible differences in reporting between children and their parents. Specifically, parent and child reports were collected on child symptoms, using the following measures: IES, BDI, RCMAS. In addition to these, parents (only) reported on their child's pre-trauma behavioural and emotional problems using the SDQ. Children (only) also reported on their PTSD symptoms (ADIS) during the diagnostic interview. In order to produce a smaller set of reliable outcome variables, correlations between these measures were examined and where

correlations were high ($> .50$), variables were merged. The correlations between parent and child reports are shown in Table 3.3 for all outcomes that were rated by both parents and children. They are shown separately for Time 1 and Time 2.

Table 3.3

Correlations between parent and child reports of key outcome measures

Parent-child outcome correlations at Time 1 and Time 2								
	Child IES avoidance		Child IES Intrusions		Child BDI		Child RCMAS	
T1 (n=25) T2 (n=17)	T1	T2	T1	T2	T1	T2	T1	T2
Parent IES avoidance	.17	.61**						
Parent IES intrusions			.27	.70**				
Parent report BDI					.45*	.41		
Parent RCMAS							.54**	.75**

* $p < .05$ Correlation is significant at the .05 level (2-tailed).

** $p < .01$ Correlation is significant at the .01 level (2-tailed).

The correlations between the parent report and child report RCMAS were significant ($> .50$) at both Time 1 and 2 and so these measures were merged to form one new variable. The other measures tended to correlate at Time 2 but not at Time 1. The IES *total* scores were not tested to see whether they correlated because the parent report score was re-organised into two groups (reporting of symptoms/ reporting of no symptoms) at a previous stage of the analysis. Variables where there was little agreement between the parents and their children were kept separate and analysed as distinct outcomes.

3.4 Correlations between outcome domains

This section examines the correlations between the outcome measures at both Time 1 and Time 2. This includes those measures where only one party rated. The correlations are shown in Table 3.4. The correlations between the child measures at Time 1 and Time 2 are very strong for all combinations of outcome variables. A strong association between child PTSD symptoms, and symptoms of anxiety and depression was thus found. Consequently, the following variables were merged to create a new variable: ADIS, IES, RCMAS and the BDI. This variable will be referred to as child PTSD outcome (CPTSD outcome) in further analyses.

Table 3.4

Correlations between Outcome Variables at Time 1 and 2

Child within-rater outcome correlations				
Time 1 (n=25)				
	IES total	RCMAS child	RCMAS merged	BDI
ADIS	.72*	.74*	.67**	.75**
IES total	-	.78**	.80**	.80**
RCMAS child		-	-	.74**
RCMAS merged				.67**
Time 2 (n=17)				
ADIS	.83**	.80**	.88**	.79**
IES total	-	.73**	.76**	.87**
RCMAS child		-	-	.81**
RCMAS merged				.78**

* $p < .05$. Correlation is significant at the .05 level (2-tailed)

** $p < .01$. Correlation is significant at the .01 level (2-tailed)

ADIS = PTSD diagnostic interview. IES = Impact of events scale. RCMAS = Revised child manifest anxiety scale. BDI = Birleson Depression Inventory. SDQ = Strengths & Difficulties questionnaire.

3.5 Associations between parenting domains

The next section examines the correlations between the independent variables, i.e. the parenting measures.

(i) *Anagram task* In the anagram task, the (only) two parenting variables, negativity and involvement, were strongly correlated [$r=.56$, $n=25$, $p=.004$] Consequently, these variables were merged.

Table 3.5

Correlations between Independent Variables in the discussion task

n=25	Discussion task parenting variables				
	Discuss warmth	Discuss involmt	Re-appraisal	Avoidance	Fear
Discussion warmth	-	-.39 ⁺	-.61**	-.61**	-.67**
Discussion involvement		-	.18	.23	.39 ⁺
Re-appraisal			-	.66**	.74**
Avoidance				-	.68**

⁺ $p<.10$. Correlation is significant at the .10 level (2-tailed)

* $p<.05$. Correlation is significant at the .05 level (2-tailed)

** $p<.01$. Correlation is significant at the .01 level (2-tailed)

(ii) *Discussion task* Table 3.5 shows the associations between the parenting variables in the discussion task. The association between low warmth and involvement in the discussion task was only significant at the $p<.10$ level and so the scales were kept separate for the remaining analyses. Interestingly, the variables investigating the content of the discussion task (avoidance of discussing the trauma, helping to reappraise threat and correct misconceptions, and parental management of

fear) were all strongly correlated to one another. The association between 're-appraisal' and 'fear' was the strongest [$r=.74$, $n=25$, $p<.001$], followed by 'avoidance' and 'fear' [$r=.68$, $n=25$, $p<.001$], the correlation between 'avoidance' and 're-appraisal' was also very strong but slightly less so than the previous two [$r=.66$, $n=25$, $p<.001$]. Furthermore, these three variables were also negatively correlated with warmth in the discussion task. There was also a positive association approaching significance between involvement in the discussion task and parental management of fear [$r=.39$, $n=25$, $p=.053$]. For the remaining analyses, the three variables relating to the content of the discussion task were merged to create a new variable 'avoid, low re-appraise, fear'.

(iii) *Across tasks* There was a strong negative correlation [$r=-.67$, $n=25$, $p<.001$] between negativity in the anagram task and warmth in the discussion task, in other words, levels of warmth across tasks were significantly related. The involvement measures were not related across tasks. There was also an association that was approaching significance [$r=.38$, $n=25$, $p=.059$] between negativity in the anagram task and involvement in the discussion task (not shown in table). Despite the strong correlation between the warmth / negativity scales across tasks, it was decided that the variables would not be collapsed across tasks for theoretical reasons. This was because the discussion task was specific to the trauma and possibly measuring trauma-specific parenting variables, whereas the anagram task was a more general measure of parenting behaviours (warmth/negativity and involvement). This will be discussed further in the discussion section (4.3).

3.6 Associations between key outcome variables and potential confounds

Before proceeding to the main analysis, the key dependent variables were examined in relation to demographic or background factors that might need to be accounted for prior to testing the central hypothesis of this study. Factors considered potentially confounding included trauma severity (triage rating), previous trauma history, pre-existing mental health problems and demographic factors (child age, gender, ethnicity, parent education and significant child health problems both before and after birth). Independent samples t-tests were conducted on the categorical confounds (gender, ethnicity, parent education, child education, child health problems, pregnancy/birth problems)⁵ and key outcomes. Correlations were performed on the continuous confounds (age, trauma severity, and trauma history, pre-existing mental health problems) and the key outcome variables. The means and test statistics are presented in tables 3.6, 3.7, 3.8 and 3.9.

For the primary outcome measure, child PTSD outcome (CPTSD), there were no significant differences in scores for males and females [$t(24) = .99, p=.33$]. There were also no significant differences between the male and female means for the BDI scores (see Table 3.6).

⁵ All of these variables, except for gender, were collapsed into two categories due to the limited sample size.

Table 3.6

Associations between key outcome variables and potential (categorical) confounds

Potential confounding variables							
	Male (n=13)		Female (n=12)		t-value	df	p
	Mean	SD	Mean	SD			
CPTSD outcome	-0.2	0.8	0.2	1.1	-.99	24	.331
BDI parent report	2.5	0.1	2.4	1.6	.08	21	.936
	White (n=18)		Non White (n=7)		t-value	df	p
	Mean	SD	Mean	SD			
CPTSD outcome	-.1	0.9	0.2	1.0	-.79	24	.443
BDI parent report	2.2	1.3	3.2	0.7	-1.80	21	.091 ⁺

⁺ p<.10 Correlation is significant at the .10 level (2-tailed). CPTSD outcome = merged ADIS (child report), BDI (child report), IES (child report) & RCMAS (parent and child report) scales.

The sample was divided into two groups for ethnicity, white (n=18) and non-white (n=7) to compare any differences in the key outcome variable scores. Owing to the size of the sample it was not possible to divide the group into further more meaningful categories. Looking at table 3.6, there were no significant differences in scores between groups for the principal measure, CPTSD outcome, [t(24) = .79, p=.443], nor the other outcome measures. There was however a trend for parents of non-white children to rate higher levels of depressed symptoms for their children.

The associations between child health problems and pregnancy/birth problems and outcomes are presented in table 3.7. There were no significant differences for either.

Table 3.7

Associations between key outcome variables and potential (categorical) confounds

Potential confounding variables							
	Child no health problems (n=9)		Child health problems (n=16)		t-value	df	p
	Mean	SD	Mean	SD			
CPTSD outcome	-.36	.89	.18	.86	-1.51	24	.145
BDI parent report	2.56	1.36	2.34	1.19	.42	21	.681
	No birth problems (n=15) ⁶		Birth problems (n=8)		t-value	df	p
	Mean	SD	Mean	SD			
CPTSD outcome	.02	.94	.24	.87	-.55	21	.592
BDI parent report	2.18	1.16	2.98	1.14	-1.52	18	.148

For parent's (usually the mother) educational level, the original response scale had nine possible scores. This scale was divided into two meaningful groups: parents who were educated to degree level and/or above, and those who were not educated to degree level. As indicated in Table 3.8, there were no significant differences between groups on any of the measures.

Table 3.8

Associations between key outcome variables and potential (categorical) confounds

Potential confounding variables							
	Parent Ed pre-degree (n=18)		Parent Ed degree or higher (n=7)		t-value	df	p
	Mean	SD	Mean	SD			
CPTSD outcome	.20	.88	-.43	.85	1.61	23	.120
BDI parent report	2.62	1.34	1.99	1.02	1.09	20	.289

⁶ In 2 cases data were missing.

The relationships between the possible continuous confounds (age, trauma severity, previous trauma history and pre-existing mental health problems) and the key child outcome measures, were investigated using Pearson product-moment correlations (Table 3.9). There was a strong correlation between pre-existing child mental health and both PTSD outcome and BDI symptoms as reported by the parent. There was a moderate negative correlation between age and the BDI parent report measure [$r = -.50$, $n = 23$, $p = .015$]. There were no significant associations between trauma severity and the key outcomes. It is worth noting that the association between trauma history and the key PTSD outcome measure was approaching significance [$r = .38$, $n = 26$, $p = .059$] and that this association may have been significant with a larger sample size.

In summary, prior mental health was the only significant relationship between background factors and both of the child outcomes (child PTSD and parent-rated BDI). An association was also found between age and the parent rated BDI (but not the child-rated BDI). No further significant associations were found between demographic and trauma related factors and child PTSD outcome, however a non-significant trend emerged between trauma history and PTSD outcome.

Table 3.9

Correlations between key outcome variables and potential (continuous) confounds

	Potential confounding variables			
	Age	Trauma severity	Trauma history	Pre-existing MHPs (SDQ)
CPTSD outcome	-.22	.02	.38 ⁺	.60**
BDI parent report	-.50*	-.12	.26	.69**

⁺ $p < .10$. Correlation is significant at the .10 level (2-tailed).

* $p < .05$. Correlation is significant at the .05 level (2-tailed).

** $p < .01$. Correlation is significant at the .01 level (2-tailed).

3.7 Associations between parenting and potential confounds

Before proceeding to the main analysis, the key independent (parenting) variables were also examined in relation to the background factors (as before) that might need to be accounted for prior to testing the central hypothesis of this study. For the categorical confounds (same as before) tests were conducted for differences in mean scores for the parenting measures using independent samples t-tests. Correlations were performed on the continuous confounds (same as before) and the parenting variables. The means and test statistics are presented in tables 3.10, 3.11 and 3.12.

Table 3.10

Associations between independent variables and potential (categorical) confounds

Potential confounding variables							
	Male (n=13)		Female (n=12)				
	Mean	SD	Mean	SD	t-value	df	p
Anagram	37.9	14.2	17.8	12.7	.018	23	.986
negativity/involvement							
Discussion warmth	7.1	2.2	5.9	1.7	1.45	23	.160
Discussion involvement	6.2	1.8	6.8	1.8	-.851	23	.404
Avoid, low re-appraise, fear	6.9	2.8	8.7	3.2	-1.44	23	.163
	White (n=18)		Non White (n=7)				
	Mean	SD	Mean	SD	t-value	df	p
Anagram	37.4	12.7	38.7	15.5	-.211	23	.835
Negativity/involvement							
Discussion warmth	6.9	1.8	5.6	2.4	1.483	23	.152
Discussion involvement	6.3	1.6	7.1	2.1	-1.110	23	.279
Avoid, low re-appraise, fear	7.0	3.0	9.7	2.7	-2.112	23	.046*

* correlation is significant at the .05 level (2-tailed).

As shown in table 3.10, parenting behaviours were not significantly associated with the child's gender. The only difference found between the white and non-white group was for the merged variable - avoidance, low re-appraisal and fear. The non-white group scores ($M = 9.7$, $SD = 2.7$) were significantly higher than the white group [$M = 7.0$, $SD = 3.0$; $t(-2.112) = 23$, $p=.046$] at $p<.05$.

Table 3.11

Associations between parenting variables and potential (categorical) confounds

Potential confounding variables							
	Child no health problems (n=8)		Child health problems (n=17)		t-value	df	p
	Mean	SD	Mean	SD			
Anagram negativity/involvement	35.1	6.6	39.1	15.4	-.891	23	.382
Discussion warmth	6.5	2.1	6.5	2.1	-.033	23	.974
Discussion involvement	6.3	2.3	6.7	1.5	-.443	9.9	.667
Avoid, lo re-appraise, fear	7.5	2.3	7.9	3.5	-.329	20.2	.745
	No birth problems (n=15)		Birth problems (n=7)		t-value	df	p
	Mean	SD	Mean	SD			
Anagram negativity/ involvement	37.9	15.1	41.4	9.9	-.556	20	.584
Discussion warmth	6.5	1.5	6.9	2.9	-.341	7.6	.743
Discussion involvement	6.7	1.7	6.4	1.7	.303	20	.767
Avoid, lo re-appraise, fear	7.8	3.1	7.9	3.3	.007	20	.995

	Parent Ed pre-degree (n=17)		Parent Ed degree or higher (n=7)		t-value	df	p
	Mean	SD	Mean	SD			
Anagram negativity/involvement	40.9	13.6	32.4	10.6	1.468	22	.156
Discussion warmth	5.7	1.9	8.3	.8	-3.578	22	.002 **
Discussion involvement	6.8	2.0	6.1	.7	1.248	21.79	.225
Avoid, lo re-appraise, fear	9.2	2.5	4.9	1.1	5.95	21.91	.0005 **

* correlation is significant at the .05 level (2-tailed).

** correlation is significant at the .01 level (2-tailed).

No differences were found between groups organised by presence or absence of child health problems and pregnancy/birth problems. Parent education however accounted for two significant differences in the group means. The mean score for parents educated to degree level or above ($M = 8.3$, $SD = .8$) was significantly higher than for the group of parents educated to any level pre-degree [$M = 5.7$, $SD = 1.9$; $t(-3.578) = 22$, $p=.002$] for warmth in the discussion task. Parental education also accounted for differences in the group means on the merged measure of the discussion content. The less educated group had a higher group mean ($M = 9.2$, $SD = 2.5$) indicating a more avoidant, less re- appraising and more fear inducing style than the more educated group [$M = 4.9$, $SD = 1.1$; $t(5.95) = 21.91$, $p=.0005$].

Correlations performed on the relationship between age, trauma severity, trauma history and prior mental health with parenting revealed a significant relationship between trauma severity and parental involvement in the discussion task [$r=.52$, $n=25$, $p=.011$]. Neither trauma history nor age was significantly associated with any of the parenting measures, although a trend was emerging between child trauma history and the merged parenting measure of discussion content. (see table 3.12).

Pre-existing child mental health problems (as measured by the SDQ) were not significantly related to parenting behaviours, although it was marginally associated with negativity/ involvement on the anagram task. It may also be worth noting that the correlation between pre-existing mental health and the merged parenting variable (avoidance, re-appraisal and fear) was not significant at the $p < .10$ level ($r = .32$) but a trend may have been emerging.

Table 3.12

Correlations between parenting variables and potential (continuous) confounds

	Potential confounding variables			
	Age	Trauma severity	Trauma history	Pre-existing MHPs (SDQ)
Anagram negativity/ involvement	-.17	.14	.11	.36 ⁺
Discussion warmth	-.10	-.14	-.14	-.23
Discussion involvement	-.18	.51*	.19	.17
Avoid, low re-appraise, fear	.05	.37 ⁺	.36 ⁺	.32

Note: MHPs = mental health problems

⁺ $p < .10$. Correlation is significant at the .10 level (2-tailed)

* $p < .05$. Correlation is significant at the .05 level (2-tailed)

In summary, there were no demographic or trauma related variables that correlated significantly with both child outcomes and with the parenting variables and so it was not necessary to control for any of the demographic variables in the remainder of the analysis.

3.8 Associations between parenting behaviour and child outcome.

In order to test the principal hypothesis of this study - whether any of the parenting behaviours were significantly associated with child outcome - a series of Pearson's product-moment correlation coefficients were conducted with the parenting

behaviours and child outcome variables. As presented in table 3.13, there was one significant correlation at the $p<.05$ level between the merged avoidance, re-appraisal and management of fear parenting variable and the key child PTSD outcome variable (CPTSD) [$r=.49, n=25, p=.012$].

Table 3.13

Associations between parenting behaviour and child outcome

	Anagram negativity/ involvement	Discussion warmth	Discussion involvement	Avoid, low re-appraise, fear
CPTSD outcome	.33	-.24	.13	.49*
BDI parent report	.10	-.19	.04	.32

⁺ $p<.10$. Correlation is significant at the .10 level (2-tailed)

* $p<.05$. Correlation is significant at the .05 level (2-tailed)

The results demonstrate a relationship between the merged avoidance, re-appraisal, and management of fear variable and child PTSD outcome that does not appear to be accounted for by demographic factors. It should be noted that only prior mental health problems was associated with the child PTSD outcome measure and this was not significantly associated with any measure of parenting. Thus, statistical controls for this variable were not undertaken.

3.9 The impact of parent mental health on the parenting variables

Correlations and independent samples t-tests were carried out to test the hypothesis that parenting may be influenced by parental mental health. Three measures were used to assess parent mental health: a general measure (GHQ), a PTSD measure (ADIS) and a measure of trauma history (CAPS). Looking at table 3.14, there were no significant associations between parent PTSD symptoms and parenting

behaviours at the $p < .05$ level, however there appeared to be a trend approaching significance between parent PTSD symptoms and higher scores on the merged avoidance, low re-appraisal and fear scale [$t(-1.968) = 18.67$, $p = .064$]. No relationship was found between general mental health and trauma history and the parenting variables (see table 3.15).

Table 3.14

Associations between parent PTSD symptoms and parenting variables

Potential confounding variables							
	Not reporting PTSD symptoms (n=8)		Reporting PTSD symptoms (n=17)				
	Mean	SD	Mean	SD	t-value	df	p
Anagram negativity/involvement	37.6	11.9	37.9	14.2	-.044	23	.965
Discussion warmth	6.8	2.1	6.4	2.1	.379	23	.708
Discussion involvement	6.3	1.9	6.7	1.7	-.518	23	.609
Merged appavfea	6.3	2.3	8.5	3.2	-1.968	18.67	.064 ⁺

⁺ $p < .10$. Correlation is significant at the .10 level (2-tailed)

Table 3.15

Association between parent mental health, trauma history and parenting variables

	Anagram negativity/involvement	Discussion warmth	Discussion involvement	Avoid, low re-appraise, fear
GHQ total	.10	.05	-.07	.18
CAPS	.03	-.01	.05	.15

Note: GHQ = General Health Questionnaire. CAPS = Clinician administered PTSD scale – previous trauma checklist.

3.10 Changes over time

The present study was prospective in design and participants were followed up in order to assess for changes over time. This final stage of the analysis used a paired samples t-test to examine whether there were any changes over time in the children's symptoms, and a repeated measures ANOVA to investigate whether any of the parenting variables influence the rate at which the symptoms changed from Time 1 to Time 2.

Table 3.16 presents the results of the t-tests. There was a significant decrease in child PTSD symptoms from Time 1 ($M=-.10$, $SD=.9$) to Time 2 ($M=-.61$, $SD=1.0$), $t(3.09) = 16$, $p=.007$. There were no significant changes in the parent report BDI scores from Time 1 to Time 2.

Table 3.16

Changes in child outcome measures over time

	Time 1		Time 2		t-value	df	p
	Mean (n=25)	SD	Mean (n=17)	SD			
CPTSD outcome	-.10	.9	-.61	1.0	3.09	16	.007*
BDI parent report	2.3	1.3	2.0	1.1	1.09	16	.289

* $p<.01$. Correlation is significant at the .01 level (2-tailed)

Repeated measures ANOVAs were conducted to assess whether any of the parenting variables influenced the change in child PTSD outcome over time, and whether any of the parenting variables influenced a change in parent report BDI scores for a

subset of children from Time 1 to Time 2 (Table 3.17). The variables were entered as continuous covariates. No significant effects were found, however, the effect of parental involvement in the discussion task on the change in child PTSD outcome from Time 1 to Time 2 was approaching significance $F(1,15)=3.67, p=.075$. From the ANOVA, predicted means were calculated for those with high involvement scores ($\bar{M} + 1 \text{ SD}$) and low involvement scores ($\bar{M} - 1 \text{ SD}$). High involvement scores accounted for a small reduction in symptoms from Time 1 to Time 2, whereas low involvement scores accounted for a greater recovery (see Figure 3.1). Given the small sample size and the lack of significance for this trend this finding should be treated with caution.

Table 3.17

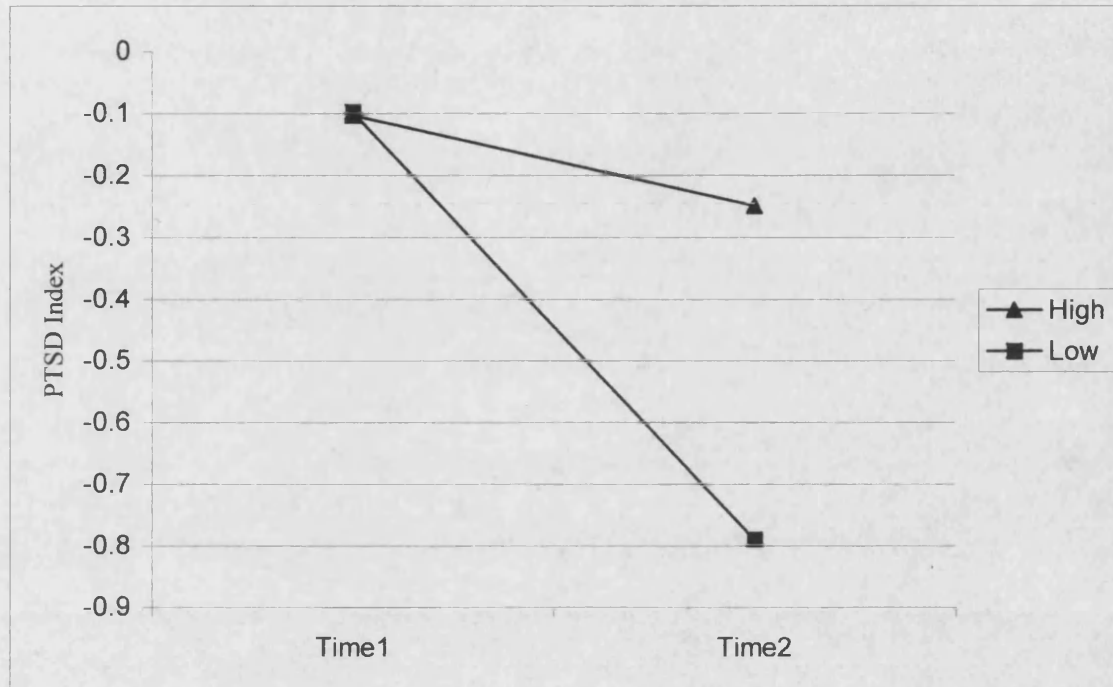
Interactions between parenting variables and child outcomes over time

	Child outcome variables			
	CPTSD outcome		BDI parent report	
	F	p	F	p
Avoid, low re-appraise, fear	.000	.991	2.60	.129
Discussion warmth	.555	.468	1.32	.270
Discussion involvement	3.672	.075 ⁺	1.85	.195
Anagram negativity/involvement	.240	.632	.024	.878

⁺ $p < .10$. Correlation is significant at .10 level (2-tailed)

Figure 3.1

The effect of parental involvement on change in PTSD outcome over time



Discussion

4.1 Overview

The results of this study partially support the key hypotheses. First, it was predicted that children showing greater distress would have interactions with their mothers characterised by greater intrusiveness and criticism, and less warmth and granting of autonomy in an anagram and discussion task. No relationship was found between these parenting behaviours and child PTSD outcome. Second, it was hypothesised that parenting behaviours characterised by avoidance, low re-appraising of threat and poor management of fear, as observed in the discussion task when talking about the trauma, would be associated with greater child PTSD symptoms. The results confirmed this relationship. Third, and finally, it was proposed that poor parent mental health would be associated with the afore-mentioned negative parenting behaviours. No associations were found between general parent mental health and parenting, although a trend emerged between parent PTSD symptoms and interactions characterised by more avoidance, less re-appraisal, and more frightening behaviours in the discussion task. Further, low intrusiveness in the discussion task positively influenced the rate of decline of child PTSD symptoms (i.e. a quicker recovery). Each of these findings will be examined in more detail in the following sections.

4.2 Prevalence

At Time 1, 40% (n=10) of the sample reported PTSD symptoms of clinical significance. At time 2, only one child fulfilled the diagnostic criteria of PTSD. A

significant proportion of the sample also presented with clinical levels of anxiety (36%) and depression (32%) symptoms. The scores for pre-existing levels of distress as measured by the SDQ were slightly higher than published population norms. Interestingly, parents reported much lower levels of distress on behalf of the child than their child self-reported, especially for PTSD symptoms (20% compared to 40% respectively), but also for depression and anxiety. The discrepancies in reporting however were less noteworthy at Time 2, possibly because children tended to report fewer symptoms at follow-up.

Discrepancies between parent and child reports of child mental health symptoms are empirically well established (Hay et al, 1999; Jenson et al, 1999) especially for internalising symptoms (e.g. Moretti & Fraser, 1985; Muris, Meesters & Spinder, 2003) and also for PTSD (Vogel & Vernberg, 1993). One explanation is that children do not reliably report their own symptoms, however, a clinician administered diagnostic interview was used in the present study, which is considered the most reliable way of measuring PTSD symptoms (Perrin et al, 2000). The implication may be that children are reliably reporting levels of distress and their parents are under-reporting and this could be for two reasons. First, parents may not be aware of their child's level of distress. Children may hide their symptoms from parents through fear of upsetting them (Smith et al, 2001), or because of negative appraisals of their symptoms (Ehlers & Clarke, 2000). Indeed the majority of PTSD symptoms are internally experienced and thus relatively straightforward to conceal. Second, the parents' under-reporting may be a reflection of unconsciously avoiding the emotional impact of the trauma on their child. Alternatively, parents may indeed be reporting their own distress through their child. Whatever the explanation may be, the results

provide further evidence supporting the relevance of collecting both parent and child reports of PTSD symptoms (Smith et al, 2001).

It is worth re-stating that of all the outcome measures, child PTSD symptoms as measured by the diagnostic interview and the IES, correlated strongly with each other and with anxiety and depression. These variables were therefore merged to create what was referred to as PTSD outcome or PTSD symptoms (PTS). Because the majority of the analyses were performed on the Time 1 data (less than 1 month post trauma) PTSD outcome cannot be considered PTSD per se because diagnostic criteria (American Psychiatric Association, 1994) stipulate the occurrence of symptoms for at least one month. The majority of the discussion chapter focuses on Time 1 and will therefore refer to 'PTSD symptoms' (PTS). The finding that PTSD symptoms were closely linked to anxiety and depression was not a surprise and has been established in the literature (Pynoos et al, 1999; Vernberg & Varela, 2001).

4.3 The interaction tasks and the relationship between the different parenting variables

A preliminary analysis investigated the relationship between the different parenting variables both within and across the two parent-child interaction tasks. The reason for this was twofold. In the first instance the aim was to examine the relationship between different negative parenting behaviours. In other words, were parents who were less warm (more critical/negative) also more likely to be more involved and intrusive? Second, it was of interest to discover whether parenting styles were consistent across the tasks, or, whether the tasks were measuring different constructs. This question arose from the acknowledgment that the discussion task was highly

related to the traumatic event and therefore specific to trauma, whereas the anagram task was an example of a standard parent-child interaction task that can be, and has been used for a variety of childhood problems (other similar tasks: e.g. Hudson & Rapee, 2001; Winsler et al, 1999; anagram task: Woodruff-Borden et al, 2002).

A comparison of scores on each of the parenting constructs in each of the tasks revealed some interesting results. There was a strong positive correlation between negativity (low warmth) and involvement in the anagram task, but these two parenting measures only correlated moderately with one another in the discussion task ($r = -.39$, $p = .053$). Broadly speaking, parents who were more critical were also more likely to be intrusive in the tasks. This finding complements theoretical accounts of parent-child interaction (Farrar et al, 1997; Thompson, 2001; Thompson & Raikes, 2003).

The three constructs measuring the content of the discussion task all correlated strongly with one another. So, parents who were avoidant were also less likely to help the child to re-appraise the trauma and were more likely to frighten the child (or were at least unable to contain the child's anxiety). These parenting behaviours were also related to low levels of warmth in the discussion task and this may be uncovering underlying processes related to attachment, or possibly a broader personality factor.

There was also a moderate positive association between involvement in the discussion task and parental management of fear [$r = .39$, $n = 25$, $p = .053$]. This indicates that parents who were more intrusive were also more likely to frighten the

child. This is congruent with Scheeringa and Zeanah's (2001) description of a 're-enacting/ endangering/ frightening' relational parenting pattern (see introduction section 1.17), a type of relating that could be exacerbated by an intrusive style. Evidently, in this study the two constructs were closely related.

In answer to the question regarding the consistency of parenting behaviours across tasks, levels of involvement were not related to one another, whereas warmth was. This makes sense when considering the nature of the constructs in relation to the requirements of the tasks. The rationale for the anagram task was to provide a challenging situation for the parent and child to confront that was unrelated to the traumatic experience. These sorts of tasks are objective measurement tools that are good indicators of general parenting behaviours (Aspland & Gardner, 2003). On the other hand, the discussion task was an unstructured and potentially emotionally loaded situation. It is also possible that the pragmatics of each situation may have influenced the parents' level of involvement. It could be argued that the anagram task was a more stable measure of involvement, whereas levels of involvement in the discussion task may have been influenced by the parent's willingness to discuss emotionally sensitive topics.

Parental levels of warmth remained consistent over the two task situations despite the variation of structure imposed. This finding is consistent with other published studies that concurrently examine parenting behaviours across both cognitive and discussion oriented interaction tasks (e.g. Whaley et al, 1999).

4.4 The role of demographic and trauma related factors

In order to examine the potential confounding influence of background factors their relationship with both the outcome variables and parenting variables were tested. None of the demographic variables (age, gender, ethnicity, pregnancy/birth complications, chronic child health problems, parent education) were associated with PTS. Of the trauma related factors, neither trauma severity nor prior history of trauma was significantly related to child PTS. The correlation between trauma history and child PTSD was however approaching significance [$r=.38$, $p=.059$] and perhaps with a larger sample this correlation would be stronger. Pre-existing mental health problems (as measured by the SDQ) were however linked to child PTSD symptoms. Research findings of the influence of prior mental health problems on the child's risk of developing PTSD is unclear (Vogel & Vernberg, 1993), although an association has been found in a sample of adolescents (Udwin et al, 2000). One problem with the evidence base and with the current research is that measures of pre-existing mental health problems are retrospectively reported, which limits their reliability.

In previous studies, findings on the relationship between demographic and trauma related factors and child PTSD are contradictory or poorly researched (e.g. ethnicity). More consistent links have been found between PTSD symptom severity and prior exposure to trauma (Meiser-Steadman, 2002; Stallard et al, 1998) although this relationship is not simple (Silverman & LaGreca, 2002).

The same demographic and trauma related factors were then tested against the parenting variables. Few demographic factors were associated with parenting, the

exceptions being: warmth (in the discussion task) with higher parent education, and the merged variable measuring content (avoidance, low re-appraising, and poor management of fear) of the discussion task with both lower parent education and ethnicity (the non-white group). It is noteworthy that two of the non-white parents in the study spoke English as a second language and this may have had a significant impact on a group of seven. The merged variable measured a construct that requires a certain level of linguistic competence (especially re-appraisal - a meta-cognitive process, which could be rather complicated to negotiate in a second language).

Trauma severity was linked to parental involvement on the discussion task, in that the more serious the trauma the more involved the parent. This may be reflecting the fact that in the case of some of the less severe traumas, such as the falls, the parents merely had less to talk about and were less worried. On the other hand, if a parent is overwhelmed by the severity of the trauma they may be more unwilling to discuss the emotional aspects or details. This could result in a more involved, controlling style that is inherently avoidant. An association between avoidance and involvement, which was not statistically significant, although established a trend in that direction, provides some grounds for this argument. It is also interesting to note that pre-existing mental health problems, despite being linked to child outcome, were not significantly related to any of the parenting variables.

Despite the limited number of significant findings between parenting variables and demographic and trauma related factors, it cannot be concluded that they were not of importance. There could be associations here that the data is not picking up due to

the limited sample size and lack of power. Further, the significant associations may in some instances be a result of type I error.

4.5 Parenting behaviour and child PTSD outcome

Having investigated the role of demographic and trauma related factors, the next stage of the analysis addressed the key hypothesis: the relationship between the different parenting behaviours and the child's level of distress. Together, avoidance, (low) re-appraisal and (poor) management of fear were all strongly related to child trauma symptoms. The measures developed to address these factors were based upon current theory on child PTSD (Ehlers and Clarke, 2000; Salmon & Bryant, 2002; & Scheeringa & Zeanah, 2001). Because the three measures were closely related and because of the limited sample size, it was not possible to address their possibly distinct contributions to children's trauma symptoms. Although they share similarities and are all linked to the emotional processing of the traumatic event, it is difficult to say how they are different from one another. Nevertheless, at a theoretical level each of the scales is considered to operate by different mechanisms and these will be considered separately in turn.

Avoidance: The avoidance scale measured the degree to which the parents avoided discussing the traumatic event. Avoidance was expressed in a number of ways, including a controlling conversational style (talking about irrelevancies, closed questions). Parents were also considered avoidant when reinforcement, such as increasing their attention or expressions of warmth, was contingent upon the child's attempt to avoid discussing the traumatic event. As reported in the results chapter, avoidance (in relation to low re-appraising and poor handling of fear) was strongly

related to PTS. This finding is congruent with theories of PTSD (Brewin et al, 1996; Ehlers & Clarke, 2000), which suggest that avoidance limits opportunities for emotional processing and thus acts as a maintaining factor for PTSD. As mentioned in the introduction chapter, children are to a degree dependent on their parents (especially for younger children) to emotionally process traumatic events. Social-constructivist accounts describe the process of forming autobiographical memories in childhood as occurring through a collaborative parent-child process of the co-construction of a narrative (Reese & Fivush, 1993). When the parent is avoidant, not only is the child learning this unhelpful coping style through behavioural processes such as modelling, but is also being denied the opportunity to address the cognitive processes (e.g. forming a coherent autobiographical memory), with parental support, that are necessary to resolve the trauma.

There is a paucity of research investigating parent-child interaction and a parental avoidant conversational style, and nothing specifically in relation to trauma. Farrar and Fasig (1997) studied mothers' conversational style and emotional content in relation to attachment. They discovered that attachment and gender moderated the emotional content of memory talk. Secure mother-daughter dyads were more open to exploring negative emotion topics (than insecure dyads), whereas mothers were more likely to ignore initiations of negative themes in insecure dyads. The relationship between attachment status and emotional content was inconclusive for boys. These findings highlight the influence of attachment status in mother-daughter discussions of emotional topics, and it is possible that attachment status influenced avoidance in the present study. The results of the current study are certainly consistent with the view that parental attachment status may be linked with their capacity to support

children's responses to traumatic events, and such a possibility certainly warrants further research in the future.

Of course, it should also be acknowledged that the attachment relationship may be modified over time (Thompson & Raikes, 2003) and hence that discussions of traumatic events may influence the attachment relationship. In fact, Farrar and colleagues (1997) propose that discussion of past emotional experiences is one aspect of the context of parent-child interactions that fosters the establishment of the attachment relationship. Unfortunately assessing attachment status was beyond the remit of this study, however it would be important to bear in mind this hypothesis in view of the variation in parental avoidance.

Only one study to date addresses the issue of maternal avoidance and child PTSD. In a study of mothers and their three to five year old children 30 months following the scud missile attacks on Israel, maternal avoidance accounted for the relationship between the traumatic event and posttraumatic distress for displaced children (Laor et al, 1997). Four factors explained the variance in maternal avoidance: general maternal mental health, duration of displacement, mother's capacity for image control, and family cohesion. This implies a complex multifactorial model accounting for maternal avoidance. Within a developmental framework however, the applicability of this finding to older children is debatable as they are less dependent on their mother's behaviour than infants.

The association between the *child's* avoidant coping strategies and PTSD has also been established (see Stallard et al, 2001). In an eight month follow-up study of 40

children who had been involved in RTAs, Stallard and colleagues (2001) found that talking about the accident and feeling understood were significantly correlated with one another and with recovery. The parents' role is less clear and has only been partially tested. Ehlers et al (2003) found that a parental *attitude* favouring avoidant strategies showed a trend ($r=.21$, $p<.10$) with PTSD severity at six months (but not at three months) and proposed that the weak association may have been the result of measuring parental attitude rather than behaviour. A strength of the current study is that it contains an objective measure of avoidance, which was in fact, strongly related to child PTS (in conjunction with the other two variables). Given the small size of the current sample, it is striking that such a strong and theoretically meaningful association was detected. Nevertheless, this finding would need to be replicated with a larger sample to be considered robust.

Re-appraisal: Cognitive theory asserts that in order to recover from trauma the individual must re-appraise their sense of threat and danger (Ehlers & Clarke, 2000). This shift in interpretation includes correcting any misconceptions about the event, which, in turn provides a more coherent autobiographical memory. Re-appraisal can also occur at a meta-cognitive level. The findings in the present study suggested that parental support in re-appraising the trauma or its sequelae (together with low avoidance and containment of fear) was linked to low levels of PTS. This complements recent research (Ehlers et al, 2003) demonstrating that negative appraisals about the trauma, including the child's negative interpretation of intrusive memories and anger about the event predicted symptom severity at three and six months (but the role of the parent was not addressed). The present findings implicate

the potential significance of the parent's role in this process, yet this cannot be said with certainty due to methodological limitations.

Management of fear: This scale measured the way in which the parent exacerbated (rather than attenuated) the child's anxiety when discussing the trauma with the child. It encompassed aspects of frightening parental behaviour (as referred to previously, also see Scheeringa & Zeanah, 2001) in addition to monitoring the way the parent handled the child's anxiety. The findings suggested that frightening, or fear inducing, parental behaviour (in relation to avoidance and low re-appraising) was linked to child PTS. This construct has not previously been tested in relation to child PTSD and so there is no comparable evidence, although it is congruent with theoretical explanations (Scheeringa & Zeanah, 2001).

Attachment theorists (Main & Hesse, 1990; van Ijzendoorn, 1995) have related this parental style to the parent's own unresolved fear. A consistent finding that disorganised/controlling child behaviour is related to parental frightening behaviour (Lyons-Ruth, Bronfman & Parsons, 1999) and parental unresolved loss or trauma as measured by the Adult Attachment Interview (van Ijzendoorn, 1995; van Ijzendoorn, Schuengel & Bakermans-Kranenberg, 1999) lends empirical support to this assertion.

Fearon and Mansell (2000) claim that unresolved loss and PTSD share similar psychological mechanisms. Loss of a close loved one can lead to the psychological responses seen in PTSD, namely, intrusions, re-experiencing, hypervigilance and avoidance. The loss is unresolved because it remains un-integrated with their autobiographical memory and beliefs about the self and the world; the same process

that occurs in PTSD (Brewin et al, 1996, Ehlers & Clarke, 2000). Inevitably, the unresolved loss or trauma experienced by the parents, influences their caregiving behaviour. Individuals may appraise the activation of loss related or trauma related material as threatening which often results in avoidant safety behaviours that are directly incompatible with caregiving behaviour (Fearon & Mansell, 2000). If, in this study, mothers had their own issues around unresolved loss or prior history of trauma, discussion of the trauma may appear threatening (especially if the parent was also involved) and so the parent is likely to avoid discussing the trauma as a safety behaviour, and/or behave in a frightening way. Further, these avoidant processes take up resources that would normally be dedicated to perhaps more responsive and sensitive caregiving behaviour. The role of the parent's trauma history will be discussed in section 4.6.

The association (between parental avoidance, low re-appraisal and fear inducing behaviour and child trauma symptoms at Time 1), although strong, does not of course demonstrate causality. The reciprocity of this parental style cannot be established as the child's behaviour was not observed and coded. It could be argued that the child's temperament, pre-existing behavioural or emotional symptoms, or adjustment to the trauma itself were eliciting certain types of parenting styles. Despite being linked to child PTSD outcome, pre-existing child mental health problems however, were unrelated to the parenting behaviours associated with child PTS. It is difficult to address whether parenting behaviours were in response to child characteristics unless the interaction tasks were repeated at a later date or if the parent was observed with another child who had also experienced a trauma and needless to say this situation is rather rare. Furthermore, there may also have been

other variables that account for the findings such as genetic influences on emotionality.

The way in which the three constructs covary may simply be due to methodological limitations, for example, their lack of specificity. The re-appraisal and management of fear scale are fairly closely related in what they are describing despite originating from different theoretical backgrounds (cognitive and psychoanalytic respectively). Because the scales have not been psychometrically validated the interpretation of these findings is limited. What can be said is that parents who are avoidant, fail to help in re-appraising the trauma, and exacerbate fear, seem to have children with higher rates of PTSD symptoms and this merits further research.

Warmth and involvement: The hypothesis predicting a relationship between parental negativity and over-involvement with child trauma symptoms was not confirmed. This was somewhat surprising considering both theoretical accounts (Scheeringa & Zeanah, 2001) and preliminary evidence of the influence of family factors on child PTSD support this hypothesis (McFarlane, 1987; Rossman, Bingham & Emde, 1997; Scheeringa & Zeanah, 2001). Nevertheless, when considering the methodological limitations in the current study, the lack of power may account for the null finding. The parental factors that have been found to relate to child PTSD in the literature include over-protectiveness (McFarlane, 1987), lack of parental supportiveness (Rossman et al, 1997), and denial and suppression of the awareness of the child's symptoms (Burke, Borus, Burns, Millstein & Beasley, 1982; Handford, Mayes & Mattison et al, 1986). The latter parenting behaviour may indeed be more closely related to avoidance than warmth and involvement. These studies used self-

report parenting measures however, and were therefore open to bias, and, neither the studies nor the findings have been replicated. The role of warm/critical and controlling parenting and child PTSD therefore remains somewhat ambiguous.

The very fact that none of the general parental behaviours were significantly related to child PTSD symptoms, yet the measures alluding to the content of the discussion were, suggests that it may not be the parenting per se that influences the child's distress, but the way in which the parent talks to the child about the trauma. Nevertheless, because of the methodological limitations of this study, particularly the small sample size, it is not possible to rule out with certainty the influence of background factors. It is possible that the background factors that were of marginal significance in relation to child PTSD outcome (trauma history and pre-existing mental health problems) could be accounting for some of the association between the parenting characterised by avoidance, low re-appraising and poor management of fear. The relationship between this parenting style and child PTSD symptoms does make sense theoretically however, as the parent is in essence helping the child to emotionally process the traumatic event. Discussing the trauma is an ideal opportunity for the parent to help the child with emotional regulation and allows the child to use the parent as a 'secure base' (Bowlby, 1969; 1973) to ease their distress.

4.6 Parent mental health and parenting behaviours

It was expected that parent mental health would negatively influence parenting behaviours through a number of possible mechanisms as outlined in the introduction. Three aspects of the parent's mental health were measured: general mental health (self-report), PTSD symptoms (diagnostic interview) and parent history of trauma

(self-report). There were no significant associations between general parent mental health or trauma history and parenting behaviours, although a trend emerged between parent PTSD symptoms and parenting behaviour characterised by high avoidance, inducing fear and low re-appraising that was approaching significance ($p=.064$). However, this result must be interpreted cautiously as the scale measuring parent PTSD symptoms was made categorical (reporting/not reporting PTSD symptoms) due to a large proportion of the sample reporting no PTSD symptoms. This trend wasn't considered strong enough to control for in the analyses⁷ but suggests that the parent's own PTSD symptoms may, at some level, be influencing the way that they talk about the trauma with their child. Because the relationship was marginal, it could be argued that the parent's state of mind may be partially contributing to their parenting but further work on this in a larger sample is clearly necessary.

4.7 The significance of the associations with change over time

Although the small sample size of the current study limits the confidence with which null findings can be interpreted throughout this thesis, this problem was particularly acute when considering changes over time at the three-month follow-up. With this in mind, possible influences on follow-up outcomes will be considered. There was a significant decrease in child PTSD outcome scores from Time 1 to Time 2 but no significant changes in parent reports of (child) depression. This could be considered further evidence that the high rate of PTSD symptoms at Time 1 was indeed specifically reflecting the psychological symptoms linked with trauma and related processes of adaptation. Despite these changes over time in trauma symptoms no significant effects of any of the parenting variables were found on the extent of this

⁷ A significance level of $p<.05$ was used.

change, although the effect of parental involvement (intrusiveness) in the discussion task was approaching significance [$F(1)=3.67, p=.075$].

Low parental intrusiveness may thus have accounted for a small reduction in symptoms over time although clearly this would need to be confirmed (or disconfirmed) in a larger sample. The finding, if reliable, is interesting and somewhat surprising in that intrusiveness in the discussion task didn't influence PTS (at Time 1), yet children of parents with an intrusive conversational style appeared to take longer to recover from their PTSD symptoms. It is possible that being denied the opportunity to adequately discuss the experience may limit emotional processing of the trauma (Salmon & Bryant, 2002).

The fact that the parenting behaviours (avoidance, low re-appraisal and poor management of fear) that were closely associated with child PTSD symptoms at Time 1 did not influence the rate of decline of these symptoms at Time 2 is also interesting but difficult to resolve given the current sample size. A lack of findings in this area may reflect statistical problems. Alternatively, of course, it may be that these parenting behaviours are only relevant in the immediate aftermath of a trauma when the child is adjusting to the experience. One could argue that the former explanation is more likely seeing that only one child in the sample fulfilled the full PTSD diagnostic criteria at Time 2. A much larger sample size is required to see whether these parenting behaviours are associated with longer-term chronic maladjustment and PTSD.

4.8 Methodological issues

Research on child trauma victims is both sensitive and complex. The current study has a number of methodological limitations despite the adoption of a longitudinal prospective research design, thus ruling out many of the difficulties that come with retrospective reports, which currently comprise the majority of the evidence base. Furthermore, recruiting consecutive attendees at four major London hospital Accident & Emergency departments avoids sampling difficulties through sampling a largely unselected population. Nevertheless, a number of methodological weaknesses remain.

First, the sample did not contain trauma victims who were physically unharmed. Recruiting children from A&E departments restricted participants to those who received physical injuries. Unfortunately, recruiting non A&E attendees was beyond the time and resource constraints of this study. The response rate was equal to or higher than comparable published child trauma studies (Stallard et al, 1998; Keppel-Benson et al, 2002; Ehlers et al, 2001), yet still appears to be low, possibly reflecting the sensitivity of the research area. There were no differences between those who agreed to participate and those who declined on demographic and trauma related factors, but because of language factors, children or parents who were not fluent in English were unable to participate and were not represented. Because the study was prospective in design, the participants had to be seen by the researchers within one month of the frightening event. Inevitably, time constraints complicated recruitment.

Consequent to these recruitment difficulties, the sample size was small. The null results may in some cases therefore reflect a problem with statistical power. Because

of the small sample, the decision was made to not control for multiple comparisons because of the effect that would have had on power. Consequently, the type I error rate will have been elevated. Replication of this study is needed to rule out the hypothesis that the findings occurred by chance. Nevertheless, there were some significant findings suggesting that some of the effect sizes were relatively large in size. Furthermore, it is important to note that the key finding was one that was strongly connected to and predicted by theory, which to some degree strengthens confidence in its potential meaningfulness.

Secondly, a significant attrition rate meant that the sample size at 3-month follow-up (Time 2) was smaller still. This tended to be a result of difficulties of following up participants (rather than reluctance to participate) within the time constraints of this study. As a consequence, analyses of follow-up data were very limited due to lack of power and so it was difficult to ascertain whether any of the findings were applicable at Time 2, or whether the null results were merely due to lack of power. In addition, it should also be borne in mind that the focus on the child outcome at Time 1 means that conclusions cannot be generalised to diagnosable PTSD. For that reason the results should be interpreted with caution, signifying factors affecting early adaptation to trauma.

Like most parent-child interaction research, the majority of the parents in the sample were mothers and so the generalisability of the parenting behaviours may be to some degree limited. Determining the role fathers play in a child's adaptation to trauma would be an important step in future research.

The direct observation of parent-child interaction is considered the most reliable method of assessing parenting behaviours, as it is representative of general parenting and is less prone to bias (Aspland & Gardner, 2003; Wood et al, 2003). However, this doesn't mean it is without fault. Whether the tasks are ecologically valid, or applicable to other settings is unclear. The great majority of the dyads in this study were observed in their own homes, which may have increased the generalisability and validity of the findings. It was anticipated that the discussion task would be an appropriate and ecologically more valid method of observing the behaviours of interest – the way in which parents talk to their children about traumatic events. Nevertheless, direct validating evidence for this new procedure is inevitably limited.

An additional strength of the current study was that one of the two observers was blind to participant status, a stipulation considered good practice (Aspland & Gardner, 2003), and the inter-rater reliability rates were well above published guidelines of acceptable levels of agreement (0.7; Aspland & Gardner, 2003). Despite these strengths, the issue of reactivity must be considered in that the process of being videotaped may have affected the participants' behaviour and thus potentially compromising the generalisability of the behaviours or conversational style to other periods or situations. Arrangements were made to reduce the impact of reactivity (see method section). Nevertheless, it is encouraging that studies examining this issue have found that observer reactivity effects are minimal (Gardner, 2000).

The author developed the three scales measuring the content of the discussion about the trauma because there are no existing scales. These scales had high inter-rater

reliability rates suggesting the robustness of the measure, still they are not empirically validated and the reliability of the measures has not been proved.

As always there were factors that may have influenced child PTSD outcome, such as the child's subjective measure of trauma severity, and dissociation, that have previously found to be related to child PTSD (Ehlers et al, 2003) but were not measured or analysed in this study because of time and resource constraints. It would also be worth contemplating the impact of situations where threat and danger are real and ongoing, such as domestic violence or abuse on the adjustment to single event traumas. Also, there may have been a relationship between parent mental health and child adjustment to trauma, as demonstrated in other child trauma research (Smith et al, 2001). This hypothesis could have been tested in this study, but analyses were limited to the key hypotheses in attempt to reduce Type I errors. It was decided to investigate the way in which parent mental health mediated the relationship between parenting behaviours and child outcome. The parenting variables did not significantly correlate with parent mental health and so examining the relationship between parent mental health and child outcome directly was unnecessary.

4.9 Conclusion

The aim of the study was to investigate which parenting factors were related to the development of PTS in children. The findings suggest that parenting styles characterised by avoidance, little help in re-appraising the trauma, and exacerbation of the child's fear were significantly related to one another and to child trauma symptoms shortly after the event. Low levels of parental intrusiveness while talking about the trauma were linked to a faster recovery over time.

4.10 Clinical and research implications

A number of practical implications can be derived from the results of this study. In the aftermath of child trauma, it seems that intervention efforts, if they are considered necessary, should involve parents. Both family systems perspectives and the current findings (in relation to discrepancies between parent and child report of child symptoms) point to the importance of a thorough assessment of the child's symptoms including the perspective of both the parent and child, in addition to assessing the parent's own adjustment to the trauma. Previous research on parenting after domestic violence supports this view (Appleyard & Osofsky, 2003). Indeed, in the aftermath of trauma, recommendations that structured observations are crucial to the assessment of parent-child interaction and dyadic therapy focussing on enhancing parent-child interactions and working through the story of the traumatic event together have been made (Appleyard & Osofsky, 2003).

Parents could be debriefed on their role of helping the child to emotionally process the event in a number of ways. The parent could help the child by addressing the trauma directly through initiating conversations about it. This would hopefully prevent the child from thinking that talking about the trauma would make them feel worse, or more frightened. It also reinforces the message that the parent is willing to help and that talking about the traumatic event may be helpful in itself. While discussing the trauma, a non-intrusive parental style may be important (as implicated by the findings). Children are likely to benefit from parents who are willing to listen (in an active way) to their story and this allows the child space to express their fears,

worries, interpretations of the meaning of the trauma and their sense of current or future threat.

Parents could then be advised to help the child process the trauma by correcting any misconceptions they had about it or by filling in information that the child may not have noticed or remembered. This in turn, may help the child to develop a more coherent integrated autobiographical memory of the trauma and thus reduce intrusions (Brewin et al, 1996). The parent could also find out whether the child's sense of threat is maintained, for example, they may be fearful of travelling in cars since a RTA. If this is the case, the parent could help to re-appraise their sense of danger and provide them with coping strategies to help regulate their emotions (Eisenberg et al, 1996; 2001). It also seems important for the parent to help the child to re-appraise any beliefs that PTSD symptoms are signs of 'madness' or 'not coping' and that they will lessen with time (Ehlers et al, 2003).

The present findings also suggest that parents could help to contain their child's anxiety by refraining from repeatedly asking questions about the frightening aspects of the event or by reinforcing their sense of fear. Parents could be helped to recognise their child's symptoms of anxiety or PTSD, for example through being informed of common symptoms following trauma, and develop ways to help the child to cope with them.

The above suggestions complement Salmon & Bryant's (2002) theoretical propositions about the potential role of the family in the treatment of child trauma, yet the generalisation of these suggestions must be considered with caution based on

the fact that the findings were specific to the first month after the trauma. These ideas may be therefore be used in a psycho-education role in debriefing parents following a traumatic event, and this could occur shortly after the event, either at A&E, or follow-up hospital appointments. This may take the form of written information, or, a clinician could briefly screen the child for PTSD symptoms and then provide advice where appropriate. Indeed, from experience in both clinical situations and from carrying out this research, the most common question asked by parents in the recent aftermath of trauma is whether they should talk about it with their children. The current findings suggest that not only is it useful to talk about the traumatic event, but the importance of how the parent and child talk about it is implied. The clinical value of helping the child to address the trauma, re-appraise the situation and reduce their sense of fear at a later stage remains evident despite the null findings in the present study. This could be well addressed in therapeutic situations with those children who remain traumatised some time after the event. The therapist could facilitate parent-child conversations about the trauma in a way that could still be helpful as indicated by these preliminary findings.

In situations where the parent is also traumatised, it seems that helping the parent to cope with their own experience and symptoms may have an indirect positive effect on the child's adjustment. This theme has previously been addressed in relation to violence (Appleyard & Osofsky, 2003).

Future research should continue to investigate the influence of these parenting behaviours on traumatised children. Larger sample sizes would provide more statistically robust findings. The role of attachment was highlighted as a possible

explanation for the variation in willingness to talk about emotional issues. Further research investigating this issue in relation to trauma would be helpful to decide which children and their parents may need therapeutic assistance in discussing their experience. It would also be interesting to examine any differences in parenting styles between mothers and fathers and if these interact with the gender of the child. Further investigation of the role of the parents' beliefs on their behaviour in the aftermath of trauma would be enlightening as would the impact of cultural beliefs on both parenting styles and the decision of whether to talk about the trauma and the way in which this is done. The influence of the family context, especially parenting behaviours on a child's adaptation to trauma is clearly fundamental yet poorly understood.

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Appendix A



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

Version 3

Date: 9 August 2003

Child Information Sheet

How children and parents cope after a frightening event

You are invited to take part in a project about children who have had a frightening experience. Please read this information sheet because it tells you why we are doing this project and what we will ask you to do if you say yes.

Why are we doing this project?

Lots of children have a frightening experience like a car accident so we need to understand more about how children cope and manage afterwards. We hope that what you tell us will help us understand how to look after children who are still upset a long time after the frightening event happened. We are interested to hear what every child and their parent has to say even if you are not upset.

Why have I been chosen?

We are inviting all children aged 7 – 12 who have been in a frightening event and had to go to hospital afterwards. We would like to see at least 100 children and their mum or dad.

Do I have to do it?

You do *not* have to take part in the project if you do not want to. If you decide to take part and then change your mind, that is OK and you won't have to tell us why you wanted to stop. If you decide to take part it will not change anything that happens to you in hospital. When we meet for the first time, we will ask you to sign a form to say that you will take part.

What will I have to do?

If you decide to take part in the project you and your mum or dad will meet us twice, either at home or in the centre of London. The first time will be in about 2 weeks. We will ask you to tell us a little bit about the accident, do a tricky puzzle together in front of a video camera and fill in a questionnaire about your ideas about the accident and your health. It will take about 50 minutes (about the same amount of time as a class at school). The second time we meet will be after 3 months and we will ask you to fill in the questionnaire again to see if you have changed or stayed the same. This time it will take about 30 minutes (about half the length of a class).

Are there any risks?

We don't think there are any risks, but there might be a small chance that some children may get a bit upset when talking about the accident or when doing the tricky puzzle. If this happens, we will try and help you to feel better by the time you leave. If you don't feel better, we will tell you about somewhere that you could go to talk to someone who can help.

Why will it be good to take part?

The things that you and the other children (and parents) tell us will be very useful and will help us find out how to help other children who have a frightening event in the future and stay upset for long time.

What happens to the questionnaires and videotapes?

Whatever you tell us will be kept confidential; that means that it will be a bit like secret and no one will see the questionnaires or videotapes except for the people doing the project (the names below). Your name will *not* be on the questionnaires or tapes.

What if something goes wrong?

We do not expect anything to go wrong, but if it does we will talk to your mum or dad about what they can do.

What will happen to the results of the project?

We hope to write a report for other people to see so that they can help other children who are upset by a frightening event. Your names will *not* be in the report.

Thank you for helping us. If you have any questions or worries about the study you can telephone or email any of us.

Telephone

Richard Bailie
Wendy Isenwater
Sarah Kee

Principle investigators: Dr. Paso Fearon and Dr. Cathy Creswell, UCL
Clinical lead: Dr. Whitwell

Barts and The London NHS Trust and University College London Hospitals
Ethics Committees have reviewed this study.

Appendix B



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

Version: 3

Date: 9 August 2003

How children and parents cope after a frightening event

You and your child are invited to take part in a research study looking at how children cope after experiencing a frightening event and how parents support their child during this time.

This information sheet tells you about why the research is being done and what you would be asked to do. Please take a few minutes to read it. We will contact you in the next 2 weeks to ask whether you would be interested in taking part.

Information Sheet

What is the purpose of the study?

We hope that you and your child's views and experiences will help us understand more about how children cope after a frightening event. In the future, we hope this information will help us to advise and support families who experience such events, particularly the minority who experience longer-term problems.

We are interested in all children, so you and your child's views will be helpful to us even if you feel that he or she has *not* been affected by the event.

Why have I been chosen?

We are interesting in meeting all children between the ages of 7 and 12 who attended either UCLH, Royal Free, or the Royal London Accident & Emergency departments following a frightening event. We would like to meet with at least 100 children and their parents.

Do I have to take part?

It should be emphasised that you do not have to take part in this study if you do not want to. If you decide to take part, you may withdraw at any time without giving a reason. Your decision to take part or withdraw will not affect

your medical care and management in any way. When we first meet, we will make sure you have a copy of this information sheet and ask you to sign a consent form.

What would I have to do?

If you and your child do choose to take part in the study then we will arrange to meet with you either in central London or in your home (whichever you prefer) on two occasions.

First, we will ask you and your child to tell us briefly about the accident, do a tricky puzzle together in front of a video camera and complete a few simple questionnaires that ask your ideas about the accident and your health before and after the accident. This meeting will take no more than 50 minutes.

We would like to meet again 3 months later to ask you both to complete the questionnaires again to see whether things have changed or stayed the same over time. This meeting will take about 30 minutes.

Are there any risks to us if we take part in the study?

We do not expect there to be any risks to taking part in the study. We ask you to tell us about the accident and some people may find talking about it upsetting. If you and your child have concerns, we will be happy to discuss these with you. If you feel it would be helpful, we can put you in touch with sources of support.

What are the benefits of taking part?

We hope that the information that we gather in this study will help us in the future to treat children who experience difficulties following a frightening event. On finishing the study, we will send you a summary of our findings.

What happens to the information collected?

All the information you provide will be kept completely confidential. Instead of using your name, we use a code to label the questionnaires and videotapes. A list of names and their codes will be kept separately and securely so that only the named researchers below can access it. In addition to using the information for this study, we may wish to use it to answer other questions in the future. We will therefore continue to keep the information securely so that only the researchers named below can access it. We will ask your permission to contact you again about future research.

What if something goes wrong?

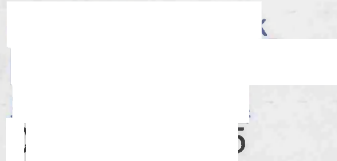
We are obliged to inform all participants that whilst we do not anticipate any problems, if something goes wrong there are no special compensation arrangements available. In the event of negligence, you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you wish to complain, or have concerns of this study, the normal National Health Service complaints mechanisms should be available to you.

Ethical review

University College London Hospital NHS Trust Ethics Committee has reviewed this study.

Thank you in advance for your help, please feel free to telephone or email us if you have any questions

Richard Bailie
Wendy Isenwater
Sarah Kee
Telephone



Principle investigators: Dr. Pasco Fearon and Dr. Cathy Creswell, UCL.
Clinical Lead: Dr. Whitwell, Royal Free

Form version 2
CONFIDENTIAL

Please read carefully



Appendix C



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

ADULT CONSENT FORM

Title of project: **How children and parents cope after a frightening event**

Participant ID Number: _____
number:

UCLH Project ID

Date: _____

Form version: 2
CONFIDENTIAL

Please Initial box

1. I confirm that I have read and understood the information sheet dated 9 April (version 2) for the above study and have had the opportunity to ask questions.

☐

2. I confirm that I have had sufficient time to consider whether or not want to be included in the study

☐

3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

☐

4. I understand that sections of any of my child's medical notes may be looked at by Dr. Pasco Fearon, Dr. Cathy Creswell, Richard Bailie, Wendy Isenwater or Sarah Kee. I give permission for these individuals to have access to my child's records.

☐

5. I agree to take part in the above study.

☐

Name of participant

Date

Signature

Name of Person taking consent

Date

Signature

Comments or concerns during the study

If you have any comments or concerns you may discuss these with the principle investigator **Pasco Fearon - 020 7679 5955**. If you wish to go further and complain about any aspect of the way you have been approached or treated during the course of the study, you should write or get in touch with the Complaints Manager, UCL hospitals. Please quote the UCLH project number at the top this consent form.

Appendix D



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

CHILD CONSENT FORM

Title of project: How children and parents cope after a frightening event

Participant ID Number: _____
number:

UCLH Project ID

Date: _____

Form version: 2
CONFIDENTIAL

Please put your
initials in the boxes
if you agree

1. I have read and understood the information sheet dated 9 April (version 2) and have asked any questions that I wanted to.
2. I have had enough time to decide if I want to take part in the project.
3. I understand that I only need to take part if I want to and that I am free to stop doing the project at any time, without giving any reason.
4. I understand that the people doing the research project (Dr. Pasco Fearon, Dr. Cathy Creswell, Richard Bailie, Wendy Isenwater or Sarah Kee) may look at my hospital notes if they need to. This is OK if my parent lets them.
5. I agree to take part in this project.

☐☐☐☐☐

Name of participant

Date

Signature

Name of Person taking consent

Date

Signature

Comments or concerns during the study

If you have any comments or concerns you may discuss these with the principle investigator **Pasco Fearon - 020 7679 5955**. If you wish to go further and complain about any aspect of the way you have been approached or treated during the course of the study, you should write or get in touch with the Complaints Manager, UCL hospitals. Please quote the UCLH project number at the top this consent form.

Appendix E



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

CONSENT TO BE CONTACTED FORM

Title of project: How children and parents cope after a frightening event

Participant ID Number: _____
/ 0081

REC number: _____

Date: _____

Form version: 1
CONFIDENTIAL

Please initial box

1. I have been given an information sheet dated 9 August (version 2) about the above study.

☐

2. I agree to my name and the name of my child, and our telephone number and address being given to the researchers so they can contact us shortly to talk about participating in this study

☐

3. I understand that I am under no obligation to participate in this study and that if I do not choose to participate, my medical care or legal rights are in no way affected.

☐

4. I also understand that if I choose not to participate in this study I will not be contact again by the researchers. The researchers will not retain my personal details.

☐

Name of adult

Date

Signature

Name of Person taking consent

Date

Signature

Comments or concerns during the study

I know that if there are any problems, I can contact Dr. Pasco Fearon, 020 7679 5955

Appendix F

Code number:

Date:

PRIVATE & CONFIDENTIAL

Word puzzles

Try to make real words out of the letters below. You have 10 minutes.
Try to complete as many as you can.

Here is an example:

TCA	becomes	CAT
-----	---------	-----

ANBANA	becomes	
KEYMON	becomes	
BBSAATCLAI	becomes	
CFAPIIICMS	becomes	
IAAICLNTSM	becomes	
CCRGPYAOAH	becomes	
ADACMMASI	becomes	
ENAIGTTSSM	becomes	
YSSNLAOEU	becomes	
SNYRAOCLPE	becomes	
CAELAINSDL	becomes	
TREALDCEE	becomes	
DIQURAMORF	becomes	
SOTNTMIEEA	becomes	
QGCRAELUN	becomes	
DGIIANLVT	becomes	

Appendix G

Additional Coding for discussion task

1. Rate the degree of avoidance of discussing the trauma (unidirectional scale)

1	2	3	4	5
Not at all Avoidant	A little avoidant	Somewhat avoidant	moderately avoidant	very avoidant

This scale measures the degree to which the parent was avoidant in discussing *what happened during the traumatic event*. In other words, did the parent try and change the subject? Did they ask closed questions about aspects of the trauma unrelated to what actually happened (such as what happened afterwards)? Were there prolonged silences? Did the parent avoid the discussion by leaving the child to do all the talking? Did they merely ask about specific details? Did they appear as if they were not listening to the child? Did they rush the child through the discussion?

Did the parent (perhaps unconsciously) reinforce the child for avoiding discussing the trauma? Any evidence of reinforcing the child for avoidance warrants a score above 3. This may include joining in an unrelated conversation the child starts e.g. talking about something else or some irrelevant aspect of the trauma (such as what happened since the event). It would also cover when a parent does not attempt to bring the child back on task (to discussion of the actual trauma). Reinforcing the child's avoidance would also encompass any evidence of increased parental attention or warmth as a consequence of the child's avoidance. This scale does not relate to the degree to which the parent is relaxed about discussing the trauma. It measures the degree of conscious or unconscious avoidance of material or emotion connected to the traumatic event.

- One** The parent is **not at all avoidant**. S/he allows and encourages the child to discuss the trauma and asks more than one open-ended question about what happened. If the child goes off subject, the parent may bring them back to task.
- Two** The parent may be a **little avoidant**. There may be evidence of one or two examples of closed questions about specific details, or talking for more than 10 seconds about irrelevant detail/issues.
- Three** The parent is **somewhat avoidant** during the discussion. There may be prolonged silences or discussion of irrelevant detail/issues. They may ask more than two closed questions.
- Four** The parent is **moderately avoidant**. There may be several examples of avoiding discussing the trauma. There may be prolonged silences. The parent may ask no open-ended questions.

The parent may inadvertently reinforce the child once for not discussing the trauma (see examples above).

Five The parent is **very avoidant**. The parent seems uncomfortable and unable/unwilling to discuss the trauma. The parent may attempt to change the subject, ask closed questions (not referring to what actually happened), or the parent may contribute very little. They may reinforce the child more than once for avoiding discussion of the trauma. Much of the discussion will be left up to the child.

2. Parental management of fear (unidirectional scale)

1	2	3	4	5
no fear/ neutral/ sensitive response	ignores signs of anxiety	scares the child a little	frightens the child	re-traumatises child

This scale measures the way in which the parent exacerbates (rather than attenuates) the child's anxiety when discussing the trauma with the child. It encompasses both the parent's response to what the child brings to the discussion and what the parent brings to the discussion him/herself. It does not just measure how the parent manages the child's emotions but also measures the way the parent deals with the child's beliefs and appraisals that relate to fear/anxiety. Rate above 1 if the parent talks about the trauma in a way that scares the child or reinforces the child's fear/sense of danger.

- One** The child may not express any fear and the parent does not induce any anxiety in the child. If the child expresses fear, the parent responds in a sensitive containing way attempting to help the child manage their anxiety. They may do so by reassuring the child that something is not usually dangerous (e.g. crossing a road) or by telling the child that they are safe from harm.
- Two** The parent **may ignore or fail to respond to any signs of anxiety** expressed by the child on one occasion. The parent may avoid discussing the child's fear or sense of danger by changing the conversation topic or by focussing on practical details. The parent might make a remark that brushes over the child's expression of anxiety (e.g. 'don't be silly, anyway.....'). The parent may make neutral responses to the child's expression of fear that merely acknowledges it e.g. 'you were frightened when you got in the ambulance'.
- Three** The parent may **scare the child a little** or be unable/ unwilling to contain the child's fears. They may remind the child of the dangerousness of the traumatic situation/ related situations. They may inadvertently reinforce any of the fears that the child brings to the discussion by agreeing that the stimulus is threatening or by increasing the child's fear of the stimulus (e.g. "this estate is very dangerous you might get attacked again"). The parent may be unresponsive to the child's needs.
- Four** The parent **frightens the child**. The parent talks about the trauma in a way that scares the child. They may reinforce the child's sense of danger (as described above) on more than one occasion or for a prolonged amount of time. The parent appears to increase the child's levels of distress. The parent may not seem to notice the child's distress or does not respond to it.

Five The parent **re-traumatises the child**. The parent may appear preoccupied by the trauma and repeatedly asks questions in an intrusive way about aspects of it that the child finds difficult to talk about. This invokes an anxious response in the child. The child is obviously distressed and the parent exacerbates the child's anxiety.

3. Re-appraising the trauma and reducing child's sense of threat (bi-directional scale)

1	2	3	4	5
significantly helps child to reappraise	some help in reappraising	neutral	some reinforcement of child's threat appraisals	significant reinforcement of child's threat appraisals

This scale measures to what extent, if at all, the parent is able to help the child re-appraise the trauma. They may achieve this by correcting misconceptions the child has about the traumatic event, or by helping the child to re-appraise the trauma and/or associated feelings in a way that contains or reduces the child's anxiety or decreases the child's sense of threat. They may help the child to perceive the trauma as a time limited event. They may help the child to reappraise negative interpretations of their symptoms, others' reactions, and consequences of the trauma in terms of their life opportunities. Rate below 3 if the parent corrects misconceptions of the trauma the child has or helps the child to reappraise the trauma in a way that reduces (or is likely to reduce) the child's sense of current or future threat. Rate above 3 if the parent reinforces unhelpful attributions or the child's sense of threat and danger.

- One** The parent corrects any misconceptions of the trauma that the child has and this reduces the child's sense of current/future threat or fear. The parent helps the child to reappraise the trauma on more than one occasion, or spends some time/effort in doing so. The parent may add details about the event (that the child has forgotten/ omitted), which help to reduce the child's distress. The parent ensures that the child re-appraises the traumatic event.
- Two** The parent corrects any misconceptions of the trauma that the child has although this may not result in decreased sense of threat for the child. The parent may challenge the child's unhelpful attributions on one occasion or, spends little time/effort in doing so. The parent appears to be trying to reduce the child's anxiety or helping the child to think about the event in a more helpful way.
- Three** The child expresses no misconceptions of the traumatic event/ no unhelpful attributions/ no fear or sense of danger. NB do not rate 3 if this is due to avoidance.
- Four** The parent may reinforce the child's appraisal of the traumatic event or its sequelae as dangerous on one occasion. They may do so by raising the possibility of future danger or by

commenting of the dangerousness of situations that are not always dangerous. The parent may increase the child's sense of threat.

Five The parent may reinforce the child's appraisal of the traumatic event or its sequelae as dangerous (as described above) on more than one occasion or spends a significant amount of time in doing so. The parent may increase the child's sense of threat.

Appendix H
CONFIDENTIAL
Impact of Events Scale (IES-15)

On _____ you experienced _____.

Below is a list of things some people say after frightening events. Please read each one carefully and put a tick in the box, showing how much it was true for you DURING THE PAST SEVEN DAYS. If it was not true during that time, please tick the "not at all" column.

	Not at all	Not very often	Sometimes	Often
I thought about it when I didn't mean to.				
I avoided letting myself get upset when I thought about it or was reminded of it.				
I tried to remove it from memory.				
I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind.				
I had waves of strong feelings about it.				
I had dreams about it.				
I stayed away from reminders of it.				
I felt as if it hadn't happened or it wasn't real.				
I tried not to talk about it.				
Pictures about it popped into my mind.				
Other things kept making me think about it.				
I was aware that I still had a lot of feeling about it, but I didn't deal				

with them.				
I tried not to think about it.				
Any reminder brought back feelings about it.				
My feelings about it were kind of numb.				

CONFIDENTIAL**Child Manifest Anxiety Scale (R-CMAS)**

Below is a list of sentences. Please read each one carefully and put a tick in the box, showing if it is **TRUE** or **FALSE** for you. There are no right or wrong answers. Please answer as honestly as you can.

	True	False
I have trouble making up my mind		
I get nervous when things do not go the right way for me		
Others seem to do things easier than I can		
I like everyone I know		
Often I have trouble getting my breath		
I worry a lot of the time		
I am afraid of a lot of things		
I am always kind		
I get mad easily		
I worry about what my parents will say to me		
I feel that others do not like the way I do things		
I always have good manners		
It is hard for me to get to sleep at night		
I worry about what other people think about me		
I feel alone even when there are other people with me		
I am always good		
Often I feel sick in my stomach		
My feelings get hurt easily		
My hands feel sweaty		
I am always nice to everyone		
I am tired a lot		

Please turn over...

	True	False
I worry about what is going to happen		
Often other children are happier than I		
I tell the truth every single time		
I have bad dreams		
My feeling get hurt easily when I am told off		
I feel someone will tell me I do things the wrong way		
I never get angry		
I wake up scared some of the time		
I worry when I go to bed at night		
It is hard for me to keep my mind on my schoolwork		
I never say things I shouldn't		
I wiggle in my seat a lot		
I am nervous		
A lot of people are against me		
I never lie		
I often worry about something bad happening to me		

Thank you.

CONFIDENTIAL**Birleson Depression Inventory (BDI)**

Below is a list of sentences. Please read each one carefully and put a tick in the box, showing how much it was true for you DURING THE PAST SEVEN DAYS.

There are no right or wrong answers but it is important to say how you have felt. Please answer as honestly as you can.

	Most of the time	Sometimes	Never
I look forward to things as much as I used to.			
I sleep very well.			
I feel like crying.			
I like to go out to play.			
I feel like running away.			
I get tummy aches.			
I have lots of energy.			
I enjoy my food.			
I can stick up for myself.			
I think life isn't worth living.			
I am good at things I do.			
I enjoy the things I do as much as I used to.			
I like talking with my family.			
I have horrible dreams.			
I feel very lonely.			
I am easily cheered up.			
I feel so sad I can hardly stand it.			
I feel very bored.			

Appendix I

Participant number _____

CAPS Checklist

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event, check one or more of the boxes to the right to indicate that:

- a) it has happened to **you**
- b) **you** have witnessed it happening to someone else
- c) **you** have learned about it happening to someone close to you
- d) you're not sure if it fits
- e) it doesn't apply to **you**

Be sure to consider **your entire life**, as you go through the list of events. Some questions may not apply

Event	Happened to me	I witnessed it	I learned about it	Not sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)					
2. Fire or explosion					
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)					
4. Serious accident at work, home or during recreational activity					
5. Exposure to toxic substance (for example dangerous chemicals, radiation)					
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)					
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)					
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)					
9. Other unwanted or uncomfortable sexual experience					

Event	Happened to me	I witnessed it	I learned about it	Not sure	Doesn't apply
10. Combat or exposure to a war zone (in the military or as a civilian)					
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)					
12. Life threatening illness or injury					
13. Severe human suffering					
14. Sudden, violent death (for example, homicide, suicide)					
15. Sudden, unexpected death of someone close to you					
16. Serious injury, harm or death you caused to someone else					
17. Any other very stressful event or experience					

Demographics and Child Medical History

We would like to find out a little about you as a family.

1. Are you working? If YES what is your occupation?

2. At what point did you finish your education? (circle)

Vocational CSE O Level GCSE

A Level Degree Other (specify)

3. How would you describe your ethnicity? (*prompts – white, black, Asian, African*)

We would now like to find out a little about your child's health.

4. Did you or your child have any health problems during the pregnancy of your child? (*prompts – for example did you experience hypertension, have a fall, or did you take medication?*)

5. Did you or your child have health problems during the birth of your child? (*prompts – did you have a caesarean section, was the child in intensive care, did the child breathe at first?*)

6. What was the birth weight of your child?

7. Has your child ever been admitted to a hospital? (*prompts – for example for an accident, operation, or if they had been knocked unconscious*)

8. Has your child ever had prolonged ill health requiring regular treatment by a Doctor? (*prompt – do they take any medication on an ongoing basis, e.g. for asthma?*)

9. Does your child receive Special Educational Needs support at school? (*prompt – have they had a statement of SENs? Literacy or numeracy difficulties?*)

Participant number _____

General Health Questionnaire 28

Please read this carefully. We should like to know if you have had any medical complaints and how your health has been in general, **since the frightening event.**

Please answer **ALL** the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about **present and recent** complaints, not those that you had in the past.

It is important that you try to answer **ALL** the questions. Thank you.

Have you recently:

A1. Been feeling perfectly well and in good health?	Better than usual	Same as usual	Worse than usual	Much worse than usual
A2. Been feeling in need of a good tonic?	Not at all	No more than usual	Rather more than usual	Much more than usual
A3. Been feeling run down and out of sorts?	Not at all	No more than usual	Rather more than usual	Much more than usual
A4. Felt that you are ill?	Not at all	No more than usual	Rather more than usual	Much more than usual
A5. Been getting any pains in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
A6. Been getting a feeling of tightness or pressure in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
A7. Been having hot or cold spells?	Not at all	No more than usual	Rather more than usual	Much more than usual

B1. Lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
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Have you recently:

B2. Had difficulty in staying asleep once you are off?	Not at all	No more than usual	Rather more than usual	Much more than usual
B3. Felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
B4. Been getting edgy and bad-tempered?	Not at all	No more than usual	Rather more than usual	Much more than usual
B5. Been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
B6. Found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
B7. Been feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
C1. Been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
C2. Been taking longer over the things you do?	Quicker than usual	Same as usual	Longer than usual	Much longer than usual
C3. Felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
C4. Been satisfied with the way you've carried out your task?	More satisfied	About the same as usual	Less satisfied than usual	Much less satisfied

C5. Felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
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Have you recently:

C6. Felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
C7. Been able to enjoy your normal day to day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
D1. Been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
D2. Felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
D3. Felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
D4. Thought of the possibility that you might make away with yourself?	Definitely not	I don't think so	Has crossed my mind	Definitely have
D5. Found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual
D6. Found yourself wishing you were dead and away from it all?	Not at all	No more than usual	Rather more than usual	Much more than usual
D7. Found that the idea of taking your own life kept coming into your mind?	Definitely not	I don't think so	Has crossed my mind	Definitely has

Participant number _____

Strengths and Difficulties Questionnaire

To be completed by a main carer of a child aged between 4 and 16

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all the items as best you can even if you are not absolutely certain, or the items seem daft! Please give your answers on the basis of the child's behaviour **over the last six months before the frightening event**.

	Not true	Somewhat true	Certainly true
1. Considerate of other people's feelings			
2. Restless, overactive, cannot sit still for long			
3. Often complains of headaches, stomach aches or sickness			
4. Shares readily with the other children (treats, toys, pencils etc.)			
5. Often has temper tantrums or hot tempers			
6. Rather solitary, tends to play alone			
7. Generally obedient, usually does what adults request			
8. Many worries, often seems worried			
9. Helpful if someone is hurt, upset or feeling ill			
10. Constantly fidgeting or squirming			
11. Has at least one good friend			
12. Often fights with other children or bullies them			

	Not true	Somewhat true	Certainly true
13. Often unhappy, downhearted or tearful			
14. Generally liked by other children			
15. Easily distracted, concentration wanders			
16. Nervous or clingy in new situations, easily loses confidence			
17. Kind to younger children			
18. Often lies or cheats			
19. Picked on or bullied by other children			
20. Often volunteers to help others (parents, teachers, other children)			
21. Thinks things out before acting			
22. Steals from home, school or elsewhere			
23. Gets on better with adults than with other children			
24. Many fears, easily scared			
25. Sees tasks through to the end, good attention span			

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No difficulties

☐

Yes - minor difficulties

☐

Yes - more serious difficulties

☐

Yes - severe difficulties

☐

If you have answered 'Yes', please answer the following questions about these difficulties:

- How long have these difficulties been present?

Less than a month

☐

1 – 5 months

☐

5 – 12 months

☐

Over a year

☐

- Do the difficulties upset or distress your child?

Not at all

☐

Only a little

☐

Quite a lot

☐

A great deal

☐

- Do the difficulties interfere with you child's everyday life in the following areas?

Home life

Not at all

☐

Only a little

☐

Quite a lot

☐

A great deal

☐

Friendships

Not at all

☐

Only a little

☐

Quite a lot

☐

A great deal

☐

Classroom learning

Not at all

☐

Only a little

☐

Quite a lot

☐

A great deal

☐

Leisure activities

Not at all

☐

Only a little

☐

Quite a lot

☐

A great deal

☐

- Do the difficulties put a burden on you or your family as a whole?

Not at all

☐

Only a little

☐

Quite a lot

☐

A great deal

☐

Dr Pasco Fearon
Sub-Department of Clinical Health Psychology
University College London
Gower Street
London WC1E 6BT

26th September 2003

Our ref: [REDACTED]

Dear Dr Fearon

Re: [REDACTED] - A prospective study of the development of posttraumatic stress reactions in children after frightening events.

Thank you for your letter of 8th September 2003 addressing the points of the Committee's earlier letter. I am happy to tell you that I am now able to approve this study on Chairman's action to be noted at future meeting of the Committee.

Please note the following conditions to the approval:

1. The Committee's approval is for the length of time specified in your application. If you expect your project to take longer to complete (i.e. collection of data), a letter from the principal investigator to the Chairman will be required to further extend the research. This will help the Committee to maintain comprehensive records.
2. Any changes to the protocol must be notified to the Committee. Such changes may not be implemented without the Committee or Chairman's approval.
3. The Committee should be notified immediately of any serious adverse events or if the study is terminated prematurely.
4. You are responsible for consulting with colleagues and/or other groups who may be involved or affected by the research, such as extra work for laboratories.
5. You must ensure that, where appropriate, nursing and other staff are made aware that research in progress on patients with whom they are concerned has been approved by the Committee.

6. The Committee should be sent one copy of any publication arising from your study, or a summary if there is to be no publication.

I should be grateful if you would inform all concerned with the study of the above decision.

Your application has been approved on the understanding that you comply with Good Clinical Practice and that all raw data is retained and available for inspection for 15 years.

Please quote the above study number in any future related correspondence.

Yours sincerely

 **DORA OPOKU**

Chair

East London and The City Research Ethics Committee

University College London Hospitals

NHS Trust

Co- Chairs
Mr M Harrison and Dr R MacAllister

The Joint UCL/UCLH Ethics Committee: Committee A
Research & Development
1st Floor, Vezey Strong Wing
112 Hampstead Road
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1 April 2003

Our Ref: RM/sb/03A243

Dr Pasco Fearon
Lecturer in Psychology
Sub Department of Clinical Health Psychology
Gower Street
UCL

Dear Dr Fearon

REC Ref No: 03/0081 *(please quote in all correspondence)*

REC Name: Committee A *(please quote in all correspondence)*

Study Title: A prospective study of the development of posttraumatic stress reactions in children after frightening events

Thank you for attending the ethics committee meeting on the 20 March 2003 to discuss your proposal.

The Joint UCL/UCLH Committee for Ethics on Human Research reviewed your application and the documents reviewed were as follows:

- REC application form
- Patient information sheet
- Patient consent form
- Research Protocol

Your application was approved in principle, however before final approval can be granted, the committee would like you to respond to the following concerns, which are detailed below:

- The Committee was uncertain about the scientific rigor of your approach. They thought that the hypothesis lacked specificity and they could not see how the endpoints that the investigator plans to measure could be used to test your hypothesis. The committee thought that the lead investigator's inclusion criteria were too broad, given the wide range of traumatic experiences that children may have experienced. The committee felt that a control group was necessary.
- The PTSD questionnaire was extremely intrusive. The committees do not understand why it was necessary to ask children about other traumatic events in this way. The information leaflet does not warn parents that these questions will be asked.
- The information leaflet does not mention that one aim is to assess if the parent contributes to the development of PTSD by having poor parenting skills (to be assessed in the video session). This lack of transparency is close to deception and needs to be justified.

- ...the protection questionnaire was not answered.
- Given recent studies indicating that the best way to avoid PTSD is not to talk about it should this study be allowed?

The Committee decided that it would be helpful for the lead investigator to attend the next meeting (24th April) to discuss these issues Please could you contact Sabrina Balendra on the above number so she can arrange this for you.

When submitting the response to the committee, please send revised documentation where appropriate **highlighting the changes** that you have made and **give revised version numbers and dates**.

Your application has been given a unique reference number please use it on all correspondence with the REC
--

Yours sincerely

Dr Raymond MacAllister
Co-Chair