Evaluation of the attachment scale in the Trauma Symptom Inventory-2

Parental experiences of traumatic events and close relationships

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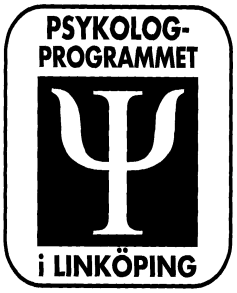

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Abstract

The aim of this study was to evaluate the psychometric properties of the attachment scale added in the newly developed self-rating questionnaire Trauma Symptom Inventory-2 (TSI-2). Participants were recruited from the Swedish parent-infant unit Hagadal (N=58). Reliability analyses concluded Cronbach´s α .92 for attachment total scale, .88 for avoidance subscale, and .91 for rejection sensitivity subscale. Convergent validity analyses concluded moderate to strong correlations between TSI-2 attachment scale and subscales, and Experiences in Close Relationships (ECR) total scale and subscales (r= .34 - .68, $p \leq$ .01). Criterion validity analyses concluded that adverse childhood circumstances measured by Linköping Youth Life Experiences Scale (LYLES) signficantly estimated 17 % of variance in TSI-2 attachment scale scores. Preliminary support for reliability and validity of the TSI-2 attachment scale was obtained. No previous trauma symptom rating instrument has included information about adult attachment styles. The present findings point to the benefits of such inclusion.

Keywords

Psychometrics, adult attachment styles, polytraumatization, interpersonal anxiety regulation, trauma symptoms

Acknowledgements

First of all, I would like to thank all the parents participating in this study, for sharing your experiences; especially those experiencing additional stress having their baby present. Your self-ratings have contributed to a deeper understanding of the vicious cycle of trauma.

I would like to thank all Hagadal staff workers, who have taken time out of their busy schedule to administer the data collection.

Further, I would like to thank my supervisor Doris Nilsson for solid theoretical guiding, and for being a role model in the work of promoting healthy relationships in survivors of complex traumata.

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I would like to thank Snaelda, a ten year old Icelandic horse who has been part of my life ever since she was conceived. Our close, reciprocal inter-species relationship has taught me a lot about mutual affect regulation, and about sense of security in herding mammals.

Finally, I would like to thank Erika Viklund for always providing interpersonal anxiety regulation during the ups and downs of the research process, making me far more tolerant to the inevitable stressor of conducting science.

Preword

During the course of my studies in psychology, close relationships and traumatic life events have captured my interest. Close relationships may be conceptualized through the theory of attachment, which has undergone thorough scientific examination and has been developed into a theory of life-span interpersonal anxiety regulation and protection. As a psychologist to be, I find it a comprehensible framework for developmental as well as clinical issues. I consider it to fit well with my personal beliefs and therefore wanted to investigate it further.

In my previous career, I have worked with children and families and in my experience, when the relationship between parents and children go awry, sometimes the parents themselves have experiences of interpersonal traumata affecting their present behaviour. I would like to stress my non-deterministic standpoint in this matter. In contradiction to early psychoanalytical literature, current attachment research shows that ways of relating develops in multiple contexts, that parental experiences do not account for all variation in relational styles in adolescents and adults, and that children may have several attachment figures. Moreover, it is my belief that major individual differences exist, and that scientific studies should only make assumptions at a group level.

A pilot study conducted by Viitanen (2011) drew my attention. I examined self-rating instruments for trauma symptoms and close relationships, and discovered the newly developed 2nd edition of the self-rating questionnaire Trauma Symptom Inventory (TSI-2), which unlike other instruments screens for both adult attachment style and trauma symptoms. The pilot study and my interest in the new screening instrument lead up to the design of the present study.

It is my belief that in assessing individual and family experiences of potentially traumatic events and symptoms thereof, some behavioural diagnostics and interventions have to be reconsidered. Psychiatric care interventions may need to target interpersonal anxiety regulation abilities to a much greater extent than at the present. This would mean leaving the extreme individual focus behind. Further, it is my belief that if Swedish psychiatric care units were to focus on people´s sense of security in close relationships, and put some effort into increasing the quality of these relationships, then, and only then, may care unit interventions contribute to the breaking of the vicious cycle of trauma.

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CONTENTS

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Brief introduction

The focus in this study lies upon measuring parental experiences of potentially traumatic events, as well as close relationships conceptualized through the theory of adult attachment styles (Howe, 2011). A pilot study conducted by Viitanen (2011, 2012) shows that parents in a parent-infant unit seeking help for worries about the relationship to their baby, had experienced multiple potentially traumatic events. Here, it is suggested that human behaviour is dynamic and sensitive to social life events. Present economical situation, current social support, every day life stress and physical as well as psychological well-being are examples of factors affecting family interplay, the behaviour of the children themselves not to be forgotten (Rich Harris, 1988). However, when conducting science one must focus on limited areas. Here, the main focus lies upon evaluation of a newly developed self-rating instrument, the Trauma Symptom Inventory 2nd edition (TSI-2), that might be used as a screening instruments for adults. Previously, no self-rating instruments have captured both trauma symptoms and adult attachment styles. Here, it is argued that such an instrument might be beneficial not only in detecting relational difficulties and trauma symptoms in parents, but also as a basis for health-promotion work with spill-over effects for the next generation.

Theoretical background and previous research

Potentially traumatic life events and polytraumatization

Potentially traumatic life events and trauma symptoms have been investigated in a substantial number of studies (Briere, Kaltman & Green, 2008; Finkelhor, Ormod & Turner, 2007b; Goldenberg & Mathesen, 2005; Hart, 2008). People who have experienced traumatic life events do not necessarily show any trauma symptoms, thus stressing the importance of designating life events as potentially traumatic (Briere, 2011; Finkelhor, Ormod & Turner, 2007a; Michel, Johannesson, Lundin, Nilsson & Otto, 2010). Further, many who display symptoms still live functional lives. Also, similar symptoms may be shown by people who have not experienced traumatic life events (Allen, 2001; Allen, Porter, McFarland, McElhaney & Marsch, 2007; Broberg, Almqvist & Tjus, 2003). A recent study has shown that female multiple trauma survivors are increasingly found to be a significant portion of the university population (Briere, Kaltman & Green, 2008). Potentially traumatic events may be defined as life threatening or damaging to one´ s physical and/or mental health, which also includes threats thereof and witnessing such events (Michel et al., 2010).

Some events may be extraordinary and some may be more common, the range of individual perception being in focus. Frueh, Grubaugh, Elhai and Ford (2013) underline the necessity of distinguishing traumatic stressors from other life stressors. A commonly held view is that stressors are perceived as traumatic when the potential threat exceeds the defensive abilities of the individual, hence causing overwhelming fear, anxiety and stress (Briere & Richards, 2007; Frueh et al., 2013). It therefore is considered important not only to investigate individual experiences, but also people´s perception of how they are affected by the events.

Potentially traumatic events may be described in subcategories of non-interpersonal and interpersonal events (Nilsson, Gustafsson, Larsson & Svedin, 2010). Examples of the first category are natural disasters, war activities, fires, accidents and death of a loved one. Examples of the second category are robbery, physical violence and sexual abuse. The authors underline the simultaneous impact of adverse life circumstances to potentially traumatic events. Such circumstances may be separation from a significant other and lack of emotional availability. The absence or loss of a significant other may cause overwhelming stress, traumatic consequences and complicated grief (Belt et al., 2013; Lyons Ruth, Yellin, Melnick & Atwood, 2003; Resick et al., 2012), thus emphasizing the need to examine absences and losses when assessing potentially traumatic life events. Interpersonal events, especially involving significant others, have been shown to be specifically traumatizing since humans in an evolutionary sense are seeking support and safeness through social relationships (Fonagy, 2008; Hart, 2008; Howe, 2011). Multiple types of traumata and repeated traumata over a longer period of time, may be described as polytraumatization (Finkelhor, Ormod & Turner, 2007b). Polytraumatization, especially multiple types of traumata, has been shown to have severe cumulative effects on symptom complexity in both children and adults (Briere & Hodges, 2010; Briere, Kaltman & Green, 2008; Browne & Winkelman, 2007; Cloitre, Cohen, Edelman & Hahn, 2001).

The conclusion drawn from all of the above findings is that polytraumatization, adverse childhood circumstances and interpersonal traumata in particular, are expected to be associated to trauma symptom severity.

Trauma symptom complexity

Natural long-term consequences following trauma may be conceptualized as depression-like and anxiety arousing. In detail, such consequences consist of hypertension, defensiveness, withdrawal, depressive symptoms, difficulties in self regulation and affect regulation for instance high levels of anger, self-impairment, dissociation, externalizing behaviour, intrusive experiences, somatic preoccupation, sexual disturbance and suicidal tendencies (Briere, 2011; Fonagy & Target, 2002; Finkelhor, Ormod, Turner & Hamby, 2005; Michel et al., 2010). The insufficiency of predicting symptom outcome based on the types and number of traumata alone, is stressed by Briere (2011). Moderating factors like pre existing affect regulation capacity, relational context and present social situation must, according to Briere (2011), be taken into consideration. It is well known that trauma exposure only explains parts of symptom severity, thus moderating factors must be noted. Moreover, Briere (1995; 2011) argues that in traumatized individuals, long-term impact of trauma may be misperceived as personality traits and / or personality disorder, and therefore screening of potentially traumatic life events may be crucial for acquiring adequate assessment and treatment planning.

Common reactions to acute situations of overwhelming stress are innate biological responses of fight and flight. In situations of extreme stress, these response systems may break down, causing individuals to display disorganized and contradictory behaviour such as to freeze, appear as if one is dead or detach oneself emotionally, e.g. dissociation (Jonson, 2009; Larsson, 2009; Liotti, 2008). These behaviours occur in order to enhance the chances of survival as well as minimizing risk of injury and psychological damage in the individual. The effects of trauma may include a variety of internalizing and externalizing behaviour (McDevitt-Murphy, Weathers & Adkins, 2005; Allen, 2013). In posttraumatic stress disorder, symptoms must occur in specific areas and be linked to specific events (American Psychiatric Association, 2000). Research on polytraumatization suggests that symptoms due to multiple trauma exposure are more complex, and that links may not always be possible to establish (Cloitre et al., 2001; Resick et al, 2012). Therefore, impact of trauma going beyond the definition of posttraumatic stress disorder, will be further examined in this study.

Multiple symptoms and increased symptom levels over a longer period of time, may have a major impact on all areas of life and thus decrease psychological well-being, social interaction and affective communication (Briere, Hodges & Godbout, 2010; Briere & Richards, 2007; Brown & Winkelman, 2007; Fonagy, Gergerly, Jurist & Target, 2002; Gerhardt, 2004). It is suggested that experiences of interpersonal traumata including significant others, may later lead to problems in forming or maintaining stable, positive and intimate interpersonal connections.

It must be noted that considerable emotional distance to others, or significant interpersonal dissatisfaction, must not be perceived as problematic (Briere, Hodges & Godbout, 2010; Kins, Beyers & Soenens, 2012). However, the authors claim that elevated levels of emotional dependence may be dysfunctional and related to problems in anxiety regulation and sense of security in socially significant relationships. Again, it is the symptom severity that may indicate traumatization. Further, the display of high levels of relational avoidance as well as a high levels of anxiety, indicate that the strategies are disorganized and dysfunctional since the purpose is to down regulate anxiety and obtain security in a close relationship. Several studies conclude that disorganized behaviour should be given particular clinical attention since such ways of relating to significant others often cause major psychological suffering for the individual, and may indicate interpersonal traumata such as for example losses and/or abuse in children, adolescents and adults (Allen, 2013; Briere & Hodges, 2010; Fonagy et al., 2002; Goodman, Stroh & Valdez, 2012; Liotti, 2008). Nilsson et al. (2010) present support for the association between adverse childhood circumstances and adolescent symptoms of anxiety and depression. They also stress the impact of adverse childhood circumstances in combination with interpersonal events. A more recent study concludes similar results in adults (Nickerson, Bryant, Aderka, Hinton, & Hofmann, 2013).

The conclusion drawn from all of the above findings is that in people displaying depression-like and anxiety arousing symptoms, it is of great significance to further investigate potential trauma history, experiences of adverse circumstances and interpersonal events in particular, as well as individual perception of security in present close relationships.

Social anxiety regulation and attachment in children

Affect regulation may be described as the ability to regulate emotion in a way that promotes adaptive behaviour. The quality of fear- and anxiety regulation in close relationships has been described as closely linked to sense of social security (Broberg, Granqvist, Ivarsson & Risholm Mothander, 2006; Fonagy, Bateman & Bateman, 2011; Gerhart, 2004). Here, it is argued that successful social fear- and anxiety regulation in close relationships may have positive impacts on psychological well-being, thus buffering against trauma symptoms (Fonagy & Target, 2002; Walker, 1999). Regulation of fear may in turn be related to the concept of mentalization, which is also shown to be a relevant contributor to psychological well-being (Allen, 2013; Fonagy, Bateman & Bateman, 2011; Liotti & Gilbert, 2011). Mentalization may be described as an individual´s capacity to think and feel about one´s own and other people´ s thoughts and feelings (Rydén & Wallroth, 2008) and is here viewed to be intimately linked to the quality of close relationships in times of distress.

Fear- and anxiety regulation in close relationships may be conceptualized through the theory of attachment, in terms of early social interaction between caregiver and child with the goal of obtaining security and protection for the offspring (Bowlby, 1969; 1988). Consequently, attachment may be viewed as an important part of, but not equivalent to close relationships (Cortina & Liotti, 2010). This means that attachment should not to be mixed up with the concept of inter-subjectivity or interpersonal sharing in general. Attachment theory suggests that in children, experiences of interpersonal affect regulation constitute a model of inner representations, upon which the child learns to express and regulate emotion, fear and anxiety in particular (Gerhardt, 2004; Hart, 2008; Howe, 2011; Shore & Shore, 2008; Wennerberg, 2008; 2010).

When children´ s reactions to separation from their attachment figure were first scientifically investigated, the children´s attachment behaviours were categorized into two main groups; secure and insecure (Ainsworth, 1952; 1964). The children who displayed a secure behaviour explored freely in the presence of the caregiver and were happy to see him or her after a short separation. The children who displayed an insecure behaviour were divided into two different subgroups, namely anxious-ambivalent and anxious-avoidant. The anxious-ambivalent children were less likely to explore their environment when the caregiver was present and displayed a highly distressed behaviour at separation. They were fairly resistant and resentful when the caregiver initiated interaction. The children who displayed an avoidant behaviour ignored or avoided the caregiver and showed little emotion when the caregiver returned after a short separation. The children did not explore much and reacted to strangers in fairly the same way as to the caregiver. Studies conducted by Mary Main revealed a fourth group of behaviour that could not be classified (Main & Solomon, 1990). The children showed signs of maltreatment and displayed one of the secure / insecure ambivalent / insecure avoidant categories most of the time. They also shifted into various contradictory and disoriented strategies that did not lead to the behavioural target, i.e. obtaining security and down-regulating anxiety. The complementary strategies were coded as a secondary category named disorganized attachment. The category covers behaviour stereotypes such as rocking or freezing, frightened or frightening behaviour, intrusiveness, withdrawal, negativity, role confusion and affective communication errors. Lack of coherent attachment strategy was displayed by the children when distressed. They approached their caregiver with their back first or turned towards various objects rather than to the caregiver.

It must be pointed out that it is the disorganized attachment, e.g. the breakdown of behaviours attempting to provide survival, protection and down regulation of fear and anxiety, that has been found to be of substantial clinical significance (Allen, 2001; Allen et al., 2007; Farinelli & Guerrero, 2011; Fonagy, 2007; Gerhart, 2004). The intricate breakdown in attachment systems when the attachment figure is not able to provide protection, or when the

attachment figure is also a perpetrator, is described by Michel et al. (2010) and Freyd (2008). On such occasions, security and regulation of fear is not obtained by regular strategies. Taking this standpoint, mentalization and attachment may be described as related processes of interaction between neurobiology and social development (Fonagy, Bateman & Bateman, 2011). Being able to think about the perpetrator´s next move at the same time that emotional avoidance must be obtained, might be crucial for survival thus demanding high mentalizing abilities of others´ intentions but not of one´s own feelings, wishes or needs.

It is argued that insecure organized attachment in children does fulfil its purpose, even if it sometimes comes at a high price. Recent studies have shown that children who display an anxious-ambivalent attachment over a longer period of time, may experience less psychological well-being than children with avoidant attachment (Goodman, Stroh, & Valdez, 2012). The same study showed that in children displaying clinical anxiety, the number displaying disorganized strategies were twice as many as in a non-clinical group, and those displaying ambivalent patterns were two to three times as many. Also, several studies have shown that secure attachment style in children and adolescents may be associated with low levels of symptom severity in trauma victims (Farinelli & Guerrero, 2011; Goodman, Stroth & Valdez, 2012; Larsson, 2009; Nilsson, Holmqvist & Jonson, 2011; Svanberg, Mennet & Spieker, 2010). In clinical and developmental settings, it is therefore important to be extra attentive to very high rates of combined avoidant and ambivalent behaviour, since it is an indicator of disorganized attachment i.e. a lack of / breakdown of strategies. Also, it may be important to be attentive to high rates of anxiety in people with a history of polytrauma.

Modern attachment theory has undergone substantial research examination and has been developed into a theory of interpersonal affect regulation of clinical and developmental significance (Shore & Shore, 2008). Therefore, in this study, attachment behaviour is not comprehended as fixed patterns or inner models but instead, a broader perspective of anxiety regulation and protection seeking is taken. This leads to the conclusion that attachment may be best described in terms of social styles developed throughout the entire course of life (Howe, 2011).

The conclusion drawn from the above presented research and literature is that children´ s attachment security is affected by parental interpersonal anxiety regulation.

Adult attachment styles

Adult attachment may be measured by observation, interview or self-rating (Benoit, Bouthillier Moss, Rousseau & Brunet, 2010; Monin, Feeney & Schultz, 2012; Wei, Russell, Mallinckrodt & Vogel, 2007). In the first measure of adult attachment, the adult attachment interview (AAI), inner representations of attachment to one´s own parents are investigated through the way in which the respondent speaks about his or her experiences (Main & Goldwyn, 1985). The results are coded in three discrete categories as is the case of child attachment. The secondary complement characterized by disorganized, bizarre and contradictive behaviour is coded as unresolved and hostile-helpless states (Lyons Ruth, Yellin, Melnick, & Atwood, 2003; Main & Goldwyn, 1985).

Adult attachment is here considered to be related to, but not predetermined by, earlier experiences of overwhelming stress and fear regulation in socially significant relationships. Parts of the theoretical school of adult attachment may be described as somewhat trait-like, focusing on parental attachment alone, or on socially significant relationships in general (Fraley, Heffernan, Vicary, Brumbaugh, & Cloe, 2011). However, in the present study, a social constructivist approach is taken, and attachment is considered to be a dynamic process of relational styles (Howe, 2011). The social constructivist´ s approach of adult attachment styles thus evolved from the early measures of adult attachment as inner parental representations, into measures of continuous dimensions influenced by social settings and life circumstances. In adults, it is suggested that attachment dimensions are relationship-specific and reciprocal, ergo varying across multiple contexts, including both receiving and providing security (Fraley et al., 2011). An adult person may consequently have several different attachment relationships, i.e. mother, father, sibling, partner, close friend or therapist (Broberg & Zahr, 2003). Attachment styles in adults may thus according to this view, be described as context specific and dimensional rather than general models or distinct patterns of relational quality.

Measures of attachment styles in adults have been found to hold a much greater predictive value of relational style, than do measures of adult attachment in terms of early parental attachment (Farinelli & Guerrero, 2011; Goldenberg & Matheson, 2005; Nilsson, Holmqvist & Jonson, 2011; Shore & Shore, 2008). In addition, Nilsson, Holmqvist and Jonson (2011) describe that adult attachment styles have been found not to correlate to attachment measured by the adult attachment interview (AAI). Further, it is argued that the reciprocal interaction of neurobiology and social development previously discussed in children, is also present in adults (Fonagy, 2008; Fonagy, Bateman & Bateman, 2011). Keeping the reciprocity of adult attachment relationships in mind, it must be noted that insecure interpersonal anxiety regulation is intimately related to the attachment style of for example one´s partner. Shura (2013) presents preliminary results

suggesting that security in partner attachment may buffer against the severity of posttraumatic stress symptoms.

In an operationalization of adult attachment styles through self-rating, individual differences in the two dimensions of emotion regulation in individuals, are being described as anxiety and avoidance (Brennan, Clark & Shaver, 1998). Individuals high on anxiety are more likely to be insecure about the availability of the attachment figures. These individuals may be preoccupied with social support and fear of being abandoned and/or rejected. On the other hand, individuals high on avoidance may prefer emotional distance and perceive closeness and dependency as stressful. Thus, both dependence and independence may be dysfunctional in the sense that the individual does not reach the target of the behaviour, i.e. the down regulation of anxiety and the reestablishment of social security (LaFontaine & Lussier, 2003). However, it is suggested that the choice of spending emotionally close relationships with someone displaying an insecure attachment style and together create insecure bonds, may not be problematic on its own.

Fear of anxiety has shown to be a partial mediator of trauma symptoms (Reuther, Davis, Matthews, Munson & Grills-Taquechel, 2010). The study suggests that individuals who are avoiding intimate anxiety provoking relationships but at the same time display high levels of fear, end up in a vicious circle of failure in anxiety regulation. Respondents obtaining low levels of anxiety and avoidance in attachment measures are considered to display secure adult attachment styles. Individual variation may not always be prototypical to the styles presented, but Caron et al., (2012) indicate that measures of attachment styles in adults do provide a significant contribution to the prediction of present dyadic functioning.

In the study conducted by Nilsson, Holmqvist and Jonson (2011), results show that self-reported attachment style in adolescents may be an important moderator of dissociative symptoms e.g. lack of ability to integrate traumatic events. The study also concludes that self-reported attachment style has a stronger association with symptom severity than does self-reported events. Here, it is suggested that an individual involved in a long-term close relationship that includes threats, violence and/ or abuse will adapt his or her behaviour, partially moderated by previous history of attachment security. Thus, the display of high scores of avoidance as well as anxiety in a screening instrument for adult relational style, is here viewed to represent fearful / disorganized attachment style related to elevated levels of experiences of potentially traumatic interpersonal life events.

Research has shown that an individual with a history of secure experiences may be involved in an insecure relationship due to illness, accidents or the like without losing adaptive abilities that constitute the secure style (Benoit et al., 2010; Monin, Feeney & Schultz, 2012; Shore & Shore, 2008; Sonneby-Borgström, 2005). Secure attachment style is hence developed through

experiences of successful interpersonal down regulation of fear and anxiety as well as protection from threat and prolonged periods of overwhelming stress. Here, it is suggested that secure attachment style may partially mediate symptom severity and buffer against trauma symptoms. However, due to time limits of the current study, the suggestion will not be further investigated.

The conclusion drawn from all of the above findings is that there are reasons to believe that elevated levels of a combination of anxiety and avoidance in close relationships measured by self-rating of adult attachment styles, may be correlated to experiences of traumatic life events and thus be viewed as trauma symptoms. Also, based upon the previously mentioned findings in adolescents and adults, there are reasons to believe that experiences of polytrauma, adverse interpersonal circumstances and losses in particular, may be correlated to anxiety regulation in close relationships measured through self-rating.

Intergenerational transmission effects

A number of studies in the 21st century suggest that trauma symptoms and attachment insecurity may have intergenerational transmission effects in children as well as in foetus, especially when the caregivers have been experiencing multiple interpersonal traumata (Blum, 2007; Briere, Kaltman & Green, 2008; Farinelli & Guerrero, 2011; Lev-Wiesel & Daphna-Tekoa, 20007; Liem, 2007; Kozlowska, 2007). It is suggested that coping with own experiences of traumatic life events and insecure attachment may affect both care giving abilities and offspring anxiety regulation negatively (Belt et al., 2013; Grip, Almqvist & Broberg, 2012; Monin, Feeney & Schultz, 2012; Schwerdtfeger & Nelson Goff, 2007; Walker, 1999).

A Swedish longitudinal survey first published by the Save the Children foundation, suggests that parents displaying psychosocial risk factors such as drug problems, psychiatric difficulties and/or various disadvantageous social circumstances had themselves experienced bullying, maltreatment and abuse to a much larger extent than had parents not displaying these factors (Sydsjö, Wadsby, & Svedin 1995; 2001). Parental social support was found to be of major impact on psychological adjustment in their own children at follow-ups. Also, the quality of the parent – child relationship has been found to hold predictive value for their own children´s dimensions of adjustment and psychosocial well-being later in life (Caron et al., 2012; Lev-Wiesel & Daphna-Tekoa, 2007; Sydsjö, Wadsby, & Svedin, 1995). The studies conclude that providing social support and relational interventions already during pregnancy and the first six months might be crucial for this group in order to decrease the impact of intergenerational trauma symptoms and/or prevent intergenerational trauma patterns from evolving. Therefore, it is argued that parents who experience the attachment relationship with their children as excessively

stressful, may be extra vulnerable to stress due to their own trauma and attachment background. Parents displaying a secure attachment style are likely to respond to threat by balancing the seeking of social support to comforting themselves and finding their own solutions (Belt et al., 2013, Broberg Mothander, Granqvist & Ivarsson, 2008; Fonagy & Target, 2002; Hart, 2008). Consequently, it is here suggested that in parents with own experiences of traumatic life events, secure attachment style may buffer against some of the disastrous effects on psychological well-being and on present relationship with their own children. The conclusion drawn from the presented findings indicates that promoting secure relationships for parents who have themselves experienced polytrauma and relational difficulties may create healthy, positive snowball effects for the next generation.

Parents experiencing psychosocial difficulties seeking help for the attachment relationship to their child have been well studied, but there is limited research on the experiences of attachment and life events of the parents themselves (Briere & Hodges, 2010; Gustafsson, Larsson, Nelson & Gustafsson, 2009; Sydsjö, Wadsby & Svedin, 2001; Wadsby & Blom, 2005; Wadsby, Sydsjö & Svedin, 1998). A study conducted by Wilson, Zeng & Blackburn (2011) shows that bisexual and homosexual parents may experience lower attachment security towards their own parents (unilateral relationship) than towards other attachment figures (egalitarian and voluntary relationships). The results are put in relation to cultural biases on the grandparents´ behalf. It is suggested that in these parents, it may be extra important to measure adult attachment security towards a self-selected significant other.

No gender differences have been found in studies of adult attachment styles (Monin, Feeney & Schultz, 2012; Wilson, Zeng & Blackburn, 2011). Therefore, gender is not checked for in this study. Traditionally, research on attachment has been conducted on mothers (Belt et al., 2012; Cloitre et al., 2001). Despite the substantial research material on attachment in children and adolescents of both genders, very few studies have been conducted on fathers in terms of their own attachment styles (Blom & Wadsby, 2009; Howard, 2010). The authors also emphasize the impact of fathers´ relational style on children´ s sense of security. Consequently, current research stresses the need for including caregivers of both genders in studies.

Few studies have been conducted on pregnant women and mothers of babies in terms of their *own* experiences of potentially traumatic life events, experiences of close relationships and trauma symptoms (Belt et al., 2013; Blum, 2007; Kozlowska, 2007; Lev-Wiesel & Daphna-Teknoa, 2007; Schwerdtfeger & Nelson Goff, 2007; Sydsjö, Wadsby & Svedin, 2001; Wadsby, Sydsjö & Svedin, 1998; Walker 1999). The literature suggest that this may be due to several factors, including the highly sensitive period of pregnancy and child birth that in itself might be perceived as stressful, therefore indicating that evoking even more stress by including the population in studies of previous

trauma, should not be done without further ethical considerations. On the other hand, the sensitive period for parents may include re-evaluation of relationships, restructuring of identity, and openness to changes (Belt et al., 2013; Sydsjö, Wadsby & Svedin, 1995). Therefore it may be important to conduct studies on this group, in order to develop appropriate interventions for parents who are worrying about their parenthood and the relationship to their child, and who actively seek support at an early stage.

In a pilot study conducted in the Swedish parent – baby unit, Timjan in Norrköping, experiences of traumatic life events and close relationships in parents of both genders were investigated (Viitanen, 2011; 2012). The results show that participants displayed an elevated amount of potentially traumatic experiences in number of different and repeated traumata, as well as prolonged time aspects. It is argued that doing research into the situation of parents may lead to increased help provided not only for parents but also a spill over effect on the next generation.

The conclusion drawn from the above findings is that interventions for parents with psychosocial difficulties seeking help for the relationship to their child, should focus on parental social support as well as on enhancing the quality of the relationship between parent and child. Conclusions also include the necessity of screening parents seeking help for the relationship to their child, in terms of their own interpersonal anxiety regulation and potential trauma history.

Utility of self-rating instruments

The use of self-rating questionnaires for the study of experiences of potentially traumatic life events, close relationships and trauma symptoms has proved to be successful (Briere, Elliot, Harris & Cotman, 1995; Browne & Winkelman, 2007; Gustafsson, Nilsson & Svedin, 2008; Nilsson, Gustafsson & Svedin, 2010; Nilsson et al., 2010; Wei et al., 2007). Through self-rating, people may be asked personal questions without having to discuss with, or expose their experiences to, another person, thus decreasing the risk of feeling re-traumatized (Elhai, Gray, Kashdan & Franklin, 2005; Myers & Winters, 2002). Also, self-rating may be less time consuming than interviews and observations (Lyons Ruth et al., 2003; Wei et al., 2007), thus suggesting that self-rating may be more than sufficient for parents with young infants. Further, for those lacking words to describe their experiences, self-rating instruments provide descriptions and also give several options. It may be argued that self-reports always include perceptual biases and therefore need to be triangulated with other kinds of measurements. But here, the main focus is on the subjective perception, and not objective measures of experiences or symptoms.

It has not previously been possible to measure attachment styles and trauma symptoms all in one instrument. A new self-rating questionnaire;

Trauma Symptom Inventory 2nd edition (TSI-2), has been developed to obtain measures in both areas (Briere, 2011). By including attachment styles as factors in symptom rating, it may be possible to assess insecure and/or disorganized attachment strategies, symptoms of interpersonal events and polytraumatization. The TSI-2 questionnaire is intended for screening of trauma symptoms, treatment planning, long time follow up of change in patients´ symptomatology and forensic trials (Briere, 2011; Frueh et al., 2012). The TSI-2 covers symptoms conceptualized as depression-like and anxiety-arousing. Current research suggests that standardized screening and assessment self-rating instruments are insufficient in capturing complex symptomatology going beyond effects single events or time limited patterns of reaction (Elhai et al., 2005; Frueh et al., 2012; Resick et al., 2012; Shura, 2013).

The development of a valid screening instrument on a broader spectrum of complex trauma symptomatology, including relational styles and interpersonal anxiety regulation, may facilitate interventions in preventive and clinical settings. Hence, it is argued that such an instrument might be used in scientific investigations of the prevalence of complex trauma symptomatology that may be underreported and/or misperceived as developmental and/or behavioural difficulties, somatic and medical symptoms, personality disorder or general anxiety disorder (Briere, 2011; Cloitre et al., 2001; Grip, Almqvist & Broberg, 2012; Koslowska, 2007; Liem, 2007). Taking developmental factors into consideration, the TSI-2 may contribute to a more comprehensive picture of families experiencing psychosocial difficulties. Preliminary studies have been conducted to investigate the psychometric properties of the English version of TSI-2 (Briere, 2011). Validity of the atypical response scale has been examined (Gray, Elhai & Briere, 2010). However, the attachment scale has not yet been evaluated.

The conclusion drawn from the studies presented above, is a need for scientific evaluation of the benefits of including adult attachment in rating of trauma symptoms. This emphasizes the need for further investigation into the psychometric properties of the TSI-2 attachment scale, as well as a investigation of the Swedish version of the instrument.

Overall aim of the study and Hypotheses

The objectives of this study were to evaluate the psychometric properties of the attachment scale (IA) added in the newly developed 2nd edition of the self-rating questionnaire Trauma Symptom Inventory-2 (TSI-2), and investigate the benefits of including attachment styles in rating of trauma symptoms. The evaluation was conducted through reliability testing using internal consistency measure, convergent validity testing using correlations to the well examined test for adult attachment styles; Experiences in Close Relationships (ECR), and criterion validity testing using specific subscales of the trauma history screening instrument Linköping Youth Life Experiences Scale (LYLES) as predictors of TSI-2 attachment scale scores. In order to further investigate the inclusion of adult attachment styles in trauma symptom rating, a similar predictive analysis was conducted on ECR outcome. This was done to conclude whether traumatic events would estimate attachment style outcome in TSI-2 to a greater extent than in ECR, which is not intended for trauma symptom screening. If TSI-2 attachment scores were to be predicted by LYLES subscales, then the benefits of inclusion of adult attachment styles in trauma symptom rating may be supported. Further, if TSI-2 attachment scores would be predicted to a greater extent than would ECR scores, it is suggested that the TSI-2 attachment scale is targeting attachment style questions concerning trauma symptoms in specific. This paper also intends to give statistical descriptions of the investigated group in terms of experiences of close relationships, potential interpersonal and non-interpersonal traumata, and adverse childhood circumstances. Thus questions to be answered in this study are defined as follows: Is the TSI-2 IA scale reliable? Is the TSI-2 IA scale valid to measure adult attachment styles? May the inclusion of adult attachment styles in trauma symptom rating be supported?

It was hypothesized that:

1. Adult attachment styles measured by TSI-2 would correlate to adult attachment styles measured by ECR.

2. Adverse childhood circumstances measured by LYLES would predict variance in TSI-2 attachment scale scores.

3. Interpersonal events measured by LYLES would predict variance in TSI-2 attachment scale scores.

4. Adverse childhood circumstances and interpersonal events measured by LYLES would predict less variance in ECR scores than in TSI-2 attachment scale scores.

Method

Preparations

Borsboom, Mellenbergh and van Heerden (2003; 2004) argue that test validity should deal with whether one has succeeded in constructing a test that is sensitive to variation in the attribute. They claim that research must be based on solid and explicit theoretical models relating item response sensitivity to latent variables, e.g. the attributes intended to measure. According to this view, validity is conceptualized as quality rather than quantity. Here it is argued that if attachment styles measured by TSI-2 correlates with measures in ECR, the prior test is valid to measure attachment style. However, this assumption is not merely based on correlation between the two tests, but on a substantial theoretical and empirical basis on adult attachment styles. Finally, Cohen (1990; 1994) stresses the importance of including a large enough sample in order to obtain significant results, but not so large as to increase the risk of detecting false correlations. Here, 60 participants are included in order to obtain the possibility of discovering significant correlations at the selected alpha level .05.

Sample selection

The selected group consisted of parents seeking support for the relationship with their child in a parent - baby unit similar to the one in the pilot study (Viitanen, 2011). The group consisted of parents of both genders. Consecutive selection method was used, meaning that all parents attending the centre during the time of data collection were asked to participate. Exclusion criterion was major ongoing crises, since it is suggested to inhibit the self-rating of attachment styles, as well as adding unnecessary stress into the parents´ vulnerable situation. An other exclusion criterion was insufficient Swedish language skills. Since no language interpreters were available, the parents selected by the staff were considered to have the sufficient language skills needed to answer the questionnaires, e.g. equivalent to a fifth grade student (Briere, 2011). For parents indicating that they were experiencing some reading difficulties, staff workers were instructed to read questions aloud.

Description of the parent – baby unit

Hagadal is a parent – baby unit in Linköping founded in 1993 and run by the Child- and Adolescent Psychiatric Department in collaboration with the rural district authorities. The objectives of the unit are to promote psychosocial health in children, and prevent the development of mental and psychosocial problems in children of parents with identified psychosocial risk factors and vulnerable life circumstances at an early stage (Blom & Wadsby, 2009). A longitudinal

study conducted by Sydsjö, Wadsby and Svedin (2001) suggests that children at risk of behavioural problems later in development may be identified by maternal psychosocial risk factors and poor mother - infant interaction during pregnancy and early infancy, however stressing the multi-dynamics of the correlation. The unit interventions aim to anticipate such problems and endorse quality interaction.

The main purpose of the unit is to provide support for parents who worry about the relationship to their baby, meaning that interventions are not made due to existing problems in the attachment relationship, nor due to identified risk factors alone. The unit offers support for parents during pregnancy and the first year, the majority of referrals occurring in families with children less than 6 months old (Blom & Wadsby, 2009). Parents may turn to the centre directly without referral and all who find themselves in need of help are offered support by the unit. The decision to accept help offered by the centre is jointly made by the caregivers, but the ultimate responsibility rests on the shoulders of the primary caregiver i.e. the pregnant mother. Most referrals made, come from the maternity ward but also from child health care centres, psychiatric departments, social authorities and local paediatricians.

The main approach of the centre is milieu-therapeutic, meaning that working with everyday situations and parent – baby interactions are in focus. The support offered is intended to strengthen care giving abilities and to promote healthy interaction between parent and child. The unique needs of the family are taken into consideration, focusing on the social network of the child, the attachment relationship, and practical training in interplay (Blom & Wadsby, 2009). Activities are mostly conducted with the child present. The family therapeutic practice aims to encourage functional structures, patterns and roles in the family. An extended family- and three generational perspective is applied to the interventions, meaning that the work may include grandparents or close friends. It might be extra important to include such significant others at an early stage in the baby´s life, taking the often limited social network of the parents into consideration. The unit applies the Marte Meo method, which includes video recordings and discussions about interaction with the purpose of increasing parental reflection and everyday skills (Wadsby, Sydsjö, & Svedin, 1998). The interventions aim to increase parental sensitivity, awareness of availability, predictability, knowledge in children´s developmental and emotional needs, and the prospects of a secure attachment. The interventions include day care group treatments, home visits, and individual and/or family counselling. The staff consists of four social workers, two preschool teachers, and one psychologist/team manager.

The psychosocial risk factors for inclusion may be described as three main groups, namely disadvantageous social circumstances, psychiatric problems and alcohol and drug problems with the main focus being on the first, and least focus being on the third group. Social circumstances may be described

as early retirement, long time unemployment, children in foster care, pregnancy prior to the age of 18, singlehood, having children with more than three different partners and having more than five children (Sydsjö, 1992; Wadsby, Sydsjö, & Svedin, 1998). The unit provides therapeutic interventions and coordination of support for parents displaying their own social and/or mental difficulties.

The group of parents at Hagadal may also be described through life situations and demographic variables that are not considered as risk factors for inclusion. Such variables being age, gender, socioeconomic status, cultural background and ethnicity, here based on unit statistics from 2011 and 2012. The age range of parents varies from early teenage to late forties. Most participants are female and the caregivers may be biological or adoptive parents. Some may experience unplanned pregnancy and some may have received medical fertilization. The parents may have joint or solitary custody. The group consists of single parents as well as heterosexual and same sex couples. The educational status varies from academics to compulsory school. The parents may be refugees and emigrants with varying knowledge of the Swedish language. Approximately two thirds of the participants are first time mothers, but some parents also come back during their subsequent pregnancies.

Several studies show that relational interaction between parent and baby improve through intervention programmes at Hagadal (Sydsjö, Wadsby & Svedin, 2001; Wadsby & Blom, 2005; Wadsby, Sydsjö & Svedin, 1998). Moreover, the evaluations show that the majority of parents are satisfied with the support received from Hagadal, which also is confirmed by the number of parents seeking support during subsequent pregnancies. Psychosocial risk factors and relational interaction in parents taking part in interventions at Hagadal have thus previously been examined. However, attachment styles in combination with experiences of potentially traumatic life events have not been previously investigated.

Participants

The Hagadal group consisted of 60 parents. Two self-rating results were excluded from the study (see the Missing Values section for more information), leaving a total number of 58 participants. The group consisted of parents of both genders, the majority being female (76 %). The age ranged between 18-45 (M= 30.29, *SD*= 6.26). The number of children reported ranged from one to five, the majority reporting one prenatal or postnatal child (72%). No drop outs occurred in the sample.

Design and procedure

The empirical study holds a quantitative design, investigating correlations of self-rating questionnaire measures. The data collection was planned as a collaboration between the author and staff workers at Hagadal. The procedure was conducted between May 2012 and March 2013. During their visits to Hagadal, all parents attending the centre fulfilling the requirements for inclusion were given the opportunity to fill in the booklets. The participants gave their informed consent and were given oral and written information about the purpose and procedure of the study. It was made clear to them that their results would be handled in confidentiality, that staff workers would not be informed of the results, and that their participation would not, in any way, affect their contact with the unit. The respondents received information about the possibility to withdraw their participation at any time, all in accordance with the ethic standards for research conducted by Nordic psychologists and psychotherapist (Sverne Arnhill, Hjelm & Sääf, 2010). The self-rating was performed in one or two parts, depending on the situation of the respondents, who all had their infants present and therefore were in need of breaks. During the completion of the instruments, a staff worker was present to answer any questions. All participants were instructed to take as much time as they needed to finish the booklet.

Instruments

Linköping Youth Life Experiences Scale (LYLES)

LYLES was originally created in Swedish by Gustafsson, Nilsson and Svedin (2008). It is a subjective measure of the respondents´ potential trauma history, covering both types and amounts of potential traumata. It was originally constructed for adolescents and its psychometric properties have been thoroughly examined (Nilsson et al., 2010), but it has not yet been validated on adults. However, there is an ongoing study at both Linköping University and Uppsala University, which includes 5000 Swedish adults. The results are intended to present normative data about number and types of experiences in the normative adult population.

The cut-off for adolescents are three events, indicating that any number exceeding three is to be considered as potentially polytraumatizing (Nilsson et al., 2010). Most questions concern childhood, but some may concern ongoing events, since the instrument is intended to cover life span of adolescents. Higher rates of trauma history measured by LYLES are thus expected in adults than in youth, since a higher number of events may have occurred due to extended length of life time, for example deaths in family or illness in parents.

The instrument consists of 41 questions of which 23 are main questions about types of potential traumata. The items are scored as yes (1) or no (0). The instrument is intended to cover various areas of life and is therefore arranged in three scales, namely non-interpersonal traumata (nIPE, 18 items), interpersonal traumata (IPE, 13 items) and adverse childhood circumstances (ACC, 10 items). Subquestions are added to several items in order to cover proximity of the event, i.e. whether the respondent has been exposed to the trauma herself, has witnessed the trauma and/or heard about trauma from someone else. There also are subquestions about the amount of traumata (Sum of Events or Sum of Time). These amount scales do not have predetermined options and the respondent is asked to make an estimate herself. The Sum of Events represents potential polytraumatization of repeated as well as different kinds of traumata. The Sum of Time represents the cumulative effects of potential traumata.

Non-interpersonal events are defined as for example various accidents and natural disasters, exposure to warfare such as fire and bombings, and experiences of illness and death. Interpersonal events are defined as for example robbery, burglary, being locked up or bound against one´s will, physical and sexual abuse. Adverse childhood circumstances are defined as for example bullying, emotional abuse, separation from parents against one´s will, parental incarceration, parental divorce during childhood, parental mental and physical health issues and parental use of drugs and alcohol. The benefit of including adverse childhood circumstances in an instrument screening for trauma history has been examined in Nilsson et al. (2010). The authors conclude that experiences of severe adversity were correlated to high levels of exposure to potentially traumatic events, interpersonal events in particular. The results confirm the cumulative effects of traumata and also the urgency of including separations and losses when screening for potential trauma history.

In an evaluation of LYLES, results on stability of LYLES scales measured by test - retest using Cohen´ s kappa were shown to range from moderate to very good (Nilsson et al., 2010). The kappa statistics per item ranged between .44 - 1.0 and Pearson´ s correlation for the total scale was found to be r= .76. Results conclude that Sum of Events shows significant high test – retest correlation between test occasions. However, the Sum of Time showed non-significant results. Here, it is argued that people who have experiences of repeated trauma may find it difficult to score number of times. In the present study, the latter scale will consequently not be in focus.

Experiences in Close Relationships (ECR)

ECR was originally created in English by Brennan, Clark and Shaver (1998). It is a well established self-rating questionnaire of adult attachment styles throughout cross-cultural groups, based on substantial previous research on adult attachment, and it has shown good psychometric properties (Olsson, Sorebo, & Dahl, 2010). The ECR consists of two dimensions; anxiety over abandonment and avoidance of intimacy. The anxiety subscale is intended to reflect worries that a significant other will not be available in times of distress. The avoidance subscale is intended to reflect distrust in and emotional avoidance of a significant other in times of distress. Each subscale includes 18 items i.e. a total number of 36 questions that are intended to reflect an individual´ s general experiences in romantic relationships. The revised instrument ECR-R (Fraley, Waller & Brennan, 2000) developed the original response format to a seven-point Likert-type scale with responses from 1 (strongly disagree) to 7 (strongly agree).

The scoring procedure is conducted by the examinee circling a self-selected number on the range 1-7 following each question. Four attachment styles may be defined by the results on the two orthogonal subscales, that is to say secure, insecure fearful, insecure preoccupied and insecure dismissing. Any scores above 3,5 on any of the dimensions are considered to indicate insecure attachment style (Wei et al., 2007). The secure style is characterized by low anxiety as well as low avoidance. The insecure preoccupied style is characterized by high anxiety and low avoidance. The insecure dismissive style is characterized by low anxiety and high avoidance. The insecure fearful style is characterized by high anxiety as well as high avoidance. This style may be described as disorganized and related to hostile-helpless care giving behaviour (Lyons Ruth et al., 2003; Main & Solomon, 1990; Monin, Feeney & Schultz, 2012).

The total sum of scores have been found a valid measure of the examinee´s present attachment style but not as a predictor of future experiences. Wei et al. (2007) found an internal consistency of Cronbach´s α .90 for the total scale, α .89 for anxiety subscale, and α .84 for avoidance subscale. Test – retest reliability was shown to be .70 and validity was found to be satisfactory. The abbreviated version ECR-A has also shown to be a valid measure of attachment style (Wei et al., 2007). However, it will not be used in this study due to the comparatively limited research on this version.

Caron et al. (2012) have shown that the measure of a specific attachment relationship by ECR does have a predictive value of insecure attachment styles. Fraley et al. (2011) suggest that measures of several attachment relations from the same respondent may be even more beneficial in describing the respondent´s interpersonal anxiety regulation. Here it is argued that in the present target population, asking for multiple measures from the same

respondents might be too time consuming. Fraley et al. (2011) conclude that several studies emphasize people giving more accurate responses when asked to think of specific relationships, rather than general situations. Also, by naming a specific relationship, information about the person´s network may be obtained. For example, a lonely person might not be able to describe a relationship to a parent or partner. In preventive and clinical settings, it might be useful to ask further questions about the selected person. The version used in this study (ENR) was modified and translated to Swedish by Broberg and Zahr (2003). This version is designed to measure how individuals relate to the person whom she finds herself having the closest relationship. The specific attachment relationship is defined by the options of response to an added 37th question i.e. not only romantic relationships. The respondents are asked to answer the questions thinking of the self-selected significant other, options being spouse/partner, a person in which the respondent has been in a relationship with for at least six months, a person the respondent has been in a relationship with for less than six months, mother, father, sibling, close friend or another close person that the respondent is asked to define.

Psychometric properties and factor structure of the Swedish version have been investigated in an unpublished study by Strand and Ståhl (2008). The results show that the Swedish version seems to have similar properties and structure as the original version. The results also support reliability (Cronbach´s α .91 for both dimensions) and validity of the translated instrument. It is argued that the version of ECR used in this study is valid to measure secure, insecure and disorganized attachment styles in individuals. The conclusion drawn from these results is that the questionnaire modified by Broberg and Zahr (2003) may be used in the Swedish population.

Trauma Symptom Inventory 2nd edition *(TSI-2)*

TSI-2 is a revised version of a widely used screening instrument for trauma symptoms and behaviour, the Trauma Symptom Inventory (TSI), originally created in English by Briere (1995). The second edition was created to cover both relational aspects of emotion regulation and long term impact of trauma. The instrument is intended to measure lifespan symptomatology and does not link symptoms to a single stressor or specific points of time. The abbreviated version TSI-2-A does not contain the sexual disturbance scale which might be extra relevant to this ongoing research project and therefore TSI-2-A was not used here. TSI-2 is aimed to evaluate acute as well as chronic symptomatology including, but not limited to, effects of sexual and physical assault, intimate partner violence, combat, torture, motor vehicle accidents, mass casualty events, medical trauma, witnessing violence or other trauma, traumatic losses, and early experiences of child abuse or neglect.

The instrument consists of 136 items and assesses a wide range of potentially complex symptomatology, ranging from posttraumatic stress, dissociation and somatization to insecure attachment styles, impaired self-capacities, and dysfunctional behaviours. The test consists of two validity scales, 12 clinical scales/subscales and four factors. The validity scales; response level (RL) and Atypical response (ATR), aim to evaluate the domain of biases toward underreporting/denying and over reporting of trauma-related symptoms. The four factors are self-disturbance (SELF), posttraumatic stress (TRAUMA), externalization (EXT) and somatization (SOMA) aiming to evaluate inadequate self-awareness, disturbances in affect regulation, negative models of self and others, chronic interpersonal difficulties, posttraumatic stress such as anxiety and dissociation, dysfunctional or self-destructive behaviours, and somatic preoccupation as well as somatic pain. Measures are specifically sensitive to experiences and behaviours occurring when the examinee is in a distressed mood. Average item-total correlations and internal consistency for the two validity scales and the 12 clinical scales for the standardization sample described in Briere (2011) are presented in Appendix B.

The 2nd edition of TSI was tested during the process of test construction, and was found to hold high standards of reliability and validity across various populations (Briere, 2011). Considering the multi-dimensions of validity, three types of validity were evaluated; convergent/discriminate validity, factorial validity and criterion validity. The test-retest reliability to TSI-2 was found to be r= .76 - .96. The original TSI scales and the TSI-2 scales were found to be very highly correlated. Reliability for the subscales measured by Cronbach´s alpha was found to be α .74 - .94 (see Appendix B). The alpha coefficients for the TSI-2 factors show very good internal consistency in the standardized sample. The internal consistency for the degree to which items within a single scale measure the same underlying construct, was found to be excellent. The validity scales hold slightly less but still very good consistency. This result was expected, since it is intended to indicate measure error or biases within examinee´ s responses. Correlations between the attachment total scale and subscales and ECR total scale and subscales were described in the unpublished report by Runtz, Godbout, Eadie and Briere (2008). Results support the validity of the attachment total scale and subscales of the English version.

Three scales are added in the TSI-2, that is to say insecure attachment scale (IA), somatic preoccupation (SOM) and suicidal tendencies (SUI). Two subscales are also added, that is to say anxious arousal-hyper arousal (AA-H), impaired self reference - other directedness (ISR-OD). The four factors previously described are either new to this version or based on modified scales. The validity scales, especially the atypical response scale, contain new items redesigned to assess over reporting and potential misrepresentation of posttraumatic stress disorder. A validity test of the ATR as measuring over reports and misrepresentation has shown good results (Grey, Elhai & Briere,

2010). In all, 87 items are either new to the TSI-2, or have been rewritten to some degree. The instrument contains eight critical items: having sex with someone you hardly knew, attempting suicide, intentionally overdosing pills or drugs, trying to kill yourself but then changing your mind, thoughts or fantasies about hurting someone, doing something violent because you were so upset, intentionally hurting yourself as a way to stop upsetting thoughts and feelings, and trying to end your life. In any of these items, all numbers above zero may signal clinical concerns that require attention.

The scale intended to reflect anxiety regulation (AA) covers symptomatology where the respondent is experiencing fears, phobias, panic and autonomic hyper arousal symptoms such as alertness, tension or jumpiness. At high levels, these symptoms may be associated with the DSM-IV diagnosis of posttraumatic stress disorder or acute stress disorder (American Psychiatric Association, 2000). The anxious arousal anxiety (AA-A) includes symptoms associated with fight- and flight- reaction, hyper vigilance, irritability and sleep disturbance.

The impaired self-referral scale measures a variety of difficulties associated with an inadequate sense of self, access of self and personal identity. It is suggested that these difficulties arise as adaptive strategies in response to early experiences of abuse or neglect that forced the child to rely on emotional avoidance to reduce the effects of painful internal states and to survive interpersonal dangers and / or abandonment (Briere, 2011). A long period of such experiences may cause reduced access to identity functions, so that the respondent is relatively unaware of his or her needs, entitlements, thoughts and feelings. Also, there may be a tendency to other-directedness (Briere, 2011). The person may be widely influenced by others, viewing others as more important than oneself and varying significantly in behaviour and emotional states in interpersonal contexts. These states may be related to the disorganized behaviour previously described. However, due to the limitation of the study, these areas will not be further investigated.

The unpublished, preliminary validation process of the attachment scale in correlation to similar constructs, was conducted in a Victoria University sample during the test construction (Runtz et al., 2008). Items on the attachment scale (IA) refer to concerns and behaviours thought to arise from early relational losses and/or parental maltreatment or unavailability, including abuse and/or neglect, inadequate empathic synchronization, and frightening or frightened behaviour (Briere, 2011). It is suggested that such experiences with attachment figures often lead to later fears, ambivalence, interpersonal insecurity, or avoidance in close relationships. The IA scale consists of a total of ten questions, five on each subscale. The questions include topics such as: feeling uncomfortable from emotional intimacy, experiencing little or no need of others, feeling abandoned, worrying about not being liked, avoiding asking for something from fear of being rejected. Elevated IA scores may thus describe

problems in forming or maintaining stable, positive connections with others. Considerable emotional distance to others as well as significant interpersonal dissatisfaction are assessed by the two subscales relational avoidance and rejection sensitivity; IA-RA and IA-RS. The IA-RA focuses primarily on the respondent´ s discomfort with and avoidance of emotionally close relationships in order to not evoke too much distress. Dysfunctional independency and great discomfort with intimacy are assessed through these measures. IA-RS items are aimed to provide measures of great fear and preoccupation of abandonment and preoccupation, as well as needing attention in interpersonal contexts, worries of not being liked or cared for. As in the ECR, elevated scores on one of the subscales indicate either avoidant or anxious insecure attachment. Elevated score on both scales indicates disorganized attachment and low score on both scales indicate secure attachment. However, no exact cut-off has been tried out in normative or clinical populations (Briere, 2011).

The scoring procedure takes approximately 20 minutes and the examinee is asked to answer questions according to how often something has happened in the last six months. The instrument is assessed circling a self-selected option on a four grade scale, 0 representing never, 1 or 2 representing once or twice but not very often and 3 representing often. Three clusters may be obtained by the sum scores, i.e. normal, problematic or clinically elevated symptomatology. The total sum score may contribute to a comprehensible trauma symptom profile for the respondent. Also, repeated measures will enable investigation of change over time which may be meaningful in clinical treatments.

The Swedish version used in this study was translated by Berg Johannesson, Nilsson and Wadsby (2012) with permission from the Hogrefe psychology publishing firm. The Swedish version has not yet been tested for psychometric properties. However, such analyses are due to be conducted through an ongoing research project at Linköping University and Uppsala University.

Ethical considerations

The study was approved by the Human Research Ethics Committee in Linköping (ref.no. 2012-220-31) and is to be part of a planned research project at the Linköping University, faculty of behavioural sciences and learning. The application for inspection by the Ethics Committee was paid by Hogrefe psychology publishing firm. All participants were informed as to the purpose of the study and gave their informed consent. It was made clear to participants that they could withdraw their consent at any time. The conductors of the study hold no biases known to the author.

Data Processing and Analysis

All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS) 21.0. Background factors such as age, gender and number of children were examined using descriptive statistical analyses (Bryman, 2008). Gender was not checked for, based on prior research in adult attachment styles revealing no such differences (LaFontaine & Lussier, 2003). Initial analyses were conducted for detecting missing values. Also, reliability checks of tests intended for comparisons to the investigated test were computed using Cronbach´s α (Field, 2009). However, such analysis was only conducted for the ECR. Here, it is argued that internal consistency test of traumatic event measures would be misleading. Also, LYLES consists of binary scale scores of yes (1) or no (0), further implying the inconvenience of internal consistency testing. The present study concludes reliability of LYLES using previous test-retest kappa statistics´ results (Nilsson et al., 2010).

Descriptive analyses of LYLES, ECR and TSI-2 IA were conducted. LYLES cut-off was set to four, indicating that any number exceeding four on the total scale was considered as potential polytraumatization. Also, a cut-off at five and six events respectively were investigated. To test reliability of the TSI-2 IA scale and subscales, internal consistency was conducted using Cronbach´s alpha.

To test criterion validity of the TSI-2 attachment scale and subscales, Pearson´s *r* was computed, investigating the correlation between TSI-2 and ECR scale measures. To test convergent validity of the TSI-2 attachment scale, a multiple hierarchical regression analysis was conducted using LYLES adverse childhood circumstances (ACC) and interpersonal events (IPE) scale scores as predictors. Substantial compulsory initial analyses were conducted to investigate model conditions prior to analysis (Raudenbush & Bryk, 2002). To further test convergent validity, a similar analysis was conducted on ECR total scale scores, intended for measuring adult attachment styles in general, but not trauma symptoms in particular.

Results

Initial analyses

Missing values analysis

An initial analysis of missing values was conducted and results from two participants were excluded due to a missing value rate exceeding 25 % on one or several instruments, leaving a total N=58. The remaining missing value rate for LYLES was less than 2 %. Out of these 2 % , no participants exceeded 15 % missing values each. The missing values were replaced by the number 0, e.g. no event, as was the procedure in a previous study of LYLES (Nilsson, Holmqvist & Jonson, 2011). The main part of missing values were focused on question 2:2, 2:3 and 2:4 concerning accidents. Missing replies might be due to misperception of following questions as sub questions, ergo if the answer to 2:1 is negative, following questions need not be answered.

The total number of missing values in ECR was less than 1 % distributed in a random pattern, leaving no more than one missing value on a separate question. Missing values were replaced with the median values for each question since these values were considered to be slightly more representative than the mean values.

The total number of missing values for TSI-2-IA was 0.5 % (2 missing values). The two values were both found in the IA relational avoidance subscale but on different questions, and they were replaced by the median value for each question.

Reliability of ECR

Reliability check of ECR through internal consistency using Cronbach´s alpha was shown to be α .94 for ECR total scale, α .93 for avoidance subscale (AVO) and α .93 for anxiety subscale (ANX). Thus, the instrument was shown to be reliable and was used in further analyses.

Descriptive results

LYLES

An initial analysis of the frequency of traumata measured by LYLES was conducted. Results show that all 58 participants had experienced two or more potentially traumatic life events (range 2-27). Three participants reported less than 5 traumata meaning that approximately 95 % of participants had experiences of potential polytrauma. The average number of events was found to be 11. The most common number of events was found to be 16 (see "mode" in table 1). 85 % had experiences of 6 or more events and 72 % hade experiences of 7 or more events. The most common events were being beaten and wounded by a member in one´s family and witnessing such events, being locked up against one´s will and being exposed to sexual acts against oneself by a member of one´s family. These events were reported as occurring repeatedly, most participants responded occurrence over a hundred times. 92 % of participants had experiences of adverse childhood circumstances, making this category the most common. The sum ranged from 0-10 with a mean of 3, but many participants´ scores were above 5 on this subscale. Most common experiences were bullying, emotional abuse and parental quarrel following divorce. Participants reported these events to have occurred throughout the course of childhood. The frequency of events measured by LYLES total scale and subscale are presented in detail in table 1.

Table 1
Minimum, maximum, mean, mode and standard deviation of LYLES subscales and total scale scores (N=58)

Scale	Minimum	Maximum	Mean	Mode	SD
nIPE	1	12	6	4	2.68
IPE	0	13	3	0	2.67
ACC	0	10	3	1	2.20
TOT	2	27	11	16	5.88

SD = standard deviation. nIPE= non-interpersonal events. IPE = interpersonal events. ACC= adverse childhood circumstances. TOT= LYLES total scale.

ECR

Results on question 37 conclude that more than 75 % of participants reported thinking of their spouse/ partner when responding to ECR. The second most common answer was "someone other than spouse/ partner/ mother/ father/ sibling/ close friend". Some participants replied that they had no person of whom they could think, and also replied having to imagine such a person. Some

of the respondents stated that they thought of the father of their child, to whom they had no relationship. Results on ECR show 10 participants (17 %) scored over cut-off on both subscales, indicating disorganized/ fearful attachment style. 14 % of participants scored over cut-off on avoidance subscale, indicating a dismissive attachment style. 26 % scored over cut-off on anxiety subscale, indicating a preoccupied attachment style. 43 % displayed a secure attachment style. However, a large range was found and the total group average scores were below cut-off on both subscales as well as on ECR total scale. Detailed descriptions of group results are found in table 2.

Table 2
Minimum, maximum, mean and standard deviation of revised ECR subscales scores and total scale scores e.g. raw score / number of items (N=58)

Scale	Minimum	Maximum	Mean	SD
AVO	1.00	6.22	2.82	1.33
ANX	1.17	6.72	3.35	1.41
TOT	1.11	6.06	3.08	1.18

SD = standard deviation. AVO= avoidance subscale. ANX = anxiety subscale. TOT= ECR total scale.

TSI-2 attachment scale

Results conclude that 12 % of participants scored zero on relational avoidance subscale, and 12 % scored zero on rejection sensitivity subscale. 7 % of participants scored zero on attachment total scale. The range shows that some participants obtained full scores on either subscale. Since no data on normal populations are available at the present, and no cut-off has been set, no comparison of descriptive data is possible to conduct. Group mean, range and standard deviation of TSI-2 attachment scale and subscales are presented in table 3.

Table 3
Minimum, maximum, mean and standard deviation of TSI-2 attachment subscales and total scale raw scores (N=58)

Scale	Minimum	Maximum	Mean	SD
RA	0	15	4.29	3.94
RS	0	15	5.43	4.74
TOT	0	28	9.72	7.80

SD = standard deviation. RA= relational avoidance subscale. RS = rejection sensitivity subscale. TOT= TSI-2 attachment total scale.

Reliability of TSI-2 attachment scale

Results of reliability testing of TSI-2 attachment total scale and subscales using Cronbach´s alpha were shown to be α .92 (IA total scale), α .88 (IA-RA), and α .91 (IA-RS). Average item-total correlations and internal consistencies are presented in detail in table 4.

Table 4
Average item-total correlations and internal consistencies by TSI-2 IA questions in total scale and subscales (N=58)

Question/scale	Average item-total *r*	α if item deleted
IA_TOT		
11	.560	.914
25	.717	.906
39	.761	.903
53	.715	.906
67	.750	.904
81	.756	.903
95	.735	.905
109	.671	.908
122	.430	.920
134	.763	.903
IA_RA		
11	.703	.854
39	.759	.841
67	.795	.832
95	.797	.831
122	.512	.894
IA_RS		
25	.767	.894
53	.774	.893
81	.772	.893
109	.781	.891
134	.785	.890

IA_TOT = Attachment total scale, IA_RA = IA Relational Avoidance. IA_RS = IA Rejection Sensitivity.

Validity of TSI-2 attachment scale

To investigate the convergent validity of the TSI-2 attachment scale and subscales, the relationship between ECR total scale and subscales was explored, in a total of nine correlation analyses computed using Pearson´s *r* (2-tailed). Results are presented in detail in table 5.

Table 5
Pearson´s correlation coefficients for TSI-2 attachment total scale and subscales, and ECR total scale and subscales (N = 58)

TSI-2 scale	ECR_TOT	ECR_AVO	ECR_ANX
IA_TOT	.618***	.488***	.574***
IA_RA	.408***	.336**	.367**
IA_RS	.678***	.524***	.640***

*** = significant at p ≤ .01 (2-tailed). *** = significant at p ≤ .001 (2-tailed).*

Criterion validity was investigated through multiple hierarchical regression analysis using LYLES ACC and IPE scale scores as predictive estimates of TSI-2 IA total scale scores. The method was applied in order to conclude whether the contributions of ACC and IPE to TSI-2 attachment scale scores were significant, and if so, to conclude the size of the contributions.

Prior to applying the method, substantial compulsory initial analyses were conducted to check that model criteria were met. These criteria include ANOVA assumptions, homoscedasity, normal distribution of residuals, multi collinearity, partial correlation, non-significant correlations and analysis of variance (Field, 2009; Raudenbush & Bryk, 2002). Multi collinearity tolerance between IPE and ACC was found to be acceptable (VIF < 2). An inspection of spread confirmed homogenity of variance. ANOVA assumptions were met. Homoscedacity in variance was confirmed. Standardized residuals investigated through casewise diagnostics revealed that the material did not contain unacceptable outliers, e.g. more than 95 % of measures were found within 2 standard deviations from the regression line. Conclusions drawn from all of the above findings are that model conditions are satisfied. The normal distribution and variance in standardized residuals are visualized in a standardized residual histogramme and normal probability plot in Appendix C.

Based on preliminary analyses and prior research using LYLES IPE and ACC scales for prediction of trauma symptoms scale scores (Nilsson, Gustafsson & Svedin, 2010; Nilsson, Holmqvist & Jonson, 2011), ACC was entered in the first step of the analysis. The results of the multiple hierarchical regression analysis are presented in detail in table 6.

Table 6

Multiple hierarchical regression analysis estimating TSI-2 IA scale scores using LYLES ACC and IPE as predictors (N=58)

Step	*Unstandardized coefficients*		*Standardized coefficients*					
Predictor	**B**	**SE**	**β**	**p**	**R^2**	**$R^2\Delta$**	**F**	**p**
Step 1								
ACC	1.46	.43	.41	.001	.17	.17	11.37	.001
Step 2								
ACC	1.66	.58	.47	.006				
IPE	- .25	.48	- .08	.610				
ACC+IPE					.17	.00	5.74	.005

SE = standard error of B. *$R^2\Delta$ = change in R^2. ACC= LYLES adverse childhood circumstances scale (0-1). IPE= LYLES Interpersonal events scale (0-1). TSI-2 IA scale = attachment total scale (0-3).*

In the first model, results were significant F(1,56) = 11.37 at $p \leq .001$. In the second model, results were also significant F(2,55) =5.74 at $p < .01$. However, the contribution of IPE to the model was less than 1 % (non-significant) i.e. a zero-contribution. Therefore, the second model was rejected. The first model was found to hold the best goodness of fit and was accepted as the final model. Thus, 17 % of variance in TSI-2 attachment scale scores may be estimated by LYLES ACC scores. The strength in the correlation measured by Pearson´s *r*= .41 which may be considered a moderate correlation (Field, 2009).

The standard error of estimate e.g. the standard deviation of residuals from the regression line in the second step was found to be 7.23. This means that 100 % - 17 % e.g. 83 % of variance was situated no more than 7.23 units from model regression line. The significant β-value means that a unit change in ACC gives more than zero change in outcome (see the discussion section for further explanations). Standard error of the ACC coefficient was found to be .58 (*p*= .001). This means that most samples are likely to have a similar b-value because there is little variance across samples and the model fits data well (Field, 2009). A check for the LYLES non-interpersonal scale revealed a non-significant close to zero correlation using Pearson´s *r*. This result was expected. A check for unique IPE estimation of TSI-2 attachment total scale scores, concluded a non-significant contribution of .05 (*p*= .089). IPE correlation to TSI-2 attachment total scale was found to be *r*= .23 ($p < .05$) which might be considered a small to moderate correlation.

In order to further investigate criterion validity of TSI-2 attachment scale, a similar multiple hierarchical regression analysis was computed using ECR total scale scores as outcome. This procedure was conducted to conclude whether the TSI-2 attachment scale scores may be explained to a higher extent

than may ECR scores also measuring attachment styles but not intended for trauma symptom screening. If the 17 % of the variance explained in TSI-2 exceeds the amount of variance explained in ECR, then this is hypothesized to support the inclusion of specific attachment styles questions added in TSI-2. In the first model using ACC as predictor, results were non-significant F (1,56) = 2.85 $p > .05$. In the second model adding IPE predictor, results were also found to be non-significant F(2,55) = 1.50 $p > .05$. Unstandardized beta-value of ECR when ACC and IPE scores were zero, was found to be 2.75 indicating secure attachment styles. Pearson´s 2-tailed correlation of ACC to ECR outcome was found to be $r = .22$ ($p < .05$). Pearson´s 2-tailed correlation of IPE to ECR outcome was found to be non-significant $r = .19$ ($p > .05$). TSI-2 attachment scale score variance may thus be explained to a greater extent by LYLES ACC and IPE than may ECR total scale score variance.

Discussion

The study present preliminary support for reliability and validity of the TSI-2 attachment scale, and for the benefits of inclusion of adult attachment styles as factors in trauma symptom rating. The results indicate that interpersonal anxiety regulation in attachment relationships are associated to experiences of potentially traumatic events, even if many other factors are obviously moderating symptom severity. The study concludes that prolonged adverse childhood circumstances are connected to trauma symptom outcome in interpersonal anxiety regulation in close relationships. The findings point out that information about present socially significant relationships may be valuable when assessing trauma symptoms. This is an important finding, since no previous self-rating instruments for trauma symptoms have included information about adult attachment styles.

In the following section, results of inferential analyses as well as descriptive analyses are discussed in relation to study aim and prior research. Participants´ reflections upon the self-rating procedure are discussed. Further, a method discussion is included where design and statistical methods are examined in contrast to obtained results. Parallels to prior research are made. Strengths and limitations of the study are reflected upon, and practical implications of findings as well as suggestions for further research are made. Finally, conclusions are stated to answer to study aim, questions and hypotheses.

Result discussion

Reliability

Reliability of TSI-2 IA scale and subscales using internal consistency measure Cronbach´s alpha was investigated in order to examine to what extent questions added to the instrument cover different areas of the same phenomenon. Also, the benefits of inclusion of specific questions, subscales and total scale, for the purpose of measuring adult attachment styles were examined. Results show internal consistency α .89 of RA subscale, TSI-2 attachment total scale and RS subscale both α > .90. These are considered as excellent reliability results (Field, 2009). Analysis of obtained value if specific questions were deleted, are presented in table 4. Results reveal excellent reliability on all total scale, relational avoidance subscale, and rejection sensitivity subscale questions. The least useful questions on total scale and subscales were therefore still found to be very useful indeed and no suggestions for exclusion or re-interpretation in the Swedish version were made. The result is slightly better than in the investigation of the original version (see Appendix B).

Convergent validity

Convergent validity was examined using Pearson´s correlation to a thoroughly examined test intended for measuring the same latent variables (Borsboom, Mellenberg & van Heerden, 2003). The convergent validity of TSI-2 attachment scale was shown to be promising, correlations all being significant at $p \leq .01$ or $p \leq .001$. Strong correlations were found between total scales and between anxiety subscales. Avoidance scale correlation (TSI-2 Relational Avoidance and ECR Avoidance) was found to be moderate (Field, 2009). However, correlations between avoidance and anxiety scales were found to be higher than expected. These results indicates than the TSI-2 may not discriminate dismissive attachment style. Therefore, using TSI-2 in research with the purpose of identifying specific attachment styles is not recommended without further scientific examination. Non the less, the obtained results inducate preliminary support for the validity of the TSI-2 attachment scale and subscales. The scale was found to be valid for discriminating secure adult attachment style from insecure styles, and for measuring interpersonal anxiety regulation. Thus, the TSI-2 attachment scale measures what it is supposed to measure.

Criterion validity

According to Field (2009), one should use the term "estimate" rather than "prediction" when the amount of variance explained is found to be less than 20 %. Therefore, the term estimate is used here. Also, it is of great significance to note that the statistical term of prediction previously used must be separated from the psychological and linguistic definition. Statistical relationships in for example regression lines, do not, by any means, represent a one-way deterministic prediction of outcome in individuals (Borsboom, Mellenberg & van Heerden, 2004; Bryman, 2008; Field, 2009). This is noteworthy since the attachment style variance estimate was less than 20 %.

Criterion validity was examined in order to investigate whether attachment styles may be included in trauma symptom rating by the TSI-2. The process was conducted using estimation of potentially traumatic events measured by LYLES ACC and IPE on TSI-2 attachment total scale score outcome. LYLES ACC significantly estimated 17 % of variance in adult attachment measures in TSI-2. LYLES IPE unique contribution was shown to be small and non-significant. The contribution of IPE is not completely surprising, taking interpersonal circumstances into consideration. If a person is exposed to childhood interpersonal traumata but has access to anxiety regulation and stress reduction in close relationships, then childhood circumstances are beneficial, and participants would not obtain high scores on adverse childhood circumstances. This confirms earlier research findings underlining the necessity of exploring effects of interpersonal traumata in the light of social circumstances

(Allen, 2013; Briere & Hodges, 2010; Briere, Kaltman & Green, 2008; Finkelhor, Ormod & Turner, 2007b; Nickerson et al., 2013; Nilsson, Gustafsson & Svedin, 2010; Nilsson, Holmqvist & Jonson, 2011; Resick et al., 2012; Shura, 2013).

One explanation to the findings of IPE is that the relationships between traumata and outcome are extremely complex and possibly moderated by traumata of a more ongoing character. ACC intends to reflect participants´ experiences of prolonged traumata and TSI-2 IA might be considered to reflect symptoms of relational difficulties connected for example to such prolonged traumatic circumstances. When ACC was held constant in the first step, TSI-2 attachment total scale raw scores were 5.85 (SE= 1.49), indicating secure attachment style. However, since no cut-off is set on TSI-2 attachment scale, unstandardized beta-values were difficult to interpret and only speculations may be made. A check for ECR values concluded that when ACC and IPE were held constant, ECR attachment scores were all below cut-off. This means that participants all displayed a secure attachment style when no adverse childhood circumstances and/or interpersonal events had been experienced. The finding is valuable and noteworthy, yet not unique. Results are in line with the theory and research on adult attachment styles previously presented (Allen, 2013; Blum, 2007; Briere & Hodges, 2010; Browne & Winkelman, 2007; Farinelli & Guerrero, 2011; Fonagy, Bateman & Bateman, 2011; Frueh et al., 2012; Shore & Shore, 2008; Wilson, Zeng & Blackburn, 2011). An interpretation of obtained results on group level might be that if experiences of interpersonal events and social circumstances are secure and non-traumatic throughout the entire childhood, then the chance of obtaining secure adult attachment styles increases. To provide evidence of such relationships, other kinds of statistical analyses need to be conducted and this would not be within the present study intentions.

The estimation by LYLES ACC, however low, does connect adult attachment styles measured by TSI-2 to prior traumata. Nilsson, Holmqvist and Jonson (2011) present a predictive value by LYLES ACC of 8 % on trauma symptoms measured by dissociation. Thus, the explained variance of 17 % may be considered as an important finding in the study of trauma symptom estimation. Further support for the significance of adverse social circumstances and adult anxiety regulation in attachment relationships are presented in a recently published article (Nickerson et al., 2013). These results confirm that adult interpersonal anxiety regulation is associated to previous and present social circumstances, than by the experienced traumata alone. These results are in line with research previously presented in this paper.

The unexplained variance in attachment style trauma symptoms in this study is as much as 83 %. This further confirms the necessity of taking the multi- dynamics of social traumata into consideration when assessing trauma symptom rating. However, the aim of this study was not to predict as large a

proportion of symptom variance as possible. Instead, the aim was to estimate adult attachment styles measured by TSI-2 attachment scale scores to prior potential traumata measured by LYLES, for investigation of the convergent validity of the new instrument.

The testing of variance explained in ECR revealed non-significant results. A smaller amount of explained variance in ECR than in TSI-2 was expected, since the prior instrument focuses on adult attachment styles in general, and not on adult attachment styles as trauma symptoms in specific (Brennan, Clarke & Shaver, 1998). However, the great discrepancy in variance between the instruments and the non-significant results on ECR were not expected. It is argued that the results might be due to the ECR being based on older research findings, thus the TSI-2 capturing the essentials of adult attachment styles to a greater extent. An other possible explanation is that in the selected group, attachment styles measured by ECR were affected by other things than prior traumata in particular. This would make sense, since prior traumata only explains a very small part of adult attachment styles using the other instrument. Further tests on various samples are suggested, in order to establish scientific evidence about the predictive relation of LYLES on ECR measures. So far, no papers known to the author have been published using LYLES prediction of ECR or TSI-2 attachment scale scores.

The results are interpreted as follows: adult attachment styles measured by TSI-2 may be associated to potential traumata measured by LYLES adverse childhood circumstances. TSI-2 attachment scale may be considered a valid measure of trauma related attachment experiences in specific. The results indicate preliminary support for the convergent validity of the TSI-2 attachment scale. The benefits of including attachment styles in trauma symptom rating in the TSI-2 are confirmed.

Descriptive results

Here, the LYLES cut-off at more than 4 events is tested as well as more than 5 or 6 events. These results are intended for description only, since the cut-off for adults has not yet been established through the previously mentioned ongoing scientific examination. Results on LYLES conclude that participants have experienced more non-interpersonal events than interpersonal events and adverse childhood circumstances. Only two participants report no experiences of potential interpersonal traumata and one participant reports no potential adverse childhood circumstances. Mode values may be more representative than mean values, but still the amount vary across the sample. It is important to note that none of these group values are representative for individual values. This is especially true for results on interpersonal events and adverse childhood circumstances, where many participants scored way above cut-off. Results conclude that between 72 - 95 % of participants scored above adult cut-off for

potential polytrauma, e.g. above six, five or four potentially traumatic events. Non-interpersonal events were shown to be the most frequent category measured in amount. This is somewhat surprising, taking into consideration that parents attending Hagadal often have worries about interpersonal difficulties. The findings may be explained by for example the increasing likelihood of having experienced more deaths in family in adults compared to adolescence. Also, the likelihood of having medical care in a hospital increases with age and also with having children of one´s own. The group results on LYLES subscales are in line of the pilot study (Viitanen 2011; 2012). Adverse childhood circumstances was the most common category, bullying and emotional abuse in particular, which supports findings of the importance of the interpersonal dynamics measured by this scale (Nilsson et al., 2010; Nilsson, Holmqvist & Jonson, 2011). Parents in the pilot study displayed an average of 16 events on LYLES total scale, meaning that present study group average was lower. However, the median value in present group was 16 and the range was quite similar to the one in the pilot study.

Results on ECR conclude that group average scale scores were below cut-off on total scale as well as subscales. This means that at an average, participants displayed secure adult attachment styles. However, the average group result on anxiety subscale was close to cut-off (3.35). Also, a large range was found, concluding that mean value might not be representative for individual values, which is shown when one looks at the percentage of parents scoring above cut-off for insecure attachment styles. But since no normative data of the Swedish population have been presented in published studies, it is not possible to conclude whether these results are above a national average. Many people in the normative population are expected to display insecure attachment styles, dismissive attachment style in particular (Howe, 2011; Jonson, 2009). As previously discussed, this style is not necessarily problematic (LaFontaine & Lussier, 2003; Shore & Shore, 2008). However, preoccupied attachment style has been shown to be related to interpersonal difficulties to some extent (LaFontaine & Lussier, 2003). But foremost, it is the vicious cycle of disorganized attachment style that may need clinical attention (Reuther et al., 2012). Many parents in the selected sample were experiencing some difficulties in their close relationships. However, the multi-dynamics of interpersonal anxiety regulation and the trauma symptom complexity previously discussed was supported. Present interpersonal difficulties may never be pre-determined by traumatic experiences alone, hence confirming use of the term "potentially traumatic events" previously presented.

Results on TSI-2 attachment scale conclude that parents in the selected sample scored between 0-15 on subscales and 0-28 on total scale. This wide range points out great individual differences, as found in the ECR results. The relatively low mean scores of TSI-2 as well as ECR, might be explained by participants being in an overall life situation where focus is not on their own

relational experiences or difficulties but rather on mobilizing energy taking care of a child. Since no cut-off has been established, group means may only be compared to the American standardization sample used during the construction of the test (Runtz et al., 2008). It must be noted that results on the American sample are presented in T-scores (Briere, 2011). No T-scores were calculated in this study and therefore comparison to the American sample only consists of estimations of raw scores. Men and women age 18-54 in the American sample scored approximately an average of 5.5 on relational avoidance, 6 on rejection sensitivity and 11.5 on attachment total scale. Thus, present sample raw score means were all below the American means. However, it is necessary to further investigate the finding using T-score calculations, in order to present individual profiles and make comparisons between samples. These procedures do not lie within the focus of this study. It may also be essential to interpret present findings when the Swedish standardized data are available.

Method discussion

The present study holds both strengths and limitations in methodology. A strength of the study was that participants and data were collected from a unit where parents seek help due to their own worries about a specific relationship (the one to their child). It is argued that the consecutive selection process increased the generalizability of the results, concerning experiences of events and close relationships in the investigated population. However, the sample contained participant scores considered as outliers, that may not be outliers had the sample size been greater. Also, a larger sample size would have enabled further evaluation of the instrument.

Factors that have not been controlled for in this study are for example economical stress and social support network. These factors would have been relevant to contrast to the relatively low participant ratings on avoidance and anxiety scale scores. Previous studies at Hagadal conclude that these factors might be relevant to overall psychological well-being of parents and parents to be (Sydsjö, Wadsby & Svedin, 1995; 2001).

Further, potential gender differences have not been controlled for. However, no previous research has shown any reason to investigate gender differences in adult attachment styles (LaFontaine & Lussier, 2003; Monin, Feeney & Schultz, 2012; Wilson, Zeng & Blackburn, 2011). Also, the majority of the sample being women, a comparison of potential significant differences of gender group mean values on LYLES life events would have been rather skewed. Also, it is argued detecting potential gender differences in experiences of life events was not a focus in this study.

A limitation in this study is that the LYLES instrument, however validated in scientific studies, is a fairly new instrument, still in need of modification of wording. For example grammar in question 19 needs to be

revised (when asked about parental divorce, the following question states: "for how long"). Also, all kinds of events give the same score, meaning that for example being robbed and being sexually molested are considered equivalent to that respect. It might be useful to conduct further studies to investigate the impact of specific LYLES questions, as has been done in terms of other trauma symptom outcome (Nilsson, Gustafsson & Svedin, 2010; Nilsson, Holmqvist & Jonson, 2011). The LYLES Sum of Time scale was not used in this study. Larsson (2009) did not find this scale valid for psychometric properties over time since many people due to several reasons neglect answering these follow-up questions. Also, scale score results were not relevant for this particular evaluation of the TSI-2.

Many participants at Hagadal being refugees with poor language skills, were consequently not asked to participate. It is suggested that many of these parents have experiences of horrendous war traumata including interpersonal violence and sexual abuse during a prolonged period of time. If these parents had been possible to include in the study by using language interpreters, it is possible that group results would have been affected. However, due to ethical complexity and financial limitations, no interpretation was available.

The hierarchical regression analysis was conducted since it was found to be the most suitable statistical method for examining criterion validity of the TSI-2 attachment scale. However, other kinds of regression analyses were considered. Moreover, it would have been possible to compute correlations between the two test only, but the aim of this study would then have been changed concerning the inclusion of adult attachment styles in trauma symptom rating. A factor analysis of the TSI-2 would provide other kinds of information about the inclusion of adult attachment styles in trauma symptom rating. However, it was not possible to conduct such an analysis within the time limits of this study.

A strength of the study is that missing value rate was excellent, considering that self-rating method was used (Briere et al., 1995). Only two participants were excluded and in the rest of the sample, hardly any missing values were found in ECR and TSI-2 measures. However, in LYLES, the missing values were replaced by "events not experienced", meaning that the 15 % of replies missing might actually be "events experienced". Thus, total results on LYLES may have been slightly elevated, had the true results been obtained. A potential strength of the study was that the outcome of the relation between traumata and symptoms was in the form of standardized residual scores, making the predictive relation more reliable (Field, 2009; Raudenbush, & Bryk, 2002).

In this study, self-rating measures were used exclusively, which goes well with the purpose of the study. However, had additional methods such as qualitative follow-up interviews on instrument usability been applied, results may have been interpreted in the light of these complements.

Reflections upon the procedure of self-rating

The benefits of self-rating have been previously discussed. Staff workers initially confirmed that many parents they meet on a daily basis have experiences of traumatic events and vicious close relationships. However, a systematic investigation of parents´ own experiences in specific areas had never been conducted. Would the parents be offended by being asked to participate in such a study and to answer all these intimate questions about sensitive events? One parent expressed himself like this: "Of course we have experiences of prior traumata, that is why we come here". Another exclaimed: "Thank you for asking, usually no one takes notice about my experiences".

Participants who wished to discuss their reflections with staff workers about finishing the booklet did so, and staff workers claimed finding the reflections to be a valuable basis for further interventions. One participant's reflection upon the experience of self-rating of potentially traumatic life events states the no necessity of worry about parental vulnerability being taken advantage of: "I live with these experiences for the rest of my life - it is a relief to be given the possibility to discuss them in a safe environment".

Further, self-rating has been criticized for putting words into people´s mouths. However, as argued in a prior section in this paper, many people may lack words to describe close relationships and potentially traumatic events. As one participant put it: "The booklet provides questions about being wounded and locked up against one´s will – I have never found words for these experiences before".

Practical implications

The findings from the present study underline the usability of the TSI-2 in screening of trauma symptoms, not only in terms of individual symptoms but in terms of difficulties in interpersonal anxiety regulation. The present findings indicate that the instrument may be reliable and valid for screening of insecure attachment styles. Therefore, it may be used in primary care settings as well as in specialized trauma centres and family units where attachment relationships are in focus.

It may be considered as important to stress the fact that using screening instruments may in itself be considered an intervention (Briere, 2011; Michel et al., 2010). This view is supported by participants saying that filling in the booklet affected them to some extent. Therefore, providing the TSI-2 to patients and/or clients, must be based upon their own needs for psychological assessments and interventions. One exception to this case is military use, where the TSI-2 might in fact be used to screen soldiers and staff workers that are not applying for psychological interventions (Briere, 2011).

It is well known that psychiatric care for adults as well as for children, focuses upon behavioural diagnostics and finding solutions without asking people about their experiences of the kinds described in this paper (Resick et al., 2012). It is argued that by applying the new screening instrument in various health care settings, psychological symptoms (anxiety and depression in particular), might have to be reconsidered in the light of the trauma- and attachment theories previously presented. Psychiatric care interventions may then need to move on from individual behavioural problem solution to health promotion, by increasing interpersonal anxiety regulation abilities in social settings.

Suggestions for further research

Validation of the Swedish version of the ECR would be preferable following the preliminary findings supporting the instrument. A validation of the entire Swedish version of TSI-2 as conducted at the present by the Linköping University and Uppsala University would be desirable. Comparisons to Swedish norm groups on LYLES, ECR and TSI-2 would provide information about the investigated group in terms of clinical significance as well as health-promoting significance of the measures obtained.

An evaluation of other scales added in the TSI-2 would be beneficial prior to implementation of the instrument in health care as well as health promoting settings. An evaluation of the implementation of the TSI-2 in for example trauma centres and family units similar to Hagadal would conclude the benefits of the instrument for clinical and health-promoting uses. Such evaluation would definitely include qualitative research further investigating the raters´ experiences.

Analysis of participant differences on polytrauma and adult attachment style scale scores in the selected group as well as in the pilot study, would allow estimation of cumulative effects of traumata. The relationship between polytrauma and disorganized adult attachment style would provide detailed information about parental affect regulation abilities, as well as enable scientific evidence of the vicious and complex cycle of interpersonal traumata. Also, a comparison to measures collected in the prior study (Viitanen 2011; 2012) would allow some generalizations about parents seeking help due to worries about the relationships to their children. Specific attention to parents being recently arrived war refugees is considered important, since this group due to societal structures has little, if any, power to affect the possibility of obtaining the specialized assessment and interventions needed. Longitudinal studies of intergenerational transmission effects and parental anxiety regulation in the Hagadal unit would provide further information about the beneficence of unit attachment interventions on health promotion for both parents and children. However, such analyses were not possible to conduct within the limitations of the present study. Further, it is suggested that qualitative studies including semi-

structured interviews on adult attachment relationships, interpersonal events and social circumstances would provide information about individual perception of health-promoting factors and for example attachment interventions.

It is argued that all of the above suggestions would be of particular interest to unit staff workers meeting traumatized parents on a daily basis. Also, they might be of particular interest for parents seeking support due to worries about the relationship to their children, as well as parents considering seeking such support.

Conclusions

The results in the present study show that TSI-2 attachment total scale and subscales hold a satisfactory internal consistency measured by Cronbach´s alpha. Convergent validity of the TSI-2 attachment total scale and subscales was found to be promising. The results indicate support for the criterion validity of TSI-2 attachment total scale, and for the inclusion of adult attachment styles in trauma symptom rating. The benefits of inclusion are one single screening instrument capturing areas of interpersonal anxiety regulation as well as other trauma symptoms.

The results support the first hypothesis that TSI-2 attachment total scale and subscales would be significantly correlated to ECR total scale and subscales. The results support the second hypothesis that variance in TSI-2 attachment total scale scores would be predicted by adverse childhood circumstances measured by LYLES ACC. The results do not support the third hypothesis that variance in TSI-2 attachment total scale scores would be predicted by interpersonal events measured by LYLES IPE. The results support the fourth hypothesis that LYLES ACC and IPE scale scores would predict a greater amount of explained variance in TSI-2 attachment total scale scores than in ECR total scale scores.

The present study provides preliminary evidence suggesting that TSI-2 attachment scale and subscales of the Swedish version are reliable and valid for screening of insecure and secure adult attachment styles. The study presents preliminary support for the inclusion of adult attachment styles in trauma symptom rating. This may be considered as an important result, since no previous trauma symptom screening instruments have included information about interpersonal anxiety regulation in close relationships, but have focused on individual symptoms alone (Briere 2011; Elhai et al., 2005; Resick et al., 2012; Shura, 2013).

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Appendix A
Participant letter of information

Linköpings universitet

Hej!

Jag skriver till dig som är eller snart kommer bli förälder och som tar del av spädbarnsverksamheten på Hagadal.

Mitt namn är Åsa Christiansson och jag läser på Psykologprogrammet i Linköping. Jag gör ett examensarbete där jag undersöker hur ett nytt självskattningsformulär som kallas TSI-2 (trauma symptom inventory) fungerar. Detta görs genom att jämföra det med två andra frågeformulär. För att kunna hjälpa människor som varit med om svåra händelser är det viktigt att använda formulär som vi vet mäter det de är avsedda att mäta. Studien kommer pågå under perioden maj 2012 – mars 2013 och min handledare är Doris Nilsson. Studien är en del av ett större forskningsprojekt.

Målet med studien är för det första att undersöka vilka svåra händelser föräldrar varit med om i sina liv och i vilken utsträckning. För det andra är målet att undersöka vilka symptom av ångest- och depressionskaraktär föräldrar upplever. För det tredje är målet att undersöka vilka erfarenheter föräldrar tycker sig ha i nära relationer.

Det vi vill ha din hjälp med är att fylla i dessa frågeformulär. Det tar upp till en timme. En anställd från Hagadal kommer vara tillgänglig för att svara på frågor om hur formulären ska fyllas i. Endel frågor kommer inte alls stämma in på dig och endel frågor kan verka lite märkliga. Det är viktigt att du svarar på alla frågor och väljer det svarsalternativ som du tycker passar bäst just för dig.

Ditt deltagande är helt frivilligt och du har när som helst rätt att avbryta din medverkan utan att ange något skäl. Undersökningen kommer vara fullständigt anonym och den kommer inte under några omständigheter att påverka din kontakt med Hagadal.

Du är välkommen att kontakta mig eller min handledare om du har några frågor. Mail och telefonnummer finner du här nedan.

Tack för din medverkan - ditt bidrag är mycket värdefullt!

Med vänlig hälsning

Åsa Christiansson
Psykologstudent

Linköpings universitet
Tel:
Mailadress:

Doris Nilsson
leg. psykolog/leg. psykoterapeut,
universitetslektor, docent, med.dr.
och handledarutbildad

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Appendix B

Average item-total correlations and internal consistency of TSI-2 scales in Briere (2011)

Scale:	Average item-total *r*	α if item deleted
Validity scale		
Response level (RL)	.66	.81
Atypical Response (AR)	.61	.72
Clinical scale / subscale		
Anxious-arousal (AA)	.75	.89
anxiety (AA-A)	.77	.83
hyperarousal (AA-H)	.72	.76
Depression (D)	.81	.94
Anger (ANG)	.75	.92
Intrusive experience (IE)	.74	.91
Defensive avoidance (DA)	.74	.91
Dissociation (DIS)	.67	.86
Somatic preoccupations (SOM)	.69	.84
pain (SOM-P)	.75	.74
general (SOM-G)	.68	.76
Sexual disturbances (SXD)	.68	.84
sexual concerns (SEX-C)	.75	.80
dysfunctional sexual behaviour (SXD-DSB)	.78	.83
Suicidality (SUI)	.74	.88
ideation (SUI-I)	.84	.88
behaviour (SUI-B)	.79	.85
Insecure attachment (IA)	.76	.91
relational avoidance (IA-RA)	.82	.88
rejection sensitivity (IA-RS)	.81	.87
Impaired self-reference (ISR)	.73	.88
reduced self-awareness (ISR-RSA)	.78	.84
other-directedness (ISR-OD)	.76	.81
Tension reduction behaviour (TRB)	.64	.82

Appendix C

Normal probability-probability plot and standardized residual histogramme of multiple regression analysis on TSI-2 attachment scale