

The effect of experienced maltreatment on parental interaction with
adolescent/young adult children: the mediating role of parental psychopathology
and personality.

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Abstract. Parents who have experienced childhood maltreatment may face difficulties when faced with the hardships of parenting. A phase that may prove to be especially difficult for parents who have experienced childhood maltreatment is the adolescent phase of their child, as it is often marked by conflict. In addition, their child's young-adult phase can become difficult for maltreated parents, because this new period of exploration and reorganization of the emotional ties of the young adult with their parents also marks a period of change. Furthermore, maltreated parents may face additional difficulties associated with childhood maltreatment, like psychological problems or less adaptive personality traits. This paper focuses on maltreated and non-maltreated parents and the quality of interaction with their adolescent or young adult children. It will be investigated whether child maltreatment experienced by the parent influences the quality of the interactions with their adolescent/young adult children and whether parental psychopathology and personality mediate the effect of experienced maltreatment by the parents on the interaction with their adolescent/young adult children. The sample consisted of 12 non-maltreated parents and 10 maltreated parents, some parents were part of the same family. Multilevel analysis was performed to consider within family nestedness of the data. Ordinary least squares regression was performed when multilevel was not possible. No effects of experienced maltreatment on parental interaction (emotional support and warmth/lack of negative affect) was found. Furthermore, there were no mediating effects of personality nor psychopathology on the association between experienced maltreatment and parental interaction. However, it was found that childhood maltreatment can be linked to a less agreeable and more introverted disposition in adulthood. Furthermore, more introverted parents were more emotionally supportive. These tentative findings expand the scarce literature on the effect of maltreatment on personality in adulthood and of the influence of personality traits on parental interaction. Gaining more insight in how parenting is affected by personality traits and how the development of specific personality traits are affected by maltreatment might aid in providing more insight in how to assist these maltreated parents and their children.

Key words: Experienced maltreatment, parental interaction, personality, psychopathology, parenting adolescents, parenting young adults

Introduction

Within the attachment relationship, future parenting skills are built by the formation of mental representation of a responsive and available parent (Egeland & Sroufe, 1981). Mental representations formed of maltreating parents can negatively affect a maltreated child's future parenting skills by influencing the ability to effectively deal with new and stressful situations (Bretherton & Munholland, 1999). Once becoming parents, victims of childhood maltreatment may face difficulties when faced with the hardships parenting can bring. A phase that may prove to be especially difficult for parents who have experienced childhood maltreatment is the adolescent phase of their child, as it is often marked by conflict (Paikoff & Brooks-Gunn, 1991). In addition, their child's young-adult phase can become difficult for maltreated parents, because this new period of exploration and reorganization of the emotional ties of the young adult with their parents once again marks a period of change (Arnett, 2000; Paikoff & Brooks-Gunn, 1991). Furthermore, maltreated parents may face additional difficulties that are associated with their childhood experiences, like (mild) psychopathology or less adaptive personality characteristics (Caldwell, Shaver, Li & Minzenberg, 2011; Oshri, Rogosch, Burnette & Cicchetti, 2011). Due to these additional difficulties, maltreated parents may experience the adolescent and/or young adult phases of their children as more stressful compared to non-maltreated parents (Muller, Thornback & Bedi, 2012; Bretherton & Munholland, 1999).

In this paper, the focus lies on maltreated and non-maltreated parents and the quality of interaction with their adolescent and young adult children. The following research question will be investigated: Does child maltreatment experienced by the parent influence the quality of the interactions with his or her adolescent/young adult child? Furthermore, it will be investigated whether parental psychopathology and personality mediate the effect of experienced maltreatment by the parent on the interaction with his or her adolescent/young adult child.

Child abuse and neglect and the influence on multiple developmental aspects. The Dutch National Prevalence study (NPM - 2010) estimated that yearly, 119,000 children in the Netherlands are maltreated. Approximately 45% of children identified in this study experience two or more subtypes (Alink, Van IJzendoorn, Bakermans-Kranenburg, Pannebakker, Vogels & Euser, 2011). Abuse and neglect entail parent or caregiver behaviours

that are threatening the child's development. The definition of maltreatment formed by the reauthorization of the Child Abuse and Prevention Treatment Act of 1974 (CAPTA, 2010) fully captures the different subtypes of maltreatment (sexual abuse, physical abuse/neglect and psychological abuse/neglect): "Maltreatment is any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm".

Child abuse and neglect have far reaching consequences for child development and its effects may even be seen in adulthood. Possible negative outcomes include poor social functioning, severe behaviour problems in childhood and adolescence, dysregulation of the stress system, psychopathology, substance abuse and a more conflictuous relationship with the parents during adolescence (Alink, Cicchetti, Kim, & Rogosch, 2012; Berlin, Appleyard & Dodge, 2011; Tarullo & Gunnar, 2006). Growing up in a neglectful or maltreating rearing environment has been linked to less adaptive personality traits in children and it has been speculated that it may lead to developing a more hostile personality (Rogosch & Cicchetti, 2002; Cicchetti & Cohen, 2006). Furthermore, maltreated children are at risk for becoming maltreating parents themselves. However, it has to be noted that not all abused parents become abusive: about 30% of the maltreated parents continue to maltreat (Sroufe, Egeland, Carlson & Collins, 2005).

The influence of maltreatment on the parent-child relationship. Maltreatment can severely disrupt the formation of a secure attachment relationship with the maltreating parent. Attachment relationships are formed in a child's first year of life, develop in interaction with the parent and enable the child to adequately deal with stress and negative emotions (Bretherton & Munholland, 1999). In addition, mental representations of the child's social environment are formed, based on the child's expectations of their parent's accessibility and responsiveness, or lack thereof. Mental representations are ways through which children and adults understand and interpret new relationships and experiences in ways that are consistent with past experiences and expectations formed in the attachment relationship (Bretherton & Munholland, 1999).

Abused children often experience criticism, rejection and disapproval, compromising the formation of a secure attachment relationship as it causes them to form mental representations of a frightening, rejecting and unreliable parent, possibly leading to anxious,

avoidant or disorganized attachment patterns (Muller, Thornback, & Bedi, 2012; Egeland & Sroufe, 1981). This way, maltreated children may not receive the proper set of skills to become parents as their formation of mental representations of positive parenting behaviours is compromised, causing parenting behaviours to be transmitted from one generation to the next (Cohn, Cowan, Cowan, & Pearson, 1992; Mikulincer & Shaver, 2007).

As mental representations influence the construction of new relationships in childhood and adulthood and the ability to explore and handle demands of new and stressful situations in adulthood, forming negative mental representations can severely influence a person's life (Bretherton & Munholland, 1999). It has been found that mental representations of the attachment relationship formed in childhood are an important predictor of parenting skills and of the attachment pattern formed by the parents' future children (Muller et al, 2012). A study by Caldwell and colleagues (2011) showed that mental representations children form of their parents influence their own parenting capacity: the lowest levels of maternal warmth and most difficult child behaviour were found in families with both parents classified as insecure.

Having experienced maltreatment during childhood causes serious interpersonal problems like suspiciousness, avoiding close relationships and problems with taking perspective. These problems can have serious consequences for the relationship a maltreated parent has with his or her child, as they undermine a parent's role of supporting children's psychological well-being and development (Bailey, DeOliveira, Veitch Wolfe, Evans & Hartwick, 2012). Moreover, studies have shown that maltreated parents more often report maladaptive parenting outcomes like higher levels of parenting stress, role reversal and the use of less effective parenting styles. (Alexander, Teti & Anderson, 2000; Moehler, Biringen, & Poustka, 2007). It has been found that once mental representations are formed they are difficult to change. However, in adulthood, mental representations can be positively affected by a positive partner relationship or a therapeutical setting (Muller et al, 2012; Egeland & Sroufe, 1981).

The influence of maltreatment on personality development and future parenting skills. Personality reflects a range of individual differences in thinking, feeling and behaving and is summarized into five personality dimensions: extraversion, conscientiousness, agreeableness, neuroticism, emotional stability and openness (Caspi, Robert & Shiner, 2005; Rogosch & Cicchetti, 2002). Temperamental traits, seen as a forebode to personality, are visible early in life. It has been stated that personality is biologically determined. However, this viewpoint

predicts little or no change in personality after early adulthood and it has been argued that personality traits are multiply determined: they can change due to influences early in development, through experiences and interactions within the family and through the broader social environment (Cicchetti & Cohen, 2006; Srivastava, Gosling & Potter, 2003). Experiences with childhood abuse can have an indirect negative impact on personality development through the development of attachment strategies and mental representations, which also influence future parenting skills, as it has been found that maltreated children more often form less adaptive personality traits (Shiner, 2009; Mikulincer & Shaver, 2007; Pickering, Farmer & McGuffin, 2004). This was found by Rogosch and Cicchetti (2004) in a sample of maltreated children, who were found to be less agreeable, less conscientious and less open to experienced personality and more neurotic traits. Maltreatment can cause adaptational difficulties on development by straining behavioural, cognitive and physiological regulatory systems, compromising the formation of an adaptive personality organization (Oshri et al, 2011). This way, maltreatment contributes to individual differences in personality features (Oshri, Rogosch & Cicchetti, 2013).

The influence of child abuse on adult personality is often investigated in the light of the relation between abuse and the development of personality disorders. Personality disorders reflect maladaptive variants of the five personality traits described earlier. Specific types of maltreatment are linked to personality disorders in victims: child sexual abuse is associated with symptoms of paranoid, schizoid, borderline and avoidant personality disorder, physical abuse is linked to antisocial personality disorder whilst emotional neglect is associated with histrionic and borderline personality disorder (Lobbestael, Arntz & Bernstein, 2010).

Experienced childhood maltreatment can also be linked to specific personality traits in adulthood. In a sample of depressed adults, Pickering, et al., (2004) found that all types of childhood maltreatment were associated with neurotic personality traits, whilst sexual abuse was, in addition to neurotic traits, found to be associated with extraversion. Drerup Stokes, McCord and Aydlett (2012) found that childhood maltreatment was related to neuroticism and openness to experience (extraversion) in adults. As maltreatment also impacts parenting behaviour, there may be an indirect link between experienced maltreatment and parenting behaviour through personality. This becomes evident in numerous studies linking certain personality traits to parenting behaviours. Extravert parents are often found to be highly supportive, but they can also be more controlling (Huver et al, 2010; Belsky & Barends,

2002). Conscientiousness is linked to more responsive and supportive parenting, and to less negative control (Losoya, Callor, Rowe & Goldsmith, 1997; Clark, Kochanska & Ready (2000). Agreeable parents are found to be more responsive and supportive (Belsky and Barends, 2002; Losoya et al., 1997). Neuroticism, marked by tenseness, irritability, anxiousness, depression and lack of confidence, is often linked to less parental warmth (Kendler, Sham, & MacLean, 1997). Last, parents with an open personality are found to be more supportive (Clark et al, 2000). Furthermore, personality affects parenting in an indirect way, by influencing partner choice, relationship quality, occupation and social support (Belsky, 1984).

The effect of maltreatment on developing psychopathology and the effect of psychopathology on parenting skills. Experiencing child abuse and neglect can lead to the development of psychopathology. It has been found that the development of child psychopathology is often associated with insecure or disorganized attachment or negative parenting practices such as fewer positive parent-child interactions or less interaction in general (Kohn Maikovich, Jaffee & Odgers, 2008; Mikulincer & Shaver, 2012). Physically abused children frequently have self-regulatory problems causing them to focus more on signals of anger, possibly caused by hyper vigilance as they are often exposed to anger (Kohn Maikovich, Jaffee & Odgers, 2008). Childhood self-regulatory problems can lead to more internalizing problems, attention deficit disorder and alcohol and drug dependence in adolescence and young adulthood (Eisenberg, Spinrad & Eggum, 2010). In addition, frequent exposure to stress can dysregulate the HPA-axis (Heim, Newport, Mletzko, Miller & Nemeroff, 2008). This maltreatment induced dysregulation is linked to the development of a range of psychiatric disorders, including major depression in adulthood (Heim et al., 2008).

Childhood psychopathology can persist into adulthood, but psychopathology due to childhood experiences can also surface in adulthood (Mikulincer & Shaver, 2012). Psychopathology influences many aspects of a person's functioning, including parenting practices. The link between the influence of attachment, childhood maltreatment and psychopathology on parenting becomes evident in a study by Caldwell and colleagues (2011). They showed that mothers reporting a history of child abuse and neglect had more severe symptoms of depression, reported higher levels of adult attachment anxiety and avoidance. Experiences with childhood maltreatment indirectly predicted having a lower sense of parental competence and this prediction was mediated by attachment anxiety and depression.

Anxious attachment was linked with cognitive rumination and negative affect, predisposing a person further to becoming depressed later in life (Caldwell et al., 2011). Parents facing psychopathology are often unable to fully focus on their own children, are more self-absorbed and less able to fulfil their children's needs. They often have problems with monitoring their children, are more hostile and show harsher and more inconsistent discipline. These parenting behaviours increase their children's chances of developing psychopathology in childhood and later in life (Dogan, Conger, Kim & Masyn, 2007).

As the child develops, so does the parent-child relationship. In puberty, a child undergoes many physical, emotional, social and psychological changes and gradually becomes more independent (Hair, Moore, Garret, Ling & Cleveland, 2008). Adolescence is marked by conflict, but these conflicts are often not intense nor indicative of a diminished bond with the parents (Paikoff & Brooks-Gunn, 1991). Research has shown that mothers, fathers and adolescents may experience and interpret their conflictuous interactions differently. Parents are more bothered by conflicts and more likely to hold on to negative affect after negative interactions than adolescents (Smetana, 2008; Steinberg, 2001). In 5 to 10% of families, the parent-adolescent relationship significantly deteriorates during adolescence. Members of these families frequently faced different (early) adverse experiences (Paikoff et al, 1991). Problems starting in adolescence are often linked with the family's inability to deal with the changes of puberty (Williamsen, Borduin & Howe, 1991). It may be that parents who are less able to deal with changes during their child's adolescent phase formed negative mental representations during childhood, leaving them less able to effectively deal with new experiences and stressful situations that adolescence brings.

The parent-child relationship remains important after adolescence: efforts in gaining autonomy and reorganizing emotional ties connecting the adolescent to his or her parents continue into young adulthood (Frank, Butler-Avery & Laman, 1988; Seiffge-Krenke, 2006). Young adulthood is a period of exploration, change and transition, as different possibilities of what to do in life are discovered (Arnett, 2000). The parent-young adult relationship can positively influence the well-being of both parties, whilst it can also be a source of distress. This is reflected in the finding that one-fifth of the parent-adult child relationships significantly improves during this period, whilst deteriorating in another one-fifth (Kaufman & Uhlenberg, 1998). Choices made by the young adult strongly influence the parent-child relationship and can significantly influence parental well-being (Kaufman & Uhlenberg,

1998). The quality of the parent-young adult relationship is also determined by how it was built during the parent's childhood, which is influenced by attachment, experienced childhood maltreatment by the parent, psychopathology and personality (Shiner, 2009; Mikulincer & Shaver, 2007; Arnett, 2000).

Current study. Within the attachment relationship a child builds future parenting skills by forming mental representation of a responsive and available parent. Mental representations formed of a maltreating parent will significantly affect a maltreated child's future parenting skills by influencing the ability to effectively deal with new and stressful situations later in life. The adolescent and young adult phase can pose difficulties for maltreated parents, as the adolescent phase is marked by conflict and the transition to young-adulthood can also be difficult due to new efforts in gaining autonomy and the reorganization of emotional ties with their parents. Other difficulties associated with the parent's childhood experiences, like (mild) psychopathology or a less adaptive personality, may cause these periods to be more stressful compared to parents who have not been maltreated.

In this paper, the main question is: Does child maltreatment experienced by the parent affect the quality of the interaction with his or her child when the child has reached adolescence/young adulthood? In some families the parent-child relationship deteriorates in adolescence and young adulthood (Paikoff et al., 1991; Kaufman & Uhlenberg, 1998). It is hypothesized that interaction between maltreated parents and their adolescent/young adult children will be more negative and hostile compared to non-maltreated parents and their children, as it is thought that maltreated parents are less capable in handling stressful interactions with their adolescent/young adult children. In addition, the mediating roles of personality and parental psychopathology on parent-adolescent/young adult interaction will be investigated. It is hypothesized that a less adaptive personality and presence of psychopathology mediate the association between maltreatment experienced by the parent and the parent-adolescent/young adult interaction (Huver, Otten, De Vries & Engels, 2010).

Method

3Generation study. The current study uses data obtained in the '3Generation' study that is currently still in progress at Leiden University. The aim of this study is to include a total of 60 families. In the current study, data from family members of 13 families is available. The

'3Generation' study's main focus is examining the intergenerational transmission of maltreatment. Furthermore, the study aims to investigate how these mechanisms of intergenerational transmission occur. Three generations of families are invited to come to the laboratory, with the first generation consisting of grandparents (F1), the second of their children (F2) and the third generation being the grandchildren (F3).

Laboratory visit. The second generation visited the laboratory once or twice. They also filled out a set of questionnaires at home, which were sent via email. The third generation visited the laboratory once. The current study used data obtained with a restricted set of measurement instruments administered to the second and third generation and will be explained in more detail in the next section.

Participants. Participants in this study were recruited through a 'target' person. This target is a person from the second generation who has participated in another longitudinal study focusing on anxiety and depression and for whom self-report information about childhood experiences with maltreatment was present. Families were excluded when there was only a single generation present within the family. The target person was invited to visit the lab twice: once with his or her nuclear family and once with a sibling (if present) nearest in age and their parents. In addition, the sibling was invited to visit the laboratory with his or her own nuclear family. If the sibling nearest in age did not have children, the sibling with a family structure that most suited this study was invited to come to the lab. The most suitable family structure for the study is having a partner present and having at least two children aged between 12 and 18 who are living at home. The family members of the target's partner were also asked to participate. Partners were invited to the lab with a sibling nearest in age and their parent(s). In addition, the partner's sibling was invited to the lab with his or her nuclear family.

A total of 14 F2 mothers and 12 fathers participated in the current study, with their age ranging between 27 years and 59 years old ($M = 48.5$). A total of 21 children (12 males and 9 females) aged between 12 and 26 years old participated ($M = 19.1$). Ten children were adolescents, 11 were young adults. Five children participated with both father and mother.

Measures

Conflict Tactic Scale - Parent Child (CTSPC) & Childhood Trauma Questionnaire (CTQ). The CTSPC aims at measuring how parents respond to conflict situations with their children. Straus, Hamby, Finkelhor, Moore, & Runyan (1998) modified the CTS to be able to use this instrument as a measure for child maltreatment. The CTS was originally developed to measure partner violence (Straus, 1979). The CTS was complemented with the subscales physical neglect and emotional neglect from the Childhood Trauma Questionnaire (CTQ - Bernstein & Fink, 1998) to create a maltreatment questionnaire that captures the broader spectrum of maltreatment. The CTS and CTQ subscales were modified to be able to use the questionnaire as a self-report measure for experienced maltreatment of children by the hands of their parents. The maltreatment questionnaire was administered during the lab visit and aimed at measuring self-reported maltreatment of F2 by the hands of F1. The questionnaire measures how F1 responded to F2 in childhood in different situations on a 5 point Likert scale (1 = “never”, 2 = “once”, 3 = “sometimes”, 4 = “often” and 5 = “(almost) always”). The questionnaire consists of 18 questions that are grouped into four categories: psychological aggression, physical assault (minor, severe and very severe) neglect and emotional neglect. Examples of questions are “My mother/father threatened to slap or hit me, but did not do it”; “My mother/father called me stupid or lazy”, “My mother/father hit me with a fist or kicked me”, “My mother/father made me felt loved” and “My mother/father was a source of strength and support”.

The CTS-PC has previously been used in studies investigating parental aggression towards adolescents and its effect on development and was found to be a valid instrument (LeRoy, Mahoney, Boxer, Lakin Gullan & Fang, 2013; McKinney, Milone & Renk, 2011). The CTQ was proven to be a valid measure in investigating childhood trauma and has been used in adolescent and adult samples (Bernstein, Ahluvalia, Pogge & Handelsman, 1997; Zalewski, Cyranowski, Cheng & Swartz, 2013).

Internal consistency of the maltreatment questionnaire was computed using Cronbach’s alpha. Internal consistency of the questionnaire as a whole proved to be quite high with an alpha of .92. However, 5 items were excluded during the analysis due to a lack of variance. Three of these items were from the subscale Very Severe Physical Assault. This subscale has very low internal consistency ($\alpha = .36$), possibly due to the lack of variance, making it difficult to measure internal consistency, and will therefore be omitted in this study.

Internal consistency of the separate subscales are .69 for Psychological Aggression, .78 for Minor Physical Assault, .76 for Severe Physical Assault, .72 for Neglect and .92 for Emotional Neglect.

For all analyses a continuous maltreatment score was used, computed as the total score on the CTS. To gain insight in which types of maltreatment were most prevalent in this dataset, maltreatment was coded as reporting a mean score of 3 or higher on at least one of the subscales for mother or father of the maltreatment questionnaire. This resulted in 12 participants not reporting childhood maltreatment and 10 who did. All 10 maltreated parents reported emotional neglect by the mother, 9 also reported emotional neglect by the father. Six participants reported to have experienced one form of maltreatment (emotional neglect by the mother and/or father), four reported to have experienced two forms of maltreatment (emotional neglect by the mother and father and psychological assault by the mother, neglect by the mother, minor physical assault by the mother or minor physical assault by the father).

Family Interaction Task (FIT). A revealed differences task was used to assess interaction patterns between parents and their adolescent/young adult children (Allen & Hauser, 1996). After arriving at the laboratory, parents and adolescents/young adults filled out a questionnaire regarding topics frequently causing conflict within the parent- adolescent/young adult dyads. Furthermore, the parents and adolescents/young adults were asked to indicate on a scale ranging from 1 to 10 how important these topics were to them. Topic lists of the parent and adolescent/young adult were compared by research assistants and two topics named both by the parent and adolescent/young adult or topics similar to each other were chosen to be discussed. When topics did not overlap, topics that were most important to the parent or adolescent/young adult were chosen. The discussion was videotaped. Dyads had 10 min to discuss the topic with an hourglass indicating the time. If they reached consensus on the first topic within 10 min, dyads were asked to continue the discussion with the second topic. After the discussion, the parent and adolescent/young adult were asked to indicate whether they felt they had reached consensus on the discussed topic. The data from FITs performed within families will be used in this study.

The videotapes were coded using the “Warmth, Negativity, Emotional support, and Constructive Problem Solving” coding system, which is based on the “Supportive Behaviour Task” manual by Allen, Hall, Insabella, Land, Marsh and Porter (2001). Parents and adolescents/young adults were given scores ranging from 1.0 to 9.0 on four scales: Warmth,

Negativity, Emotional support and Constructive Problem Solving. In this study, the subscales Warmth, Negativity and Emotional support are used. The subscale Warmth intends to capture the extent to which each person demonstrates warmth towards the other and that they care about, value and genuinely like the other. This can be shown by verbal expressions, tone of voice, facial expression and body postures and/or behaviours. The subscale Negativity entails behaviour that is unpleasant for the other person, like anger, negative teasing or sarcasm, stonewalling or rudeness. The subscale Emotional support entails attempts to understand and support the feelings raised by the other person. The videotapes were coded by two coders. Intercoder-reliability was calculated for 15 videotapes and was .85 for both Warmth and Negativity and .76 for Emotional support.

The Family Interaction Task was previously used in a study by Beijersbergen, Juffer, Van IJzendoorn and Bakermans-Kranenburg (2008), and was found to be a valid instrument in studying interaction between adopted adolescents and their adoptive parents.

Adult Self Report (ASR). Parental psychopathology was measured using the short version of the Adult Self Report (ASR). The ASR was developed by Achenbach and Rescorla (2003) and aims to measure behavioural problems that occurred in the past six months in adults aged 18 to 59 years. This self-report questionnaire consists of 77 items answered on a three-point scale ranging from “not true” to “always true”. The short version of the ASR measures empirically based syndromes and consists of the following 6 subscales: anxious/depressed, withdrawn, somatic complaints, aggressive behaviour, rule-breaking behaviour and intrusiveness. In this study, the subscales aggressive behaviour, withdrawn, and anxious/depressed were used. Subscales withdrawn and anxious/depressed were combined to form an internalizing problems subscale. The ASR has been found to have adequate reliability and validity in the USA, however, the Nederlandse Commissie Testaangelegenheden (COTAN) has not been able to confirm the quality of the ASR (Landelijk Kenniscentrum Kinder- en Jeugdpsychiatrie, 2011). The ASR is filled out at home by second generation adults.

Internal consistency of the entire questionnaire and subscales aggressive behaviour and internalizing problems were computed with Cronbach's Alpha. Internal consistency of the entire questionnaire was quite high ($\alpha = .88$). Cronbach's Alpha are .76 for aggressive behaviour and .92 for internalizing problems.

The ASR has previously been found to be a useful instrument in research and was used in a longitudinal population-based study, aimed at predicting adult emotional and behavioural problems from externalizing problem behaviours in childhood (Reef, Diamantopoulou, Van Meurs, Verhulst & Van der Ende, 2010) and in a study investigating mental health problems among young adults that were maltreated in adolescence (Southerland, Casanueva & Ringeisen, 2009).

NEO-Five Factor Inventory (NEO-FFI). Adult personality was measured with the NEO-Five Factor Inventory (NEO-FFI). This self-report questionnaire was developed by Costa and McCrea (1989) and revised in 2002, as the original version of the NEO was found to be unreliable in research (McCrea & Costa, 2003). The questionnaire aims at providing an estimate for five factors of personality (neuroticism, agreeableness, conscientiousness, extraversion and openness) using a five-point Likert scale. The questionnaire consists of 60 items, with each personality factor consisting of 12 items (McCrea & Costa, 2003). In this study the subscales extraversion, neuroticism and agreeableness were used. These traits have been found to be influenced by experienced childhood maltreatment (Rogosch & Cicchetti, 2004; Fosse & Holen, 2007; Drerup Stokes, McCord & Aydlett, 2012).

To investigate internal consistency of the NEO-FFI, Cronbach's alpha was computed for the entire questionnaire and the 3 subscales. The entire questionnaire has a reliability of .54. The subscales neuroticism, ($\alpha = .86$), extraversion ($\alpha = .79$) and agreeableness ($\alpha = .80$) have high internal consistency.

The NEO-FFI was previously used in a German study investigating genetic and environmental influences on personality development in a twin sample and was found to be a reliable measure (Riemann, Angleitner & Strelau, 2006).

Analytic plan. The procedures outlined by Baron and Kenny (1986) were used to establish a mediating effect of personality variables Agreeableness, Neuroticism and Extraversion on the relationship between Experienced maltreatment and Parental interaction (Warmth/lack of negative affect and Emotional support) and a mediating effect of psychopathology variables Internalizing problems and Aggressive behaviour on this link. The mediation models are depicted in Figures 1 and 2.

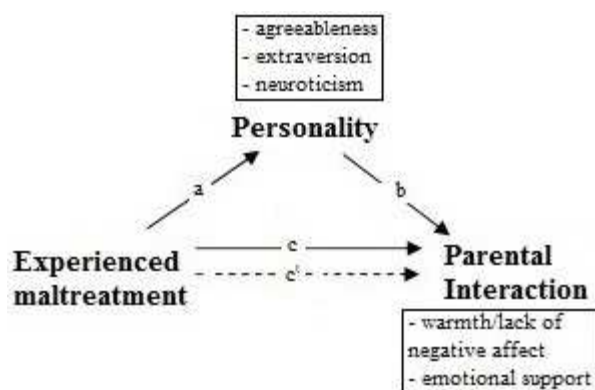


Figure 1. Mediation model of personality.

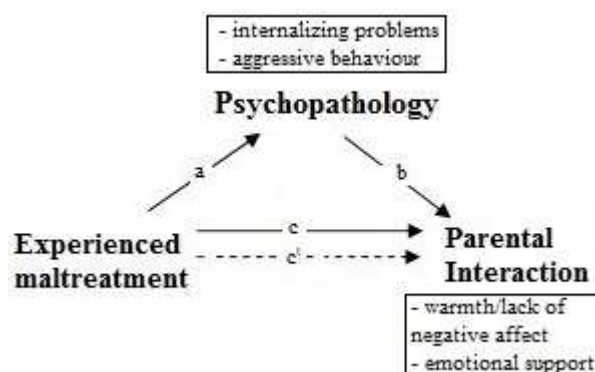


Figure 2. Mediation model of psychopathology.

To establish the presence of a mediating effect, four steps need to be taken to test significant pathways in the mediation model. These pathways can be inspected in Figures 1 and 2. The first step is to test Path c, depicting the relationship between the predictor variable (Experienced maltreatment) and dependent variable (Parental interaction: Warmth/lack of negative affect and Emotional support). It is not crucial that Path c is significant to be able to test mediation. The second step is to test Path a, which shows the link between the predictor (Experienced maltreatment) and potential mediators. The third step, testing Path b, investigates whether the mediator affects the dependent variable. It is not sufficient to investigate a correlation between the mediator and dependent variable, as they may be correlated due to the predictor variable. Therefore, the predictor variable needs to be controlled for in establishing the effect of the mediating variable on the dependent variable. In step 4, Path c' is examined to see whether the relationship between the predictor variable (Experienced maltreatment) diminishes when controlling for the mediator. Steps 3 and 4 can be examined in the same analysis. Significant effects need to be present in Path a and b, whilst the significant effect of the predictor variable in Path c' should significantly diminish as compared to Path c to be able to speak of a mediating effect. If no significant effects are found in Paths a and c, mediation was not further examined. When possible mediating effects were found, the significance of the mediating effect (step 4) was examined using the Sobel test (Kenny, 2014).

Due to within family nestedness of the data, using multilevel modelling is advised. However, the small sample may pose problems when computing the multilevel models. All pathways were first investigated using random intercept multilevel models with maximum likelihood estimation. However, when multilevel models yielded problems, results from ordinary least squares regression were reported instead.

Before commencing the regression and multilevel analyses, data-inspection was conducted to examine the distribution of the data. Furthermore it had to be determined whether the data did not violate assumptions of normality, linearity, homoscedasticity and independence of errors. After checking the assumptions, it was determined whether assumptions were violated and whether steps could be taken to fix the violations. Next, predictor variables will be centred for both the regression and multilevel analysis to avoid multicollinearity.

Data-analysis was done using the Statistical Package for Social Sciences (IBM SPSS version 19.0).

Preliminary analysis

Missing data. FIT data was missing for two parents. It was not possible to determine experienced maltreatment for two parents due to missing data on the maltreatment questionnaire. These parents were therefore excluded from analysis. Of the excluded parents with missing FIT data, one was maltreated. All excluded participants had children aged 17 and 18 years. Excluded participants did not significantly differ from the non-excluded participants on Aggressive behaviour ($p = .24$), Internalizing problems ($p = .51$), Agreeableness ($p = .06$), Extraversion, ($p = .82$), Neuroticism ($p = .73$), ($p = .75$) nor sex ($p = .87$), however, due to the small sample size, it was unlikely that great differences would have been found between excluded and non-excluded participants. It was not possible to compare the two groups on total maltreatment score due to a lack of variance. Data on the ASR was missing for two parents. These parents were excluded from analysis using the ASR. Data from the NEO-FFI was missing for one parent, who was excluded from analysis using the NEO-FFI. After excluding the cases with missing data on the maltreatment questionnaire and FIT, 9 mothers and 13 fathers aged between 27 and 59 ($M = 48.5$) remained. These parents had 18 children (10 males, 8 females) ranging between 12 and 26 ($M = 19.4$). Seven children were adolescents, 11 were young adults.

Data-inspection. Data-inspection was conducted to investigate the distribution of the variables and to check the assumptions of linearity, normality, homoscedasticity and independence of errors for the regression analysis.

Kurtosis and skewness of all variables were computed to determine whether all variables were normally distributed. The total score of the maltreatment questionnaire ($M = 19.56$, $SD = 4.56$), total scores for ASR subscales Aggressive behaviour ($M = 20.59$, $SD = 3.89$) and Internalizing problems ($M = 39.18$, $SD = 8.70$), total scores for the NEO-FFI subscales Agreeableness ($M = 43.80$, $SD = 4.37$), Neuroticism ($M = 31.632$, $SD = 6.02$) and Extraversion ($M = 36.80$, $SD = 6.55$) were all approximately normally distributed, as indicated by standardized values of kurtosis and skewness falling between 3 and -3. The FIT subscales Warmth ($M = 3.52$, $SD = 1.37$) and Emotional support ($M = 1.65$, $SD = 0.93$) were also normally distributed (kurtosis and skewness fell between 3 and -3.) One outlier was detected on the FIT subscale Negativity with a z -score of 3.53. The Winsorization method was used to reduce the effect of this outlier. This was done by replacing the value of this outlier with the value of the observation closest to the outlier + 1. After this, the subscale was approximately normally distributed ($M = 2.30$, $SD = 1.29$).

To investigate the relationships between the three FIT subscales, correlations were used. A significant negative correlation ($r = -.65$, $p = .001$) was found between Negativity and Warmth, showing that parents scoring higher on Warmth scored lower on Negativity. It was decided to create a composite variable of the Negativity and Warmth subscales to limit the number of analyses needed. After recoding Negativity, the composite variable 'Warmth/lack of negative affect' was created using the sum of the standardized scores of Warmth and reversed Negativity. Emotional support did not correlate with this composite variable ($r = .24$, $p = .27$). Emotional support was also transformed into standardized scores. Standardized scores of both FIT subscales were used in all subsequent analyses.

Scatterplots were created to investigate whether the relationships between predictor variables (the psychopathology and personality variables and Experienced maltreatment) and dependent variables (standardized scores of Emotional support and Warmth/lack of negative affect) were linear. The assumption of linearity was met for the relationship between Extraversion and Emotional support, Neuroticism and Emotional support, Internalizing problems and Emotional support, Internalizing problems and Warmth/lack of negative affect, Extraversion and Warmth/lack of negative affect, Neuroticism and Warmth/lack of negative affect Experienced maltreatment and Warmth/lack of negative affect. The assumption of linearity was violated for the relationships between Agreeableness and Emotional support, Agreeableness and Warmth/lack of negative affect, Aggressive behaviour and Emotional

support, Aggressive behaviour and Warmth, lack of negative affect and for Emotional support and Experienced maltreatment.

Regression models were created to inspect whether the variance of errors is constant. This is also called homoscedasticity. Separate regression models were created for all predictor variables (Neuroticism, Agreeableness, Extraversion, Aggressive behaviour, Internalizing problems and Experienced maltreatment) and the dependent variables (Emotional support and Warmth/lack of negative affect). Homoscedasticity was present in the Q-Q plots of the errors of all regression models with Warmth/lack of negative affect as dependent variable. When inspecting Q-Q plots of the errors of all regression models with Emotional support as dependent variable, it became evident that the errors of all predictor variables formed a funnel: the data was heteroscedastic. Heteroscedasticity indicates that it is difficult to estimate the true standard deviations of the errors, which can lead to confidence intervals that are too broad or too small.

When investigating Durbin-Watson statistic, part of the output of regression models, it became evident that the assumption of independence of errors was met. Durbin-Watson statistic fell between 1.55 and 2.28 for all predictor variables. The value of Durbin-Watson test ranges from 0 to 4. Residuals are not correlated when Durbin-Watson statistic falls between 1.50 and 2.50, meeting the assumption of independence of errors.

Due to violation of the assumption of linearity for all variables and homoscedasticity for a selection of variables, the predictor variables were logarithmically transformed. However, log-transformation did not appear to be beneficial for the analyses: results from regression with log-transformed variables and centred variables did not differ. Therefore, centred untransformed variables were used in all multilevel and regression analyses. It has to be kept in mind that due to violation of the assumptions, results need to be interpreted with care and cannot be generalized beyond this sample.

Multilevel modelling. Because of within family nestedness of the data, multilevel modelling is advised. It was investigated whether the family factor is of influence on the outcome variables Warmth/lack of negative affect and Emotional support. This was done by calculating the intraclass correlation (ICC, ρ), which depicts the proportion of variance in individual responses explained by the nesting within families. To compute the ICC, intercept-only multilevel models were estimated to obtain the coefficients needed. Intercept-only models

only contain the dependent variable and are used to obtain the coefficients needed for the following formula:

$$\rho = \frac{\tau_{00}}{\tau_{00} + \sigma}$$

For the FIT subscale Warmth/lack of negative affect, the formula looks as follows:

$$\rho = \frac{1.54}{1.54 + 1.69} = .47$$

The ICC of Warmth/lack of negative affect was .47, indicating that 47% of variance in Warmth/lack of negative affect was due to between-family factors. However, there was no significant variance in intercept on Warmth/lack of negative affect across participants. This is surprising, as a large proportion of the variance was explained by between-family factors. This discrepancy might be caused by the small sample size. The ICC did not provide a definite answer of the role of between family factors and therefore it is unsure whether between family factors are important in this data. To be sure, multilevel should be performed. no definite answer can be given of the role of between family factors.

It was not possible to calculate the intraclass correlation for Emotional support. When computing the multilevel model the method was not able to come to a solution. This may be due to the distribution of the sample or the small sample size.

Because of the insignificant variance in intercept for Warmth/lack of negative affect and the inability to calculate the ICC for Emotional support, mediation was tested using both multilevel analyses and regression analyses. These analyses were compared to each other. When multilevel analysis and regression yielded different results, results of the multilevel analyses were reported.

Results

Testing the mediating role of personality on parental interaction. In this section, the 4 steps taken to investigate the mediating role of personality variables Agreeableness, Extraversion and Neuroticism on the relationship between predictor variable Experienced maltreatment and Parental interaction (FIT-subcales Emotional support and Warmth/lack of negative affect) are described. The model and its pathways are depicted in Figure 1.

Step 1 was to test Path c. When inspecting the effect of predictor variable Experienced maltreatment on dependent variable Emotional support, multilevel modelling was not able to come to a solution. Therefore, a regression analysis was performed. The regression model as a

whole was not significant ($F = .26, p = .61$) and the model did not yield significant results ($b = 0.02, \beta = 0.14, p = .61$). Experienced maltreatment was thus not significantly related to Emotional support. When looking at the effect of Experienced maltreatment on Warmth/lack of negative affect, multilevel modelling was possible and the results were different from regression analysis in estimate and standard error of the estimate. Therefore, results from the multilevel model are reported. The multilevel model as a whole was significant ($\chi^2 = 10.61, p < .00$). However, there was no significant effect of experienced maltreatment on Warmth/lack of negative affect ($b = 0.25, p = .59$), indicating that Experienced maltreatment was not significantly related to Warmth/lack of negative affect.

Step 2 tested Path a, the effect of the predictor variable Experienced maltreatment on mediators Agreeableness, Extraversion and Neuroticism (dependent variables). Results of regression models inspecting the effect of Experienced maltreatment on Extraversion and Neuroticism are reported, as the multilevel models were unable to come to a solution. Results from the multilevel model are reported for the effect of Experienced maltreatment on Agreeableness, as these results differed from the regression models. The multilevel model was significant ($\chi^2 = 27.26, p < .00$) Results from the regression models are depicted in Table 1, results from the multilevel model are shown in Table 2. The regression model for Extraversion is significant ($F = 4.87, p = .03$), whilst the model for Neuroticism is insignificant ($F = 0.00, p = .99$). As evident, there was a significant negative effect of Experienced maltreatment on Extraversion ($b = -.07, \beta = p = .02$; Table 1) and on Agreeableness ($b = -0.60, p = .00$; Table 2), indicating that persons scoring relatively high on Experienced maltreatment score relatively low on Extraversion and Agreeableness. Because of these significant findings, Steps 3 and 4 will be continued with personality variables agreeableness and extraversion. Neuroticism will be omitted from further analysis, as it was not significantly associated with Experienced maltreatment (Table 1) and therefore cannot mediate the association between Experienced maltreatment and Parental interaction.

Table 1. Results of the regression models investigating the effect of Experienced maltreatment on Neuroticism (model 1) and Extraversion (model 2) ($N = 22$).

	Unstandardized coefficients		Standardized	<i>p</i>
	<i>b</i>	Standard. error	coefficient β (Beta)	
Dependent var.: Neuroticism				
Intercept	0.36	1.36		.79
Experienced maltreatment	-0.03	0.30	-0.02	.91
Dependent var.: Extraversion				
Intercept	0.29	1.28		.82
Experienced maltreatment	-0.71	0.29	-0.48	.02

Table 2. Results of the multilevel model investigating the effect of Experienced maltreatment on Agreeableness (model 3) ($N = 22$).

Fixed effects				
	<i>b</i>	<i>SE</i>	<i>t</i> -value	<i>p</i>
Dependent var.: Agreeableness				
Intercept	-0.48	0.73		.53
Experienced maltreatment	-0.63	0.13	-4.91	.00
Random effects				
Group	Name	<i>SE</i>		
Family	Intercept	4.60		
Residual		-1.71		

Step 3 tested Path b, which depicts the effects of the potential mediators Agreeableness and Extraversion on Emotional support and Warmth/lack of negative affect, controlling for Experienced maltreatment. Multilevel analysis was possible to investigate the effect of Extraversion and Agreeableness on Warmth/lack of negative affect. The multilevel model investigating the effect of Extraversion on Emotional support resulted in similar results as the regression models, therefore results from the multilevel model were reported. Regression was used to inspect the effect of Agreeableness on Emotional support, as the multilevel model was unable to come to a solution.

Chi-square tests showed that the multilevel models testing the effects of Extraversion ($\chi^2 = 10.61, p = .00$) and Agreeableness ($\chi^2 = 10.76, p = .00$) on Warmth/lack of negative affect

controlling for Experienced maltreatment were significant. There was no significant effect of Extraversion ($b = 0.00, p = .98$) nor Agreeableness ($b = -0.04, p = .68$) on Warmth/lack of negative affect, controlling for Experienced maltreatment. The regression model investigating the effect of Agreeableness on Emotional support, controlling for Experienced maltreatment was not significant ($F = 0.13, p = .87$), nor did it yield significant results ($b = -0.01, p = .90$). The multilevel analysis inspecting the effect of Extraversion on Emotional support controlling for Experienced maltreatment showed a significant effect of Extraversion on Emotional support ($b = -0.09, p = .01$; Table 3), indicating that participants scoring lower on Extraversion score higher on Emotional support, when controlling for experienced maltreatment. To examine model fit, a chi-square test was computed. The chi-square test was significant, showing that the model was a good fit for the data as the model as a whole was significant ($\chi^2 = 6.85, p = .03$).

Table 3. Results of the multilevel model investigating the effect of Extraversion on Emotional support controlling for Experienced maltreatment ($N = 22$).

Fixed effects				
	<i>b</i>	<i>SE</i>	t-value	<i>p</i>
Dependent var.:				
Emotional support.				
Intercept	0.08	0.20		.68
Extraversion	-0.09	0.03	-2.85	.01
Experienced maltreatment	-0.04	0.05	-0.79	.44

Results from the multilevel model shown in Table 3 also show the result of step 4, aimed at investigating Path c'. There was no significant effect of Experienced maltreatment on Emotional support when Extraversion was taken into consideration. Figure 3 depicts the mediation model of Extraversion, with the significant and non-significant pathways. The Sobel-test (Kenny, 2014) was performed to investigate whether there was a significant mediating effect of Extraversion. This was not the case ($t = 1.89, p = 0.05$). Paths a and b were significant: there was a significant negative effect of Experienced maltreatment on Extraversion, indicating that parents who experienced childhood maltreatment were more introverted. Furthermore there was a negative effect of Extraversion on Emotional support: more introverted parents were more emotionally supportive. The pathway depicting the direct

effect, Path c, was not significant, indicating that there was no significant direct effect of Experienced maltreatment on Emotional support.

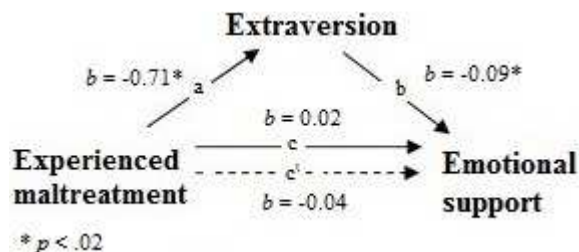


Figure 3. Mediation model of Extraversion.

Testing the mediating role of psychopathology on parental interaction. In this section the steps taken to investigate the mediating role of psychopathology variables Aggressive behaviour and Internalizing problems on the link between predictor variable Experienced maltreatment and outcome variables Emotional support and Warmth/lack of negative affect will be outlined. The mediation model and its pathways are depicted in Figure 2.

Step 1, testing Path c, was already conducted and described in the previous section: there was no significant effect of Experienced maltreatment on Emotional support, nor on Warmth/lack of negative affect.

The 2nd step was to test Path a, which depicts the effect of predictor variable Experienced maltreatment on mediators Aggressive behaviour and Internalizing problems. The multilevel method was unable to come to a conclusion. Therefore, results from regression analyses are reported. The regression model with Experienced maltreatment as predictor and Aggressive behaviour as the dependent variable as a whole was not significant ($F = 0.17, p = .68$), nor did it yield significant results ($b = 0.08, p = .68$). The model which contained Experienced maltreatment as predictor and Internalizing problems as dependent variable was also not significant ($F = 2.02, p = .17$), nor yielded significant results ($b = 0.62, p = .17$).

As there were no significant results in step 1 and step 2, it was not necessary to undertake step 3 and 4 because there cannot be a mediating effect of psychopathology variables Aggressive behaviour and Internalizing problems on the relationship between Experienced maltreatment and Emotional support, nor Warmth/lack of negative affect.

Discussion

The aim of this study was to investigate whether maltreatment experienced by the parent during childhood influences the quality of the interaction with his or her adolescent or young adult child. It was hypothesized that the interaction of maltreated parents with their adolescent or young adult children would be marked by higher levels of negativity and by less warmth. Furthermore, it was hypothesized that parental personality and/or psychopathology function as mediators in the association between experienced childhood maltreatment and the quality of parental emotional support and warmth/lack of negative affect in the interaction with their adolescent/young adult children.

The effect of experienced maltreatment on parental interaction. The adolescent and young adult developmental phases of children can be stressful periods for both the child and their parents. It is thought that these developmental phases can be particularly stressful for parents who have experienced maltreatment during childhood, as it is thought that these parents are less proficient in dealing with stressful situations with their adolescent or young adult child (Paikoff et al., 1991). This led to the expectation that parents' experiences of childhood maltreatment would influence the way the parents interact with their adolescent or young adult children. However, contradictory to expectations, there was no effect of experienced maltreatment on Emotional support or Warmth/lack of negative affect by the parent in interaction with their child.

There are a number of possible explanations for why this study failed to find a direct effect of experienced maltreatment on parental interaction. One potential explanation is that external factors could dampen the effect of maltreatment on the way parents interact with their young adult or adolescent children. For example, it could have been the case that factors such as receiving therapy, positive experiences within a partner relationship, or a positive relationship with a non-maltreating parent positively affected the negative mental representations that maltreated parents formed of their own parents and experiences with child maltreatment. In fact, Egeland, Jacobvitz and Sroufe (1988) have already found that these factors enable maltreated mothers to break the cycle of maltreatment as they found that maltreated mothers who did not maltreat their own children received more emotional support from a non-maltreating adult, had a stable, supportive and satisfying relationship with their partners and were more likely to having received therapy, whilst maltreated mothers who did

maltreat their own children were found to experience more stress and were more depressed, immature and anxious. These factors that were found to diminish the harmful effect of having experienced maltreatment may have enabled maltreated parents to cope with their childhood experiences, possibly causing the parents to be able to function properly in interaction with their adolescent or young adult children (Muller et al, 2012; Egeland, Jacobvitz & Sroufe, 1988; Egeland & Sroufe, 1981). This study did not examine whether maltreated parents also maltreated their own children. However, it could be the case that external factors generally influence how parents interact with their children, not just whether parents continue to maltreat or not. Therefore, investigating possible interaction effects of external factors that may have influenced the effect of childhood maltreatment and experienced maltreatment would have made it possible to gain more insight in which factors, if any, allowed parents in this sample to not let their childhood experiences affect how they interacted with their adolescent and young adult children, or whether childhood maltreatment simply did not affect the quality of parent-adolescent/young adult interaction in this sample. Unfortunately, this sample was too small to investigate such effects.

Another possible explanation for the lack of a significant effect of maltreatment on parental interaction could be the small sample size. The sample consisted of 22 participants of which 10 reported to have experienced maltreatment during childhood. The small sample limited the power to find significant results in this study.

In addition, it might have been the case that the maltreated and non-maltreated parents in this sample simply did not differ much from each other regarding how they interact with their adolescent and young adult children, as little variance appeared to be present in scores on the Family Interaction Task subscales. It could have been possible that the coding system that was used to analyse the videotapes was not specific enough, causing coders to overlook details in behaviour. The used coding system was based on the “Supportive Behaviour Task” coding system developed by Allen and colleagues (2001). The “Supportive Behaviour Task” coding system was successfully used in a study by Hare, Marston and Allen (2011) in a study investigating maternal acceptance and emotional communication in adolescents. It might have been possible that overlooking more detailed parental behaviour could have been circumvented by using the original coding system, possibly leading to finding a wider spread in behaviour, as this coding system also considered parental behaviour like engagement and dominance, which could have been important to study in this sample. Last, lack of variability in scores on the Family Interaction Task might have posed a problem when attempting to find

an effect of maltreatment. Emotional support had a mean score of 1.65 ($SD = 0.93$) and Warmth/lack of negative affect had a mean score of 2.30 ($SD = 1.29$). It has to be considered that the possible range of the scores on both FIT subscales was 1-9, indicating that all participants scored quite low on the subscales. This lack of variability might have made it impossible to distinguish between maltreated and non-maltreated parents. The problem here might also lie in the fact that the Family Interaction Task proved to be difficult for some of the families, as they were not used to discussing problems with each other. This problem will be evaluated in more detail in the “strengths and limitation” section of this paper.

The mediating role of psychopathology on the relationship between experienced maltreatment and parental interaction. Another aim of this study was to explore whether the presence of psychopathology mediates the association between experienced maltreatment and interaction with the adolescent or young adult child, as it is thought that other difficulties associated with the parent’s childhood experiences with maltreatment, like (mild) psychopathology, may cause these developmental stages to be more stressful compared to parents who have not been maltreated.

Previous studies have shown that experiencing childhood maltreatment is of influence of developing psychopathology later in life (Eisenberg, Spinrad & Eggum, 2010; Heim et al., 2008) and that interpersonal factors can mediate the effect of experienced maltreatment on psychopathology. In fact, Verona, Hicks and Patrick (2005) found that personality mediated the effects physical abuse on antisocial behaviour, whilst Sachs-Ericsson, Verona, Joiner and Preacher (2006) found that self-criticism mediates the effect of verbal abuse on the development of internalizing problems in adulthood. Since internalizing problems were present in the current sample ($M = 38.90$, $SD = 8.81$), it might be the case that the effect of maltreatment on the development of psychopathology is mediated by other factors not taken into account in the current study, which may be an explanation for why this study did not find a direct effect of maltreatment on internalizing problems, nor of psychopathology on parental interaction. The same explanation could be possible for aggressive behaviour, however, aggressive behaviour was only present at very low rates in the current sample. The range of total scores on aggressive behaviour was limited ($M = 20.66$, $SD = 3.96$): participants in this study scored low on aggression compared to internalizing problems. Aggressive behaviour simply might not have posed a problem for the participants, which forms a possible reason for why no effect of maltreatment on aggressive behaviour was found, nor of aggressive

behaviour or parental interaction. It has been found that the development of aggressive behaviour is associated with physical abuse (Lansford et al., 2007), whilst most participants reported emotional neglect and in addition, only two participants reported minor physical assault by the mother or father. It has been found that emotionally neglected children, compared to those who are physically maltreated have more internalizing problems like anxiety, depression and somatisation, and are less prone to having externalizing problems (Gauthier, Stollack, Messe & Arnoff, 1996). Due to the fact that emotionally neglected persons are more prone to internalizing problems and experience less externalizing problems this could be an explanation for why aggressive behaviour was not present in this sample.

Furthermore, parental psychopathology can negatively influence the relationship between parents and children (Mikulincer & Shaver, 2012; Caldwell et al., 2011). However, this study failed to find associations between psychopathology and parental interaction. A reason for this might be due to external factors unknown at this point. For instance, participants were recruited via a longitudinal study regarding anxiousness and depression. It might be the case that this study enabled parents to gain more insight in their behaviour and how it affects their parenting behaviour diminishing the likelihood to find an effect of internalizing problems on parental interaction. Unfortunately, there is not enough information about the participants available at this point to state these claims, as the possible effects of participating in previously mentioned longitudinal study was not known.

The mediating role of personality on the relationship between experienced maltreatment and parental interaction. It was investigated whether personality played a mediating role in the effect of experienced maltreatment on parental interaction. As only extraversion was associated to both experienced maltreatment and emotional support, mediation was investigated for only this variable. In the model testing the mediating effect of extraversion, the direct effect was not significant. Despite the fact that the hypothesis that personality mediates the association between experienced maltreatment and parental interaction was not proven, this study did find other significant effects of personality. Experienced maltreatment did not have an effect on neuroticism, but a negative significant effect of maltreatment was found on both agreeableness and extraversion, indicating that having experienced childhood maltreatment was associated with parents being less agreeable or less extravert.

Agreeable persons are generally found to be more compassionate, good-natured, complying and trusting, as opposed to interpersonal antagonism (Huver, et al., 2010; Rogosch

& Cicchetti, 2004). When considering the effect of experienced maltreatment on agreeableness, a previous study conducted regarding this topic by Rogosch and Cicchetti (2004) also found a negative effect of maltreatment on agreeableness in a sample of maltreated children. Furthermore, personality traits of these children were found to be relatively stable over time. Fosse and Holen (2007) found the same in their sample of adult psychiatric outpatients: adults maltreated as children scored lower on agreeableness. According to Rogosch and Cicchetti (2004), being maltreated causes children to be unable to achieve crucial developmental capabilities which are reflected in personality organization. It has become evident that childhood experiences are highly influential on child development. Furthermore, effects of childhood experiences can still be of influence on an adult's life, which could explain why the effects of childhood maltreatment are still evident in adult agreeableness.

Despite the negative effect found of experienced maltreatment on agreeableness, there was no effect of agreeableness on parental interaction. Previous findings about the influence of agreeableness on parenting have been inconclusive and even contradictory: agreeableness was found to be related to more supportive and responsive parenting (Losoya et al, 1997), but it has also been found to be associated to higher levels of coercive parenting (Prinz et al., 2004). It might be the case that agreeableness is a personality trait that can influence parenting in different manners: specific aspects of agreeableness may be related to different parenting qualities or inabilities, making it difficult to study this personality trait in relation to parenting, which might also explain why no effect was found of agreeableness on parental interaction.

When considering the effect of experienced maltreatment on extraversion, the results found in this study contradict earlier findings that experienced maltreatment was associated to higher levels of extraversion, more openness to experience and higher stimulation seeking behaviour (Pickering et al., 2004; Drerup Stokes, 2012). A side note, however, is that in those studies, this association was found predominantly with sexual abuse. It seems that studies focusing on the relationship between experienced maltreatment, personality traits and parental interaction are scarce (Pickering et al., 2004; Drerup Stokes, 2012). The fact that a negative effect of experienced maltreatment was linked to being less extravert might be due to all maltreated parents ($N = 10$) in the current study reporting to have experienced emotional neglect by either their mother, father, or by both, in addition to six parents also reporting another form of maltreatment. Emotional neglect is characterized by a lack of warmth, nurturance and support by the caregivers, along with limited opportunities and developmental

stimulation (Cicchetti & Toth, 2005; Dubowitz, Pitts & Black, 2004). Not receiving developmental stimulation, nor nurturance and support from their parents may have caused emotionally maltreated parents to revert into themselves, leading to a more introverted disposition.

Furthermore, the significant negative effect of extraversion on emotional support was surprising as it would have been expected that more extravert parents would be more emotionally supportive as this would have been in line with previous findings that more extravert parents, as opposed to less extravert parents, show higher levels of support and control (Belsky & Barends, 2002; Losoya, Callor, Rowe & Goldsmith, 1997). In addition, experienced maltreatment was associated with being less extraverted. Extravert persons are often characterized as being more outgoing, talkative and energetic, more often searching for external stimulation provided by the presence of other people, and need other people around them (Belsky & Barends, 2002; Hills & Argyle, 2001), whilst introvert persons are often found to be more reserved and less sociable. Introversion is often seen as the less preferred state and introverts are sometimes presented as being withdrawn and socially inept. Furthermore, introverts have the tendency of being predominantly interested and concerned with their own mental life (Storr, 1988). However, this interest and concern with one's own mental life might be a reason why more introvert parents show more emotional support. It is possible that more introvert persons spend a lot of time overthinking their own emotions and experiences and may be more in tune with their emotions, leading to them possibly being more sensitive to the emotions of others, especially their own children. Introversion does not imply a lack of interest in others and they may be less likely to be very sociable, but that does not indicate that they are incapable of social behaviour.

The fact that no link was found between experienced maltreatment and neuroticism could be seen as puzzling, since neuroticism has been found to be associated with all types of maltreatment (Pickering et al., 2004). Neuroticism is seen as the opposite of emotional stability and is marked by tenseness, irritability, anxiousness, depression and lack of confidence (Huver et al., 2010; Kendler et al., 1997) and has been genetically linked to mood and anxiety disorders (Krueger & Tackett, 2003). This makes it seem that the neurotic personality style could be considered as a form of psychopathology. In this study, internalizing problems and neuroticism are correlated with each other ($r = .78$, $p = .01$), providing further evidence for this claim. The same explanations for why no effects were found on of experienced maltreatment on internalizing problems, nor of internalizing

problems on parental interaction could be applicable for neuroticism as well, as these variables are seemingly closely linked to each other.

Strengths and limitations. Beside the problems this study faced due to the small sample size and lack of variability in FIT subscales, this study faced additional difficulties. Another problem with the sample size that was not mentioned previously is related to the within family nestedness of the data. Therefore, multilevel modelling was advised. However, not only the number of families was small, but the families in itself were small as well. This may have been the reason why when running multilevel models, the analyses could often not come to conclusions. Because of this problem it was chosen to also compute regression analyses, to compare the results of the regression analyses with the results of the multilevel analyses and to report on the regression when multilevel models were unable to come to a conclusion. A negative aspect of ordinary least squares regression in this case was that it does not take into account nestedness of the data, and with 47 % of variance in Warmth/lack of negative affect being due to between-family factors, nestedness of the data appeared to be present and should have been taken into consideration. As this was not possible in many of the analyses, the results of this study should be considered and interpreted with care. Furthermore, when using multilevel analyses it is less likely to find significant results compared to ordinary least squares regression. Therefore, not finding any significant results with OLS, makes the chance of finding them with multilevel even smaller. Another problem that arose with regression analysis was that assumptions of linearity of all the relationships between variables and homoscedasticity were violated. Transforming the data was to no avail. Most likely, the violations of assumptions caused the found results in this study to be biased. Furthermore, the small sample size makes it difficult to generalize beyond the sample population. The small sample and the lack of variance of the FIT subscales made it impossible to investigate differences between parents with young adults and parents with adolescents. That is a pity, as it may have been possible that differences between these developmental stages of the child influence the interaction between parent and child. It would have been interesting to be able to investigate these possible differences. Furthermore, the age range of the children formed another problem. It might be possible that the sample size was too small, whilst the age range (12-26) of the children was too broad, leading to a sample that was not homogeneous which further limited the possibility to find meaningful results.

This study encountered a possible weakness of the FIT: being put into the situation of having to discuss a problem in front of a camera may be difficult for some parents and their adolescent and young adult children. It may be the case that this situation did not evoke the same behaviour these families would have shown in their home environment. In some families, problems were simply not discussed at all. In fact, some parents and adolescents/young adults mentioned on the video-tapes that they found the situation weird, that they normally did not discuss problems this way, or that they never have any conflicts worth discussing. It may be the case that the behaviour asked for in the FIT is not realistic behaviour for some families participating in this study, causing the found results to be biased as the FIT attempted to capture behaviour that is normally not shown by these families. However, despite the fact that for some families, discussing problems is not natural behaviour, the use of an interaction task to observe the quality of interaction between parent and child can be seen as a strength. Video-taping parent-child interaction made it possible to objectively observe how parents interact with their children, instead of relying on self-report questionnaires, as objectively reporting your own behaviour may be difficult. Furthermore, the FIT has been successfully used in a previous study focusing on the interaction between parents and their adopted adolescent children (Beijersbergen, 2008) and in studies by Allen and colleagues (2003, 2006), investigating interaction between mothers and adolescents (Allen, et al., 2003; Allen, Porter, Land, Insabella, Smith & Phillips, 2006). However, it might be possible that differences between the samples in those studies and the sample in this study, for example on variables on SES or education, might account for the difficulties encountered with the FIT in this study. That should be closely examined once the data-collection is completed.

Recommendations for future research. The most important recommendation is to repeat the analyses conducted in this study once the data collection has been completed and data of 60 families is available, as the small sample size posed many problems in this study and is one of the possible reasons why this study failed to find significant results. Furthermore, the small sample size made it impossible to differentiate between parents of adolescents and parents of young adults. Since these age groups go through different developmental stages it would have been interesting to know whether these developmental stages elicit different parental emotions and reactions in interaction with their children, and whether parental personality and psychopathology affects parental behaviour differently during those developmental stages.

Another recommendation is to take into account additional factors, besides psychopathology and personality, that can potentially influence the effect of experienced maltreatment on parental interaction. In this study it is unclear whether effects were not found due to the small sample size, or due to the fact that effects of experienced maltreatment on parental interaction simply were not present in this sample. Therefore, repeating analysis and taking into account additional influencing factors is advised. Data on additional parental factors have been collected but data collection is not yet completed and the sample in this study was too small to consider other factors that could be of influence on parenting behaviour. Factors that can possibly be of influence and should be taken into consideration are whether maltreated parents received therapy to process their experiences with childhood maltreatment or psychological problems that may possibly have arisen due to their childhood experiences, whether they experience a supportive relationship with their partner, a positive relationship with one or both of their parents or whether they have a large social network. Positive experiences in therapy, with a partner or other people close to the maltreatment parents may have enabled these parents to cope with their childhood experiences and potential problems associated with their experiences, causing them to be able to deal with stressful events related with their adolescent or young adult children in a more positive manner.

Not only parental factors are of influence on how a parent interacts with his or her children: child factors also play a role. Since interaction is a mutual and reciprocal action, focusing on both parties can be important as both parent and child are active participants of an interaction. In future studies it would be interesting to investigate the role of adolescent and young adult children in interaction with their maltreated parent. Do specific personality traits of children influence the way that maltreated parents interact with their young adult or adolescent children and do specific personality traits of the child elicit specific responses of the parent? Could it be possible that maltreated parents are more sensitive to specific child personality traits and do they respond differently towards their child in interaction? Since maltreated parents are more sensitive for stressful situations and developmental phases of their children, it might be a possibility that they are also more sensitive to differences in child behaviour that is due to child personality traits (Paikoff et al, 1991).

Conclusion. The hypothesis that parental experiences with maltreatment during childhood influenced parental interaction with their young adult or adolescent child was not confirmed. In addition, the hypothesis that parental personality and/or psychopathology functioned as

mediators in the association between experienced maltreatment and parental interaction was also not confirmed. However, significant negative effects of experienced maltreatment on agreeableness and extraversion were found, indicating that childhood maltreatment can be linked to a less agreeable and more introverted disposition in adulthood. Furthermore, being introverted was found to be associated to more parental emotional support in interaction with adolescent/young adult children. These tentative findings expand the scarce literature on the effect of maltreatment on personality in adulthood and of the influence of personality traits on parental interaction. These topics are generally studied in the light of personality disorders, which is not surprising, as the development of personality disorders has been linked to (specific types of) maltreatment and they can severely disrupt the parent-child relationship. It is important to also pay attention to the effect of maltreatment on personality and the effect of personality on parental interaction, as maltreated parents might face parenting difficulties due to their personality disposition. Gaining more insight in how parenting is affected by personality traits and how the development of specific personality traits are affected by maltreatment might aide in providing more insight in how to assist these maltreated parents and their children, when they need it.

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