CHILD MALTREATMENT AND
PSYCHOPATHOLOGY IN A CROSS-CULTURAL
CONTEXT

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Child Maltreatment and Psychopathology in a Cross-Cultural Context

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To my pillars of strength: Bhupendar, Mummy, & Neeraj

& in loving memory of my dear father

Soar To Achieve
Child Maltreatment and Psychopathology: General Introduction
Introduction

Abuse and neglect among children and adolescents is considered to be a serious failure of the care-giving environment and is associated with detrimental outcomes including, impairment in cognitive, affective, and psychosocial performance (Bolger & Patterson, 2001; Hildyard & Wolfe, 2002; Rogosch, Oshri, & Cicchetti, 2010). Childhood is an important developmental stage of life. Along with the rapid physical growth, changes occur in emotional maturity, cognitive understanding, and self-regulatory capacities. Damage during this sensitive period may cause chronic or even irreversible changes in the developing individual. Hence, the study of child maltreatment is essential to understand the processes it induces and to design interventions for curbing its repercussions.

Although children have been abused and neglected for centuries, the impetus and recognition of child maltreatment as a social problem came in the 1960’s with a landmark paper on the “battered child” (Kempe, Silverman, Steele, Droegenmueller, & Silver, 1962). This led to an increase in awareness of the negative impact of overt and intentional physical abuse. The initial studies on maltreatment focused mainly on acts of commission, namely, physical and sexual abuse, while the assessment and study of emotional abuse and neglect received far less attention. Today it is well documented that child neglect and emotional/psychological abuse is equally concerning, if not more, than incidents of physical or sexual abuse (Hildyard & Wolfe, 2002; Wekerle et al., 2009; Yates 2007).

Prevalence of Childhood Abuse and Neglect

Much research has focused on understanding how widespread of a problem child maltreatment is, and hence a number of national epidemiological studies have focused on its prevalence and incidence rates (e.g., Fourth National Incidence Study of Child Abuse and Neglect, Sedlak et al., 2010; National Survey of Children's Exposure to Violence [NatSCEV], Finkelhor, Vanden minden, Turner, Hamby, & Shattuck, 2014; Netherlands Prevalence Study of Maltreatment of Children and Youth [NPM-2010], Euser et al., 2013; UNICEF, 2014). One impediment in gauging the estimates of child abuse and neglect has been the definition used to identify a victim (Pereda, Guiler, Forns, & Gomez-Benito, 2009; Stoltenborgh, van IJzendoorn, Euser, & Bakermans-Kranenburg, 2011). Definitions vary because of their reliance on a social judgment process that is
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often influenced by the cultural norms of the country in which the study was performed. The way in which abuse and neglect is defined and operationalized affects the estimated prevalence rates of maltreatment. Some studies gauge abuse or neglect based on broad questions, for example “Were you ever sexually abused,” others assess more behavior-specific events (e.g., Were you hit by a hard object; in the Childhood Trauma Questionnaire [CTQ]; Bernstein et al., 2003). Studies indicate the rates of emotional maltreatment as 7-22% (reviewed in Chamberland, Fallon, Black, & Trocme, 2011), of sexual abuse as 19.7% (16.7-23, 95% CI) for women and 7.9% (6-10.3, 95% CI) for men (reviewed in Pereda et al., 2009), and of supervision neglect as 41.5% and physical neglect as 11.8% (Hussey, Chang, & Kotch, 2006). Notably these figures are based on data from the developed nations. While many developed countries have documented definitions of what constitutes child abuse or neglect, low- and middle-income nations have yet to do it. More recently in a meta-analysis of prevalence of child maltreatment reported in studies from across the globe using self-reports and informant reports, Stoltenborgh, Bakermans-Kranenburg, Alink, and van IJzendoorn (2014) indicated prevalence rates from self-report studies to be 7.6% and 18% for sexual abuse among boys and girls, respectively, 22.6% for physical abuse, 36.3% for emotional abuse, and nearly 17-18% for physical and emotional neglect. Further, this study reported strikingly low rates for the three types of abuse (range = 0.3-0.4%) when assessed by informant reports.

Need for the Study of Child Abuse and Neglect in India

With increasing awareness, many policies and practices today are directed towards the protection and well-being of children. Despite measures, UNICEF (2012) reports that annually nearly 500 million to 1.5 billion children across the world face some kind of violence. Lack of data and research from low- and middle-income countries makes it hard to pinpoint the prevalence of this problem (Stoltenborgh et al., 2014). One among such nations is India, which is home to nearly 19% of the world's children among which 40% are in need of care and protection. Over the past few decades, the issue of child maltreatment in India has been highlighted by many researchers and academics (Aggarwal et al., 2009; Segal, 1999; Srivastava, 2012). However not many studies related to the prevalence of child abuse and neglect and related psychopathology have been conducted in this country. One reason for this may be due to the absence of a clear legal definition of the maltreatment construct keeping in view the Indian context where
incidents of abuse are seldom reported or punished and in some cases are not acknowledged as abuse (Segal, 1999). National level surveys and reports have been documented regarding prevalence of child maltreatment in India (e.g., Kacker, Varadan, & Kumar, 2007) but these fail to take all the states/provinces of India into account and have not focused on the various dimensions of abuse. Additionally, in the year 1992, India became a signatory to the United Nations Convention on the Rights of the Child (CRC or UNCRC) which prescribes adherence to securing protection of children against economic, sexual, mental, and physical exploitation and abuse, alongside ensuring that children would not be separated from their families against their will. Some efforts have been made in this direction such as the opening of child helplines in a few states. However, till date no legislation has been passed in India which pertains to child abuse and neglect.

Assessment of Childhood Abuse and Neglect: Reference to the Childhood Trauma Questionnaire

Numerous measures exist for the assessment of child abuse and neglect, including self-reports, and interviews for childhood trauma. While some assess categories of abuse and neglect and the severity level within each type of maltreatment (e.g., CTQ; Bernstein et al, 2003), others also assess characteristics of maltreatment in addition to the type and severity (e.g., nature of abuse, duration, frequency; Computer Assisted Maltreatment Inventory [CAMI], DiLillo et al., 2010; Maltreatment Classification System [MCS]; Barnett, Manly, & Cicchetti, 1993).

The validity of retrospective reports on childhood maltreatment has been much debated. However, studies indicate these reports to be stable over time, and in agreement with collateral reports and archival data (Brewin, Andrews, & Gotlib, 1993; Widom & Morris, 1997; Widom & Shepard, 1996). In addition, studies indicate that use of behavior-specific questions facilitates recollection of abuse incidents. Such questions help in clarifying what is being asked and also in triggering memories that might not be retrieved by more general questions (Finkelhor, 1994; Wyatt & Peters, 1986). One popular self-report measure that has been developed to obtain information on childhood abuse and neglect from participants over the age of 12 years is the Childhood Trauma Questionnaire (Bernstein & Fink, 1998; Bernstein et al., 2003). It consists of 28 self-report items among which 25 items assess for five types of abuse and neglect, namely,
emotional, physical, and sexual abuse, and emotional, and physical neglect. A description of the five types of maltreatment as assessed through the CTQ is provided in Table 1.1. The five subscales or factors have been found across diverse populations (e.g., adolescents, substance-abusers, sex-workers, community dwellers) and nations (e.g., Canada, Norway, The Netherlands, United States of America). Attesting to the CTQ’s original construct validity, studies have found no difference in the factor structure across gender, race, or clinical and non-clinical samples (e.g., Bernstein et al., 2003; Forde, Baron, Scher, & Stein, 2012; Thombs, Lewis, Bernstein, Medrano, & Hatch, 2007), although studies differ somewhat in reported error covariance, cross-loadings or item deletion (Bernstein et al., 2003; Dovran et al., 2013; Forde et al., 2012; Thombs, Bernstein, Lobbestael, & Artinz, 2009; Thombs et al., 2007). However, not all studies using the measure have reproduced the original factor structure and often the dimension of physical neglect is reported to be weak in terms of item factor loadings. More recently, two studies from South Korea and Sweden indicated that the reverse scored items of physical neglect (item 2 and 26: items related to tangible needs like ‘wear dirty clothes’ and ‘parental substance use related neglect’) load on emotional neglect (Gerdner & Allgulander, 2009; Kim, Park, Yang, & Oh, 2011). There are also studies that have failed to replicate the five-factor model of the CTQ. Some studies obtained a four-factor structure suggestive of either a combination of emotional abuse and physical abuse in a Swedish sample (Lundgren, Gerdner, & Lundqvist, 2002) or the exclusion of physical neglect when its items failed to load on the respective factor as was done in a study on sex workers in The Netherlands (Villano et al., 2004). As most of the studies on the structure of the CTQ have been performed in western or high income countries, examination of the factor structure of the CTQ in a novel sample from a non-western, developing country such as India might add to our knowledge of the universality of its psychometric strength.

Associated Risk Factors: Gender

Prevalence rates of abuse and neglect differ across males and females. In some studies, rates of physical abuse are reportedly higher in males than in females (Chen & Wei, 2011; Thompson, Kingree, & Desai, 2004), and rates of sexual abuse are reported to be higher in females (Häuser, Schmutzer, Brähler, & Glaesmer, 2011; Pereda et al., 2009).
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Table 1.1

Description of the scales of the Childhood Trauma Questionnaire (CTQ)

<table>
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<tr>
<th>Type of Maltreatment</th>
<th>Description used in the CTQ</th>
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<tr>
<td>Emotional abuse</td>
<td>Verbal assaults on a child’s sense of worth or well-being, or any humiliating, demeaning, or threatening behavior directed toward a child by an older person</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>Bodily assaults on a child by an older person that pose a risk of, or result in injury</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>Sexual contact or conduct between a child and an older person; explicit coercion is a frequent but not essential feature of these experiences</td>
</tr>
<tr>
<td>Emotional neglect</td>
<td>Failure of caregivers to provide for a child’s basic psychological and emotional needs, such as love, encouragement, belonging, and support</td>
</tr>
<tr>
<td>Physical neglect</td>
<td>Failure of caregivers to provide for a child’s basic physical needs, including food, shelter, safety and supervision, and health</td>
</tr>
</tbody>
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Conversely, higher levels of physical abuse in females were reported in a nationally representative study from the US (Keyes et al., 2012) and higher levels of sexual abuse in males in studies from Malaysia, India, and China, respectively (Choo et al., 2011; Kacker et al., 2007; Leung, Wong, Chen, & Tang, 2008). Notably, the latter are all developing nations in Asia and the results stand in contrast to findings from countries in the western hemisphere. Researchers of these studies reasoned that higher sexual abuse in males found in these countries may be due to the absence of a safety net for boys which girls come under as they are kept under stricter vigilance by adults, in comparison to boys. Few studies assess for gender differences in emotional abuse and neglect; of those that do, some indicate a preponderance of females over males reporting emotional abuse (among South Korean youth; Lee & Kim; 2011) and neglect (among a nationally representative adult sample from the US; Keyes et al., 2012), while others show the opposite (among Malaysian adolescents: Choo et al., 2011). Still others found no gender difference on emotional abuse (among German adolescents and adults; Häuser et al.,
2011). In India, the social problem of “girl-child neglect” is observed wherein having a male child is preferred over having a female child, and females are more often neglected as compared to her male sibling. This was also posited in an earlier report (Poffenberger, 1981) and more recently in a 2007 national survey which indicated that nearly 71% of Indian girls report neglect (Kacker et al., 2007). Thus, several findings indicate that addressing gender differences in exposure to different types of maltreatment in Asia’s developing countries is needed and the study of gender differences on neglect is of prime importance.

Associated Risk Factors: Role of Ecology

Ecological theory states that the individual and the family are embedded in a social environment and a cultural milieu which exerts considerable influence upon their development and functioning (Belsky, 1980). Drawing heavily from Bronfenbrenner’s model of ecology of human development (Bronfenbrenner, 1977), this interactive process vis-à-vis child maltreatment, takes into account the complex interplay between individual (e.g., temperament, (dis)abilities), family (parents education, income), community (conflicts, neighborhood) and societal (cultural norms for child care, policies and legislations) risk factors that influence the well-being of an individual. Each of these spheres may influence the prevalence of child maltreatment, but until now they have not been systematically addressed in Indian studies on this subject. Two factors may be of specific relevance to the Indian context, family structure and parental education.

Family Structure

Studies from the west assessing types of family constellations such as single parent or step-parent families report higher levels of abuse and neglect in children living in these families as compared to those living with both their biological parents (Berger, 2004; Turner, Finkelhor, & Ormrod, 2007). A study from Turkey indicated that parental recognition of emotional abuse is lower in large size families (Uslu, Kapci, Yildirim, & Oney, 2010). A 17-year prospective study assessing risk factors for child maltreatment based on official reports and retrospective youth self-reports in the Northeastern region of the US, pointed towards a three times increase in likelihood of having experienced childhood neglect when living in larger families, a result which was obtained from maternal interviews (Brown, Cohen, Johnson, & Salzinger, 1998). So, although family
constellation seems to be related to the prevalence of child maltreatment, it is unclear which constellation brings the largest risk.

With reference to India, the onus of taking care of a child lies directly on the family which is markedly patriarchal and the rights of parents and/or family are thought to be inviolable. With less support from outside agencies, including the government, the family has an important role to play in care-taking and well-being of children in the Indian society. Traditionally, in India family set-up is of a joint family which includes grandparents, parents, children and/or other extended family members living under one roof with a common pool of resources for survival and growth. Its nature is strictly hierarchical and patrilineal (Segal, 1999). Children in the unit are collectively looked after by the family and not just by the biological parents. Belief in the integrity of the family strengthens the family ties making the institution more stable. However, with the recent growth in economy, fast urbanization and associated migration, this family structure in India is quickly changing and giving way to nuclear family units. The latter comprises family units with (biological) parents and their children. While the debate on pros and cons of the breakdown of joint families into nuclear family units continues, a study on child victimization indicated that children from single-parent or nuclear families are physically and sexually victimized more often than their counterparts residing in a joint family (Deb & Modak, 2010). In addition, existing public opinion and the presence of more adults engaging in child-care activities (e.g., grandparents) in a joint family set-up gives an impression of it being more beneficial to a child/adolescent. Conversely, having more adult family members in the household might incur an increased risk of maltreatment of any type by these adults.

**Parental Education**

Parents’ level of education, especially maternal education, is another factor which has received some attention in the field of child abuse and neglect. With the mother being the primary care-giver in most cases, the relevance of her level of education for the well-being of the child has been emphasized (Brown et al., 1998; Kotch et al., 1995). In the two studies from the US, it was found that a mother without a High school degree was more likely to abuse or neglect her child than a mother who had graduated from High school. The relevance of fathers’ education with regard to child maltreatment is reflected in studies most related to physical abuse by mothers (Guterman, Lee, Lee, Waldfogel, &
Rathouz, 2009), sexual abuse (Lebanon; Usta & Farver, 2010), and neglect (Turkey; Polat et al., 2010). The overall message from these studies is that lower level of fathers’ education was associated with higher rates of child maltreatment, and some studies consider the paternal education level as a proxy for socio-economic status (e.g., Usta & Farver, 2010). Some studies indicate that fathers with a College degree as compared to those with less than a High school degree, was a protective factor for the child against maternal risk for child physical abuse independent of mothers’ level of education (e.g., Guterman et al., 2009). In societies with strong patriarchal ties such as India wherein the ascribed role of the father or the patriarch is of a decision maker and bread winner, and that of the mother is of child care and household chores, the investigation of the role of mothers’ and fathers’ level of education in child abuse and neglect would be informative, especially given the wide gender disparity in literacy in the country. Given the strong involvement of mothers in child care it would be of importance to know whether advanced maternal education might be protective against child maltreatment.

**Multiple Types of Maltreatment**

Before the start of the new millennium, most studies addressed child maltreatment as either a unified construct, operationalizing it as the presence or absence of abuse or neglect irrespective of the type (e.g., Thornberry, Ireland, & Smith, 2001), or looked at a specific type of maltreatment in isolation. Finkelhor and Dziuba-Leatherman (1994) suggested in their study that a field called “the general victimology of childhood” should be defined which should take into account the overlap and co-occurrence of different types of victimization from a developmental perspective (pp. 173). More recently, the importance of assessing the co-occurrence of different types of child maltreatment has gained importance with studies highlighting the concepts of “multi-type maltreatment” (Higgins & McCabe, 2000; Higgins & McCabe, 2001) and “poly-victimization” (Finkelhor, Ormrod, & Turner, 2007, 2009). The former focuses on the co-occurrence of different types of abuse and neglect in children, namely, physical abuse, sexual abuse, emotional abuse, and neglect and witnessing family violence, whereas the latter refers to a broader concept wherein a number of adverse conditions are experienced by a child. These may include child abuse and neglect, bullying victimization, physical assault, community or civil violence, property crimes, etc. Notably, studies on poly-victimization indicate that the most detrimental effect on the well-being of an individual is due to child abuse and neglect. For example, in a sample of 1,467 children aged 2-17 years, Finkelhor
et al. (2009a) gave presence of any type of child maltreatment or sexual assault additional weight in the poly-victimization score, as these experiences continued to play a salient role in predicting trauma symptoms even after controlling for other types of adversities. These concepts and related studies indicate that measuring a specific type of child maltreatment (e.g., sexual abuse), when types of abuse and neglect are concomitant, is a restricted approach in assessing for the negative outcomes of child maltreatment. In a similar vein, there are studies that highlight the relatively stronger negative consequences of the interactive effect of different types of maltreatment when compared with the experience of each type of maltreatment repetitively (Finkelhor et al., 2007). For example, being beaten repetitively by a parent may be relatively less harmful for a child than when he/she experiences both physical battering and sexual abuse. Nonetheless, this does not undermine the repercussions of chronicity or repetitive maltreatment, as suggested by a number of studies (Bolger, Patterson, & Kupersmidt, 1998; Thornberry et al., 2001).

Multiple Types of Maltreatment: A Cumulative Approach

Prior attempts to examine the effect of multiple types of maltreatment have taken various theoretical approaches. In the present thesis two approaches were employed to assess for the effects of multiple types of maltreatment, namely, the cumulative approach and interactive approach.

The former hinges on the cumulative risk theory originating from the classic Isle of Wight study (Rutter, 1979), and the model demonstrates that the more types of risk factors a person is exposed to, the higher the potential is for negative outcomes (Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Clemmons et al., 2007). Arata, Langhinrichsen-Rohling, Bowers, and O’Brien (2007), in a sample of 1,452 middle and high school youth, found that those who reported exposure to a larger number of different maltreatment types (e.g., presence of physical abuse, sexual abuse, and neglect) reported overall higher symptom levels of psychopathology than those who were exposed to one or two maltreatment type(s). Most studies addressing the cumulative effect of multiple types of maltreatment on psychopathology have either used a non-maltreated group for comparison (Higgins & McCabe, 2001; Shin et al., 2009), or have not compared the cumulative effect of multiple types of maltreatment against the effect of a single type (e.g., Clemmons et al., 2007; Shin, Hong, & Hazen, 2010; Vranceanu, Hobfall, &
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Hence, these studies fail to indicate the incremental risk for psychological problems when comparing multiple types of maltreatment with a single type of maltreatment.

Co-occurrence of Types of Maltreatment: An Interactive Approach

The interactive model draws attention to specific patterns of maltreatment types or their characteristics (Trickett, 1998). It is an extension of the cumulative risk theory. It looks beyond the sheer number of childhood adversities faced, and assesses for patterns of maltreatment/adversities. In recent times, researchers examining the co-occurrence of abuse and neglect involving children (Grasso et al., 2013; Nooner et al., 2010; Pears, Kim, & Fisher, 2008), adolescents (Romano, Zoccolillo, & Paquette, 2006), and young adults (Armour, Elklit, & Christoffersen, 2014; Berzenski & Yates, 2011) have preferred to employ person-centered analysis (e.g., latent class/profile analysis) over variable-centered analysis. This interactive approach has been strongly recommended for aggregating multiple types of maltreatment in children and adults (Roesch, Villodas, & Villodas, 2010). Studies that have used this approach differ in the use of measures for the assessment of child maltreatment and in the range of adversities assessed, and hence the numbers of classes or mutually exclusive profiles found across these studies differ. For example, Pears et al. (2008) assessed patterns of five types of maltreatment and severity within each type using the Maltreatment Classification System (Barnett et al., 1993) and found four classes showing moderate to high levels of maltreatment in a maltreated sample of pre-school children in foster-care. These profiles were broadly indicated as (a) supervisory neglect/emotional maltreatment, (b) sexual abuse/emotional maltreatment, (c) physical abuse/emotional maltreatment/neglect, and (d) sexual abuse/physical abuse/emotional maltreatment/neglect. On the other hand, Grasso et al. (2013) found a three-class solution in a sample of allegedly maltreated children characterized by (a) high victimization across physical and sexual abuse, and parental intimate partner violence, (b) high rates of physical abuse and intimate partner violence, and (c) high rates of physical abuse only. At this point in time it is difficult to pinpoint the exact patterns seen in certain populations (e.g., children) and more research is needed to come to a conclusive typology of different maltreatment types observed across samples vis-à-vis their context. Nonetheless, the results from these studies bring to the forefront that different types of maltreatment may co-occur in different children and constitute distinct patterns of maltreatment.
Another paradigm in the child maltreatment literature emphasizes the importance of assessing the severity of maltreatment. Related studies indicate that differential effects on psychopathology are visible only when the severity within each type of maltreatment is taken into account (English et al., 2005; Litrownik et al., 2005; Pears et al., 2008). For example, in a sample of 519 children with alleged and substantiated maltreatment, it was found that severity of maltreatment within each type as compared to mean severity level, and total severity level across types of maltreatment, was differentially related to psychopathology related outcomes such as internalizing and externalizing problems, and trauma symptoms (Litrownik et al., 2005).

Child Maltreatment and Psychopathology

The evidence to substantiate the seriousness of child maltreatment is well-documented by cross-sectional and longitudinal studies which indicate its association with a myriad of negative psychological outcomes. As mentioned previously, child abuse and neglect have been implicated in the etiology of a broad spectrum of social, cognitive, emotional and behavioral problems. Studies indicate that abuse and neglect in children and adolescents is related with mood disorders, suicide ideation, self-harm, PTSD, substance use problems, delinquency and conduct problems, withdrawn behavior, and personality pathology (Natsuaki, Cicchetti, & Rogosch, 2009; Rogosch & Cicchetti, 2004; Rogosch, Oshri, & Cicchetti, 2010). However, the negative impact of childhood abuse and neglect is in no way limited to the stages of childhood or adolescence, as studies have consistently demonstrated its long-term impact in adulthood (Afifi et al., 2011; Fergusson, Boden, & Horwood, 2008; Johnson, Cohen, Brown, Smailes, & Bernstein, 1999; Nikulina, Widom, & Czaja, 2011; Widom, Ireland, & Glynn, 1995; Zanarini et al., 2002).

In line with the recent attention devoted to the co-occurrence and severity of maltreatment, studies assessing related psychopathology outcomes have started to emerge. Studies on the effects of multiple types of maltreatment support that experience of multiple types of maltreatment or poly-victimization is in and of itself a risk for increases in psychopathology (Agorastos et al., 2014; Arata et al., 2007; Clemmons et al., 2007; Finkelhor et al., 2009a; Ford, Elhai, Connor, & Frueh, 2010; Ford, Grasso, Hawke, & Chapman, 2013; Grasso et al., 2013; Higgins & McCabe, 2001). In addition, studies indicate that among the myriad of childhood adversities, childhood abuse and neglect
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typically contribute the most to symptoms of PTSD, substance-use, delinquency, and other trauma symptoms (Finkelhor et al., 2009a; Ford et al., 2010; Runyan, Faust, & Orvaschel, 2002). Supplementary to the studies on effects of multiple types of maltreatment, those focusing on severity of maltreatment indicate that an increase in severity of maltreatment leads to an increase in maladaptation, including suicide attempts, substance use, aggression, and internalizing problems (Clemmons et al., 2007; Easton, Renner, & O’Leary, 2013; Garrido, Taussig, Culhane, & Raviv, 2011; Hyman et al., 2008; Manly, Kim, Rogosch, & Cicchetti, 2001). Despite the abundant evidence, a few gaps in our knowledge on the adverse effects of child maltreatment on psychopathology related outcomes remain. Specifically, the effects on adolescent personality pathology and on patterns of adolescent substance use are as yet unclear. In addition, gender effects in the association between maltreatment and psychopathology have not yet gained due attention.

Child Maltreatment and Personality Pathology in Adolescents

A far less researched area of psychopathology among children and adolescents pertains to personality problems, and it is even less researched in maltreated children/adolescents. Most studies on childhood maltreatment and personality problems are based on retrospective reports from an adult sample, and hence the nature of these associations at earlier ages is less known. Given evidence that personality develops from an early age (Caspi & Roberts, 2001; Hartup & van Lieshout, 1995), and personality problems can be reliably assessed in adolescence (Tromp & Koot, 2008, 2009) it becomes pertinent to study the evolving personality pathology traits in victimized children and adolescents.

Studies indicate that dimensions or traits of personality pathology (e.g., affect lability, low affiliation) show more stability over time than personality disorder (PD) diagnoses from adolescence to adulthood (Chanen et al., 2004; Johnson et al., 1997). The years preceding the publication of the DSM-5 (American Psychiatric Association [APA], 2013) witnessed the development and validation of tools that conceptualized and operationalized personality pathology using a dimensional model. The Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson, 2009) was developed and validated in an adult sample, following which the adolescent version of DAPP-BQ was validated (DAPP-BQ-A; Tromp & Koot, 2008,
2009, 2015). Though DSM-5 retained the original categorical approach to personality pathology it called for more research on a hybrid dimensional-categorical model for addressing problematic personality traits under section three of the DSM-5 (APA, 2013). Alongside there has been an increase in studies on dimensions/traits of personality pathology (e.g., paranoid personality disorder, obsessive compulsive symptoms or self-injurious behavior) in relation to abuse/neglect in children and adolescents (Gratz, Latzman, Tull, Reynolds, & Lejuez, 2011; Natsuaki et al., 2009; Nederlof, Van der Ham, Dingemans, & Oei, 2010) and young adults (Mathews, Kaur, & Stein, 2008; Yates, Carlson, & Egeland, 2008). Using the DAPP-BQ-A, Nederlof et al. (2010) in a study of 142 Dutch incarcerated juveniles, indicated that emotion dysregulation (i.e., a higher order personality pathology construct) was predicted by sexual abuse, and by the interaction effects between physical abuse and emotional neglect, and emotional abuse and emotional neglect. Similarly, physical abuse, and sexual abuse were associated with dissocial personality traits.

Child Maltreatment and Patterns of Substance use in Adolescents

An often reported problem associated with childhood adversities in adolescence is the use of substances. Adolescence is a stage when substance use typically begins and escalates. Considering the rapid changes both at individual and contextual levels, an adolescent can use substances to serve many functions. For example, substances can be used to cope with existing pressures and stressors, to indicate autonomy from parents, to facilitate social interactions with peers, to explore new sensations, and to experience the freedom of adulthood (Crosnoe, 2011; Maggs, Almeida, & Galambos, 1995). Adolescent substance use may range from simple experimental behavior to more pathological forms of use which may indicate early stages of addictive processes, or serious polysubstance use (Dierker, Vesel, Sledjeski, Costello, & Perrine, 2007; Shillington, Roesch, Reed, Clapp, & Woodruff, 2011). Additionally, substance use may range from use of one substance to use of many substances especially in individuals who have experienced childhood maltreatment (Armour, Shorter, Elhai, Elklit, & Christoffersen, 2014; Hakansson et al., 2011; Martinotti et al., 2009). Thus, it is important to assess for varying patterns of substance use while gauging their association with maltreatment. A few studies that have assessed for co-occurrence of use of substances (e.g., alcohol use, cigarette smoking, and cannabis use) using latent class analysis in adolescents support the
existence of subgroups based on patterns of substance use (Dierker et al., 2007; Shin, Hong, & Hazen, 2010).

**Differential Role of Gender**

Trends based on epidemiological studies on mental disorders, namely, the National Comorbidity Survey-Adolescent supplement (Merikangas et al., 2010) and National Epidemiological Survey on Alcohol and Related Conditions (NESARC; Trull, Jahng, Tomko, Wood, & Sher, 2010) from the US, the European Study of the Epidemiology of Mental Disorders based on data from Spain, The Netherlands, Belgium, Germany, France and Italy (ESEMeD; The ESEMeD/MHEDEA 2000 Investigators; 2004), the Netherlands Mental Health Survey and Incidence study (NEMESIS-2; de Graaf, ten Have, van Gool & van Dorsellaer, 2011), and the 2007 Australian National Survey of Mental Health and Wellbeing (NSMHWB; McEvoy, Grove, & Slade, 2011), indicate differences in prevalence rates of mental disorders across gender. In general, these studies show that females tend to report higher rates of mood and anxiety disorders, borderline and histrionic personality disorders, and other Cluster C personality pathology, and males are found to show higher rates of substance use problems, conduct problems and anti-social personality pathology. These studies thus demonstrate that gender plays a salient role in the exhibition of mental health problems. Furthermore, gender differences are also reported on types of maltreatment as mentioned previously. The above points necessitate the inclusion of gender as a potential moderator while assessing the relation between child maltreatment and psychopathology. Although maltreatment has damaging effects on both males and females, the expression of its psychological repercussions may differ.

**Issues addressed in the present thesis**

**Factor Structure of the CTQ in a Non-Western Country: Importance of Studying Child Abuse and Neglect in India**

Considering that a majority of the literature and measurement tools on child abuse and neglect come from western countries, it is pertinent to assess whether their findings generalize to a non-western setting. India, with a large portion of the population under the age of 18 years, has no legal definition for child abuse and neglect and no measurement tools have been constructed to measure these constructs. While it has been recognized at a
CHAPTER 1

societal, research, and policy level, that much more is needed to study abuse and neglect in India, no large sample study to date has been conducted to assess the factor structure of the existing western tools. Some may debate the authenticity of even assessing the factor structure of a western tool in a non-western sample; however, an initiative to do so would facilitate future studies.

With this in mind, the present thesis assessed the factor structure (using confirmatory factor analysis) of a well-established measure for child abuse and neglect known as the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998; Bernstein et al., 2003) in a large sample of adolescents from Jammu, India. In addition, the prevalence rates of the five types of maltreatment, namely, emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect were assessed, and compared to previous studies from the west (i.e., Germany, Canada, and the US) based on the CTQ. Furthermore, using a multiple indicators and multiple causes model (MIMIC) it was assessed if inclusion of covariates, namely, gender, type of family structure, mothers’ level of education, and fathers’ level of education had any impact on the factor structure of the CTQ, and if factors of abuse and neglect differed across these covariates. The results are discussed in Chapter 2 of this dissertation.

Findings based on its factor structure would promote the use of a western-based tool like the CTQ in a non-western population of Indian adolescents. Assessment of its factor structure in the presence of the covariates gender, family structure, and parental levels of education would play a two-fold role. First, it would determine the measurement invariance of the factor structure of child maltreatment experiences. Second, it would facilitate in determining the role of important covariates across the dimensions of abuse and neglect which in turn would help in understanding problems of child maltreatment unique to the social milieu in India. Additionally, the comparison of prevalence rates of types of maltreatment from the sample of Indian adolescents with other similar samples from the west using the CTQ would elucidate the cross-national differences in rates of child abuse and neglect. This would facilitate understanding the problem of child abuse and neglect in India relative to other countries from the western hemisphere. Such studies would provide impetus to research in child maltreatment and policy formulation in India.
General Introduction

Severity and Multiple Types of Maltreatment among Adolescents from India

Adhering to the recommendation of assessing the impact of multiple types of maltreatment via person-centered models (e.g., Latent Class/Profile Analysis; Roesch et al., 2010) the present thesis assessed heterogeneous groups of adolescents with multiple types of maltreatment reports with varying severity. As documented in Chapter 3, latent class analysis was carried out on a sample of adolescents from Jammu, India. The latent classes were based on items measuring level of severity within each type of maltreatment, namely, emotional, physical, and sexual abuse, and emotional and physical neglect. In addition, we also assessed whether these classes differed across dimensions of personality pathology (mentioned below). Findings from the present thesis could further add to literature suggesting the importance of the assessment of maltreatment based on types and severity (e.g., Pears et al., 2008). This in turn would emphasize the importance of the co-occurrence of different types of maltreatment. Such research would help in the formulation of specific interventions for specific groups of maltreated children or adolescents based on differential relations across personality pathology.

Unique versus Cumulative Effect of Physical and Sexual Assault on Patterns of Adolescent Substance use: National Survey of Adolescents from the United States

Based on the cumulative risk theory of maltreatment, the present thesis assessed the association between the unique versus the cumulative effect of physical and sexual assault with patterns of substance use in maltreated adolescents. In the study reported in Chapter 4 of the present thesis, assessment of maltreatment was limited to those adolescents with assault experiences which were severe incidents pertaining to physical contact as well as sexual assault. In addition, unlike abuse wherein the perpetrator is an older person in a position of authority (e.g., parent), a perpetrator of assault can be a person of any age and position. In the present thesis, assessment for physical and sexual assault incidents was carried out as these are most commonly reported by adolescents and adults. A sample of adolescents who reported experiencing physical and/or sexual assault was drawn from the National Survey of Adolescents of 1995 from the United States. Using information on alcohol use, cigarette smoking, chewing tobacco, non-prescribed use of medicine, and drug use, latent class analysis was conducted to obtain classes of substance use. Assessment was carried out to gauge if experiencing a single type of assault (physical or sexual) when compared with multiple types (both physical and sexual
assault), would be related more to membership of heavy polysubstance use classes than other less severe classes. Next, in line with the “gender paradox effect” (Loeber & Keenan, 1994), which states that in disorders with an unequal gender ratio, members of the gender with the lower prevalence rate tend to be more seriously affected in terms of comorbidity and poor outcome, assessment of gender non-congruent exposure to single type of assault (i.e., exposure to physical assault in females; exposure to sexual assault in males) was investigated vis-à-vis patterns of substance use. The results are documented in Chapter 4.

The findings of this study are thought to add to the extant literature supporting the cumulative risk theory and emphasize the need for qualification of maltreatment as a single type or co-occurring type. In doing so the differential association with constructs of patterns of substance use may become better visible. Additionally, the obtained latent classes on substance use would be the first to be investigated in a sample of adolescents with assault experiences.

Severity within Type of Maltreatment and Personality Problems: Role of Gender

The assessment of co-occurrence of maltreatment types and severity adds substantially to the literature highlighting the patterns of maltreatment; however, such assessment does not indicate any difference in functionality or well-being of individuals with varying patterns of maltreatment. To address this point, in Chapter 3 of the present thesis, the association between latent classes of maltreatment and personality pathology in adolescents was investigated. Since dimensions or traits of personality pathology show more stability over lifetime (i.e., adolescence to adulthood) than personality disorder (PD) diagnoses, personality pathology was conceptualized along the same lines (Tromp & Koot, 2008, 2009, 2010). In Chapter 3 of the present thesis, the maltreatment classes obtained from the latent class analysis, and gender were employed to assess differences across 17 lower-order dimensions of personality pathology in a sample of adolescents from India. Findings from Chapter 3 would add to the study of differential relation between patterns of maltreatment types on personality pathology in adolescents. This would reiterate the notion that by and large multiple types of victimization leads to greater risk for psychopathology. The role of gender as a moderator between the latent classes and personality pathology is also addressed in the present thesis.
General Discussion

The thesis closes with a general discussion of the findings of the studies reported in the preceding three chapters (see Table 1.2 for an overview). A comprehensive evaluation of the factor structure of the CTQ as a measure and the prevalence of child abuse and neglect in a sample of adolescents from India is discussed. Furthermore, attempts are made to highlight the importance of measuring patterns of multiple types of maltreatment and severity within each type. This helps to facilitate the understanding of various related psychopathology outcomes, including personality pathology, and patterns of substance use in adolescents across two data sets originating from India, and the United States. The chapter continues and presents the strengths and limitations of the studies. It ends with the presentation of conclusions and implications based on the current findings.
Table 1.2
Overview of Study Design, Samples, and Measures used in Chapters 2-4

<table>
<thead>
<tr>
<th>Chapter No.</th>
<th>Study design</th>
<th>N</th>
<th>Country</th>
<th>Ages</th>
<th>Outcome</th>
<th>Child Maltreatment measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Cross-sectional</td>
<td>702</td>
<td>India</td>
<td>13-17</td>
<td>Emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect.</td>
<td>Childhood Trauma Questionnaire</td>
</tr>
<tr>
<td>3</td>
<td>Cross-sectional</td>
<td>702</td>
<td>India</td>
<td>13-17</td>
<td>17 lower order dimensions of personality pathology on the DAPP-SF-A, namely submissiveness, cognitive dysregulation, identity problems, affect lability, oppositionality, anxiousness, low affiliation, suspiciousness, insecure attachment, narcissism, self-harm, stimulus-seeking, callousness, rejection, conduct problems, restricted expression, and compulsivity.</td>
<td>Childhood Trauma Questionnaire</td>
</tr>
<tr>
<td>4</td>
<td>Cross-sectional</td>
<td>918</td>
<td>United States</td>
<td>12-17</td>
<td>Latent classes based on a range of substance use including cigarette smoking, alcohol consumption, chewing tobacco, non-prescribed use of medicines, and illicit drugs</td>
<td>Survey-based items on physical assault and sexual assault</td>
</tr>
</tbody>
</table>
Abuse and Neglect in Adolescents of Jammu, India: The Role of Gender, Family Structure, and Parental Education

Ruby Charak
Hans M. Koot

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CHAPTER 2

Introduction

A plethora of studies have documented that exposure to childhood abuse and neglect increases the risk for psychiatric disorders, including mood and anxiety disorders (Phillips, Hammen, Brennan, Najman, & Bor, 2005), substance use disorders (Moran, Vuchinich, & Hall, 2004), personality disorders (Lobbestael, Arntz, & Bernstein, 2010), and psychosis (Morgan & Fisher, 2007). However, most of these studies have been performed in the developed nations while research on child abuse and neglect from the developing nations is scarce. One among them is India, where over the past few decades the issue of child abuse and neglect has been highlighted as an area of concern but well-conducted studies on its prevalence are still rare.

Child Abuse and Neglect in India and Reports from Western Countries

The largest survey on child abuse conducted in India was carried out in 13 states (out of 28) by the Ministry of Women and Child Development. It indicated that in the age group of 13-18 years, 23.2% of children not going to school face physical abuse and 26.5% face emotional abuse in family settings, while 30.5% of school-going children in this age face corporal punishment at school and 49.9% reported sexual abuse (Kacker, Varadan, & Kumar, 2007). Other studies conducted in India including the International Society for the Prevention of Child Abuse and Neglect (ISPCAN) survey, report the use of harsh physical disciplining methods by parents in 29% of the children (Runyan et al., 2010), and self-reports of physical punishment by 70% of the children with neglect rates of 35% (Zolotor et al., 2009). Still others report that 18-21% of adolescents face psychological or sexual violence (Deb & Modak, 2010). The rates of maltreatment documented from studies in western nations are 7%-22% for emotional maltreatment (reviewed in Chamberland, Fallon, Black, & Trocme, 2011), for sexual abuse it is 0%-53% for women and 0%-60% for men (Pereda, Guilera, Forns, & Gomez-Benito, 2009), while for supervisory neglect it is 41.5% and for physical neglect 11.8% (from the US; Hussey, Chang, & Kotch, 2006). Other studies using standardized measures like the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998; Bernstein et al., 2003) conducted on a community sample of 2504 German adolescents and adults indicated that 15% faced emotional abuse (EA), 12% physical abuse (PA), 12.6% sexual abuse (SA), 49.5% emotional neglect (EN), and 48.4% physical neglect (PN; Häuser, Schmutzer, Brähler, & Glaesmer, 2011). Another study based on the CTQ carried out among 433
undergraduate students in Canada showed that 33.8% faced EA, 19% PA, 15.6% SA, 41.3% EN, and 15.5% PN (Paivio & Cramer, 2004). However, the comparability of these figures with those from India is unknown.

Although the Indian studies give an impression of the prevalence of child abuse in India, they may not be generalizable to all states of India as several were not included. Notably, none of the studies included data from the state of Jammu and Kashmir. Some may argue and rightly so, that the reasons for high rates of child abuse and neglect are common across the country including poverty, low literacy rates, and patriarchal society, and hence generalizations can be made. However, Jammu, the winter capital of the Jammu and Kashmir, in particular has in recent times witnessed migration from many corners of the state owing to past terrorist activities in the state, for financial and educational reasons, and for job opportunities. Additionally, owing to its special legislative status under ‘Article 370 of the Constitution of India’ this state often lags behind the rest of India in executing important legislations. For example, corporal punishment in schools is prohibited in all states of India since 2009, except for in Jammu and Kashmir (South Asia Initiative to End Violence against Children [SAIEVA], 2011). Past studies highlight the increased risk of violence against children in societies which are in transition due to conflict or post-war (cf. Djeddah, Facchin, Ranzato, & Romer, 2000). Such reasons make it pertinent to explore the rates of maltreatment among children and adolescents of Jammu. To the best of our knowledge no research has been carried out in the field of child abuse and neglect in Jammu.

Important issues noteworthy about the studies performed on child maltreatment in India are the use of small samples, and the high variability in prevalence rates observed across the studies. Furthermore, the studies relied on information obtained from non-standardized instruments, thus hampering reliable comparison of prevalence rates within the nation and with those from studies in other countries. Given the limitations of the studies performed in India until now, it becomes imperative to assess child abuse and neglect in a sizeable sample using standardized measures that would truly characterize abuse and neglect in adolescents of India. In doing so, better child-welfare policy formulation at the national and international level would be facilitated.
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Childhood Trauma Questionnaire and its Factor Structure

One such measure is the Childhood Trauma Questionnaire (CTQ, Bernstein & Fink, 1998) and it was employed in the present study. Bernstein and Fink (1998) empirically derived the five-factor intercorrelated model of the CTQ measuring childhood abuse and neglect in adolescents and adults (details in section on measures). Studies using confirmatory factor analysis (CFA) based on diverse populations (e.g., adolescents, substance-abusers, sex-workers, community dwellers) and across nations (e.g., Canada, Norway, Netherlands, United States of America) have replicated the original factor structure which includes the dimensions of emotional abuse (EA), physical abuse (PA), sexual abuse (SA), emotional neglect (EN), and physical neglect (PN). The only difference observed among these studies is in error covariance, cross-loadings or item deletion (Bernstein et al., 2003; Dovran et al., 2013; Forde, Baron, Scher, & Stein, 2012; Thombs, Bersnstein, Lobbestael, & Artnz, 2009; Thombs, Lewis, Bernstein, Medrano, & Hatch, 2007). Further attesting to the CTQ’s original construct validity, studies have found no difference in the factor structure across gender, race, or clinical and non-clinical samples (e.g., Bernstein et al., 2003; Forde et al., 2012; Thombs et al., 2007). However, not all studies using the scale have reproduced the original factor structure. The dimension of PN is often reported as weak, in terms of item factor loadings. Two recent studies from South Korea and Sweden indicated that the reverse scored items of PN (item 2 and 26) load on EN rather than PN (Gerdner & Allgulander, 2009; Kim, Park, Yang, & Oh, 2011). On the other hand there are studies which have failed to replicate the five-factor model of CTQ. Some studies obtained a four-factor structure suggestive of either a combination of EA and PA in a Swedish sample (Lundgren, Gerdner, & Lundqvist, 2002) or the exclusion of PN when its items failed to load on to the respective factor as was done in a study on sex workers in The Netherlands (Villano et al., 2004). In the absence of a legal definition of child abuse and neglect in India, and a validated instrument for its assessment, a first essential aim of this study was to test the validity of the CTQ factors in adolescents from Jammu, and also use it to estimate the prevalence of the different types of maltreatment in the study sample.
Gender, Family Structure, and Parental Education as Correlates of Child Abuse and Neglect

Apart from reliably establishing the rates of abuse and neglect in adolescents from Jammu, it is also important to determine their demographic correlates to gain insight in factors potentially important for identification and prevention of maltreatment. Several studies, including one from India (cf. Deb & Modak, 2010), report differences in rates of abuse and neglect across gender. Most studies indicate that males face more PA as compared to females (e.g., studies from Taiwan, India, and South Korea; Chen & Wei, 2011; Kacker et al., 2007; Lee & Kim, 2011), and females face more SA (e.g., from Germany; Häuser, Schmutzer, Brähler, & Glaesmer, 2011; Pereda et al., 2009). Conversely, higher levels of PA in females were reported in a nationally representative study from the US (Keyes et al., 2012) and higher levels of SA in males in studies from Malaysia, India, and China, respectively (Choo, Dunne, Marret, Fleming, & Wong, 2011; Kacker et al., 2007; Leung, Wong, Chen, & Tang, 2008). Notably, the latter are all developing nations in Asia and the results stand in contrast to findings from western continents. These studies further suggest that the reason for higher SA in males may be the absence of a safety net which girls inadvertently come under as they are kept under strict vigilance by the adults as compared to boys. Of the few studies that assessed gender differences in EA and neglect, some indicate a preponderance of females over males on EA (among South Korea youth; Lee & Kim, 2011) and neglect (among a nationally representative adult sample from the US; Keyes et al., 2012), while others show the opposite (among Malaysian adolescents: Choo et al., 2011). Still others reflect found no gender difference on EA (among German adolescents and adults; Häuser et al., 2011). The study of gender differences in neglect is pertinent in India due to the social problem of “girl-child neglect” wherein having a male child is preferred over having a female child, and the latter is often neglected in favor of her male sibling. An early report (Poffenberger, 1981) and more recently documented by the 2007 national survey indicated that nearly 71% of girls report neglect in India (Kacker et al., 2007). However, the latter report failed to take into consideration males as victims of possible neglect. Given these findings we expected to find higher levels of PA and SA in males, higher levels of neglect reported by females, but no gender differences in EA.

Another important correlate is family structure which has a specific meaning in the Indian society. The system of joint family found in India has grandparents, parents,
children and/or other extended family members living under one roof with a common pool of resources for survival and growth. Traditionally, its nature is strictly hierarchical and patrilineal (Segal, 1999). While the debate on pros and cons of the breakdown of joint families into nuclear family units continues, a study on child victimization indicated that children from single-parent or nuclear families are physically and sexually more victimized than their counterparts residing in a joint family (Deb & Modak, 2010). On the other hand, a study from Turkey indicated that parental recognition of EA is lower in larger families (Uslu, Kapci, Yildirim, & Oney, 2010), and a study from the US pointed towards high rates of child neglect in larger families (Brown, Cohen, Johnson, & Salzinger, 1998). Since studies from India (e.g., Deb & Modak, 2010), and the presence of more adults (e.g., grandparents) in a joint family set-up gives an impression of being more beneficial for an adolescent, we explored if residing in such a set-up was a protective factor for the adolescent.

Parental level of education especially maternal education is another factor which has received much attention in the field of child abuse and neglect. The protective role of higher parental education vis-à-vis abuse and neglect of children is relevant to explore in the Indian society where education level shows large disparities across the population. With the mother being the primary care-taker in most cases, the relevance of her level of education and awareness for the well-being of the child have been emphasized (Brown et al., 1998; Kotch et al., 1995). The relevance of fathers’ education with regard to child maltreatment is reflected in studies related to PA (for a review see Guterman, Lee, Lee, Waldfogel, & Rathouz, 2009), SA (Lebanon; Usta & Farver, 2010), and neglect (Turkey; Polat et al., 2010). Of interest in the present study is to assess if higher maternal education has a mitigating role in child abuse and neglect, in a strong patriarchal society such as India. In this situation where the onus of child-care lies primarily on the mother while the father is largely the bread-winner, exploring the role of fathers level of education vis-à-vis child maltreatment becomes essential. Additionally, it is important to study the effect of parental level of education especially on PA and SA, in a society where harsh punishments are employed and sanctioned to discipline the child, and incidents of SA are often silenced to maintain the dignity of the family.
Study Aims

Against this background, the present study had three aims. First, to assess the original five-factor intercorrelated structure of the CTQ (Bernstein & Fink, 1998) in a sizeable sample of Indian adolescents using confirmatory factor analysis (CFA), cognizant of the weak PN factor reported in the literature. Since no study from India has ever assessed the factor structure of the CTQ, we hypothesized that the original five-factor structure would be found in the present study. The second aim was to assess the prevalence of abuse and neglect using the CTQ. While the CTQ definition of abuse is similar to that used by the Government of India report on child abuse (Kacker et al., 2007), use of the CTQ allows direct comparisons with international studies that used the same measure. Based on evidence from previous studies performed in India, it was hypothesized that in the present study the prevalence of abuse and neglect in adolescents would be higher when compared with studies from the west using the CTQ. Our third aim was to assess the relation of adolescent-reported abuse and neglect with demographic factors, namely, gender, family structure, maternal education, and paternal level of education. For this we employed a multiple indicators and multiple causes (MIMIC) structural equation model with gender, family structure (nuclear vs. joint), mothers, and fathers level of education as covariates, and their relation with the latent factors of abuse and neglect obtained from the CFA of the CTQ. We further hypothesized that gender would be related to the factors of abuse and neglect, with males reporting more abuse (even SA; Choo et al., 2011; Kacker et al., 2007; Leung et al., 2008) than females, and females reporting more neglect as compared to males in line with the social problem of “girl-child neglect” often reported in India. Given the conflicting findings from previous studies formulating a specific hypothesis on effects of family arrangement is difficult. However, it was hypothesized that more maltreatment would be reported by adolescents residing in nuclear families as compared to joint families under the expectation that the presence of grandparents and other adults in the home would have a protective effect. Further, in line with existing literature it was hypothesized that maternal and paternal education would be related to factors of abuse and neglect, with adolescents with higher educated mothers or fathers reporting less abuse and neglect as compared to their counterparts with less educated mothers or fathers.
CHAPTER 2

Method

Participants

Participants were 702 adolescents (41.5% female) in the age range of 13-17 years ($M = 15.24$, $SD = 1.46$) studying in grade 8 to 12 from four public (non-government) schools of Jammu, Jammu and Kashmir. Of these participants, 54.6% were residing in a nuclear family set-up (mean family size of 4.3 persons), while 45.6% came from a joint family set-up ($M = 7.5$ persons). Among those living in a nuclear family, 3.7% were from a single-parent family, while in the joint-family setup 6% of adolescents reported the presence of a single parent, and 0.01% reported the absence of parents. No inquiry about the death and/or absence of parent(s) was conducted. Of the adolescents, 96% reported their mothers’ education, 93.2% reported fathers’ education, 98.3% reported mothers’ occupation, and 95.6% reported fathers’ occupation. Higher Secondary school (12 years of formal schooling) completion or above was reported for 66.4% of mothers and 77.8% of fathers, while Secondary school (10 years of formal schooling) or lower was reported for the remainder. Most fathers (80.2%) were reported to be government officials or businessmen, while most mothers (80.9%) were reported to be house-wives. Most adolescents (81%) reported being Hindu by religious affiliation, followed by Sikh and Muslim (13.7% and 4%, respectively).

Procedure

Data were collected from schools using English as the teaching language. While the first author called out the statements in the questionnaire (to a class-room of students not more than 35), the participants were asked to select the most appropriate option. The process was facilitated by assistance provided by two graduate student volunteers who were acquainted with the nature of the study, and the sample under consideration. Care was taken not to interrupt the curriculum of the school and participants were told about the purpose of the study and the conditions of consent, confidentiality and anonymity were reiterated. In the absence of an ethical committee at University of Jammu, Jammu the study was discussed in detail with the school authorities and permission was sought for the conduct of the research. The study was conducted in line with the ethical guidelines laid down by VU University, Amsterdam, The Netherlands where it was designed and analyzed. All participants were given refreshments after the completion of the questionnaires. No record of refusal to participate was kept.
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Measures

Demographics. A sheet was prepared inquiring about the participant’s age, gender, family structure (nuclear or joint), parents’ educational level, and religious affiliation. Family structure was constructed based on family members other than mother, father, and children residing with the participant for at least the past one year. In addition, participants reported the total number of people residing in their home since one year. Dummy coding was carried out for gender (0 = female, 1 = male), family structure (0 = nuclear, 1 = joint), and each parent’s education level (0 = Secondary or lower, 1 = Higher Secondary school or above). The religions enumerated were based on the five major groups enlisted by the Census of India-2001 (Government of India, 2010), namely, (i) Hinduism (ii) Islam (iii) Christianity (iv) Sikhism (v) Buddhism, and (vi) Other. Detail about religious affiliation was collected with the sole purpose of emphasizing the inclusion of all major religious groups as a proxy for highlighting the diversity of the sample.

Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998; Bernstein et al., 2003). The CTQ is a 28-item retrospective self-report measuring five types of childhood experiences, namely Emotional Abuse (EA), Physical Abuse (PA), Sexual Abuse (SA), Emotional Neglect (EN), and Physical Neglect (PN). These dimensions are assessed by five items each and there are three additional items to gauge the likelihood of underreporting or denial of abuse and neglect (e.g., I had a perfect childhood). For the present study, the items of denial were not included in the analyses. The CTQ can be completed by participants aged 12 and above who are asked to respond to items on a 5-point Likert scale from “Never true” to “Very often true” (1-5) with the precursor statement being “When I was growing up.” Dichotomous measures of ‘no EA/PA/SA/EN/PN’ indicated by ‘0’ and ‘presence of EA/PA/SA/EN/PN’ indicated by ‘1’ for all the five dimensions of abuse and neglect were created using the classification specified by the authors of the CTQ (cf. Bernstein & Fink, 1998), for assessing prevalence rates. The CTQ demonstrates good reliability, including an internal consistency reliability coefficient ranging from a median .66 to .92 across a range of seven different samples, and test-retest reliability coefficient ranging from .79 to .86 over an average period of 3.6 months (Bernstein et al., 2003). In addition, convergent validity was indicated by significant correlations of CTQ scores with other trauma measures like clinician-rated interviews and therapist ratings of abuse and neglect (Bernstein & Fink,
CHAPTER 2

1998; Bernstein et al., 2003). Cronbach’s alpha (α) of the original dimensions of abuse and neglect on CTQ in the present study were low to moderate (see Table 2.1).

Data Analysis

Descriptive statistics were obtained using IBM SPSS version 20.0. Mplus 6.11 software (Muthén & Muthén, 2011) was used to run the CFA, and the MIMIC model, an application of structural equation modeling (Muthén, 1989). The latter was to determine the effect of gender, family structure, mothers’, and fathers’ level of education on the latent CTQ factors. The MIMIC model was carried out in two steps. First, we estimated the fit of the CTQ factor structure in our adolescent sample based on the existing five-factor intercorrelated model (Bernstein & Fink, 1998). The assumptions of univariate (no skewness/kurtosis values >1.35) and multivariate normality were not met. Thus, we used maximum likelihood estimation with robust standard errors (MLR) in CFA which calculates the scaled chi-square statistic (Y-B $\chi^2$; Yuan and Bentler, 2000), and is robust to non-normality. For the CFA model estimation, error covariances were fixed to zero while all the factors were inter-correlated. We used robust versions of goodness-of-fit indices which included the comparative fit index (CFI), Tucker-Lewis Index, (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). As recommended by Hu and Bentler (1999) excellent (or adequate) fit of models is obtained when CFI and TLI $\geq .95$ (.90-.94), RMSEA < .06 (to .08), and SRMR < .08 (to .10). Second, after obtaining the best fitting model, the covariates, namely gender, family structure, mother’s, and father’s education were added to the CFA model and simultaneous tests of the relation between the covariates and the latent factors of CTQ was carried out.

Results

Missing data were found on the two categorical variables of mothers’ education ($N = 38$) and fathers’ education ($N = 48$). Little’s MCAR test (Little & Rubin, 2002) indicated that the data missing were completely at random, $\chi^2 (25, N = 702,) = 21.39, p > .05$. Since no missing data was found on the CTQ we used the full sample data-set ($N = 702$) for the CFA model and for gauging the prevalence of abuse and neglect. Further, assessment of the MIMIC model was based on the sample after list-wise deleting the missing data ($N = 53$). No age ($t = 1.25, p > .05$) or gender ($\chi^2 = .09, p > .05$) difference
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were found between adolescents who did and did not provide information on parental education.

Factor Structure of the CTQ

The existing five-factor intercorrelated model of the CTQ (Bernstein & Fink, 1998; Bernstein et al., 2003) was tested in the adolescent sample using CFA. The model fit revealed a weak fit, Y-B $\chi^2 (265, N = 702) = 725.70$, CFI/TLI = .88/.86, RMSEA = .04 [90 % CI = .04-.05], SRMR = .06. The correlation between EN and PN was nearly 1 ($r = .996$), and three of the factor loadings on PN were less than .30 (see Table 2.1). Given this, and considering the weak factor structure of PN along with its two items (item 2 and 26, see Table 2.1) loading on EN, we decided to re-run CFA on the model with a four-factor intercorrelated model of EA, PA, SA and Neglect (NEG), with the latter comprising of 7 items derived from both neglect scales (cf. Table 2.1). This model showed an adequate fit to the data, Y-B $\chi^2 (203, N = 702) = 439.24$, CFI/TLI = .94/.93, RMSEA = .03 (90 % CI = .03-.04), SRMR = .04. The standardized factor loadings and factor intercorrelations are presented in Table 2.1 and 2.2, respectively.

Prevalence of Abuse and Neglect

Based on the CTQ classification (cf. Bernstein & Fink, 1998), 45.7% of the adolescents (36.4% female vs. 52.3% male) reported to have experienced some form of EA, 40.5% adolescents (24.7% female vs. 51.6% male) reported to have faced PA. SA was reported by 48% of the participants (34.7% female vs. 57.4% male). Finally, 60.1% (54% female vs. 64.5% male) reported that they had experienced EN, and 57.8% (49.8% female vs. 63.5% male) reported experiences of PN.

Based on z-tests for proportions when the current findings were compared with the study employing the CTQ in the German sample (cf. Häuser et al., 2011), significant differences were found on EA ($z = 17.43, p < .001$), PA ($z = 17.28, p < .001$), SA ($z = 20.59, p < .001$), EN ($z = 4.97, p < .001$), and PN ($z = 4.40, p < .001$) with the current sample displaying higher percentages on all maltreatment subtypes. Similarly, the present sample had higher percentages on EA ($z = 4.03, p < .001$), PA ($z = 8.13, p < .001$), SA ($z = 12.60, p < .001$), EN ($z = 6.26, p < .001$), and PN ($z = 16.58, p < .001$), when compared with the Canadian undergraduate student sample (cf. Paivio & Cramer, 2004).
### Table 2.1

Mean, SD, Skewness, Kurtosis, and Standardized Factor Loadings for the Five-factor, the Four-factor Models of the CTQ.

<table>
<thead>
<tr>
<th>Items of CTQ</th>
<th>Mean/SD</th>
<th>Factor loadings</th>
<th>Five factor model</th>
<th>Four factor model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean/SD (Skewness/Kurtosis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Emotional Abuse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(EA; $\alpha = .59$)</td>
<td>8.73/3.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Called names by family</td>
<td>1.94/1.22</td>
<td>.42</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.0/-.17)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Parents wished had never been born</td>
<td>1.50/1.08</td>
<td>.52</td>
<td>.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.13/3.41)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Family said hurtful things</td>
<td>1.84/1.22</td>
<td>.55</td>
<td>.56</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.27/-.09)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Felt hated by family</td>
<td>1.53/1.05</td>
<td>.51</td>
<td>.51</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.03/3.18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Was emotionally abused</td>
<td>1.91/1.23</td>
<td>.36</td>
<td>.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.09/-.01)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical Abuse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(PA; $\alpha = .71$)</td>
<td>7.93/3.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Hit hard enough to see a doctor</td>
<td>1.63/1.16</td>
<td>.53</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.83/2.21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Hit hard enough to leave bruises</td>
<td>1.51/1.03</td>
<td>.66</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.04/3.22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Punished with hard objects</td>
<td>1.65/1.14</td>
<td>.56</td>
<td>.56</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.65/1.56)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Was physically abused</td>
<td>1.59/1.03</td>
<td>.57</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.76/2.37)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Hit badly enough to be noticed</td>
<td>1.55/1.03</td>
<td>.58</td>
<td>.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.92/2.66)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Abuse and Neglect in Adolescents of India

## Sexual Abuse

(SA; \(\alpha = .74\))

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>SD</th>
<th>(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Was touched sexually</td>
<td>1.50/1.05</td>
<td>.61</td>
<td>.61</td>
</tr>
<tr>
<td>21. Hurt if didn’t do something sexual</td>
<td>1.34/.91</td>
<td>.60</td>
<td>.60</td>
</tr>
<tr>
<td>23. Made to do sexual things</td>
<td>1.58/1.14</td>
<td>.64</td>
<td>.64</td>
</tr>
<tr>
<td>24. Was molested</td>
<td>1.49/1.01</td>
<td>.58</td>
<td>.58</td>
</tr>
<tr>
<td>27. Was sexually abused</td>
<td>1.35/.88</td>
<td>.60</td>
<td>.60</td>
</tr>
</tbody>
</table>

## Emotional Neglect

(EN; \(\alpha = .72\))

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>SD</th>
<th>(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Made to feel important (^R)</td>
<td>2.36/1.30</td>
<td>.57</td>
<td>.56(^+)</td>
</tr>
<tr>
<td>7. Felt loved (^R)</td>
<td>2.63/1.53</td>
<td>.48</td>
<td>.47(^+)</td>
</tr>
<tr>
<td>13. Was looked out for (^R)</td>
<td>2.47/1.47</td>
<td>.58</td>
<td>.57(^+)</td>
</tr>
<tr>
<td>19. Family felt close (^R)</td>
<td>2.19/1.34</td>
<td>.64</td>
<td>.64(^+)</td>
</tr>
<tr>
<td>28. Family was a source of strength (^R)</td>
<td>1.97/1.24</td>
<td>.67</td>
<td>.68(^+)</td>
</tr>
</tbody>
</table>

## Physical Neglect

(PN; \(\alpha = .44\))

<table>
<thead>
<tr>
<th>Item</th>
<th>(M)</th>
<th>SD</th>
<th>(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not enough to eat</td>
<td>1.56/1.05</td>
<td>.15</td>
<td>---</td>
</tr>
<tr>
<td>2. Got taken care of (^R)</td>
<td>2.29/1.32</td>
<td>.49</td>
<td>.51(^+)</td>
</tr>
<tr>
<td>4. Parents were drunk and high</td>
<td>1.29/.81</td>
<td>.23</td>
<td>---</td>
</tr>
<tr>
<td>6. Wore dirty clothes</td>
<td>1.35/.88</td>
<td>.27</td>
<td>---</td>
</tr>
</tbody>
</table>
CHAPTER 2

(2.75/7.06) 
26. Got taken to doctor R 2.31/1.38 
(.66/- .93) 
.64  .69†

Note: Number preceding the CTQ statement depicts the chronology of presentation of the items during administration. Superscript R = Reverse scored item. NEG = Latent factor of neglect. Superscript † indicates that the factor loadings of latent factor of neglect in the four-factor intercorrelated model. All factor loadings are significant at \( p < .001 \).

Table 2.2

Factor Correlations of the Four-factor Model of the CTQ.

<table>
<thead>
<tr>
<th>Factors of the four-factor model of the CTQ</th>
<th>EA</th>
<th>PA</th>
<th>SA</th>
<th>NEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA</td>
<td>---</td>
<td>.78***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td></td>
<td></td>
<td>.57***</td>
<td>---</td>
</tr>
<tr>
<td>SA</td>
<td></td>
<td></td>
<td></td>
<td>.14**</td>
</tr>
<tr>
<td>NEG</td>
<td>.20***</td>
<td>.16***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: EA = Emotional Abuse. PA = Physical Abuse. SA = Sexual Abuse. NEG = Neglect. *** \( p < .001 \), ** \( p < .01 \).
Based on *t*-tests (comparison of means from the two samples), the present sample showed significantly higher scores than the US adult community sample (*N* = 579; cf. Bernstein et al., 2003) on PA (*t* = 5.30, *p* < .001), SA (*t* = 2.48, *p* < .05), EN (*t* = 8.08, *p* < .001), and PN (*t* = 15.92, *p* < .001). However, no difference was found on EA (*t* = 1.10, *p* > .05). Since the dimension of PN was found to be weak in the CFA (see section above), it was no longer taken up in the analyses.

*MIMIC Model*

For the MIMIC model, we first tested measurement equivalence of the CTQ across gender, family structure, maternal education, and paternal education. The addition of the four covariates to the CFA model lead to the formation of a model (cf. Fig 2.1) with an adequate fit without alterations in the factor structure of CTQ, $Y-B \chi^2(275, N = 649) = 513.45$, CFI/TLI = .94/.93, RMSEA = .03 (90% CI = .03-.04), SRMR = .04. The standardized factor loadings are presented in Table 2.1.

Second, we addressed the associations between the four covariates with the four latent factors. The covariates gender and mothers education significantly affected dimensions of abuse (EA, PA, SA) and neglect, indicating that male adolescents reported higher mean scores of abuse as compared to females, and similarly adolescents with less educated mothers faced more abuse and neglect than adolescents with more educated mothers. Family structure had a significant positive effect on SA, with adolescents residing in a joint family set-up reporting higher mean scores on SA than those living in a nuclear family. Fathers’ level of education did not significantly affect any of the abuse or neglect factors in the present study. Table 2.3 shows the association between the covariates, and the abuse and neglect factors in the MIMIC model.
Figure 2.1. MIMIC model depicting association between the abuse and neglect factors, and covariates of gender, family structure, mothers’, and fathers’ education. The values represent factor loadings significant at \( p < .05 \) level.
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Table 2.3
Unstandardized Regression Coefficients of Types of Abuse and Neglect on Gender, Family Structure, Mothers’, and Fathers’ Level of Education in a MIMIC Model.

<table>
<thead>
<tr>
<th>Factors of CTQ</th>
<th>Covariates</th>
<th>Estimates (B)</th>
<th>S.E.</th>
<th>z-tests</th>
<th>Direction of effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA</td>
<td>Gender</td>
<td>.35</td>
<td>.11</td>
<td>3.01**</td>
<td>M &gt; F</td>
</tr>
<tr>
<td></td>
<td>Family structure</td>
<td>.18</td>
<td>.11</td>
<td>1.69</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Mother’s Education</td>
<td>-.43</td>
<td>.12</td>
<td>3.47***</td>
<td>S &gt; HS</td>
</tr>
<tr>
<td></td>
<td>Father’s Education</td>
<td>.13</td>
<td>.14</td>
<td>.95</td>
<td>---</td>
</tr>
<tr>
<td>PA</td>
<td>Gender</td>
<td>.51</td>
<td>.11</td>
<td>4.81***</td>
<td>M &gt; F</td>
</tr>
<tr>
<td></td>
<td>Family structure</td>
<td>-.03</td>
<td>.09</td>
<td>.31</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Mother’s Education</td>
<td>-.26</td>
<td>.11</td>
<td>2.39*</td>
<td>S &gt; HS</td>
</tr>
<tr>
<td></td>
<td>Father’s Education</td>
<td>-.11</td>
<td>.13</td>
<td>.82</td>
<td>---</td>
</tr>
<tr>
<td>SA</td>
<td>Gender</td>
<td>.46</td>
<td>.09</td>
<td>5.25***</td>
<td>M &gt; F</td>
</tr>
<tr>
<td></td>
<td>Family structure</td>
<td>.20</td>
<td>.10</td>
<td>2.07*</td>
<td>JF &gt; NF</td>
</tr>
<tr>
<td></td>
<td>Mother’s Education</td>
<td>-.32</td>
<td>.11</td>
<td>2.79**</td>
<td>S &gt; HS</td>
</tr>
<tr>
<td></td>
<td>Father’s Education</td>
<td>.03</td>
<td>.13</td>
<td>.20</td>
<td>---</td>
</tr>
<tr>
<td>NEG</td>
<td>Gender</td>
<td>.18</td>
<td>.09</td>
<td>1.91</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Family structure</td>
<td>.03</td>
<td>.09</td>
<td>.38</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Mother’s Education</td>
<td>-.38</td>
<td>.11</td>
<td>3.53***</td>
<td>S &gt; HS</td>
</tr>
<tr>
<td></td>
<td>Father’s Education</td>
<td>-.18</td>
<td>.12</td>
<td>1.55</td>
<td>---</td>
</tr>
</tbody>
</table>

Note. EA = Emotional abuse, PA = Physical abuse, SA = Sexual abuse, NEG = Neglect. M > F = Male adolescents have a higher mean score than females. S > HS = Adolescents with mothers’ educated up to Secondary school have higher score than those with
mothers’ educated up to High secondary school. JF > NF = Adolescents in joint family have higher score than those residing in nuclear family. *p < .05, **p < .01, and ***p < .001.

Discussion

The current study is the first to assess prevalence rates of abuse and neglect among adolescents of Jammu, India using a standardized questionnaire, the CTQ, while also looking at the relation of abuse and neglect with gender, family structure, and parental education.

Factor Structure of the CTQ

Our initial hypothesis regarding the factor structure of CTQ was rejected, and instead of a five-factor intercorrelated model we found a better fit and parsimony in a four-factor intercorrelated model with EA, PA, SA, and NEG as the latent factors. The weak factor loading of three items of PN (see Table 2.1) in the present study has been previously reported in a study on sex-workers by Villano et al. (2004). Other CFA based studies have also highlighted the relatively weak factor loadings of these items when compared with the other factor loadings of the CTQ in both adolescents and adults (Bernstein et al., 2003; Thombs et al., 2009). Further, a look at the content of the two of the three items of PN with low factor loadings, namely, “I didn’t have enough to eat,” and “I had to wear dirty clothes,” suggests that while these items reflect limitations in addressing tangible needs, these seem more likely to be associated with financial weakness (e.g., not having enough to eat due to lack of money) in a highly stratified society like India rather than deliberate physical neglect. The third statement “My parents were too drunk or high to take care of family,” too may fall void, if some other family member (e.g., grandparent, uncle) shoulders the family responsibility in the absence of well-functioning parents (cf. Gerdner & Allgulander, 2009), often seen in a collectivistic society like India. The two items which did load well on PN primarily focus on complete absence of care and protection akin to the content of EN items. These were eventually added with the items on EN to form a reliable category of neglect, indicating that they lacked discriminant validity with EN in the present study. Notably, the two items are reverse-coded as are the items of EN while the other three items of PN are straight-coded,
Abuse and Neglect in Adolescents of India

...and thus the presence of common method variance cannot be negated (cf. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, the main reason for exclusion of PN as a separate construct was its high correlation with EN suggestive of an overlap either in the content or due to method bias. Addition of the two PN items (item 2 and 26) to EN which was renamed ‘neglect (NEG),’ is in line with more recent studies which employed a principal component analysis and indicated that items 2 and 26 of PN (see Table 2.1) load on the EN factor of the CTQ (Gerdner & Allgulander, 2009; Kim et al., 2011). Additionally, Wright et al. (2001) using CFA highlighted the same results albeit in a male sample. Furthermore, the correlation between the factors was highest between EA and PA, and lowest between SA and neglect. The factor intercorrelations found in the present study can be compared with studies indicating the same trend (lowest correlation between SA and EN, followed by SA and PN) across diverse populations including adolescents (Bernstein et al., 2003; Forde et al., 2012).

Prevalence Rates of Abuse and Neglect in Indian Adolescents

In line with our hypothesis, the present study found up to a 3-fold increase in the rate of abuse and neglect in adolescents from Jammu when compared with studies addressing adolescents, undergraduate students, and adults from Western countries using the CTQ. Comparison of the present results with the national survey and other Indian studies (e.g., Deb & Modak, 2010; Kacker et al., 2007) was not possible owing to differences in measurement tools and/or type of sample. Future studies using standardized measures should focus on the comparison of abuse and neglect in Jammu and Kashmir with the other states in India. The high rate of PA and EA in the present study can be attributed to the societal sanctioning of physical punishment and verbal assaults, under the garb of disciplinary practices both at home and at school (Nair et al., 2009; Runyan et al., 2010) and likely increased in the absence of a ban on corporal punishment at schools in Jammu and Kashmir as is in the rest of India as is also emphasized by some reports (SAIEVA, 2011). On the other hand, the high rate of SA may point towards the willingness by adolescents to report incidents of SA in a society which is likely to silence it as it is thought to bring stigma to the family (cf. Kacker et al., 2007). The current study thus adds to the existing literature in elucidating the sizable nature of the problem of adolescent maltreatment in India. The size of the problem becomes all the more impressive considering that India houses about 440 million individuals under the age of 18 years (Kacker et al., 2007).
Our hypothesis that types of abuse would be elevated in males was supported. Using a MIMIC model, it was found that gender had a positive relation with all factors of abuse indicative of male adolescents having higher scores than female adolescents. The results are corroborated by findings from other studies indicating a higher prevalence of PA in males than in females (Chen & Wei, 2011; Choo et al., 2011; Kacker et al., 2007). The preponderance of males scoring over females on EA is in line with a study on Malaysian adolescents where males reported higher victimization on EA (Choo et al., 2011). Also, the survey on child abuse in India showed more boys (57.9%) than girls (42.1%) reporting EA in six Indian states (Kacker et al., 2007). Noteworthy is the higher reporting of SA by males than females, which is contrary to trends depicted by many western studies but in line with some studies from Asia (Choo et al., 2011; Leung et al., 2008). The report on child abuse in India also indicated that 52.9% boys and 47.1% girls faced SA (Kacker et al., 2007). The present study thus provides further evidence that male adolescents are at elevated risk for SA, possibly due to the denial of existence of SA in males and a related absence of supervision by adults. Further, no difference across gender was found on neglect, and hence our hypothesis of females reporting higher on neglect than males was rejected. This finding may be interpreted in light of our sampling from relatively expensive schools that are considered better as far as quality of education is concerned. Girls sent to these schools may be less likely to face the neglect while being part of a relatively privileged group. However, the findings warrant future research to focus on whether ‘girl-child neglect’ is witnessed among all strata of the Indian society or is limited to some. Another important aim for future research is to look at potential gender related differences in severity of abuse and neglect.

Our hypothesis that living in a joint family set-up would be more favorable than living in a nuclear family was rejected. In the present study, adolescents from a joint family set-up endorsed higher rates of SA than those from nuclear families. One factor which may have played an indirect role is the larger number of people living under one roof as is also stated in earlier studies (Uslu et al., 2010; Zuravin, 1986). Notably in the present study the average household size of 7.5 in joint family set-up was higher than the national average of 4.8 individuals per household (International Institute for Population Sciences and Macro International, 2007). However, in the present study we did not inquire about the size of the house in which the adolescent resided nor the number of
people with whom the adolescents shared their room. Future research should consider these factors when assessing the role of family structure (nuclear vs. joint) in child maltreatment. No association was found between family structure and EA, PA or NEG in the present study.

Finally, we addressed the association of parental education with abuse and neglect. While higher levels of maternal education appeared to be associated with lower levels of adolescent reported abuse and neglect, paternal level of education was not associated with any form of abuse or neglect. The result pinpoints the importance of a higher level of maternal education in curbing incidents of child maltreatment as also documented in past studies (Brown et al., 1998; Kotch et al., 1995). Importantly, this finding can play a vital role in primary level interventions. On the other hand, the apparent absence of influence of fathers’ level of education on the prevalence of abuse and neglect may be due to a general lack of direct involvement of fathers in child care in the Indian society (Segal, 1999). Since the father is ascribed the role of a breadwinner and not of child care, his level of education may fail to effect maltreatment in the child.

Some limitations of the present study should be noted. First, the sole dependence on self-report for assessing abuse and neglect, and family correlates is a methodological limitation as associations found in this study may to some extent reflect source overlap. Second, the sample comprising adolescents from public schools of Jammu is limited in terms of the diversity of the sample especially with regard to socio-economic status and parental attitudes, and hence the results cannot be generalized to the population of Indian adolescents at large. Third, in the present study joint family may have been a proxy for household density, and additional questions on the number of people sharing a bed/room, size of the house or neighborhood density could have been more informative. The present result regarding the joint family setup and its association with SA may be marred by this limitation.

Conclusions and Implications

Notwithstanding the limitations, the present findings further our understanding of the extensive nature of abuse and neglect in Indian adolescents. The study begins to answer the call for more empirical based work from developing nations (Pinheiro, 2006; Zolotor et al., 2009) by gauging the factor structure of a standardized questionnaire measuring abuse and neglect, and the role of important covariates of abuse and neglect in
a sample of Indian adolescents. Given the salience of gender and parental education in relation to abuse and neglect, our findings may have implications for intervention. First, interventions should focus on imparting awareness regarding the high rates and negative consequences of maltreatment in both girls and boys, among children, parents, teachers etc. Second, focus should be on factors such as parenting skills including the active involvement of the father in child-care. Third, at a secondary level the enumerated factors can be used to identify at risk children. Fourth, at a policy level legislation protecting the rights and welfare of children should be laid down and stringently implemented.
Severity of Maltreatment and Personality Pathology in Adolescents of Jammu, India:
A Latent Class Approach

Ruby Charak
Hans M. Koot

Manuscript Submitted for Publication
CHAPTER 3

Introduction

It is well documented that abuse and neglect among children and adolescents are associated with detrimental outcomes, including impairment in cognitive, affective, and psychosocial performance (Bolger & Patterson, 2001; Hildyard & Wolfe, 2002; Rogosch, Oshri, & Cicchetti, 2010). More often than not, studies addressing these associations have assessed child maltreatment as a unidimensional construct focusing on one specific subtype of maltreatment (e.g., sexual abuse). However, as a rule subtypes of maltreatment tend to co-occur rather than being experienced in isolation (Higgins & McCabe, 2001; Lau et al., 2005). Therefore, studies focusing only on specific types of maltreatment may impair our view on their combined effects. These studies also insufficiently take into account the effects of severity of the subtypes. Not surprisingly, the combined effects of subtypes and their severity in relation to specific outcomes of adolescent psychopathology have scarcely been addressed (English et al., 2005). The present study focused on the cumulative effects of severity of five subtypes of abuse and neglect on adolescent personality pathology.

Grouping of Maltreatment Types

The simultaneous experience of both abuse and neglect has been highlighted as a vulnerability profile for children, with less adaptive personality traits (Nederlof, Van der Ham, Dingemans, & Oei, 2010), which tends to have persistent effects over time (Rogosch & Cicchetti, 2004). The phenomenology of experience of multiple types of maltreatment has recently been investigated with preference for person-centered models (e.g., Latent Class/Profile Analysis) over variable-centered models for assessment. The use of a person-based approach is strongly recommended (Roesch, Villodas, & Villodas, 2010) to assess the impact of multiple types of maltreatment among maltreated populations (Armour, Elklit, & Christoffersen, 2014; Berzenski & Yates, 2011; Nooner et al., 2010). For example, in a study of 117 foster care children based on the severity of five subtypes of maltreatment a four-class solution emerged (Pears, Kim, & Fisher, 2008). The present study used such an approach to address the combined effects of different types of maltreatment experiences on personality pathology in adolescents from India.
Severity of Type of Maltreatment

When assessing simultaneous effects of different types of maltreatment the severity of the maltreatment should be taken into account (English et al., 2005; Pears et al., 2008; Litrownik et al., 2005). Severity of subtype of abuse and neglect has been reported to be the best predictor of psychopathology in children when compared with other indices such as mean of severity or maximum severity across subtypes (Litrownik et al., 2005). Recently, severity of maltreatment has been incorporated when addressing its effects on psychopathology in studies on childhood sexual abuse and borderline personality pathology (Zanarini et al., 2002), childhood sexual abuse and sexual problems in adulthood (Lacelle, Hebert, Lavoie, Vitaro, & Tremblay, 2012), physical abuse and aggressive and attention problems in adolescents (Garrido, Taussig, Culhane, & Raviv, 2011), and neglect and externalizing problems in children (Manly et al., 2012). Each of these studies clearly indicated that an increase in severity of maltreatment was significantly related to elevated levels of psychopathology. However, very few studies have looked into the spectrum of severity of different types of abuse and neglect in children or adolescents, and related psychopathology. The few that did, found that in children severity of physical abuse was associated with lack of daily life skills and socialization, depression, and anger while severity of sexual abuse and emotional abuse was associated with anger and lack of daily life skills, respectively (English et al., 2005).

Maltreatment and Personality Pathology

While studies have documented the association between child abuse and neglect, and the occurrence of personality disorders (Afifi et al., 2011; Bernstein, Stein, & Handelsman, 1998; Cohen et al., 2013; Gratz, Tull, Baruch, Bornovalova, & Lejuez, 2008; Johnson et al., 2001), most are based on retrospective reports from an adult sample. Therefore, the nature of these associations at earlier ages is less known. Given evidence that personality develops from an early age (Caspi & Roberts, 2001; Hartup & van Lieshout, 1995), and personality problems can be reliably assessed in adolescence (Tromp & Koot, 2010) it becomes pertinent to study the evolving personality pathology traits in victimized children and adolescents to add to the knowledge needed to counter the detrimental consequences of maltreatment.

When addressing the association between maltreatment and personality pathology in adolescents it is preferable to conceptualize the latter along dimensions or traits as
personality pathology traits show more stability than personality disorder (PD) diagnoses from adolescence to adulthood (Chanen et al., 2004; Johnson et al., 1997). Even though the recently released DSM-5 (American Psychiatric Association [APA], 2013) broadly retains a categorical approach to the study of PDs, it does introduce and call for future research on a hybrid dimensional-categorical model emphasizing the importance of severity of impairment in personality functioning and of addressing problematic personality traits. In keeping with this and considering the nature of the sample of this study (i.e., adolescents) we assessed dimensions of personality pathology in relation to experiences of maltreatment. This converges with a recent increase in research focusing on the dimensions/trait of personality pathology in relation to abuse/neglect in children and adolescents (Gratz, Latzman, Tull, Reynolds, & Lejuez, 2011; Natsuaki, Cicchetti, & Rogosch, 2009; Nederlof, Van der Ham, Dingemans, & Oei, 2010) and young adults (Mathews, Kaur, & Stein, 2008; Yates, Carlson, & Egeland, 2008). For example, a study on sexually victimized females by Wonderlich et al. (2001) using the Dimensional Assessment of Personality Pathology Basic Questionnaire (DAPP-BQ) found that sexual abuse in childhood was associated with significantly elevated scores of the victimized group on lower-order dimensions of the DAPP-BQ (e.g., Suspiciousness, Intimacy Problems, and Restricted Expression) when compared with a control group. Other studies focused on specific samples of inner city substance users or incarcerated boys, and on specific outcomes like paranoid personality disorder, obsessive compulsive symptoms or self-injurious behavior. However, to our knowledge no study has assessed how scores on personality pathology differ across groups of adolescents experiencing multiple types of maltreatment with varying severity.

When addressing the association between severity of multiple types of maltreatment and multiple personality pathology outcomes, gender needs to be taken into account. While some large scale studies report gender differences in the overall prevalence rate of PD (e.g., Samuels et al., 2002; Trull, Jahng, Tomko, Wood, & Sher, 2010), others do not (e.g., Torgersen, Kringlen, & Cramer, 2001). According to DSM-IV-TR (APA, 2000) some PDs, such as Paranoid, Schizoid, Antisocial, and Narcissistic, occur more often in men than in women and conversely PDs like Histrionic, Borderline and Dependent are found more often in women. In accordance with this, Tromp and Koot (2008) in a study on Dutch adolescents referred for mental health care (with PD vs. without PD) and a non-referred school going adolescent sample indicated gender
Adolescent Maltreatment And Personality Pathology

differences on many dimensions of personality pathology (using the DAPP-BQ-A) with girls scoring higher on submissiveness, cognitive dysregulation, identity problems, affective lability, anxiety, low affiliation, insecure attachment, and compulsivity, and boys scoring higher on stimulus seeking, callousness, rejection, conduct problems, and intimacy problems.

With this background, the first aim of the present study was to identify adolescents who experienced several types of maltreatment at different levels of severity, including emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect, in a sample of adolescents using latent class analyses for a person-centered approach. Based on prior literature, we hypothesized that heterogeneous groups among the adolescents would be identified based on prior literature (e.g., Armour et al., 2014; Berzenski & Yates, 2011; Noonor et al., 2010; Pears et al., 2008). Second, we aimed to establish the association of maltreatment class membership with 17 dimensions of personality pathology controlling for age. It was hypothesized that the more types of maltreatment the adolescent had been exposed to and the more severe this exposure had been, the more symptoms of personality pathology he/she would report (Lau et al., 2005; Pears et al., 2008). Third, we aimed at assessing the difference across the 17 lower-order dimensions of personality pathology across gender. Based on prior studies (e.g., Tromp & Koot, 2008) demonstrating that males scored higher on externalizing psychopathology such as conduct problems, stimulus seeking, and callousness whereas females scored higher on emotion dysregulation pathology such as affective lability, anxiety, low affiliation, insecure attachment, and compulsivity it was explored whether experience of severity of abuse and neglect would have a gender-differential effect on these specific dimensions.

Method

Participants and Procedure

Participants in this study were 702 adolescents (291 female, 411 male) from schools (grade 8 to 12) in the age range of 13-17 years ($M = 15.24$, $SD = 1.46$) from Jammu, India. Most adolescents (81%) reported being Hindu by religious affiliation, followed by Sikh and Muslim (13.7% and 4%, respectively). Data was collected from four public schools which had English as the medium for teaching. The questionnaires were administered in the classroom and two trained graduate students, who were
acquainted with the nature of the study and the sample under consideration, facilitated the data collection process. Care was taken not to interrupt the curriculum of the school and participants were told about the purpose of the study and the conditions of consent, confidentiality and anonymity were emphasized. In the absence of an ethical committee at University of Jammu, Jammu (India) the study was discussed in detail with the school authorities and permission was sought for the conduct of the research. The study was conducted in line with the ethical guidelines laid down by VU University, Amsterdam, The Netherlands where it was designed and analyzed (for further details see Charak & Koot, 2014). All participants were given refreshments after completion of the questionnaires.

Measures

Participants completed a battery of tests, two of which, the Childhood Trauma Questionnaire (CTQ) and the Dimensional Assessment of Personality Pathology-Short Form for Adolescents (DAPP-SF-A) were relevant to the present study.

Childhood Maltreatment. The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998; Bernstein et al., 2003) is a 28-item retrospective self-report (for ages 12 years and above) assessing five subtypes of childhood maltreatment, namely, emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. These dimensions are assessed by five items each and there are three additional items to gauge the likelihood of underreporting or denial of abuse and neglect. For the present study the denial items were not considered. Participants were asked to respond to items with the precursor statement being “When I was growing up,” and to answer on a 5-point Likert scale from Never true to Very often true. The CTQ has demonstrated good reliability and validity, including an internal consistency reliability coefficient ranging from a median .66 to .92 across a range of seven different samples, and test-retest reliability coefficients ranging from .79 to .86 over an average period of 3.6 months. Convergent validity was demonstrated by associations between the CTQ, and abuse and neglect assessed through other measures like clinician rated interviews and therapist ratings (Bernstein & Fink, 1998; Bernstein et al., 2003). Severity of the five types of abuse and neglect was determined by using the classificatory system described in the CTQ manual (Bernstein & Fink, 1998). The lowest cut-off scores recommended by the developers of the questionnaire were used, which have the highest sensitivity and specificity (at least 80%).
Scale scores were assigned to three severity categories which were (1) minimal, (2) low, and (3) moderate-severe for each of the five subtypes of maltreatment to be used in the latent class analyses.

**Personality Pathology.** The Dimensional Assessment of Personality Pathology-Short Form for Adolescents (DAPP-SF-A; Tromp & Koot, 2008; 2015) is a 136-item questionnaire for adolescents derived from its adult predecessors, the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ) and the Dimensional Assessment of Personality Pathology-Basic Questionnaire-Short Form (DAPP-BQ-SF, Livesley & Jackson, 2009; Van Kampen, de Beurs, & Andreas, 2008). It assesses 18 lower-order dimensions of personality pathology with items scored on a 5-point Likert scale, ranging from 1 (very unlike me) to 5 (very like me). The lower-order dimensions are enlisted in Table 3.3 except for Intimacy. The internal consistency of the lower-order dimensions was found to be good and showed adequate discriminant validity with all dimensions indicating large effects in the distinction between subsamples of adolescents referred for clinical intervention for DSM-IV-TR (APA, 2000) Axis I disorders, Axis II disorders, and a community sample (Tromp & Koot, 2015). The internal consistency reliability of intimacy problems is reported to be low in adolescent samples (Tromp & Koot, 2008). Hence, in the present study we decided to remove the items representing intimacy problems. In the present study the internal consistency reliabilities ranged from .59 to .83, with an average of .70.

**Statistical Analyses**

Missing items on the two tests were substituted with values using the expectation-maximization (EM) algorithm after assessing for randomness of missing using Little’s MCAR test (Little & Rubin, 2002). A latent class analysis (LCA; Hagenaars & McCutcheon, 2002) was carried out to determine the number of heterogeneous groups based on the severity (minimal, low, and moderate-severe) of the five types of abuse and neglect. LCA estimates the posterior probabilities of class membership or size of the class (Nylund, Asparouhov, & Muthén, 2007). Better fitting models are reflected by significant $p$ value for the Lo-Mendell-Rubins likelihood ratio test compared to the non-significant $p$ value of the latent model with one extra class (LMR; Lo, Mendell, & Rubin, 2001), and the Bootstrap likelihood ratio test (BLRT; McLachlan & Peel, 2000), low values on the Akaike Information Criteria (AIC; Akaike, 1987), the Bayesian Information Criteria
(BIC; Schwarz, 1978), and the sample size adjusted BIC (Adjusted BIC; Sclove, 1987). However, recent studies have reported that for LCA with categorical outcomes, the most reliable of the fit indices are the same size adjusted BIC and BLRT (Nylund et al., 2007) and not the AIC (Yang, 2006), and the BIC (Nylund et al., 2007). Hence, we did not assess the fit of the classes based on the latter two indices. Higher entropy values indicate clearer classification (Ramaswamy et al., 1993). Furthermore, model fit and the resultant class solution, should always be judged based on substantive meaning, i.e., the classes should be distinct and meaningful (Nylund et al., 2007). The LCA analysis was conducted using Mplus 6.11 software (Muthén & Muthén, 2011) employing maximum likelihood estimation with robust standard errors (MLR). Third, we tested effects of class membership, gender, and class x gender effects on the 17 lower-order dimensions of personality pathology using MANCOVA with age as a covariate and pair-wise post-hoc comparisons (with Bonferroni corrections) in IBM SPSS version 20.0 (IBM Corp., 2011).

Results

Missing Data Analysis

Missing values on the DAPP-SF-A (0.1 % to 1.4% across scales) were substituted using the Expectation Maximization algorithm (EM) for each of the 17 DAPP-BQ-SF-A subscales, after finding no statistically reliable deviation from randomness using Little’s MCAR test \( \chi^2 [df = 2450] = 2244.62, p > .05 \). The CTQ data had no missing item scores.

Distribution of Types of Maltreatment across Severity Levels

Of all adolescents in the present study, 14.5% had faced one type of maltreatment, 23.6% reported to have faced two types of maltreatment, 22.2% reported incidents of three types of maltreatment, while 15.2% and 12.5% reported to have experienced four and five types of maltreatment, respectively. Nearly 13% reported to have faced either no or minimal maltreatment. The distribution of adolescents reporting maltreatment at the different levels of severity is given in Table 3.2.

Latent Classes for Severity and Type of Maltreatment

A series of LCA models with a 3-5 class solution were estimated based on previous literature (Berzenski & Yates, 2011; Pears et al., 2008). A four-class solution
was found to be the best based on a number of fit indices (see Table 3.1) and conceptual validity. The two likelihood ratio test, the LMR and the BLRT, and the information criteria of sample size adjusted BIC clearly favored the four-class solution. The other two information criteria, the AIC and the BIC did not favor the four-class solution and instead favored a five-class and three-class solution, respectively (Table 3.1). However, as stated previously since the BLRT and the same size adjusted BIC are the most accurate of all the indices the four-class solution was chosen over the rest in the present study. The entropy was moderate and the average posterior probability for most likely latent class membership ranged from .81 to .88 for the four-class solution, suggestive of good class determination.

Distribution of adolescents across the four classes is presented in Table 3.2. The classes were labeled according to the predominant endorsement of severity of level of abuse or neglect by the adolescents in each specific class. Thereby, Class 1 (15.9%) was labeled “Moderate-severe abuse and physical neglect” as relative to the other three classes this class comprised the highest percentage of adolescents reporting moderate-severe levels of emotional abuse, physical abuse, sexual abuse, and physical neglect. Class 2 (30.1%) was labeled “Moderate-severe physical abuse and sexual abuse” wherein endorsement of moderate-severe levels of physical and sexual abuse was highest after Class 1, but relatively low on other types of maltreatment. Class 3 (25.1%) was labeled “Moderate-severe neglect” as within this class most adolescents reported moderate-severe neglect but relatively low levels of abuse. Lastly, Class 4 (28.9%) was labeled “Minimal abuse or neglect” as this class had high proportions of adolescents with negligible abuse and with low neglect (18 % to 24 %), and a very low proportion of adolescents with moderate-severe maltreatment. It was hypothesized that Class 1 and Class 2 would endorse more personality pathology dimensions than the other two classes (Lau et al., 2005; Pears et al., 2008), and Class 3 would endorse more personality problems than Class 4.
Table 3.1

Fit Indices for the Latent Class Models with Three to Five Classes for Severity within the Type of Abuse and Neglect in Indian Adolescents

<table>
<thead>
<tr>
<th>Number of classes</th>
<th>LMR (p value)</th>
<th>BLRT (p value)</th>
<th>Entropy</th>
<th>AIC</th>
<th>BIC</th>
<th>Adjusted BIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>195.01 (.000)</td>
<td>-3399.90 (.000)</td>
<td>.77</td>
<td>6666.09</td>
<td>6811.82</td>
<td>6710.21</td>
</tr>
<tr>
<td>4</td>
<td>56.42 (.005)</td>
<td>-3301.05 (.000)</td>
<td>.71</td>
<td>6630.89</td>
<td>6826.71</td>
<td>6690.18</td>
</tr>
<tr>
<td>5</td>
<td>23.27 (.71)</td>
<td>-3272.45 (.15)</td>
<td>.72</td>
<td>6629.30</td>
<td>6875.22</td>
<td>6703.75</td>
</tr>
</tbody>
</table>

Note: LMR = Lo-Mendell-Rubin test. BLRT = Bootstrap Likelihood Ratio Test. AIC = Akaike’s Information Criterion. BIC = Bayesian Information Criterion.
Table 3.2

Total Percentage and Percentage Distribution of Adolescents across the Four Classes of Maltreatment Severity

<table>
<thead>
<tr>
<th>Level of severity of abuse and neglect</th>
<th>Total (N = 702)</th>
<th>Class 1 (N = 112)</th>
<th>Class 2 (N = 211)</th>
<th>Class 3 (N = 176)</th>
<th>Class 4 (N = 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>54.3</td>
<td>4.3</td>
<td>32.1</td>
<td>74.7</td>
<td>91.1</td>
</tr>
<tr>
<td>Low</td>
<td>30.5</td>
<td>40.3</td>
<td>49.2</td>
<td>24.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Moderate-severe</td>
<td>15.2</td>
<td>55.4</td>
<td>18.8</td>
<td>1.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Physical abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>59.5</td>
<td>12.9</td>
<td>42.8</td>
<td>78.6</td>
<td>89.3</td>
</tr>
<tr>
<td>Low</td>
<td>15.5</td>
<td>14.2</td>
<td>24.1</td>
<td>14.4</td>
<td>7.4</td>
</tr>
<tr>
<td>Moderate-severe</td>
<td>24.9</td>
<td>72.8</td>
<td>33.1</td>
<td>7.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>52.0</td>
<td>12.8</td>
<td>36.9</td>
<td>57.8</td>
<td>87.3</td>
</tr>
<tr>
<td>Low</td>
<td>16.7</td>
<td>13.0</td>
<td>20.6</td>
<td>27.6</td>
<td>4.5</td>
</tr>
<tr>
<td>Moderate-severe</td>
<td>31.3</td>
<td>74.2</td>
<td>42.5</td>
<td>14.6</td>
<td>8.1</td>
</tr>
<tr>
<td>Emotional neglect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>39.9</td>
<td>6.2</td>
<td>60.5</td>
<td>0.0</td>
<td>71.6</td>
</tr>
<tr>
<td>Low</td>
<td>32.8</td>
<td>50.4</td>
<td>35.1</td>
<td>28.4</td>
<td>23.6</td>
</tr>
<tr>
<td>Moderate-severe</td>
<td>27.4</td>
<td>43.4</td>
<td>44.4</td>
<td>71.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Physical neglect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal</td>
<td>42.2</td>
<td>7.5</td>
<td>58.2</td>
<td>1.7</td>
<td>80.2</td>
</tr>
<tr>
<td>Low</td>
<td>21.4</td>
<td>9.0</td>
<td>25.9</td>
<td>27.7</td>
<td>17.9</td>
</tr>
<tr>
<td>Moderate-severe</td>
<td>36.5</td>
<td>83.6</td>
<td>15.9</td>
<td>70.6</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Note: Class 1 = Moderate-severe abuse and physical neglect; Class 2 = Moderate-severe sexual abuse and physical abuse; Class 3 = Moderate-severe neglect; Class 4 = Minimal abuse or neglect.
CHAPTER 3

Differences in Personality Pathology across Severity Classes of Maltreatment

The overall MANCOVA (with age as a covariate) testing differences between the four latent classes of severity and type of maltreatment on the 17 lower-order dimensions of personality pathology was significant (Pillai’s trace = .27; $F_{[51, 702]} = 3.99; p < .001; \eta^2_{partial} = .12$), as were effects of gender (Pillai’s trace = .14; $F_{[17, 702]} = 6.57; p < .001; \eta^2_{partial} = .14$), and age (Pillai’s trace = .12; $F_{[17, 702]} = 5.53; p < .001; \eta^2_{partial} = .12$). However, no significant effect of the class membership x gender interaction term was found (Pillai’s trace = .06; $F_{[51, 702]} = .87; p > .05; \eta^2_{partial} = .02$). Univariate testing indicated class-related differences on 13 of the 17 lower-order dimensions of personality pathology, including compulsivity (see Table 3.3). Pair-wise comparisons (with Bonferroni corrections and after controlling for age) are reported in Table 3.3 ordered along four higher-order dimensions identified for the DAPP-SF-A (Tromp & Koot, 2008; 2015).
Table 3.3

*Mean Scores on the 17 Lower-order Dimensions of DAPP-SF-A across the Severity of Maltreatment Four-classes and Pair-wise Comparisons*

<table>
<thead>
<tr>
<th>Dimensions of personality pathology</th>
<th>Mean</th>
<th>Pair-wise comparison of classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Emotional Dysregulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submissiveness</td>
<td>22.24</td>
<td>22.14</td>
</tr>
<tr>
<td>Cognitive dysregulation</td>
<td>17.05</td>
<td>18.58</td>
</tr>
<tr>
<td>Identity problems</td>
<td>16.48</td>
<td>16.48</td>
</tr>
<tr>
<td>Affect lability</td>
<td>25.09</td>
<td>25.76</td>
</tr>
<tr>
<td>Oppositionality</td>
<td>28.12</td>
<td>30.52</td>
</tr>
<tr>
<td>Anxiousness</td>
<td>17.04</td>
<td>17.52</td>
</tr>
<tr>
<td>Low affiliation</td>
<td>16.80</td>
<td>17.36</td>
</tr>
<tr>
<td></td>
<td>23.26</td>
<td>24.02</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Suspiciousness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insecure attachments</td>
<td>19.09</td>
<td>22.16</td>
</tr>
<tr>
<td>Narcissism</td>
<td>24.74</td>
<td>26.93</td>
</tr>
<tr>
<td>Self-harm</td>
<td>19.32</td>
<td>19.78</td>
</tr>
</tbody>
</table>

**Dissocial Behavior**

<table>
<thead>
<tr>
<th></th>
<th>23.86</th>
<th>27.49</th>
<th>23.18</th>
<th>25.39</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulus seeking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 &gt; 1, 3, 4; 4 &gt; 3</td>
</tr>
<tr>
<td>Callousness</td>
<td>27.51</td>
<td>25.92</td>
<td>26.09</td>
<td>23.51</td>
<td>1, 2, 3 &gt; 4</td>
</tr>
<tr>
<td>Rejection(^\d)</td>
<td>24.38</td>
<td>27.10</td>
<td>24.71</td>
<td>25.63</td>
<td>2 &gt; 1, 3</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>17.81</td>
<td>16.10</td>
<td>15.31</td>
<td>13.58</td>
<td>1 &gt; 2, 3 &gt; 4</td>
</tr>
</tbody>
</table>

**Inhibitedness**

<table>
<thead>
<tr>
<th></th>
<th>20.91</th>
<th>22.61</th>
<th>21.23</th>
<th>21.53</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricted expression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>Compulsivity</td>
<td>25.53</td>
<td>27.91</td>
<td>26.65</td>
<td>29.35</td>
<td>2 &gt; 1; 4 &gt; 1, 3</td>
</tr>
</tbody>
</table>

Note: Class 1 = Moderate-severe abuse and physical neglect. Class 2 = Moderate-severe sexual abuse and physical abuse. Class 3 = Moderate-severe neglect. Class 4 = Minimal abuse or neglect. Pair-wise comparisons of classes were based on post-hoc testing (Bonferroni correction) after MANCOVA (with age a covariate). † Lower score depicts higher problem behavior.
In the present study adolescents reported multiple maltreatment experiences (Lau et al., 2005; Manly et al., 2001) with severity ranging from minimal to moderate-severe of abuse and/or neglect (English et al., 2005; Pears et al., 2008). As demonstrated in other studies (Higgins & McCabe, 2001; Lau et al., 2005), different types of maltreatment very much tended to co-occur. Of those who reported maltreatment, only one out of seven reported exposure to a single type of maltreatment. Our first hypothesis was that there would be underlying typologies based on severity and types of abuse and neglect. A four-class solution emerged as the best fitting solution. The pattern distribution in this study among the Indian adolescents suggests that the groups are not based solely on the subtype of abuse or neglect reported, but also the severity within each subtype experienced by the adolescent as is also reported in other studies (McCrae, Chapman, & Christ, 2006; Pears et al., 2008). Adolescents in all the four groups reported abuse and neglect varying from low to moderate-severe levels of maltreatment, with no group reporting absence of abuse or neglect. Noteworthy is also that a little over 46% of the adolescents were assigned to Class 1 or Class 2 which implies that almost half of all adolescents in this study reported moderate-severe levels of abuse and/or neglect. This underscores not only the rampant abuse and neglect incidents experienced by adolescents in India but also the high level of severity of such incidents. This is in line with other studies from India which indicate high rates and severity of victimization in children and adolescents in both familial and non-familial settings (e.g., Kacker, Varadan & Kumar, 2007).

Furthermore, in Class 1 adolescents reported multiple exposures to virtually all types of abuse and neglect of moderate-severe level. Adolescents in Class 2 were characterized predominantly by moderate-severe level of physical and sexual abuse, while Class 3 had adolescents endorsing largely moderate-severe level of neglect. Notably, there were more male as compared to female adolescents in Class 1 (20.9% vs. 8.9%), and Class 2 (32.8% vs. 26.1%), whereas in Class 3 males and females were almost proportionate (25.5% vs. 24.4%). Further, there were lesser males than females (20.7% vs. 40.5%) in Class 4 which represented the class with least maltreatment exposure. Taken together, the gender distribution across the four classes is indicative of high proportion of males than females in classes with high severity of maltreatment. While aspects of the results stand in contrast to the western literature (e.g., sexual abuse; see Charak & Koot, 2014), many studies especially from Asian nations have consistently
Adolescent Maltreatment And Personality Pathology

reported higher rates (e.g., Choo, Dunne, Fleming, & Wong, 2011) and severity of maltreatment (Kacker et al., 2007) among males as compared to females. While the role of certain contextual factors is suggested in these studies, future research should delve into the etiology behind the gender differences.

The second hypothesis was that the classes with more adolescents endorsing multiple moderate-severe level of maltreatment (in this study indicated by Class 1 and Class 2 membership) would be higher on personality pathology than adolescents in other classes. This hypothesis was clearly supported. Adolescents in Class 1 (Moderate-severe abuse and physical neglect) had significantly higher scores on two and six of the lower-order dimensions of personality pathology compared to adolescents in Class 3 (Moderate-severe neglect) and Class 4 (Minimal abuse or neglect), respectively. These dimensions included identity problems, low affiliation, self-harm, callousness, and conduct problems indicating that exposure to multiple forms of maltreatment is associated with serious signs of personality pathology.

Adolescents in Class 2 (Moderate-severe physical and sexual abuse) had significantly higher scores on eight and ten dimensions of personality pathology compared to those in Class 3 and Class 4, respectively. Hence, Class 1 and Class 2 comprised of adolescents who reported higher personality problems than those in Class 3 or Class 4 (Table 3.3). This indicates that in the current study, the experience of moderate-severe emotional and physical neglect alone (as reported by Class 3) was relatively less problematic when regarding personality pathology outcomes, than the experience of a combination of several types of moderate-severe abuse and neglect as reported by adolescents in Class 1 and Class 2. Similar results were found by Pears et al. (2005) in pre-school children (3-6 years). Those with moderate to severe levels of physical or sexual abuse or both in addition to neglect reported more cognitive, internalizing, and externalizing problems, compared to children with the same level of supervisory neglect and emotional maltreatment.

In line with the hypothesis, Class 3 (Moderate-severe neglect) adolescents reported higher on callousness and conduct problems when compared with those in Class 4 (i.e., Minimal abuse or neglect). Several studies suggest that callousness and conduct problems are associated with higher symptoms on Cluster B PDs, namely, Histrionic PD and Anti-social PD (Bagge & Trull, 2003; Tromp & Koot, 2009). The present findings
hence indicate that Class 3 adolescents who mainly suffered from neglect endorsed more Cluster B personality symptoms than adolescents in Class 4. This is in line with prior studies suggesting that neglected children display externalizing psychopathology (English et al., 2005; Hildyard & Wolfe, 2002). The present study thus underscores the importance of addressing the severity of experiences of several types of maltreatment in relation to maladaptation rather than merely studying exposure to the types of maltreatment in adolescents.

Furthermore, when comparing the two classes with adolescents reporting multiple moderate-severe levels of maltreatment, viz. Class 1 and Class 2, it appeared that adolescents in both these classes reported strongly elevated levels of personality pathology as compared to those in Classes 3 and 4. Despite their similarity, adolescents in Class 1 scored higher on conduct problems and rejection, while Class 2 adolescents scored higher on cognitive dysregulation, insecure attachment, narcissism, stimulus seeking and compulsivity. These findings indicate that the adolescents in these two classes frequently endorsed symptoms of personality pathology related with Cluster B and Cluster C PDs (Bagge & Trull, 2003; Tromp & Koot, 2009). Overall, the results indicate that adolescents from Classes 1 and 2 more often report problem behavior related with personality disorders (cf. Bagge & Trull, 2003) when compared with adolescents in the other two classes. Importantly, the preponderance of elevated personality pathology scores among adolescents in Class 2 suggest that the combination of experiences of physical and sexual abuse in the relative absence of emotional abuse and neglect may have pervasive and detrimental effects on the adolescents’ personality functioning. Possibly, the mixed message that comes from these experiences is psychologically even more disturbing than the clear cut rejection experienced by those in Class 1, which seems especially related to development of signs of antisocial personality as evidenced by the high scores on callousness and conduct problems.

Our third hypothesis, that males would endorse more dimensions within the dissocial and/or externalizing personality pathology as compared to females was supported. These findings are in line with prior literature (Jang, Livesley, & Vernon, 1998; Tromp & Koot, 2008). On the other hand, females scored higher only on affect lability than males, which is closely related to borderline personality pathology and is also supported by previous studies (Grilo et al., 1996; Tromp & Koot, 2008). Hence, our hypothesis was partially supported as unlike previous studies, in the present study females
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... did not show elevated scores on many dimensions of emotion dysregulation/internalization compared to males. However, importantly, despite these gender-related differences in personality pathology the effects of the severity of abuse/neglect classes on personality pathology were the same for males and females as demonstrated by the absence of significant class x gender effects.

The following limitations should be considered while interpreting the results of this study. Firstly, the use of a cross-sectional design allowed us to gauge the differences in personality pathology across classes based on severity and combinations of types of maltreatment. However, longitudinal studies are needed to test for causality. Secondly, exclusive reliance on self-report measures could have led to bias in responding by participants. For example, it is possible that adolescents in Class 2 were more inclined to report personality problems than those in Class 1. Future studies should have independent verification of maltreatment and personality pathology with the help of other reliable sources (e.g., parent/teacher reports, structured clinical interviews). Third, the study was on a sample of school-going adolescents in India which may limit generalization of its results to other age groups and cultures. Fourth, the present study did not take into consideration other aspects assessing the multidimensional construct of maltreatment, for example, age of onset, duration of maltreatment, or number of incidents as this was beyond its scope.

Conclusions & Implications

Notwithstanding these limitations, the present study contributes to the extant literature highlighting the presence of multiple types of maltreatment in adolescents at different levels of severity. It is the first to be conducted on an Indian sample of adolescents, and indicated high impact of maltreatment in the context of relatively high levels of exposure (see Charak & Koot, 2014). The study adheres to the call for a more person-centered approach in studying maltreatment in children and adolescents. Doing so, it further adds to the literature suggesting the importance of assessment of maltreatment based on subtypes and severity (e.g., Pears et al., 2008), thus highlighting the multidimensional nature of maltreatment, and its differential impact on personality pathology. Further, mental health practitioners working with adolescent victims of abuse and neglect should take into consideration the severity of maltreatment in relation with possibly noticed personality pathology, and formulate related interventional models. The
present findings show differences across dimensions of personality pathology among adolescents belonging to various classes of abuse/neglect experience. The group differences suggest relative levels of personality pathology, and do not imply the presence or absence of a problem as such. However, it is clear that exposure to multiple types of maltreatment of certain severity may add to the presence of elevated levels of multiple personality problems in exposed adolescents.
Unique versus Cumulative Effects of Physical and Sexual Assault on Patterns of Adolescent Substance use

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CHAPTER 4

Introduction

It is well documented that child maltreatment, including assault is associated with a myriad of psychopathology related outcomes across the lifespan, including anxiety, depression, post-traumatic stress disorder (PTSD), personality pathology, eating disorders, and substance use disorders (e.g., Ackard & Neumark-Sztainer, 2002; Begle et al., 2011; Danielson et al., 2009; Heffernan & Cloitre, 2000; Molnar, Buka, & Kessler, 2001; Moran, Vuchinich, & Hall, 2004; Oshri, Rogosch, Burnette, & Cicchetti, 2011; Shin, Edwards, & Heeren, 2009; Zanarini et al., 2002). In the past, most studies addressing these associations assessed the impact of a single specific type of maltreatment or assault (e.g., sexual assault) on outcomes rather than assessing the co-occurrence of different types of maltreatment and their cumulative effects (Heffernan & Cloitre, 2000; Molnar et al., 2001).

Physical Assault and Sexual Assault

Reports published by the US Department of Justice based on data obtained from law enforcement agencies across 12 states indicated that 32.8% of the adolescents in the age group of 12-17 years face some kind of sexual assault which is highest across all age groups (Snyder, 2000). Further, this report indicated the use of weapon during sexual assault incidents in victims aged 12-17 years. These ranged from the use of hands, feet, or fist to the use of firearms in 1% of the sexual assault victimizations, use of and knife or club in 4% of the cases. A more recent report by the same department focusing on sexual assault among college-age women during the period 1995-2013 based on the National Survey of Victimization indicated that the rates of rape and sexual assault ranged from 6.1%-7.6% whereas simple assaults ranged from 28.5%-47.3%, aggravated crime was in the range of 8.3%-12.5%, and violent crimes ranged from 46.3%-73.1%. In addition, the report indicated that in 10% of the rape cases the offender had a weapon (Sinozich & Langton, 2014). Another report based on the National Survey of Children’s Exposure to Violence (NatSCEV) conducted in 2008 on 4,549 children under the age of 17 years, indicated that children with lifetime physical assault were more than six times as likely to have been sexually victimized during their lifetime (Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009). Though not representative of the population at large, these reports indicate the presence of physical assault in some victims who also experience or have
experienced sexual assault, thus highlighting that multiple types of maltreatment in adolescents is far from a rarity.

A Cumulative Risk Model of Maltreatment/Assault

Originating from the classic Isle of Wight study (Rutter, 1979), the cumulative risk model demonstrates that the more types of risk factors a person is exposed to, the higher the potential for negative outcomes (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). In line with this, studies consistently indicate higher rates of psychological problems in individuals who have been exposed to multiple types of assault when compared to those exposed to single type of assault (e.g., Ackard & Neumark-Sztainer, 2002; Danielson et al., 2009). For example, in a study on 81,247 school-going adolescents from Minnesota indicated that those who had experience date violence and rape were more likely to have disordered eating behavior (e.g., binge eating, use of laxatives) and suicidal thoughts or attempts than their peer with single type of assault or no assault experience (Ackard & Neumark-Sztainer, 2002). Most studies addressing the cumulative effect of multiple types of maltreatment on psychopathology have either used a non-maltreated group for comparison which can inflate the associations between maltreated group and the outcome variable (see Litrownik et al., 2005), or have not compared the cumulative effect of multiple types of maltreatment against the effect of a single or two types (e.g., Clemmons et al., 2007; Shin, Hong, & Hazen, 2010; Vranceanu, Hobfall, & Johnson, 2007). To test the incremental effect of the experience of multiple types of maltreatment when compared to exposure to a single type, a study sample is desirable which includes individuals who have experienced at least one type of maltreatment. In the present study we used a sample of adolescents with physical and/or sexual assault from a nationally representative dataset from the US collected in 1995 with exposure to a single type of assault versus multiple types of assault.

Multiple types of Assault, Gender, and Substance use in Adolescents

Childhood adversities are often related to substance use problems. Substance use typically commences and increases during adolescence. Not surprisingly, studies indicate that the association between childhood maltreatment or assault and problems of substance use become visible during adolescence (Danielson et al., 2009; Thornberry, Henry, Ireland, & Smith, 2010). Theoretical justification exists for this association between victimization and increase in substance use, particularly if the substances are being used
as a coping mechanism among victimized adolescents. The General Strain theory (Agnew, 1992, 2001) posits that exposure to violence and victimization may be stressors that lead to the development of antisocial behavior and substance use via feelings and emotions of frustration and anger. In line with this, Wright, Fagan, and Pinchevsky (2013) in a longitudinal study of 1,655 adolescents indicated that exposure to multiple forms of violence, across multiple domains (at home, community), negatively impact adolescent substance use outcomes, including use of alcohol and marijuana. However, most studies assessing the cumulative effect of multiple types of victimization and substance use assess for one or two type of substances (e.g., alcohol and illicit drugs; Danielson et al., 2009). This stands in contrast to more recent studies on adolescent substance use which indicate that the use of one illicit substance leads to increase in likelihood of use of other illicit substances, leading to polysubstance use (Palmer et al., 2009; Shin et al., 2010). Moreover, some adolescent substance use may simply reflect experimental behavior, while other more pathological forms of use may indicate the early stages of addictive processes, or serious polysubstance use (Dierker, Vesel, Sledjeski, Costello, & Perrine, 2007; Shillington, Roesch, Reed, Clapp, & Woodruff, 2011). Thus, predictors of substance use in adolescence must account for varying patterns of use when addressing associations with maltreatment. Consistent with this approach, studies indicate that childhood trauma is more common in individuals with polysubstance use rather than a monosubstance use (Armour, Shorter, Elhai, Elklit, & Christoffersen, 2014; Hansson et al., 2011; Martinotti et al., 2009). Thus, it is pertinent to study patterns of use across a range of substances (e.g., alcohol, cigarette smoking, chewing tobacco, drug use) in maltreated adolescents. In the present study, we test the unique, versus cumulative, effects of physical assault and sexual assault on different patterns of substance use in adolescents.

In addition, several cross-sectional studies have reported higher mean levels of substance use in males (Leatherdale & Burkhalter, 2012; Wallace Jr. et al., 2003). Longitudinal studies suggest that girls report higher or similar levels of substance use compared to boys during early adolescence, whereas boys have greater increases in substance use over time (e.g., Chen & Jacobson, 2012). Furthermore, rates of physical assault are reported to be higher for males than females (Charak & Koot, 2014; Finkelhor et al., 2009b), and rates of sexual assault are reportedly higher in females (Sinozich & Langton, 2014; Snyder 2000). Hence, in the present study we also assess for the
association between gender and substance use classes, and if gender moderates the association between assault type (single vs. multiple) and membership of substance use class.

Against this background, the present analysis first identified profiles of substance use utilizing latent class analysis (cf. Palmer et al., 2009; Shin et al., 2010) in a large sample of adolescents with physical and/or sexual assault. Second, we examined the extent to which having experienced both physical and sexual assault, would be more strongly associated with class memberships indicating more serious substance use, than experiencing either physical assault (only) or sexual assault (only). Based on the cumulative risk theory and past literature (e.g., Ackard & Neumark-Sztainer, 2002), we hypothesized that adolescents exposed to both physical and sexual assault would be classified more often in heavy substance-use classes than those exposed to only physical assault or sexual assault. Additionally, we expected that more males than females would belong to the heavy substance-use classes (Leatherdale & Burkhalter, 2012; Wallace Jr. et al., 2003). Finally, the "gender paradox" effect (Loeber & Keenan, 1994) states that in disorders with an unequal gender ratio, members of the gender with the lower prevalence rate tend to be more seriously affected in terms of comorbidity and poor outcome. Following this, we expected that gender non-congruent exposure to single types of assault (i.e., exposure to physical assault in females; exposure to sexual assault in males) would result in more heavy substance use in the exposed gender, but that effects of exposure to both types of assault would not be moderated by gender.

Method

Participants

From the National Survey of Adolescents dataset of 1995 (NSA; Kilpatrick & Saunders, 1995; \(N = 4,023\)) we selected adolescents with reports of physical assault and/or sexual assault who were interviewed via the telephone \((N = 918)\). The participants were in the age range of 12-17 years \((M = 14.92, SD = 1.58; 49.6\% \text{ female})\) and were residing with a parent or a guardian. Of these, for 68.6\% their ethnic background was Caucasian, 19.3\% African-American, 9.9\% Latino, 2.5\% American Indian, 1\% Asian, and 0.2\% were Pacific Islanders. Another 7.7\% reported their ethnic background as something else than those inquired for. Nearly, 1\% did not report their ethnic background. Further, 9.9\% reported to be of Hispanic origin. No difference was found in the
CHAPTER 4

distribution of females and males between the maltreated and non-maltreated adolescents ($\chi^2 [N = 4,023, df = 1] = .04, p > .05$), but the maltreated adolescents were somewhat older in age (14.92 vs. 14.39) than those reporting no maltreatment ($t [N = 4,023, df = 4,015] = 8.61, p < .001$).

Procedure

The study was designed for American adolescents in the age range of 12-17 years who were residing in a United States household with a parent(s) or guardian(s), and could converse in English and/or Spanish. The study had participants from a national probability household sample and a probability sample of central city households. Interviews were completed by adolescents in 75% of the eligible households from January to June 1995. Selection and computer-assisted telephonic interviewing was done by a New York based survey company (Schulman, Ronca, and Bucuvalas, Inc.). The present study assessed a part of the National Survey of Adolescents (NSA) participants and the study variables relevant to the present study are described below.

Measures

Physical and Sexual Assault

The items used to obtain adolescent reports on physical assault incidents were being (i) attacked with a gun, knife or some other weapon, (ii) attacked without a weapon, with intent to harm, (iii) threatened with a gun or knife, but not shot or cut, (iv) beaten with a stick, club, bottle, or some other hard object, and (v) beaten up with fists. The sexual assault incidents reported included (i) oral or anal sex by a male perpetrator, (ii) molestation with fingers or objects inside your sexual parts/rear end, (iii) someone put their mouth on your private parts, (iv) someone touched your private parts, (v) someone made you touch their private parts, and (vi) a female put your private parts in her mouth or body. For all the items reflecting assault, response options were ‘yes’ or ‘no’. If participants reported any type of physical assault or sexual assault, this was coded as 1. Those that only scored 1 on physical assault but not on sexual assault were assigned the category of Physical assault only. Similarly, the Sexual assault only category was created, and those who reported to have experienced both physical and sexual assault were assigned to the category of Presence of both physical and sexual assault. Additionally, to compare the severity of each type of assault and the severity of their combination, based
on past literature (e.g., DiLillo et al., 2010) the presence of each of the characteristics of each assault incident related with severity of the assault was tallied (see Table 4.1), and if present was coded as 1 (vs. absent = 0).

Substance use

For assessing the types of substance use in the present study the following items were considered: (i) ever tried cigarette smoking, (ii) regular cigarette smoking, that is, at least one cigarette every day for a month, (iii) chewed/snuffed tobacco in the past one month, (iv) ever had alcohol, (v) frequency of alcohol use during past one year, (vi) heavy drinking, that is, five or more alcohol based drinks in a day, during past one year, (vii) non-prescribed use of prescribed drug (e.g., valium, amphetamines, steroid-pills etc), and (viii) use of illicit drugs (see Table 4.3). The last item comprised the use of one versus more than one drugs (i.e., single versus poly drug use) which included marijuana, cocaine, angel dust, LSD, heroin, and/or inhalants. The option for responding to items for substance use was either a “yes” or a “no,” except for frequency of alcohol use during the past one year, which had the options of “no alcohol use,” “at least once,” “monthly,” and “weekly.”

Statistical Analyses

To explore differences in exposure to maltreatment between the ‘physical assault only’, ‘sexual assault only’, and ‘presence of both physical and sexual assault’ groups, we assessed for differences on various characteristics related to severity of assault between the single assault groups (physical or sexual assault), versus the multiple type assault group using $\chi^2$ difference tests (Table 4.1). Next, latent class analyses (LCA; Hagenaars & McCutcheon, 2002) were conducted using Mplus 7.11 software (Muthén & Muthén, 2013) to determine the number of underlying typologies of substance use in the total sample of adolescents with assault experiences. LCA estimates the posterior probabilities of class membership based on two parameters termed class probability and item probability. While the former estimates the percentage of participants who belong to each class, the latter estimates the probability with which each class member endorses an item. The optimal class solution is based on a variety of statistical fit indices which are the Akaike Information Criteria (AIC; Akaike, 1987), the Bayesian Information Criteria (BIC; Schwartz, 1978), the sample size adjusted BIC (SSABIC; Sclove, 1987), the Lo-Mendell-Rubins adjusted likelihood ratio test (LMR; Lo, Mendell, & Rubin, 2001), and
entropy values (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). Better fitting models are reflected by a significant \( p \)-value for LMR, and low value on the AIC, BIC, and SSABIC (Nylund, Asparouhov, & Muthén, 2007). Higher entropy values indicate better classification (Ramaswamy et al., 1993). Finally, two multinomial logistic regressions models were employed to compare (i) main effect of gender (0 = female, 1 = male), (ii) main group effects of exposure to physical assault, or sexual assault, or to both physical and sexual assault (reference class), and (iii) the gender by group effects of assaults with age as covariate, across the obtained classes of substance use, with Class 2 and Class 3 being a reference group for comparison.

Results

Sixty four percent of the maltreated adolescents (42.2% of females and 86.2% of males) reported to have faced one or the other kind of physical assault. Nearly 20% of the maltreated adolescents (34.5% females and 5.6% males) reported to have experienced sexual assault. Of all maltreated adolescents, 16% (23.2% females and 8.2% males) reported to have experienced both physical assault and sexual assault.

A look at the distribution of the characteristics of assault in the single assault group, in comparison with the multiple-type assault group, indicated that out of the six physical assault characteristics assessed in the present study, four were significantly more endorsed by adolescents with physical and sexual assault, than those with physical assault only (Table 4.1). Further, when comparing adolescents with sexual assault, to those with physical and sexual assault, on characteristics of sexual assault, significant differences were found on presence of rape, familial perpetrator, force used, and physical injury suffered during the assault (see Table 4.1). While adolescents with only sexual assault more often endorsed items assessing for rape and force-used during assault, adolescents with both physical and sexual assault more often endorsed items related to familial perpetrator and physical injury during assault. No difference between the two groups was found on early age of onset (under 5 years of age), duration of assault, or fear of being hurt.

Latent Classes of Substance use

LCA identified a three-class model as the most parsimonious model describing the patterns of substance use among the maltreated adolescents in this study (Table 4.2). The
entropy was adequate and the LMR for the three-class model was significant, whereas it was non-significant for the four-class model (cf. Table 4.2). While the low BIC value suggested the four-class solution as a better solution, the other indices (i.e., LMR, entropy) did not favor the four-class solution. Furthermore, the average posterior latent class probability (.90-.91) of being in a latent class in the three-class solution suggested successful class identification.

The three classes for the substance-use were subjectively named based on the item endorsement related to substance-use. The classes were named “Least polysubstance use” (Class 1; N = 330; 44.5% female), “Alcohol with heavy drinking, and single drug use” (Class 2; N = 327; 50.2% female), and “Heavy polysubstance use” (Class 3; N = 261; 55.2% female). Details of the substance use distribution of adolescents with assault experiences across the three classes are shown in Table 4.3 and distribution of assault experiences by gender across the three classes of substance use is presented in Table 4.4.

Distribution of Single versus Multiple Types of Assault across Substance use Classes

Preliminary analyses showed that age distribution across certain cells was too unequal to include age as a factor in the multinomial logistic regression model. Hence, age was included as a covariate. Next, main effects of gender, and assault group were tested across substance use classes (Class 1 vs. Class 2; Class 1 vs. Class 3; Class 2 vs. Class 3; see Table 4.5). The likelihood ratios for the final model of the multinomial regression ($\chi^2 [N = 918, df = 6] = 156.54, p < .000$; Nagelkerke $R^2 = .18$), for the assault variables ($\chi^2 [N = 918, df = 4] = 22.03, p < .000$), and for gender ($\chi^2 [N = 918, df = 2] = 6.91, p < .05$) were significant. Results indicated that females were more likely to be a member of the “Heavy polysubstance use” class than of the “Least polysubstance use” class (OR = 1.68) than males. No gender difference was found across Class 2 and Class 3. Further, compared to those exposed to physical assault only, adolescents with reported experience of both physical and sexual assault, were almost twice as likely to be a member of the “Heavy polysubstance use” class (Class 3) than of the “Least polysubstance use” class (Class1; OR = 1.69) and the “Alcohol with heavy drinking, and single drug use” class (Class 2; OR = 2.29).
## Table 4.1

### Distribution of Characteristics of Assault Endorsed by Adolescents with Experiences of Physical or Sexual Assault in Comparison with those who had Experienced both Physical and Sexual Assault

<table>
<thead>
<tr>
<th>Type of Assault</th>
<th>Characteristics of Assault</th>
<th>Percentage</th>
<th>χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA vs. PA+SA</td>
<td>Assault with weapon</td>
<td>48.2 vs. 50</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>Onset below 5 years of age</td>
<td>3.3 vs. 5.9</td>
<td>1.98</td>
</tr>
<tr>
<td></td>
<td>Duration of assault over one year</td>
<td>12.2 vs. 22.7</td>
<td>10.35***</td>
</tr>
<tr>
<td></td>
<td>Familial perpetrator</td>
<td>38.2 vs. 49.1</td>
<td>4.18*</td>
</tr>
<tr>
<td></td>
<td>Fear of being hurt</td>
<td>48.5 vs. 66.9</td>
<td>15.57***</td>
</tr>
<tr>
<td></td>
<td>Physical injury due to assault</td>
<td>52.6 vs. 61.7</td>
<td>3.84*</td>
</tr>
<tr>
<td>SA vs. PA+SA</td>
<td>Rape present</td>
<td>85.6 vs. 67.4</td>
<td>7.94**</td>
</tr>
<tr>
<td></td>
<td>Onset below 5 years of age</td>
<td>11.2 vs. 10.6</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>Duration of assault over one year</td>
<td>19.7 vs. 21.0</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>Familial perpetrator</td>
<td>96.3 vs. 100</td>
<td>4.15*</td>
</tr>
<tr>
<td></td>
<td>Force used during assault</td>
<td>98.9 vs. 53.3</td>
<td>98.63***</td>
</tr>
<tr>
<td></td>
<td>Fear of being hurt</td>
<td>49.9 vs. 40.1</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>Physical injury due to assault</td>
<td>7.7 vs. 21.5</td>
<td>12.79***</td>
</tr>
</tbody>
</table>

**Note:** PA = Physical Assault only. SA = Sexual assault only. PA+SA = Presence of both physical assault and sexual assault. ***p < .001. **p < .01. *p < .05.
Table 4.2

*Fit Indices for the Latent Class Models with Two to Four Classes for Substance use in Adolescents with Assault Experiences*

<table>
<thead>
<tr>
<th>Number of classes</th>
<th>LMR (p value)</th>
<th>Entropy</th>
<th>AIC</th>
<th>BIC</th>
<th>Adjusted BIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1535.49 (.000)</td>
<td>.84</td>
<td>8043.02</td>
<td>8153.93</td>
<td>8080.88</td>
</tr>
<tr>
<td>3</td>
<td>356.80 (.000)</td>
<td>.82</td>
<td>7705.86</td>
<td>7874.63</td>
<td>7763.48</td>
</tr>
<tr>
<td>4</td>
<td>97.30 (.13)</td>
<td>.78</td>
<td>7631.37</td>
<td>7858.02</td>
<td>7708.75</td>
</tr>
</tbody>
</table>

*Note:* LMR = Lo-Mendell-Rubin test. AIC = Akaike’s Information Criterion. BIC = Bayesian Information Criterion.
Table 4.3

*Percentage Distribution of Adolescents across the Three Classes Based on Responses on Substance use*

<table>
<thead>
<tr>
<th>Substance-use</th>
<th>Class 1 (N = 330)</th>
<th>Class 2 (N = 327)</th>
<th>Class 3 (N = 261)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever smoked</td>
<td>36.6</td>
<td>69</td>
<td>99.1</td>
</tr>
<tr>
<td>Regular smoker</td>
<td>5.7</td>
<td>7.8</td>
<td>73.3</td>
</tr>
<tr>
<td>Chew/Snuff tobacco in the past month</td>
<td>2.6</td>
<td>5.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Ever had alcohol</td>
<td>22.3</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Frequency of alcohol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>at least once</strong></td>
<td>0</td>
<td>47.4</td>
<td>17.6</td>
</tr>
<tr>
<td>Monthly</td>
<td>0</td>
<td>17.6</td>
<td>16</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
<td>20.9</td>
<td>62.1</td>
</tr>
<tr>
<td>Heavy drinking in the past one year</td>
<td>0</td>
<td>27.2</td>
<td>79</td>
</tr>
<tr>
<td>Medicine abuse</td>
<td>6.2</td>
<td>8.9</td>
<td>42.8</td>
</tr>
<tr>
<td>Illicit drug use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single drug use</td>
<td>4.3</td>
<td>24.9</td>
<td>46.3</td>
</tr>
<tr>
<td>Poly drug use</td>
<td>.7</td>
<td>.4</td>
<td>41.5</td>
</tr>
</tbody>
</table>

*Note:* Class 1 = Least polysubstance use. Class 2 = Alcohol with heavy drinking, and single drug use. Class 3 = Heavy polysubstance use.
Table 4.4

*Frequency of Assault Groups across the Three Classes of Substance use by Gender*

<table>
<thead>
<tr>
<th>Assault Groups</th>
<th>Gender</th>
<th>Class 1 (N = 330)</th>
<th>Class 2 (N = 327)</th>
<th>Class 3 (N = 261)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical assault</td>
<td>Female</td>
<td>65</td>
<td>76</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>158</td>
<td>141</td>
<td>100</td>
</tr>
<tr>
<td>Sexual assault</td>
<td>Female</td>
<td>56</td>
<td>63</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>13</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Physical and Sexual assault</td>
<td>Female</td>
<td>26</td>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>12</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

*Note:* Class 1 = Least polysubstance-use. Class 2 = Alcohol with heavy drinking, and single drug use. Class 3 = Heavy polysubstance use.
**CHAPTER 4**

Table 4.5

*Main Effects of Gender and Assault Group on Substance use Class Membership after Controlling for age in Adolescents with Assault Experiences*

<table>
<thead>
<tr>
<th>Class 1 vs. Class 2&lt;sup&gt;a&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Female vs. Male</td>
<td>B (.SE)</td>
<td>Odds Ratio</td>
<td>95% CI for Odds Ratio</td>
</tr>
<tr>
<td>PA vs. PA+SA</td>
<td>-.33 (.18)</td>
<td>.72</td>
<td>.50-1.03</td>
</tr>
<tr>
<td>SA vs. PA+SA</td>
<td>-.30 (.27)</td>
<td>.74</td>
<td>.44-1.25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class 1 vs. Class 3&lt;sup&gt;3&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Female vs. Male</td>
<td>B (.SE)</td>
<td>Odds Ratio</td>
<td>95% CI for Odds Ratio</td>
</tr>
<tr>
<td>PA vs. PA+SA</td>
<td>.52 (.26)*</td>
<td>1.69</td>
<td>1.02-2.80</td>
</tr>
<tr>
<td>SA vs. PA+SA</td>
<td>1.03 (.30)***</td>
<td>2.81</td>
<td>1.55-5.07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class 2 vs. Class 3&lt;sup&gt;3&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Female vs. Male</td>
<td>B (.SE)</td>
<td>Odds Ratio</td>
<td>95% CI for Odds Ratio</td>
</tr>
<tr>
<td>PA vs. PA+SA</td>
<td>.83 (.25)***</td>
<td>2.29</td>
<td>1.41-3.70</td>
</tr>
<tr>
<td>SA vs. PA+SA</td>
<td>1.17 (.29)***</td>
<td>3.22</td>
<td>1.84-5.64</td>
</tr>
</tbody>
</table>

*Note: PA = Presence of Physical Assault only. SA = Presence of Sexual Assault only. The reference group for maltreatment is those who report experiences of both physical and sexual assault. Class 1 = Least polysubstance use. Class 2 = Alcohol with heavy drinking, and single drug use. Class 3 = Heavy polysubstance use. <sup>a</sup>Indicates the reference class of substance-use.*
Similarly, when compared with adolescents exposed to only sexual assault those exposed to both physical and sexual were two- to three times as likely to be a member of the “Heavy polysubstance use” class than of the “Least polysubstance use” class (OR = 2.81) and “Alcohol with heavy drinking, and single drug use” class (OR = 3.22). No difference in the likelihood of substance-use group membership between Class 1 and Class 2 was found across physically or sexually assaulted adolescents, when compared with multiple-type maltreated adolescents (Table 4.5).

To test the “gender paradox” effect, we examined the interaction of Assault group x Gender as a predictor of each latent class. The likelihood ratio test indicated that this interaction term was non-significant ($\chi^2 [N = 918, df = 4] = 3.18, p = .53$) in any of the comparisons, indicating that neither single nor multiple-type assault effects on substance use were moderated by gender. Hence, the interaction term was not included in the final model.

Discussion

The main focus of the present study was to test the hypothesis that having experienced both physical and sexual assault would be more strongly associated with class memberships indicating more serious substance use, than experiencing either physical assault only or sexual assault only. To this end we used a class-based approach linking patterns of substance use to different levels of assault. Based on the number of substances used, and the frequency with which specific substances were used, three classes of substance use were found in this sample of adolescents with reported assault incidents. Of concern in the present study, is that nearly 64% of the adolescents belonged to the more heavy polysubstance use classes (i.e., Class 2 and Class 3), and reported frequent consumption of alcohol, and being involved in heavy-drinking, and drug use (Table 4.3). Notably, the present findings are based on a dataset collected in 1995 and hence the rates of substance use may differ from the present day. Nonetheless, the present findings highlight that polysubstance use is related with childhood maltreatment as also found in prior studies (Hakansson et al., 2011; Martinotti et al., 2009). Further, the present results are in line with one previous study indicating heterogeneous classes (mutually exclusive) of substance use among adolescents, ranging from low substance use to heavy polysubstance use (Shin et al., 2010). Notably, the present study is based on a sample of adolescents with physical and/or sexual assault whereas Shin et al (2010)
The results from this study supported our main hypothesis that when compared to adolescents exposed to only physical assault or sexual assault, those exposed to both physical and sexual assault were likely belong to the most severe class of substance use. As compared to the most severe class of substance use, that is, “Heavy polysubstance use” (Class 3), adolescents in the other two classes had a lower likelihood of being exposed to multiple types of assault, viz. physical assault and sexual assault. This is in line with the cumulative risk theory and a number of studies which indicate that irrespective of the type of experience (e.g., physical assault, sexual assault), multiple types of assault leads to increase in risk for psychological problems, often in a linear way (Ackard & Neumark-Sztainer, 2002; Wright et al., 2013). Hence, in the present study a clear-cut risk of having experienced two types of assaults (rather than one) is an indicator of higher chances of heavy polysubstance use. However, no difference was found on the likelihood of adolescents with single type of assault and multiple type of assault belonging to “Least polysubstance use” (Class 1) relative to “Alcohol with heavy drinking, and single drug use” (Class 2). Furthermore, a look at the characteristics of physical assault, and sexual assault indicated that on characteristics related to severity of physical assault, more adolescents exposed to both types of assault endorsed more of these characteristics than adolescents exposed to only to physical assault. However, characteristics of sexual assault did not point towards any one group being higher on severity of sexual assault than the other (Table 4.1). In the context of the present results of cumulative effects of maltreatment on the likelihood of membership of heavy substance use classes, it may be that severity of physical assault is the underlying force determining the use of heavy poly substance-use, in physically and sexually assaulted adolescents. This is speculative however, and needs to be explored further. Future studies may look at typologies (e.g., using latent class analysis) of characteristics composing the severity of physical and sexual maltreatment, and their differential association with patterns of substance use.

In the present study females were more likely to be members of “Heavy polysubstance use” class than the “Least polysubstance use” class when compared with males. No gender difference was found across Class 2 and Class 3. Additionally, gender
was not a moderator of the differential effects of assault on substance use class membership. This stands in contrast with epidemiological studies indicating main effects of gender with boys reporting higher levels of substance use than females (e.g., Leatherdale & Burkhalter, 2012; Wallace Jr. et al., 2003). Notably, these studies are primarily based on community samples, while the present study was based on adolescents who had experienced physical assault and/or sexual assault incidents. Future studies need to replicate the present findings and draw comparisons between maltreated versus non-maltreated adolescents to address potential gender effects on the association between maltreatment/assault and substance use.

The present study results should be considered in light of the following limitations. First, we did not take into consideration or control for other types of maltreatment (e.g., neglect) that may co-occur with physical and sexual assault incidents in adolescents, and hence the present findings are limited in this regard. Second, although we reported gender differences in substance use class membership we did not perform latent class analyses of substance use separately for boys and girls. Future studies should address potential gender differences in the composition or frequency of use of substances underlying classes of substance use in maltreated adolescents. Third, we did not take into consideration in the multivariate analysis the severity or multidimensional nature of assault (e.g., age of onset, duration of assault etc; English et al., 2005; Litrownik et al., 2005) as that was beyond the scope of the present study. However, we have presented a description of the underlying components of severity of physical assault and sexual assault, based on existing scales assessing the same constructs (e.g., Computer Assisted Maltreatment Inventory; DiLillo et al., 2010). Studies in the future should employ ways to gauge the severity of maltreatment using scales like the Computer Assisted Maltreatment Inventory (DiLillo et al., 2010), for a more comprehensive understanding of the association between maltreatment and substance use in adolescents.

The present findings have important theoretical and clinical implications. First, they add to the growing literature on child maltreatment, including incidents of assault and substance use pathology by bringing forth patterns of substance use among adolescents with assault experiences. In doing so, they underscore the need for improved substance use prevention and early intervention in adolescents with a history of assault. To the best of our knowledge, this is the first study assessing for latent classes of substance use in a sample of adolescents with physical and/or sexual assault. Second, the
present findings add to the literature by emphasizing the need for qualification of assault incidents as a single type or co-occurring type, and in doing so the differential association with constructs of psychopathology may become better visible. In light of the risk of exposure to multiple types of assault being associated with heavy polysubstance use in adolescents, the present study is important in facilitating clinicians in identifying among adolescents with assault incidents those who are at increased risk for serious substance use.
Child Maltreatment and Psychopathology:
General Discussion
CHAPTER 5

Introduction

The work in the present thesis had two major aims. First, it is an effort to answer the repetitive calls for more empirical studies investigating maltreatment in children and adolescents from developing countries such as India. Second, the thesis is grounded in the notion that assessing the co-occurrence of maltreatment types and their severity level is essential for a better understanding of related psychopathology, including personality pathology and substance use in adolescents. Much research has added to the understanding of what constitutes child abuse and neglect, and its sequelae, however most of the work originates from western countries. During the last two decades and gaining impetus since the last decade is the concept of severity of maltreatment. With a focus on this concept, the Journal of Child Abuse and Neglect came out in 2005 with a series of research articles emphasizing the importance of assessing severity of maltreatment and the best method to measure this concept. Answers provided in these articles clearly indicated that it is essential to gauge severity within each maltreatment type, which in turn might lead to differential diagnoses, and thus better formulation of interventions. Despite a general increase in interest on the concept of severity of maltreatment and related psychological outcomes, studies more often than not continue to measure maltreatment as a unidimensional concept which is akin to all-or-none phenomena.

The studies reported in the present thesis addressed these voids in the child maltreatment literature using reports from adolescents from India, and the US. The introductory Chapter 1 provided a conceptual framework for the studies included in the thesis. Chapter 2 gauged the factor structure of a frequently used tool for the measurement of child abuse and neglect known as the Childhood Trauma Questionnaire (CTQ), with known good psychometric properties, in a relatively large sample of adolescents from Jammu, India. Furthermore, it assessed prevalence rates of maltreatment and the role of gender, family structure, and each parent’s level of education with regard to five types of child maltreatment, namely, emotional, physical, and sexual abuse, and emotional, and physical neglect. Chapter 3 was an extension of the preceding chapter, and tested whether heterogeneous classes of adolescents based on the five types of maltreatment and level of their severity differed on 17 dimensions of personality pathology. Based on the cumulative risk theory of maltreatment, Chapter 4 investigated the role of single-type of assault versus multiple-type assault, and its association with classes of substance use in adolescents from the US. In addition, in Chapters 3 and 4 the
role of gender as a potential moderator in the relation between patterns of maltreatment or groups of assault, and personality pathology, and substance use problems was investigated. The present chapter summarizes and integrates the findings presented in the preceding chapters. First, a comprehensive evaluation of the factor structure of the CTQ in a sample of Indian adolescents is provided. Second, the association between classes based on various types of maltreatment and their severity, and psychopathology are described. Subsequently, an analysis of the strengths and limitations of this thesis is presented, followed by the general conclusions. Finally, the chapter discusses the implications of the findings, and includes suggestions for directions in future research.

Abuse and Neglect in Adolescents from India: Role of Gender, Family Structure, and Parental Education

Over the past few decades the issue of child abuse and neglect in India has been highlighted by researchers; however, not many studies related to the prevalence of abuse and/or neglect has been conducted in this country. More often than not, those that have been performed relied on information obtained from non-standardized instruments, thus hampering the comparison of prevalence rates within the nation and across the globe. The International Society for the Prevention of Child Abuse and Neglect (ISPCAN) published the Child Abuse Screening Tool-ICAST-Retrospective version (Dunne et al., 2009), Parent version (Runyan et al., 2009), and Children’s version (Zolotor et al., 2009) for use across different cultures and nations, including India. However, this instrument is in a nascent stage, and its psychometric properties in the Indian context are yet to be developed. Thus, it is important to assess the prevalence of abuse and neglect using a standardized questionnaire in an Indian sample in light of the large population under 18 years of age that India houses, in order to promote better child-welfare policy formulation at national and international levels.

An important issue that must be addressed is related to the factor structure of the measurement tools employed in western studies, and their generalization to other regions such as India. Cognizant of the role of ecological factors, including familial, cultural, political and other regional differences it becomes pertinent to address the prevalence rates of child abuse and neglect in India, and the role of gender, type of family structure, and parental education vis-à-vis child maltreatment.
CHAPTER 5

Factor Structure of the CTQ in Indian Adolescents

In the absence of a legal definition for child abuse and neglect in India, the current thesis employed a widely used questionnaire for measuring childhood maltreatment. Importantly and for the first time, the factor structure of the instrument was assessed in an Indian sample. The original factor structure of the CTQ with five factors, namely, emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect was not replicated as described in Chapter 2. The current findings supported a four-factor structure constituting the three abuse factors and the merging of the neglect items, leaving aside 3 redundant items from the original physical neglect scale. Documented in Chapter 2 are reasons for the four-factor structure and the removal of 3 items from the original 25 items of the CTQ. The dropped items were related to tangible needs (e.g., *not enough to eat*) which in a highly stratified society such as India may reflect an unintentional inability of a parent to provide these needs rather than intentional neglect. On the other hand, one item specifically related to parental neglect may fall void if others in the extended family (e.g., grandparents) take on the onus of child care, often found in collectivistic societies such as India. The remaining two items from the physical neglect scale loaded onto the factor of emotional neglect. This has also been found in prior studies (Gerond & Allgulander, 2009; Kim, Park, Yang, & Oh 2011). Findings from Chapter 2 provide a ground for future studies to conceptualize the dimensions of abuse and neglect in the context of the social milieu in India.

Prevalence of Child Abuse and Neglect in India

The issue of lack of data regarding child maltreatment from developing nations such as India is much emphasized by academia, international organizations, and more recently from within certain sections of the Indian national government. In the absence of a legal definition, standardized measurement tools and lack of funds for research, the assessment of child maltreatment in India is usually put on the back burner. Chapter 2 of the present thesis attempted to fill this void. Utilizing a psychometrically strong tool (i.e., the CTQ), the chapter describes as much as three-fold higher rates of emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect among Indian adolescents when compared with the results of similar studies from western countries (i.e., Germany, Canada, and the US). The findings compliment an existing national survey on child abuse in India (Kacker, Varadan, & Kumar 2007), although direct
comparisons were not possible owing to differences in methodology employed in the two studies. The reasons for the higher rates of emotional and physical abuse may largely be attributed to the societal sanctioning of disciplinary practices (Runyan et al., 2010) akin to the phrase “Spare the rod, and spoil the child” and also to a lack of legislative policies (SAIEVA, 2011). Moreover, the present study was based on adolescents from Jammu city in the state of Jammu and Kashmir, which often lags behind in the implementation of acts/laws passed by the central government, owing to its special constitutional status. For example, while the ban on corporal punishment in schools has been enacted as a law by the Central government of India, the state of Jammu and Kashmir is yet to reach a decision on it. On the other hand, the high rate of sexual abuse may point towards the willingness of adolescents to report such incidents in a society which is likely to silence the existence of such incidents as it is thought to bring stigma (Kacker et al., 2007).

Role of Gender, Family Structure, Mothers’ Level of Education, and Fathers’ Level of Education

Chapter 2 furthers the validity of the four-factor structure of the CTQ in Indian adolescents as the addition of covariates such as gender, family type and parental education did not alter the factor structure found in the present thesis. Findings indicated that males reported higher rates of emotional abuse, physical abuse and sexual abuse, whereas no gender difference was found on neglect. The current findings are described in the context of the existing societal and cultural norms prevalent in India. For example, the rates of sexual abuse being higher in males stand in contrast to prior literature predominantly reported from the western countries. The present contrasting findings can be explained by the related absence of supervision by adults for males in India and/or denial of the existence of sexual abuse in male youth and its consequent lack of protective measures. While the female child is kept under stricter vigilance which may act as an incognito safety net for them, the existing public opinion regarding a boy-child being safe, and denial of sexual abuse in males puts them at-risk. Such findings and explanations have also been stated from other Asian countries such as China and Malaysia (Choo, Dunne, Marret, Fleming, & Wong, 2011; Leung, Wong, Cohen, & Tang, 2008). Notably, there was no difference in rates of neglect among females and males. This stands in contrast to the social problem of “girl-child neglect,” prevalent in India as highlighted by previous studies and national surveys. A reason for the present finding can be viewed from the perspective that the results are based on a sample of school-going
adolescents from a certain emancipated strata open to sending their daughters to good schools and investing in the girls’ future. However, these findings need to be warranted by future studies. Furthermore, as indicated in Chapter 3 males were more likely to belong to classes with moderate-severe level of abuse (i.e., Class 1 and 2) than females, whereas the distribution of males and females in the moderate-severe level of neglect class (i.e., Class 3) was proportionate. The overall message reflected in the present thesis on the association between gender and maltreatment in Indian adolescents is that, unlike the prevailing opinion, males report and are more likely to have experienced higher rates of moderate-severe abuse than females.

Ecological risk factors for child maltreatment were also highlighted in Chapter 2. First, the type of family structure of the adolescent’s family played a role only in sexual abuse: adolescents living in a joint family set-up reported higher levels of sexual abuse. As discussed in Chapter 2, it would be premature to conclude that residing in a joint family as such is a risk factor because other factors may also play a role. In the present study the average household size was higher than the national average. Factors such as density of people in the house may have played an underlying role. More evident was the role of mothers’ education in child abuse and neglect. As highlighted by previous studies, children of less educated mothers report higher levels of abuse and neglect compared to children of mothers who have completed High school (Brown et al., 1998; Kotch et al., 1995). However, fathers’ level of education was not associated with child maltreatment which may be indicative of the general lack of direct involvement of fathers in child care in the Indian society (Segal, 1999). Since the prevailing societal norms ascribe the role of the father as that of a breadwinner and not of a child caregiver, his level of education may fail to affect maltreatment experienced by the child. The present findings spell out risk factors related to child abuse and neglect among Indian adolescents. It also sheds light on the importance of promoting higher levels of maternal education (i.e., at least a High school degree) as a potential buffer against child maltreatment and as a promoter of the well-being among children.

**Patterns Based on Multiple Types of Maltreatment, and Severity within Each Type of Maltreatment**

A paradigm highlighted in the child maltreatment literature is the co-occurrence of different types of maltreatment (Finkelhor et al., 2007; Higgins & McCabe, 2000). The
related empirical question focuses on the existence of any underlying patterns of maltreatment, and their potential differential association with psychological outcomes. Though a relatively new field, studies have begun to measure these patterns/profiles of maltreatment in children (Pears et al., 2008), and adults (Armour et al., 2014), and have found multiple patterns of maltreatment. Because only a handful of studies exist, no common patterns have been observed or brought to the forefront by these studies. Additionally, research studies suggest that differential effects of different maltreatment types or maltreatment profiles on psychopathology are visible only when the severity within each type of maltreatment is taken into account (English et al., 2005; Litrownik et al., 2005; Pears et al., 2008). Hence, while assessing the existence of maltreatment profiles it is important to take into account the severity level of each type of abuse or neglect. In line with this, Chapter 3 of the present thesis assessed patterns or typologies of maltreatment and their level of severity using latent class analysis (LCA) for categorical measures of maltreatment with five types of maltreatment, namely, emotional, physical, and sexual abuse, and emotional and physical neglect. This methodology has been recommended by different research groups for assessing maltreatment and victimization in children/adolescents and adults (Nurius & Macy, 2008; Roesch et al., 2010).

Adhering to this recommendation, in the present thesis assessment was based on level of severity of abuse and neglect obtained on the CTQ (Bernstein et al., 2003) in an Indian sample. Across the sample, it was found that multiple mutually exclusive classes of adolescents exist, with homogeneity within each class. This is suggestive of differences in the distribution of maltreatment patterns across each class. Notably, the obtained patterns were different not only in severity of maltreatment (e.g., least severe or highest severity across all maltreatment patterns) but differences were evident in the types of maltreatment constituting the patterns as well. For the five types of maltreatment, a four class solution was found in adolescents as documented in Chapter 3 of the present thesis. The class with the highest percentage of adolescents reporting moderate-severe levels of emotional abuse, physical abuse, sexual abuse, and physical neglect was termed “Moderate-severe abuse and physical neglect” (Class 1). Class 2 had adolescents endorsing high levels of physical and sexual abuse next to Class 1 adolescents. This class was hence labeled as “Moderate-severe physical abuse and sexual abuse.” Class 3 had a relatively low percentage of adolescents with abuse but reported moderate-severe neglect, and was termed “Moderate-severe neglect.” The last class had adolescents with
negligible abuse and low neglect, and was labeled “Minimal abuse or neglect.” Overall, the findings reported in Chapter 3 support the existence of multiple mutually exclusive classes of participants based on self-reports of childhood maltreatment and severity levels within each maltreatment type across the sample of adolescents from India.

**Unique versus Cumulative Effect of Maltreatment/Assault**

The cumulative risk model demonstrates that the more types of risk factors a person is exposed to the higher the potential is for negative psychological outcomes (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). In line with this, studies consistently indicate higher rates of psychological problems, including, disordered eating behavior, suicidal thoughts or attempts, and substance abuse, in individuals who were exposed to multiple types of assault when compared to those exposed to single type of assault (e.g., Ackard & Neumark-Sztainer, 2002; Danielson et al., 2009). However, seldom have studies assessed the incremental value of experiencing multiple versus a single type of victimization (e.g., Danielson et al., 2009) outside the direct care-giving environment (e.g., Clemmons et al., 2007). In Chapter 4 of the present thesis, an attempt was made to assess the unique and cumulative effects of physical and/or sexual assault and compare their effects on patterns of use of a broad range of substances, namely, alcohol use, cigarette smoking, chewing tobacco, non-prescribed use of medicine, and drug use. A three class solution for substance use was found to be the most parsimonious and meaningful. Details of the three classes of substance use are discussed below. Results indicated that, as compared to adolescents exposed to a single type of assault those exposed to both physical and sexual assault were two-to-three times more likely to be a member of the most severe class of substance use (i.e., Heavy polysubstance use) when compared to the other two less severe classes (i.e., Least polysubstance use, and Alcohol with heavy drinking, and single drug use). This finding is illustrative of results regarding the second aim of this thesis, which will be discussed in the next sections.

**Psychological Outcomes**

*Multiple Maltreatment and Related Psychological Outcomes*

The second major aim of this thesis was to extend the paradigms of multiple types of maltreatment and their level of severity and assess their differential relations with personality pathology (in Chapter 3), and substance use (in Chapter 4).
Single versus Multiple Types of Assaults and Patterns of Substance use

Substance use during adolescence is associated with a host of acute and long-term health and social effects (National Institute on Drug Abuse, 2012). Multiple risk factors are associated with the commencement and maintenance of substance use, including child maltreatment, family conflict, economic deprivation, academic failure, and availability of substances. In addition, polysubstance use is more often reported in individuals with childhood maltreatment (Hakansson et al., 2011). In Chapter 4 of the present thesis, findings based on a broad range of substances indicated that three discrete classes of substance use exist among adolescents with assault experiences. The obtained classes were subjectively termed “Least polysubstance use” (Class 1), “Alcohol with heavy drinking, and single drug use” (Class 2), and “Heavy polysubstance use” (Class 3). The findings further support that the likelihood of engaging in heavy polysubstance use is increased among physically and sexually assaulted adolescents when compared with those who had experienced either physical or sexual assault. In line with the cumulative risk theory of maltreatment, the present findings indicate that irrespective of the type of experience (e.g., physical assault, sexual assault), when multiple types of assault are present, it increases the risk for psychological problems. In other words, the presence of multiple different types of assault experiences has an additive effect albeit negative on the well-being of an individual (Ackard & Neumark-Sztainer, 2002).

Multiple Types of Maltreatment and Personality Pathology

Literature suggests that personality traits are more stable across the lifespan than personality disorder diagnoses (Chanen et al., 2004; Johnson et al., 1997). Thus, the assessment of personality problems in adolescence would benefit from measuring personality in terms of traits rather than a syndrome. Combining this with the interactive model of maltreatment, it is suggested that the more types of maltreatment experienced and the higher the level of severity within each type of maltreatment, the higher the levels of associated psychopathology would be. In Chapter 3 of the present thesis, differences were found in the levels of the different dimensions of personality pathology across the four classes of maltreatment identified. This supports the idea that interactive models of maltreatment facilitate the study of differential impact on personality pathology. The class with adolescents reporting moderate-severe emotional and physical neglect alone (i.e., Class 3) appeared to experience fewer personality problems when compared to the
classes of adolescents who reported the experience of a combination of several types of moderate-severe abuse and neglect (i.e., adolescents in Class 1 and Class 2). More specifically, adolescents belonging to the two classes with higher levels of abuse and neglect and higher levels of severity had higher scores on dimensions of personality problems pertaining to dissocial behavior and emotional dysregulation. Interestingly, adolescents in the class with moderate-severe levels of physical and sexual abuse and relative absence of neglect (i.e., Class 2), when compared to the class with the most highly maltreated adolescents (i.e., Class 1), appeared to suffer more pervasive detriments to personality functioning. Furthermore, those in Class 1 had clear cut rejection experiences which may be related to the development of signs of antisocial personality as evidenced by the high scores on callousness and conduct problems. In all, these findings underscore the importance of addressing the severity of experiences of five types of maltreatment in relation to personality problems in adolescents. In addition, the findings also highlight the use of an interactive approach and the cumulative effect of classes/groups based on maltreatment type and its severity in assessing for differential relations with personality pathology. The types of abuse and neglect in the range of moderate-severe levels were experienced by an adolescent the higher were the levels of reported personality problems.

Role of Gender

As mentioned previously, rates of childhood abuse and neglect differ among males and females as do the rates of psychological outcomes. It has been suggested that gender influences the expression of personality traits, substance use, and other negative psychological outcomes (Kessler et al., 1994; Leatherdale & Burkhalter, 2012; Tromp & Koot, 2008). In Chapters 3 and 4 of the present thesis, some expectable gender differences were observed on psychopathology. The overall direction was that females reported higher on levels of internalizing problems (e.g., emotion dysregulation in personality pathology) and males reported higher levels of externalizing problems (e.g., dissocial personality problems). However, no differential effects of maltreatment classes or assault groups on psychopathology were found across males and females. When the study outcome was patterns of substance use as in Chapter 3, females were almost twice as likely as males to be members of the “Heavy polysubstance use” class than the “Least polysubstance use” class. However, no gender effects on the association between these substance use classes and exposure to single or multiple forms of assault were found.
Collectively these are important findings given the current debate on gender differences in the effects of and resilience to childhood maltreatment, indicating that under similar exposure to maltreatment possible effect expressions in terms of psychopathology may not be moderated by gender.

**Strengths and Limitations**

This thesis contributes to a better understanding of experiences of multiple types of childhood abuse and neglect in adolescents from India and the US. In doing so it also answers the call for more maltreatment research from developing countries to overcome the lack of comprehensiveness in understanding the prevalence and patterns of abuse and neglect. To the best of our knowledge, it is the first study that examines the factor structure of the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003), a popular measure of childhood maltreatment, in adolescents from India. Additionally, the use of multiple indicators and multiple causes (MIMIC) structural equation modeling, facilitated the study of effects of covariates, namely, gender, family structure, and each parent’s education level vis-à-vis the influence of maltreatment factors. Comparison of scores on five types of maltreatment in adolescents from India with similar samples from the west such as Germany facilitated the evaluation of prevalence rates in India in comparison to other western nations. This sets the stage for further research on the prevalence and mechanisms of maltreatment and psychopathology from the region.

A second strength is the inclusion of samples from two nations, namely, India and the US, and the large size of each sample. This provided the opportunity to study various paradigms of childhood maltreatment and victimization across nations, assessing the co-occurrence of abuse and neglect (Chapter 3), and cumulative effect of childhood physical and sexual assaults (Chapter 4) on a broad range of indications of psychopathology. While Chapter 3 found support for the co-occurrence of childhood abuse and neglect in Indian adolescents, the study samples was from the community and hence had individuals both with reported maltreatment and no or minimal maltreatment. Further, the study is the first to assess classes of maltreatment types in a sample of adolescents from a developing nation. The study facilitated the differential effects of various patterns of maltreatment on personality pathology. The sample of adolescents from the US was screened for those who reported physical and/or sexual assault. This facilitated the study of evaluating the increase in likelihood of negative outcomes (i.e., heavy polysubstance use) for
adolescents who reported physical and sexual assault compared to those who report a single type of assault.

The third strength of the thesis is the study of gender as a potential moderator of the association between childhood maltreatment and psychopathology outcomes. The finding that gender-specific expressions of psychopathology exist in the context of maltreatment is in line with the earlier literature wherein females display more internalizing behavior and males display more externalizing behavior. The relations between child maltreatment classes/assault groups and psychological outcomes were the same for males and females. These findings add to the literature on gender-specific effects of child maltreatment on psychopathology.

The thesis also has much methodological strength. By establishing the factor structure of the CTQ, and adding a number of important covariates to the model which did not change the factor structure, we added to the measurement invariance of the CTQ model (Muthén, 1989). The use of latent class (i.e., LCA) in Chapter 3 is in line with the recommendations suggested for the assessment of the co-occurrence of different types of maltreatment in children and adults (Nurius & Macy, 2008; Roesch et al., 2010). Furthermore, LCA of substance use also added to the assessment of the use of a broad range of substances which are seldom used in isolation. These study characteristics contributed positively to the impact of the thesis.

This thesis should be considered in light of its limitations. First, cross-sectional designs were used in the present thesis. Second, maltreatment assessments were based on self-report, but not confirmed by independent observation (e.g., social worker). Third, the sample from India was limited to school-going adolescents and hence may not generalize to the other sections of society. Finally, the study reported in Chapter 4 is based on data collected in the mid 1990’s and hence the distribution of assault experiences and substance use may not apply today.

**General Conclusions**

The main conclusions drawn from the present thesis are as follows. First, the factor structure of the CTQ was different than what is often reported from studies based on western samples. Instead of a five factor solution, a four factor solution was found in the present sample of Indian adolescents. The finding that two items from physical
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neglect instead loaded onto emotional neglect is in line with findings from previous non-American studies (from Sweden and Korea). Nonetheless, the present study led to the comparison of the prevalence of child abuse and neglect in India with other countries from the west, showing a two-to-threefold increased risk of exposure to maltreatment for Indian adolescents. In addition, the study of gender and ecological factors such as family structure, mothers’ level of education, and fathers’ level of education added to the understanding of maltreatment in India.

Second, the study reported in Chapter 4 highlights the increase in the likelihood of indulging in heavy polysubstance use when an adolescent experienced both physical and sexual assault compared to when the experience is of single type of assault. This highlights the cumulative detrimental effect of experiencing multiple types of assault in adolescents.

Third, the co-occurrence of different types of maltreatment was presented by the study based on adolescents from India in Chapter 3. Based on an interactive approach, the study highlighted multiple patterns based on types and severity within each type of maltreatment. It further supported the cumulative effect of experiencing multiple types of maltreatment of high severity on personality pathology. Patterns or classes with overall high levels of all types of abuse and neglect, and high levels of physical, sexual abuse and neglect were found to comprise individuals facing more personality related problems.

Implications

The findings presented in this thesis have several implications as detailed below.

Theoretical and Research Implications

Research in countries that lack a legal definition of abuse and neglect in childhood should focus on establishing measures based on the World Health Organization (WHO) definition or adapt popular measures of childhood maltreatment. This would provide an impetus to the study of maltreatment which in turn will facilitate policy formulation. Second, focus should be on the assessment of multiple types of maltreatment and their patterns, and on the question of whether there are certain common profiles that are more problematic than others. Future studies should simultaneously compare differential effects of maltreatment using a cumulative approach and an interactive approach. This would facilitate the understanding of which approach proves better in teasing apart the
association between child maltreatment and psychopathology. Third, to increase the validity of maltreatment and psychopathology related reports, multi-informant reports from target participant’s parents, teachers, and health care workers (e.g., family doctor) should be collected for corroboration. Supplementing this methodology, structured interviews should be used (e.g., SCID-I; First, Spitzer, Gibbon, & Williams, 1996) for gauging and corroborating self-reports of psychological problems.

Clinical Implications

Interventions at a primary level should focus on conducting informational sessions regarding the high rates and negative consequences of maltreatment in both girls and boys, and how to combat it, among children, parents, teachers, and society at large. Mass awareness can be generated via popular mediums such as (social) media, newspapers, and workshops in schools for children and teachers especially in developing countries such as India where child maltreatment and its impact is not widely acknowledged. Focus should center on factors such as parenting skills, including the active involvement of the father in child-care. By-stander intervention programs need to be formulated for within and outside the family settings. In addition, more community and neighborhood based outreach programs for the (potential) victim and the family should be established without stigmatizing the need for help. At a secondary level, familial risk factors such as low maternal education, and living in large-sized families can be employed by clinicians to identify at-risk adolescents. Additionally, those with certain patterns of maltreatment or multiple types of maltreatment should be identified as at-risk populations, and interventions to curb further debilitation should be carried out. For example, prior studies (Pears et al., 2008) as well as Chapter 3 of the current thesis, showed that the combination of types of abuse and neglect are most detrimental for the well-being of children/adolescents. At the tertiary level of intervention, tailor-made clinical interventions should be provided to victims to minimize the negative consequences and recurrence of maltreatment. Some evidence has been found for interventions, including parent-child interaction therapy for reducing physical abuse in children (Chaffin et al., 2004), multisystemic therapy for improving parent-child interactions (Swenson et al., 2010), trauma-focused cognitive-behavioral therapy for maltreated children/adolescents showing posttraumatic stress symptoms (TF-CBT; Cohen & Mannarino, 1997), and resilient peer treatment for neglected children with withdrawn behavior (Fantuzzo, Manz, Atkins, & Meyers, 2005). Two home-visiting programs, namely, the Nurse-Family
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Partnership and the Early Start program based on the ecological model and social-learning models, respectively, are reported to be the most promising for primary intervention and in curbing the related outcomes (cf. MacMillan et al., 2009).

Policy Related Implications

At a policy level, laws or legislative acts defining incidents of abuse and neglect should be implemented and stringently executed. Additionally, alternative ways of achieving safety should be made available for abused and neglected children/adolescents, especially if the abuse/neglect or assault is from within the family. This would help protect the rights of children. Categories of mandated reporters should be created and should include a professional actively involved in a child’s well-being (e.g., physician, nurse, school staff, social worker).

Future Directions

Future studies on childhood maltreatment may wish to replicate the prevalence rates found in Chapter 2 and the factor structure of the CTQ. More emphasis on ecological models of risk factors should be laid with inclusion of ontogenic factors (e.g., temperament of the child), micro-system factors (e.g., low parental education, low socioeconomic status, job loss, single parent family), exosystem factors (e.g., high crime neighborhoods, community violence, conflict zone), and macro-system factors (e.g., prevailing cultural norms regarding physical punishment, stigma associated with rape victims, legislations).

Building on the initial conceptualization and investigation of patterns of multiple types of maltreatment or co-occurrence of maltreatment types (Berzenski & Yates, 2009; Pears et al., 2007), future research studies may assess for any common patterns of maltreatment across samples. From a developmental perspective, patterns/classes of maltreatment should be assessed across age groups and assessment should be made for any transition from one profile of maltreatment to another at a different stage of life. In doing so, analyses such as latent transition analysis (LTA) would prove beneficial (Nylund, 2007). Another related line of research could be the role of these patterns of maltreatment on revictimization or intimate partner violence during adulthood as experiencing maltreatment in childhood has been associated with adult revictimization (e.g., Messman-Moore, Long, & Siegfried, 2000). Additionally, studies on childhood
maltreatment should also take into consideration characteristics of maltreatment akin to severity of maltreatment, including though not limited to age of onset, nature of maltreatment, duration and frequency of maltreatment (Clemmons et al., 2007; DiLillo et al., 2010).

As far as the negative consequences of multiple maltreatment is concerned, future studies should supplement self-report questionnaires with structured interviews to gauge for DSM/ICD based diagnoses and for commenting and corroborating the severity level of psychological outcomes. Future studies also need to assess the role of gender as a potential moderator in the association between multiple patterns of maltreatment and psychopathology. This would help determine whether the expression of psychological problems in maltreated individuals differs across gender. Additional factors such as emotion regulation strategies, attachment quality, and social support from within or outside the family, may operate as mechanisms between the above mentioned associations and should be investigated.
Summary of Chapters
Summary of Chapters

Chapter 1: Child Maltreatment and Psychopathology in a Cross-Cultural Context: General Introduction

This thesis opens with a brief history of the emergence of research in the field of child abuse and neglect. The section goes on to provide an overview of research studies on the prevalence of child abuse and neglect worldwide and highlights the lack of research from low-and-middle income countries, including India. Studies related to the factor structure of the CTQ, the role of gender, family structure, and parental levels of education are discussed vis-à-vis childhood maltreatment. The chapter then enumerates studies highlighting different paradigms in the maltreatment literature for assessing maltreatment experiences: the cumulative effect of different types of assault, the co-occurrence of different types of maltreatment, and the severity within each type of maltreatment in relation to various psychopathological constructs. The two main objectives of the present thesis were, first to answer the repetitive calls for more empirical studies based on maltreatment in children and adolescents from developing countries such as India. The second was to identify classes/profiles of the co-occurring maltreatment based on types and severity for a comprehensive understanding of the association between maltreatment and psychopathology. The studies reported in this thesis were based on data from two nations, namely, India and the US.

Chapter 2: Abuse and Neglect in Adolescents of Jammu, India: The Role of Gender, Family Structure, and Parental Education

This chapter attempts to fill the void in research studies from developing nations by assessing child maltreatment in a sample of adolescents (N = 702; 41.5% female) from Jammu, India. In the absence of a legal definition pertaining to child abuse and neglect and the absence of any measure/tool to assess the same, a popular measure, namely, the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003), often used in western countries was employed. Confirmatory factor analyses indicated that a four-factor structure fit the data well. These factors were emotional abuse, physical abuse, sexual abuse, and neglect (including items from emotional neglect and two items from physical neglect). The addition of four covariates, namely, gender, family structure, maternal level of education, and paternal level of education, did not lead to any change in the factor structure of the CTQ. Furthermore, males reported higher on all types of abuse when compared to females, lower level of mothers’ education was associated with higher rates
Summary of Chapters

Chapter 3: Severity of Maltreatment and Personality Pathology in Adolescents of Jammu, India: A Latent Class Approach

The aim of the third chapter was to assess patterns of different types of maltreatment reported by adolescents (N = 702; 41.5% female) from India. For this an interactive approach was taken wherein five types of abuse and neglect and their level of severity was assessed, forming multiple discrete classes. The obtained four classes of maltreatment were termed as “Moderate-severe abuse and physical neglect,” “Moderate-severe physical abuse and sexual abuse,” “Moderate-severe neglect,” and “Minimal abuse or neglect,” and were compared on levels of 17 lower-order dimensions of personality pathology. In addition, the role of gender on the relationship between patterns or classes of maltreatment and personality pathology was investigated. In line with cumulative risk theory, adolescents in the more severe maltreatment classes “Moderate-severe abuse and physical neglect” and “Moderate-severe physical abuse and sexual abuse” were found to have higher scores on personality pathology than those in the less severe maltreatment classes, after controlling for age. Gender differences were found on certain dimensions of personality pathology (e.g., conduct problems, affect lability) after controlling for age. However, gender did not moderate the relation between classes of maltreatment and personality pathology. Results found in this chapter highlight the presence of multiple patterns or co-occurrence of child abuse and neglect, and their differential relations with dimensions of personality pathology.

Chapter 4: Unique versus Cumulative Effects of Physical and Sexual Assault on Patterns of Adolescent Substance Use

The aim of the fourth chapter was to assess the relation between unique versus cumulative experiences of physical and sexual assault on patterns of substance use in
Summary of Chapters

Maltreated adolescents (N = 918; 49.6% female) from the United States. First, using information on alcohol use, cigarette smoking, chewing tobacco, non-prescribed use of medicine, and drug use, latent class analysis indicated a three class solution for substance use, namely, “Least polysubstance use,” “Alcohol with heavy drinking, and single drug use,” and “Heavy polysubstance use.” Multinomial logistic regression indicated that, as compared to adolescents exposed to a single type of assault, those exposed to both physical and sexual assault were two-to-three times more likely to be a member of the heavy polysubstance use as class compared to the other two classes of substance use. Females were more likely to be members of the “Heavy polysubstance use” class than the “Least polysubstance use” class. No significant moderations by gender of the associations of maltreatment class with substance use were found. Assessing single type or co-occurring assault/maltreatment at the outset can facilitate clinicians in identifying adolescents at elevated risk for heavy polysubstance use.

Chapter 5: Child Maltreatment and Psychopathology in a Cross-Cultural Context: General Discussion

The closing chapter discusses findings on the first objective aimed at providing a detailed understanding of the nature of child abuse and neglect adolescents from Jammu, India. Aspects addressed in this evaluation regard the factor structure of the CTQ, the role of demographic covariates including gender, family structure (joint vs. nuclear), mothers’ level of education, and fathers’ level of education, vis-à-vis child abuse and neglect, the prevalence of abuse and neglect in Indian adolescents, and comparison with previous studies from the west using the same questionnaire for the assessment of maltreatment. Based on confirmatory factor analyses, four latent factors based on items of abuse and neglect were found among adolescents from India. Results highlight the role of gender and maternal education on scores of maltreatment. Furthermore, comparison of rates of abuse and neglect with studies from the west indicated higher rates of maltreatment rates among Indian adolescents.

In view of the second objective, the hypothesis that maltreatment types co-occur and that multiple patterns or groups individuals exposed to maltreatment can be identified, was established in the Indian sample of adolescents. In addition, support was found for the cumulative risk theory of maltreatment. In the present thesis, experiencing multiple types of abuse and neglect and a higher level of severity within each type of
maltreatment was associated with increased levels of personality pathology, and heavy polysubstance use across adolescents from India, and the US. Gender did not moderate the relation between patterns of maltreatment/assault and psychopathology suggestive of no difference in psychological outcomes among males and females based on their experiences of maltreatment/assault.
Samenvatting: Summary in Dutch
Samenvatting

Hoofdstuk 1: Kindermishandeling en Psychopathologie in een Multi-Culturele Context: Algemene Inleiding

Dit proefschrift opent met een korte geschiedenis van de opkomst van het onderzoek op het gebied van kindermishandeling en –verwaarlozing. In dit deel wordt vervolgens een overzicht gegeven van studies naar de wereldwijde prevalentie van kindermishandeling en –verwaarlozing en wordt het gebrek aan onderzoek op dit gebied uit landen met lage en middeninkomens belicht, inclusief India. Studies over de factor structuur van de CTQ, de rol van sekse, gezinsstructuur en opleidingsniveau van de ouders in relatie tot kindermishandeling worden besproken. Het hoofdstuk beschrijft daarna onderzoeken die de verschillende benaderingen van de vaststelling van ervaringen van mishandeling in de mishandelingsliteratuur vertegenwoordigen, d.w.z. onderzoek naar het cumulatieve effect van verschillende soorten mishandeling, het gelijktijdig voorkomen van verschillende soorten mishandeling, en de ernst van elk type mishandeling in relatie tot verschillende vormen van psychopathologie. Dit proefschrift had twee hoofddoelen: ten eerste, tegemoet komen aan de herhaalde roep om meer empirisch onderzoek naar mishandeling van kinderen en adolescenten uit ontwikkelingslanden zoals India; ten tweede, profielen van samen voorkomende vormen van mishandeling en de ernst daarvan opsporen ten behoeve van een beter begrip van de relatie tussen mishandeling en psychopathologie. De studies gerapporteerd in dit proefschrift zijn gebaseerd op gegevens uit India en de VS.

Hoofdstuk 2: Mishandeling en Verwaarlozing bij Adolescenten uit Jammu, India: De Rol van Sekse, Gezinsstructuur en Opleiding van de Ouders

In dit hoofdstuk wordt getracht om het gebrek aan studies uit ontwikkelingslanden aan te vullen door kindermishandeling vast te stellen in een steekproef van adolescenten (N = 702; 41.5% meisjes) uit Jammu, India. Bij gebrek aan een juridische definitie van kindermishandeling en –verwaarlozing in India en afwezigheid van maten of instrumenten om deze vast te stellen werd daartoe een vaak in westerse landen gebruikt instrument ingezet, namelijk de Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003). Bevestigende factor analyses gaven aan dat een 4-factor structuur goed bij de gegevens paste. Deze factoren waren emotioneel misbruik, lichamelijk misbruik, seksueel misbruik en verwaarlozing (inclusief vijf items uit de oorspronkelijke emotionele verwaarlozing schaal en twee items uit de lichamelijke verwaarlozing schaal).
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Toevoeging van de vier co-variaten sekse, gezinsstructuur, opleidingsniveau van de moeder en opleidingsniveau van de vader leidde niet tot verandering van de factorstructuur van de CTQ. Jongens scoorden in vergelijking met meisjes hoger op alle vormen van mishandeling, een lager opleidingsniveau van de moeder was gerelateerd aan meer voorkomen van mishandeling en verwaarlozing, en seksueel misbruik werd vaker gerapporteerd door adolesscenten uit samengestelde gezinnen, een gezinsstructuur waarin verschillende generaties en “extended families” samenleven. De prevalentie van mishandeling en verwaarlozing was hoger bij Indiase adolescenten in vergelijking met prevalenties gerapporteerd in studies waarin de CTQ werd gebruikt bij adolescenten/jongeren uit Duitsland, Canada en de VS. De bevindingen gerapporteerd in dit hoofdstuk laten de hoge niveaus van kindermishandeling en verwaarlozing in een ontwikkelingsland als India zien – in vergelijking met niveaus gebaseerd op CTQ studies uitgevoerd in westere landen – en wijst op het belang van interventies en wetgeving gericht op vermindering van het probleem.

Hoofdstuk 3: Ernst van Mishandeling en Persoonlijkheidsopathologie bij Adolescenten uit Jammu, India: Een Latente Klasse Benadering

Het doel van het derde hoofdstuk was om patronen van vormen van mishandeling vast te stellen zoals gerapporteerd door adolescenten (N = 702; 41.5% meisjes) uit India. Daarbij werd een interactieve benadering gehanteerd waarin vijf vormen van mishandeling en verwaarlozing evenals hun ernstniveau werden gemeten voor de vorming van meerdere onderscheiden klassen. Er werden vier profielen van mishandeling gevonden, namelijk ‘1. matige tot ernstige mishandeling en lichamelijke verwaarlozing, ‘2. matige tot ernstige lichamelijke mishandeling en seksueel misbruik, ‘3. matige tot ernstige verwaarlozing’, en ‘4. minimale mishandeling en verwaarlozing’. Vervolgens werd de relatie van deze profielen met 17 dimensies van persoonlijkheidsopathologie onderzocht evenals de rol van sekse in deze relatie. In overeenstemming met de cumulatieve risico theorie hadden adolescenten met de ernstiger mishandelingsprofielen 1 en 2 hogere scores op persoonlijkheidsopathologie dan de adolescenten met minder ernstige profielen (na controle voor leeftijd). Hoewel er sekseverschillen op bepaalde dimensies van persoonlijkheidsopathologie werden gevonden (bijvoorbeeld gedragsproblemen, emotionele labiliteit) had sekse geen invloed op de relatie tussen mishandelingsprofielen en persoonlijkheidsopathologie. De resultaten uit dit hoofdstuk maken duidelijk dat meerdere patronen van tegelijk ervaren vormen van mishandeling en
**Samenvatting**

verwaarlozing te onderscheiden zijn en dat deze op verschillende manieren samenhangen met dimensies van persoonlijkheidsopathologie.

**Hoofdstuk 4: Unieke versus Cumulatieve Effecten van Lichamelijke en Seksuele Geweldpleging op Patronen van Middelengebruik bij Adolescenten**

Het doel van hoofdstuk 4 was om de relatie van unieke en cumulatieve ervaringen met lichamelijk en seksueel geweld met patronen van middelengebruik bij mishandelde adolescenten (N = 918; 49.6% meisjes) uit de Verenigde Staten te onderzoeken. Op basis van informatie over alcohol gebruik, roken, tabak pruimen, gebruik van geneesmiddelen zonder recept en drugsgebruik werden met behulp van latente klasse analyses drie profielen van middelengebruik geïdentificeerd, namelijk ‘minste poly middelengebruik,’ ‘zwaar alcoholgebruik en enkelvoudig drugsgebruik’ en ‘zwaar poly middelengebruik’. Multinomiale logistische regressieanalyses lieten zien dat, in vergelijking met adolescenten die waren blootgesteld aan één vorm van geweld, adolescenten die zowel waren blootgesteld aan lichamelijk als seksueel geweld twee tot drie keer zo vaak het zwaar poly middelengebruik profiel hadden dan de andere twee profielen. Meisjes hadden vaker dan jongens het zwaar poly middelengebruik profiel dan het minste poly middelengebruik profiel. De relaties tussen mishandelingsprofiel en middelengebruik waren hetzelfde voor meisjes als voor jongens. Deze bevindingen suggereren dat vaststellen of een adolescent is blootgesteld aan een of meerdere vormen van geweld de clinicus kan helpen om adolescenten met verhoogd risico op zwaar poly middelengebruik in beeld te krijgen.

**Hoofdstuk 5: Kindermishandeling en Psychopathologie in een Cross-Culturele Context: Algemene Discussie**

In het afsluitende hoofdstuk worden de bevindingen met betrekking tot de aard van kindermishandeling en –verwaarlozing bij adolescenten in India, in het bijzonder Jammu, besproken. Aspecten die in dit onderzoek aan de orde kwamen zijn de factorstructuur van de CTQ, de rol daarbij van de factoren sekse van de adolescent, gezinsstructuur en opleiding van de ouders in relatie tot de prevalentie van kindermishandeling en –verwaarlozing bij adolescenten in India, en de vergelijking van de prevalentie met wat gerapporteerd is in eerdere studies die in westerse landen zijn uitgevoerd met hetzelfde instrument. Bevestigende factoranalyses lieten vier factoren van mishandeling en verwaarlozing onder deze adolescenten zien. De resultaten werpen ook
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licht op geslachtsverschillen in het voorkomen van mishandeling en verwaarlozen en de rol van het opleidingsniveau van de moeder. Tenslotte laat vergelijking van de prevalentiegegevens met westerse gegevens zien dat ervaringen van mishandeling veel vaker voorkomen bij Indiase adolescenten. Wat betreft het tweede doel van dit proefschrift werd vastgesteld dat, in overeenstemming met de hypothese, verschillende vormen van mishandeling zich vaak samen voordoen en dat meerdere patronen van of groepen blootgesteld aan verschillende vormen van mishandeling te onderscheiden zijn. Daarnaast werd ondersteuning gevonden voor de cumulatieve risico theorie van mishandeling. Blootstelling aan meerdere vormen van mishandeling en verwaarlozing en aan ernstiger mishandeling en verwaarlozing bleek gerelateerd aan hogere niveaus van persoonlijkheidspathologie en zwaar middelengebruik. Over het geheel genomen had de sekse van de onderzochte deelnemers geen invloed op de relatie tussen patronen van ervaringen met mishandeling/geweld en psychopathologie, wat suggereert dat er geen geslachtsverschillen zijn in effecten van mishandeling en geweld.
Samenvatting
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Thank you all...
Curriculum Vitae

Work Experience

- July’14-Present: Data Manager and Analyst (Postdoctoral position) at Department of Psychology, University of Nebraska-Lincoln, Nebraska, USA. Currently on a NICHD funded project (PI: Prof (dr) David DiLillo) assessing risk factors associated with Sexual revictimization in women.
- July’13-May’14: Visiting scholar and affiliate at the PTSD lab (Director: Prof (dr) Jon D. Elhai), Department of Psychology, University of Toledo, Ohio: Worked as Instructor for Under-graduate studies (Spring 2014) and taught Abnormal Psychology (PSY 2200-901).
- Aug’05-Oct’06; Oct’08-Dec’11: Assistant Professor, Department of Psychology (Graduate Studies), University of Jammu, India. Taught graduate level courses in Psychology and supervised Masters’ level Thesis. Involved in various departmental committees, in evaluating exam papers, and extension lectures to the civil society.

Education

- Jul’10-Present: Ph.D Candidate at Department of Developmental Psychology, Vrije Universiteit (VU), Amsterdam, The Netherland. Supervisor: Prof (dr) J. M. Koot
- Jul’02-Aug’04: Masters of Arts (M.A.) in Psychology, Department of Psychology, Panjab University, Chandigarh, India.
- Jul’99-Jun’02: Bachelor of Arts (B.A.) in Psychology (Honors), Panjab University, Chandigarh, India.

Peer-reviewed Publications


Curriculum Vitae

Peer-reviewed magazine articles


Undergraduate course/text-book


Manuscripts in submission


Selected presentation at conferences

- ‘Abuse and neglect in adolescents from Jammu, India: Role of Gender, Family Structure, and Parental Education’ Paper presentation at the International Society for Traumatic Stress Studies (ISTSS) 30th Annual Meeting at Miami, Florida (USA) held from November 6-8, 2014.
- ‘Severity of Maltreatment and Personality Pathology in Adolescents of Jammu, India: A Latent Class Approach’ Finalist for Student Poster Award at the ISTSS 30th Annual Meeting at Miami, Florida (USA) held from November 6-8, 2014.
- ‘Relations between Persistent Complex Bereavement Disorder and PTSD’s Emotional Numbing Model Factors in a Bosnian Adolescent sample’ Featured Poster at the Welcome Reception at the ISTSS 30th Annual Meeting at Miami, Florida (USA) held from November 6-8, 2014.
- ‘Association between Severity of Physical and Sexual Assault, and Typology of Lifetime Substance Use among Adolescents’ Poster presented at the 34th Anxiety and Depression Conference organized by the Anxiety and Depression Association of America (ADAA), Chicago (USA) from March 27-30, 2014.
Curriculum Vitae


Selected invited talks

- ‘Severity of maltreatment in adolescents of Jammu, India: A latent class approach’ at the Developmental Psychology Interest Group (DIG) meeting, Department of Psychology, University of Nebraska-Lincoln, Lincoln, USA on November 18, 2014.
- ‘Child Abuse and Neglect in India: Challenges in the field’ at Brown Bag, Department of Psychology, University of California, Riverside, California, USA on April 29, 2013.