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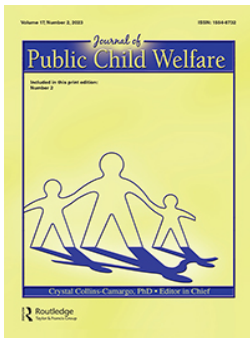
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Differences in developmental problems between victims of different types of child maltreatment

Anne M. E. Bijlsma ^a, Mark Assink ^a, Geertjan Overbeek^a, Marieke van Geffen ^b, and Claudia E. van der Put^a

^aResearch Institute Child Development and Education, University of Amsterdam, Amsterdam, The Netherlands; ^bCenter for Specialized Mental Healthcare, De Viersprong, Amsterdam, Netherlands

ABSTRACT

This study examined differences in developmental problems between children who were victims of two child maltreatment dimensions: abuse versus neglect, and physical versus emotional maltreatment. Family demographics and developmental problems were examined in a clinical sample of 146 Dutch children from families involved in a Multisystemic Therapy – Child Abuse and Neglect treatment trajectory. No differences were found in child behavior problems within the dimension abuse versus neglect. However, more externalizing behavior problems (e.g., aggressive problems) were found in children who experienced physical maltreatment compared to children who experienced emotional maltreatment. Further, more behavior problems (e.g., social problems, attention problems, and trauma symptoms) were found in victims of multitype maltreatment compared to victims of any single-type maltreatment. The results of this study increase the understanding of the impact of child maltreatment poly-victimization, and highlight the value of classifying child maltreatment into physical and emotional maltreatment.

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Child maltreatment dimensions; multitype maltreatment; developmental problems; neglect; abuse; emotional maltreatment; physical maltreatment

Child maltreatment is a public health problem that, based on self-report studies, affects the lives of up to one third of children around the world (Stoltenborgh, Bakermans-Kranenburg, Alink, & Van Ijzendoorn, 2015). Being a victim of child maltreatment is not only associated with serious physical consequences, but also with short- and long- term developmental problems such as depression and aggressive behavior (Dubowitz & Bennett, 2007; Mullen, Martin, Anderson, Romans, & Herbison, 1996; Norman et al., 2012; Stoltenborgh et al., 2015). Worldwide, emotional abuse appears to be the most prevalent child maltreatment type, followed by physical abuse, emotional neglect, and physical neglect (Stoltenborgh et al., 2015). Although factors for determining maltreatment differ across countries and race (Fakunmoju et al., 2013), common descriptions of different maltreatment types can be found in the Report of the Consultation on Child Abuse

CONTACT Anne M. E. Bijlsma  a.m.e.bijlsma@uva.nl  Research Institute Child Development and Education, University of Amsterdam, Nieuwe Achtergracht 127, Amsterdam 1018 WS, The Netherlands

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Prevention (World Health Organization, 1999). “Emotional abuse” involves acts toward the child that cause harm to the child’s development, such as restriction of movement, belittling, denigrating, threatening, or other non-physical forms of hostile or rejecting treatment. “Physical abuse” is commonly defined as the intentional use of physical force against a child resulting in potential or actual physical harm for the child’s well-being. “Emotional neglect” refers to the failure to meet children’s emotional needs (e.g., nurturance and affection), whereas “physical neglect” refers to the failure to meet children’s physical needs (e.g., nutrition, clothing, and medical attention).

Although it is likely that victims have experienced multiple forms of child maltreatment, very few studies provide reports of the co-occurrence of maltreatment subtypes within their sample (Herrenkohl & Herrenkohl, 2009; Stoltenborgh et al., 2015). Consequently, there is a lack of knowledge on the effects of specific co-occurring maltreatment subtypes (Arata, Langhinrichsen-Rohling, Bowers, & O’Brien, 2007; Edwards, Holden, Felitti, & Anda, 2003; Stoltenborgh et al., 2015; Turner, Finkelhor, & Ormrod, 2010; Witt et al., 2016). Examining combinations of maltreatment subtypes, besides the dichotomous classification of children as maltreated versus nonmaltreated, can enhance the understanding of the effects of child maltreatment in victims. In turn, this understanding may strengthen prevention efforts offered by child protection professionals, given that potential differences in associations between specific dimensions of maltreatment and different developmental outcomes might inform professionals on how interventions addressing those negative outcomes can be further tailored to the needs of individual victims (Manly, Cicchetti, & Barnett, 1994; Manly, Kim, Rogosch, & Cicchetti, 2001; Pears, Kim, & Fisher, 2008; Witt et al., 2016). To the best of our knowledge, this study is the first to examine the distinctiveness of two maltreatment dimensions, i.e., abuse versus neglect, and emotional versus physical maltreatment, in identifying developmental problems within a sample of child maltreatment victims.

Different types of child maltreatment can cause similar behavior problems in victims (i.e., equifinality), such as depression, substance abuse, and post-traumatic stress symptoms, but those problems may also vary between victims of different subtypes of child maltreatment (i.e., multifinality) (Cicchetti & Handley, 2019; Cicchetti & Rogosch, 1996; Rogosch & Cicchetti, 2004). For example, several studies reporting on the effects of the maltreatment subtypes physical and emotional maltreatment that were conducted in European and Anglo-Saxon countries show that victims of emotional maltreatment tend to be more socially withdrawn and isolated, whereas physically maltreated children tend to show more aggressive and disruptive behavior (Briere & Runtz, 1990; Mullen et al., 1996; Trickett & McBride-Chang, 1995). Also, more severe disorder symptoms (e.g., low self-esteem), and disorders (e.g., depression and

PTSD) were found in victims of emotional maltreatment than in victims of physical maltreatment (Gibb et al., 2001; Hoeboer, De Roos, Van Son, Spinhoven, & Elzinga, 2021; Spinazzola et al., 2014).

Other studies that were conducted in the United States addressed multifinality in child maltreatment by examining the effects of child abuse versus child neglect (e.g., Coates & Messman-Moore, 2014; Ferguson & Dacey, 1997; Shaffer, Yates, & Egeland, 2009; Taillieu, Brownridge, Sareen, & Afifi, 2016). For example, Garland, Landsverk, Hough, and Ellis-Macleod (1996) found that victims of child sexual and physical abuse received mental health services more often than victims of child neglect and caretaker absence. Furthermore, the effects of emotional abuse on the development of mental disorders in victims appear to be greater than emotional neglect (Taillieu et al., 2016). However, there are inconsistencies in study results of associations between child maltreatment types and health outcomes (Manly et al., 2001; McSherry, 2007; Stoltenborgh, Bakermans-Kranenburg, & Van Ijzendoorn, 2013).

While different types of child maltreatment are associated with a range of psychological and behavioral problems (Norman et al., 2012), less information is available to determine whether certain combinations of maltreatment are associated with different developmental outcomes (Arata et al., 2007; Edwards et al., 2003). This is unfortunate, because limiting the focus to one type of maltreatment, or the dichotomy of maltreated or not maltreated, the ability to test associations between maltreatment and different potential behavior problems is limited as well (Manly et al., 2001; Turner et al., 2010; Witt et al., 2016). To our knowledge, the dimensions abuse versus neglect, and emotional versus physical maltreatment have not been examined yet within a single study. This gap in literature can be explained by the unavailability of data on the experience of multiple maltreatment types and their co-occurrence in studies examining consequences of child maltreatment victimization (Herrenkohl & Herrenkohl, 2009). Further, although prevalences of child neglect are relatively high compared to other maltreatment types (Sedlak et al., 2010; Stoltenborgh et al., 2015), child neglect has paradoxically received the least scientific and public attention compared to other maltreatment types (Gilbert et al., 2009). Some researchers refer to this paradox as the “neglect of neglect” (McSherry, 2007; Stoltenborgh et al., 2013). This paradox is unfortunate given explicit recommendations in the literature to assess abuse and neglect as separate concepts, as they involve exposure to different types of behaviors (Tonmyr, Draca, Crain, & MacMillen, 2011).

Examining the effects of exposure to multitype maltreatment is essential, as types of child maltreatment are unlikely to occur in isolation (Arata et al., 2007; Higgins, 2004; Higgins & McCabe, 2003; Teicher, Samson, Polcari, & McGreenery, 2006). To illustrate, Finkelhor, Omrod, Turner, and Hamby (2005) found a poly-victimization rate of 69% in child maltreatment victims. Overall, research with various samples in the United States and Canada (e.g.,

females of Mexican American descent, urban youth and university students) indicate poorer health outcomes for victims of multitype maltreatment compared to victims of any single type of maltreatment (Arata et al., 2007; Clemmons, DiLillo, Martinez, DeGue, & Jeffcott, 2003; Edwards et al., 2003; Gross & Keller, 1992; Huguenel, Leon, Hindt, Lutz, & Osborne, 2021; Ney, Fung, & Rose Wickett, 1994; Spinazzola et al., 2014). For example, Hodgdon et al. (2018) found that the co-occurrence of emotional and physical maltreatment is associated with more severe trauma symptoms than the occurrence of only emotional or physical maltreatment.

Examining maltreatment dimensions may contribute to more knowledge of the effects of different maltreatment experiences (Lau et al., 2005). Better prediction of those effects could in turn lead to treatments that are tailored to the individual needs of child maltreatment victims (Pears et al., 2008). Therefore, the aim of this study was to strengthen the knowledge on child behavior problems in victims of specific child maltreatment subtypes, by exploring (1) the prevalence of child maltreatment types in a clinical sample, (2) demographics and behavior problems in children that were victims of different maltreatment dimensions, and (3) child behavior problems in victims of single type versus multitype maltreatment. Because of a lack of substantial empirical attention to neglected and emotionally maltreated children and inconsistencies in study results, we were unable to develop specific hypotheses about consequences of the maltreatment subtypes (Manly et al., 2001; McSherry, 2007; Stoltenborgh et al., 2013). Yet, in light of the studies that are available, we did expect to find more severe behavioral problems in children who experienced multitype maltreatment compared to child victimization of any single type of maltreatment (e.g., Arata et al., 2007; Clemmons et al., 2003; Hodgdon et al., 2018).

Method

Sample

The initial sample comprised 246 children who were registered between 2011 and 2019 at a family oriented mental health care facility (i.e., de Viersprong) in the Netherlands to start with a Multisystemic Therapy Child Abuse and Neglect (MST-CAN) treatment trajectory. From the initial sample, a subsample of 146 children was included in the current study. The subsample selection was based on two inclusion criteria: the availability of information on the maltreatment type, and the availability of a Child Behavior Checklist assessment. Background variables are provided in Table 1. There was no significant difference in age between the children in the excluded sample ($M = 12.32$, $SD = 3.06$) and the children in the included sample ($M = 12.03$, $SD = 3.18$) ($t(244) = 0.719$, $p = .473$), nor in the maltreatment duration in

Table 1. Demographics.

Variable	<i>n</i> (%)
Gender	
Male	68 (46.6)
Female	78 (53.4)
Living situation	
Single-parent family	63 (43.2)
Two-parent family	64 (43.8)
Ethnic origin ^a	
Dutch	100 (68.5)
Non-Dutch	45 (30.8)
Educational level ^a	
Low	72 (49.3)
High	70 (47.9)
Employment ^a	
Employed	61 (41.8)
Unemployed	81 (55.5)
	<i>M</i> (<i>SD</i>)
Age	12.03 (3.18)
Maltreatment duration (months)	39.01 (38.06)

^aVariable related to primary caregiver

months (respectively: $M = 52.40$, $SD = 63.94$, and $M = 46.18$, $SD = 91.27$) ($t(184) = -0.450$, $p = .653$). There was also no significant difference in gender ($\chi^2(1, N = 246) = 0.700$, $p = .403$), and in the living situation (single-parent/two-parent family) ($\chi^2(1, N = 213) = 0.077$, $p = .782$) between the children in the included and excluded samples, nor in the ethnic origin (non-Dutch/Dutch) ($\chi^2(1, N = 246) = 3.244$, $p = .072$), educational level (low/high) ($\chi^2(1, N = 243) = 0.150$, $p = .699$), and employment status (unemployed/employed) between the primary caregivers in the excluded and included samples ($\chi^2(1, N = 240) = 1.148$, $p = .284$).

The program

Multisystemic Therapy Child Abuse and Neglect (MST-CAN) is a program adaptation of the intensive home-based intervention Multisystemic Therapy (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). MST-CAN is based on the understanding that physical abuse and neglect follow the presence of multiple risk factors across multiple social systems (e.g., child, parent, and social network) (Swenson & Schaeffer, 2018). The four major treatment goals of MST-CAN are: 1: Keep families together safely, 2: Prevent re-abuse and neglect, 3: Reduce mental health difficulties experienced by adults and children, and 4: Increase natural social support (Swenson & Schaeffer, 2018). The program is specifically designed to meet the complex needs of families with children and adolescents in the age range six to 17 that are involved in child protection services (CPS) due to the presence of child maltreatment (Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, 2010). Additional criteria for accepting referrals to MST-CAN are: (1) the CPS case has been opened and/or has had a new report within the past 180 days, (2) the

child(ren) in out-of-home placement will be reunited with the family, and (3) the child(ren) are at imminent risk of removal. Exclusion criteria for the program are: (1) youth living independently, or youth for whom a primary caregiver cannot be identified, (2) active sexual abuse cases, (3) the presence of intimate partner violence in some cases (e.g., IPV is the primary reason for the referral, or a plausible risk of homicide), (4) severe psychiatric problems of youth, including suicidality or psychosis, (5) youth or adults who have committed sexual offenses against family members or other persons, (6) youth with moderate to severe difficulties with social interaction or repetitive behaviors which may be captured by a diagnosis of an autism spectrum disorder.

Research protocol

The data in this study was collected as part of routine outcome monitoring at the health care facility. Prior to treatment, clients were informed that all data would be used for quality control and research purposes. As the data collection was part of standard clinical practice and was provided anonymously to the researchers (it concerned retrospective file data), no further informed consent was required. Another part of the data was gathered as part of a research study, in which clients received an information folder and were informed by the therapist that their data would be used for scientific purposes. The CBCL was filled out by the families upon request of the therapist as a part of the routine outcome monitoring if a family did not participate in the study or upon request of the researcher if a family participated in the study. In both situations, the SDI (Sociodemographic Information; MST-NL., 2012) was filled out by the therapist. This study was approved by the Ethics Committee of the University of Amsterdam, Faculty of Social and Behavioral Sciences (2019-CDE-10700).

Instruments

SDI Questionnaire. Demographics (i.e., family living situation and maltreatment duration, gender and age of the child, and ethnic origin, educational level, and employment situation of the primary caregiver) were measured at the start of the MST-CAN treatment with the SDI questionnaire, which was completed by the therapist. The therapist also determined the maltreatment subtype(s) (i.e., physical abuse, physical neglect, emotional abuse, and emotional neglect) children were exposed to. To examine demographics and behavior problems in victims of different child maltreatment dimensions, two variables were created in which these subtypes were combined. The first variable “Neglect/Abuse” was coded into: “Neglect” (i.e., emotional neglect or physical neglect), “Abuse” (i.e., emotional abuse or physical abuse), and “Neglect and Abuse” (i.e., emotional or physical neglect and abuse).

The second variable “Physical/Emotional maltreatment” was coded into “Physical maltreatment” (i.e., physical neglect and/or physical abuse), “Emotional maltreatment” (i.e., emotional neglect and/or emotional abuse), and “Physical and emotional maltreatment” (i.e., physical abuse or neglect and emotional abuse or neglect). As MST-CAN is not a treatment for sexual abuse (Swenson & Schaeffer, 2018), this child maltreatment type was not examined in this study.

CBCL. Children’s problem behavior was measured with the Child Behavior Checklist (CBCL 6–18; Achenbach & Rescorla, 2001) that was completed by the primary caregiver (i.e., mother: 87%, father: 10.3%, grandmother: 1.4%, or foster mother: 0.7%). The CBCL 6–18 consists of 120 questions on behavior, emotional, and social problems as shown by the child within the last six months. The items are categorized into behavior scales (e.g., anxious/depressed, aggressive behavior, or posttraumatic stress symptoms) and DSM-oriented scales (e.g., affective problems, anxiety problems, or attention deficit/hyperactivity problems). Answers were given on a three-point Likert scale ranging from zero (i.e., never) to two (i.e., often). Standardized T scores were computed and used for analyses. Higher T scores on the CBCL problem scales indicate that parents report more child problems. T scores may vary from zero to 100 and a T score of 50 represents the mean score of a norm group that is created based on gender and age. T scores of 65 to 70 are considered to be in the borderline range, and T scores of 70 or higher are considered to be in the clinical range (Achenbach & Rescorla, 2001). The internal consistency of the CBCL subscales based on T scores as measured by Cronbach’s alpha was excellent ($\alpha = .93$).

Analyses

First, the prevalence of child maltreatment types (i.e., physical abuse, physical neglect, emotional abuse, and emotional neglect) and the prevalence of co-occurrence of maltreatment types were examined. Second, Cramer’s V was computed by performing a Chi-Square test of independence to examine the strength of differences between victims of different maltreatment types in demographic variables (i.e., gender, living situation, and ethnic origin, educational level, and employment status of the primary caregiver). One-way between groups analyses of variance (ANOVA) were conducted to examine differences in age and the duration of maltreatment in months between the maltreatment types. Data from one child were excluded from the analyses, because of measurement errors.

Third, for both maltreatment variables (i.e., neglect/abuse and physical/emotional), ANOVA’s were conducted to determine differences in CBCL scale scores between the maltreatment type subgroups. To interpret the strength of these differences, partial eta squared values were calculated

and interpreted using the guidelines of Cohen (1988) (i.e., small = 0.01; medium = 0.06; large = 0.14). Fisher's Least Significant Difference (LSD) post hoc tests were performed for the scales to determine significant differences between groups. Last, an independent samples *t*-test was performed to determine differences in CBCL scale scores between victims of single type maltreatment and multitype maltreatment. To interpret the strength of these differences, Cohen's *d* values were calculated and interpreted using the guidelines of Cohen (1988) (i.e., small = 0.3; medium = 0.5; large = 0.8).

Results

Prevalence of child maltreatment dimensions

Table 2 provides an overview of the prevalence of the child maltreatment dimensions in the sample. The prevalence of both physical and emotional maltreatment was more than twice as high (57% of all cases) as the prevalence of both neglect and abuse (27% of all cases). The prevalence of all dimensions was 25%.

Family demographics and child maltreatment dimensions

Table 3 shows the demographic characteristics separately for children who experienced child neglect, child abuse and both neglect and abuse as well as for children who experienced physical maltreatment, emotional maltreatment, and both physical and emotional maltreatment. First, children who experienced neglect lived more often in a single-parent family than children who experienced abuse. Second, children who experienced the co-occurrence of physical and emotional maltreatment more often had a primary caregiver with a Dutch ethnicity than children who experienced only physical maltreatment. Third, children who experienced emotional maltreatment more often had an unemployed primary caregiver than children who experienced the co-occurrence of physical and emotional maltreatment. Last, the children who experienced only emotional maltreatment or the co-occurrence of physical and emotional maltreatment were victimized twice as long as the children who experienced only physical maltreatment before the start of the clinical program at the mental health care facility.

Table 2. Co-occurrence of child maltreatment dimensions.

	Neglect	Abuse	Neglect and Abuse	Total
Physical maltreatment	2.1%	21.2%	0.0%	23.3%
Emotional maltreatment	12.3%	5.5%	2.1%	19.9%
Physical and emotional maltreatment	4.1%	28.1%	24.7%	56.8%
Total	18.5%	54.8%	26.7%	100%

Note. The percentages describe the co-occurrence of the child maltreatment dimensions in the study sample.

**Table 3.** Differences in family demographics between victims of various child maltreatment dimensions.

Variable	Neglect		Abuse		Neglect and abuse		V	Physical	Emotional		Physical and emotional		X ²	V
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)			n (%)	n (%)	n (%)	n (%)		
Gender														
Male	10 (37) _a	37 (46.3) _a	21 (53.7) _a				.112	16 (47.1) _a	8 (27.6) _a	44 (53) _a		5.59	.196	
Female	17 (63) _a	43 (53.8) _a	18 (46.2) _a					18 (52.9) _a	21 (72.4) _a	39 (47) _a				
Living situation														
Single-parent family	18 (75) _a	25 (36.2) _b	20 (58.8) _{a/b}				.311	13 (44.8) _a	14 (60.9) _a	36 (48) _a		1.51	.109	
Two-parent family	6 (25) _a	44 (63.8) _b	14 (41.2) _{a/b}					16 (55.2) _a	9 (39.1) _a	39 (52) _a				
Ethnic origin ¹														
Dutch	20 (74.1) _a	53 (67.1) _a	27 (69.2) _a				.056	19 (55.9) _a	17 (58.6) _{a/b}	64 (78) _b		7.33*	.225	
Non-Dutch	7 (25.9) _a	26 (32.9) _a	12 (30.8) _a					15 (44.1) _a	12 (41.4) _{a/b}	18 (22) _b				
Educational level ¹														
Low	14 (56) _a	42 (53.8) _a	16 (41) _a				.120	21 (61.8) _a	15 (55.6) _a	36 (44.4) _a		3.12	.150	
High	11 (44) _a	36 (46.2) _a	23 (59) _a					13 (38.2) _a	12 (44.4) _a	45 (55.6) _a				
Employment ¹														
Employed	8 (29.6) _a	37 (47.4) _a	16 (43.2) _a				.135	12 (37.5) _{a/b}	6 (21.4) _b	43 (52.4) _a		8.69*	.247	
Unemployed	19 (70.4) _a	41 (52.6) _a	21 (56.8) _a					20 (62.5) _{a/b}	22 (78.6) _b	39 (47.6) _a				
	M (SD)	M (SD)	M (SD)					M (SD)	M (SD)	M (SD)		F	p	
Age	12.17 _a (3.01)	12.11 _a (3.23)	11.76 _a (3.25)				.826	11.23 _a (3.58)	12.20 _a (3.19)	12.29 _a (2.98)		1.39	.253	
Maltreatment duration (months)	36.04 _a (37.20)	41.54 _a (41.25)	36.00 _a (32.46)				.709	22.17 _a (22.11)	43.48 _b (43.24)	44.04 _b (39.67)		3.96*	.021	

Note. Means with different subscripts differ significantly from each other. * $p < .05$. ¹Variable related to primary caregiver.

Child maltreatment dimensions and child behavior problems

Table 4 shows the differences in scores on the CBCL problem behavior scales between victims of child abuse and/or neglect. No significant differences were found. Mean scores in the borderline range were found on the “withdrawn/depressed,” “aggressive problems,” and “posttraumatic stress problems” scales in victims of both neglect and abuse. In victims of only abuse, a mean score in the borderline range was found on the “aggressive problems” scale. In conclusion, a co-occurrence of having experienced abuse and neglect was not associated with more problem behavior, compared to having experienced only child abuse or neglect.

Table 5 shows the differences in T-scores on the CBCL problem behavior scales between victims of physical and/or emotional maltreatment. In victims of both emotional and physical maltreatment, mean scores in the borderline range were found on the “withdrawn/depressed,” “aggressive problems,” and “posttraumatic stress problems” scales. In victims of only physical maltreatment, a mean score in the borderline range was found on the “aggressive problems” scale. Significant differences between the maltreatment types with small to medium effect sizes were found for nine CBCL scales. First, children who experienced the co-occurrence of physical and emotional maltreatment showed more withdrawn/depressed problems, social problems, internalizing problems, affective problems, and posttraumatic stress problems than children who experienced only emotional maltreatment. Second, children who experienced only physical maltreatment or the co-occurrence of physical and emotional maltreatment showed more aggressive problems, externalizing problems, total problems, and oppositional defiant problems than children who experienced only emotional maltreatment.

In conclusion, children who experienced both physical and emotional maltreatment showed more internalizing and externalizing problems compared to children who experienced only emotional maltreatment, but not compared to children who experienced only physical maltreatment. Furthermore, children who experienced physical maltreatment, or the combination of emotional and physical maltreatment, showed more externalizing problems than victims of emotional maltreatment.

Single type and multitype maltreatment and child behavior problems

Table 6 shows the differences in scores on the CBCL problem behavior scales between victims of any single type maltreatment and multitype maltreatment. Significant differences with small effect sizes were found for three CBCL scales. Children who experienced multitype maltreatment showed more social problems, attention problems, and attention deficit/hyperactivity problems than

Table 4. Differences in CBCL scale scores between victims of child neglect and abuse.

	Neglect (<i>n</i> = 26)	Abuse (<i>n</i> = 80)	Neglect and Abuse (<i>n</i> = 39)	<i>F</i>	η^2
CBCL scales	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
<i>Syndrome scales</i>					
Anxious/Depressed	59.62 (9.39) _a	60.65 (9.97) _a	61.24 (8.48) _a	0.23	.003
Withdrawn/Depressed	61.65 (11.16) _a	63.55 (9.37) _a	65.90 (12.15) _a ¹	1.34	.019
Somatic Complaints	59.88 (10.03) _a	59.68 (9.46) _a	60.00 (9.73) _a	0.02	.000
Social Problems	58.68 (9.29) _a	61.69 (8.33) _a	62.67 (10.37) _a	1.45	.020
Thought Problems	59.92 (9.59) _a	62.11 (9.20) _a	60.82 (9.45) _a	0.63	.009
Attention Problems	60.08 (9.96) _a	60.92 (8.08) _a	64.26 (12.60) _a	1.92	.027
Aggressive Problems	59.85 (10.90) _a	65.16 (12.07) _a ¹	65.62 (13.62) _a ¹	2.12	.029
Rule-Breaking Behavior	59.36 (8.27) _a	61.91 (9.17) _a	62.77 (9.77) _a	1.10	.015
Total Internalizing	58.96 (11.97) _a	61.68 (9.95) _a	62.46 (11.88) _a	0.87	.012
Total Externalizing	58.19 (14.02) _a	63.43 (12.45) _a	63.46 (12.45) _a	2.13	.029
Total Problems	59.12 (12.35) _a	63.74 (9.84) _a	64.03 (12.27) _a	1.97	.027
<i>DSM-Oriented scales</i>					
Affective Problems	62.69 (11.06) _a	63.84 (9.33) _a	64.97 (10.19) _a	0.42	.006
Anxiety Problems	58.96 (8.72) _a	59.43 (8.43) _a	60.03 (8.28) _a	0.13	.002
Somatic Problems	59.65 (9.74) _a	58.82 (9.73) _a	58.08 (10.31) _a	0.20	.003
Attention Deficit/Hyperactivity Problems	58.12 (9.82) _a	60.89 (8.73) _a	63.31 (10.16) _a	2.44	.033
Oppositional/Defiant Problems	58.27 (8.04) _a	62.86 (9.33) _a	62.36 (9.46) _a	2.54	.034
Conduct Problems	60.88 (10.39) _a	63.81 (9.53) _a	64.05 (11.14) _a	0.95	.013
<i>Other scales</i>					
Cognitive Problems	60.04 (8.45) _a	58.61 (7.84) _a	61.08 (9.33) _a	1.19	.017
Obsessive Compulsive Problems	59.04 (9.89) _a	61.45 (10.32) _a	61.79 (9.78) _a	0.68	.010
Posttraumatic Stress problems	61.23 (10.74) _a	63.96 (10.26) _a	65.18 (11.43) _a ¹	1.09	.015

Note. Means with different subscripts differ significantly from each other ($p < .05$). ¹ = Borderline range (T-score > 65), $\eta^2 = .001$ = small, $\eta^2 = .059$ = medium, $\eta^2 = .128$ = large (Cohen, 1988)

children who experienced any single type of maltreatment. A mean score in the borderline range was found on the “withdrawn/depressed” scale in victims of multitype maltreatment.

Discussion

Being a victim of child maltreatment is often associated with serious physical and mental health consequences (Dubowitz & Bennett, 2007; Mullen et al., 1996; Norman et al., 2012; Stoltenborgh et al., 2015). Maltreated children frequently experience multiple types of maltreatment, but relatively few studies examine this issue directly (Herrenkohl & Herrenkohl, 2009). Consequently, little is known about the consequences of experiencing specific co-occurring forms of maltreatment in terms of the development of child behavior problems (Arata et al., 2007; Edwards et al., 2003; Turner et al., 2010; Witt et al., 2016). Therefore, the main aim of this study was to examine behavior problems in children that were victims of different child maltreatment dimensions: neglect versus abuse and physical versus emotional maltreatment.

Table 5. Differences in CBCL scale scores between victims of physical and emotional child maltreatment.

CBCL scales	Physical (n = 34)	Emotional (n = 28)	Physical and emotional (n = 83)	F	η^2
	M (SD)	M (SD)	M (SD)		
<i>Syndrome scales</i>					
Anxious/Depressed	61.40 (11.02) _a	57.64 (7.22) _a	60.74 (8.81) _a	1.60	.023
Withdrawn/Depressed	63.56 (9.55) _{a/b}	59.29 (7.96) _a	65.49 (11.28) _{1b}	3.80*	.051
Somatic Complaints	60.71 (8.79) _a	56.89 (8.37) _a	60.41 (10.15) _a	1.63	.022
Social Problems	60.38 (8.56) _{a/b}	57.46 (8.38) _a	63.22 (9.17) _b	4.70*	.062
Thought Problems	62.82 (8.72) _a	58.36 (8.99) _a	61.80 (9.54) _a	2.00	.028
Attention Problems	60.71 (7.83) _{a/b}	58.25 (8.35) _a	63.24 (10.83) _b	2.96	.040
Aggressive Problems	66.44 (12.05) _{1a}	58.93 (10.69) _b	65.29 (12.71) _{1a}	3.51*	.047
Rule-Breaking Behavior	61.59 (8.60) _a	59.07 (8.32) _a	62.60 (9.62) _a	1.51	.021
Total Internalizing	62.35 (10.35) _{a/b}	56.89 (8.84) _a	62.53 (11.38) _b	3.08*	.042
Total Externalizing	64.71 (9.12) _a	56.61 (14.46) _b	63.58 (11.34) _a	4.63*	.061
Total Problems	64.35 (9.05) _a	57.46 (11.15) _b	64.29 (11.34) _a	4.52*	.060
<i>DSM-Oriented scales</i>					
Affective Problems	64.91 (9.17) _{a/b}	59.36 (8.98) _a	65.08 (10.05) _{1b}	3.91*	.052
Anxiety Problems	60.35 (8.53) _a	59.96 (8.61) _a	59.50 (8.39) _a	1.45	.020
Somatic Problems	59.88 (9.42) _a	56.25 (8.89) _a	59.17 (10.28) _a	1.21	.017
Attention Deficit/Hyperactivity Problems	60.41 (8.64) _a	57.93 (8.98) _a	62.35 (9.70) _a	2.45	.033
Oppositional/Defiant Problems	63.06 (8.63) _a	57.75 (8.49) _b	62.83 (9.45) _a	3.63*	.049
Conduct Problems	64.24 (9.68) _a	61.04 (10.74) _a	63.77 (10.11) _a	0.93	.013
<i>Other scales</i>					
Cognitive Problems	59.03 (8.14) _{a/b}	56.64 (6.75) _a	60.71 (8.80) _b	2.60	.035
Obsessive Compulsive Problems	61.94 (10.95) _{a/b}	57.57 (7.55) _a	61.96 (10.30) _b	2.17	.030
Posttraumatic Stress problems	64.47 (10.64) _{a/b}	58.89 (9.03) _a	65.18 (10.83) _{1b}	3.87*	.052

Note. Means with different subscripts differ significantly from each other. * $p < .05$, ¹ = Borderline range (T-score > 65), $\eta^2 = .001$ = small, $\eta^2 = .059$ = medium, $\eta^2 = .128$ = large (Cohen, 1988)

Family demographics and types of child maltreatment

First, we examined differences in family demographics in children that were victims of different maltreatment types. As for maltreatment duration, children who experienced only emotional maltreatment or both physical and emotional maltreatment were victimized approximately twice as long as children who experienced only physical maltreatment. This may be explained by the problem that emotional maltreatment more often involves chronic situations that are not as easily identified as incident-specific physical maltreatment cases (Hildyard & Wolfe, 2002). This relates to the fact that although emotional neglect is the most commonly reported form of child maltreatment in the United States and the Netherlands (Hildyard & Wolfe, 2002; Schumacher, Smith Slep, & Heyman, 2001; Van Berkel, Prevoo, Linting, Pannebakker, & Alink, 2020), many people including professionals working in child protection may not be aware that the consequences of emotional maltreatment may be at least as severe as those of physical maltreatment (Hildyard & Wolfe, 2002). Identifying emotional maltreatment may be even more difficult in families with a different ethnic background than the appointed care providers, due to cultural differences in childrearing practices that can be perceived as

Table 6. Differences in CBCL scale scores between victims of single and multitype maltreatment.

CBCL scales	Single type maltreatment (n = 59)	Multitype maltreatment (n = 86)	t	d
<i>Syndrome scales</i>				
Anxious/Depressed	59.88 (9.68)	61.13 (9.29)	0.79	.135
Withdrawn/Depressed	61.95 (9.10)	65.14 (11.27) ¹	1.81	.305
Somatic Complaints	59.34 (8.82)	60.12 (10.09)	0.48	.081
Social Problems	59.39 (8.61)	62.85 (9.23)	2.28*	.385
Thought Problems	61.00 (9.09)	61.64 (9.51)	0.40	.069
Attention Problems	59.63 (8.16)	63.09 (10.74)	2.09*	.354
Aggressive Problems	63.41 (12.13)	64.97 (12.63)	0.74	.126
Rule-Breaking Behavior	60.88 (8.50)	62.26 (9.64)	0.88	.135
Total Internalizing	60.15 (10.17)	62.26 (11.28)	1.15	.195
Total Externalizing	61.63 (12.15)	63.09 (11.65)	0.73	.123
Total Problems	61.59 (10.54)	63.94 (11.39)	1.26	.213
<i>DSM-Oriented scales</i>				
Affective Problems	62.53 (9.57)	64.91 (9.97)	1.44	.243
Anxiety Problems	59.07 (8.23)	59.80 (8.53)	0.52	.087
Somatic Problems	58.54 (9.40)	58.93 (10.19)	0.23	.040
Attention Deficit/Hyperactivity Problems	59.12 (8.77)	62.36 (9.67)	2.06*	.348
Oppositional/Defiant Problems	61.14 (8.87)	62.43 (9.52)	0.83	.139
Conduct Problems	63.22 (10.19)	63.44 (10.15)	0.13	.022
<i>Other scales</i>				
Cognitive Problems	57.93 (7.74)	60.63 (8.67)	1.92	.325
Obsessive Compulsive Problems	60.07 (9.94)	61.83 (10.18)	1.03	.175
Posttraumatic Stress problems	62.31 (10.37)	64.83 (10.82)	1.40	.237

Note. Single type = one type of maltreatment, multitype = two or more types of maltreatment. ¹ Borderline range (T-score > 65), * $p < .05$, $d = 0.2$ = small, $d = 0.5$ = medium, $d = 0.8$ = large (Cohen, 1988)

inadequate (Korbin, 1980). This may explain the significant minority of non-Dutch families in the victim group that experienced both physical and emotional maltreatment. These results underscore the importance of the need for improved recognition and reporting of emotional maltreatment, and the need for clinical programs to support parents and children at risk for emotional maltreatment (Fraser, Mathews, Walsh, Chen, & Dunne, 2010; Stoltenborgh et al., 2013).

Regarding parent employment, we found that children who experienced emotional maltreatment had more often an unemployed primary caregiver than children who experienced the co-occurrence of physical and emotional maltreatment. These results are in line with findings of Stith et al. (2009), who found a stronger association between parent unemployment and child emotional neglect than between parent unemployment and physical maltreatment. This association can be explained by mediators affected by unemployment, such as the experience of stress and financial pressure (Slack et al., 2004). Further research should be undertaken to examine the effects of parental unemployment on the experience of specific child maltreatment types to support intervention strategies that are effectively tailored to specific needs of families (Slack et al., 2004). For example, a full child support pass-through policy (i.e., a policy that allows the custodial parent to receive all child support

paid; no portion is retained by the state), as compared to a partial pass-through policy, has been associated with reduced risks of child maltreatment (Cancian, Yang, & Slack, 2013).

Further, children who experienced neglect were found to be living more often in a single-parent family than children who experienced abuse. This result reflects previous findings of the presence of child neglect in single-parent families, mainly headed by women who are more prone to be socially isolated and may struggle with a variety of social and health problems (Dufour, Lavergne, Larrivée, & Trocmé, 2008; Jones & McCurdy, 1992). However, other studies suggest that the presence of a man in the family may actually increase the risk of neglect and other forms of maltreatment, for example because of mental health or substance abuse problems of the mother's partner (Coohey & Zhang, 2006; Dufour et al., 2008; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001). It should be noted that the examined family structure reflects the observed situation when the data were collected, and not the length or quality of the spousal relationship, or potential partners who visit the single parents but do not reside with them (Dufour et al., 2008).

Child maltreatment types and child behavior problems

Second, behavior problems were examined between children that were victims of different maltreatment types. Interestingly, differences were found in child behavior problems between victims of emotional and physical maltreatment, but not between victims of abuse and neglect. These results indicate that classifying child maltreatment subtypes into emotional versus physical maltreatment may be more relevant in identifying and treating developmental problems in child maltreatment victims. However, this finding may also be explained by a low statistical power due to a relatively small sample size of the children who experienced only neglect in comparison to children that experienced only abuse, or children that experienced the co-occurrence of both maltreatment types. Further, this finding can be explained by characteristics of the clinical sample that was examined in the study. The severity of both maltreatment types was sufficiently high for families to become involved in child protection services, and were thus in urging need of intensive treatment. In turn, this may have resulted in similar behavior problem scores for the victims of both maltreatment types.

Regarding behavior problems in victims of physical maltreatment versus emotional maltreatment, the results were consistent with previous findings of more externalizing behavior problems such as aggressive behavior in children who experienced physical maltreatment compared to children who experienced emotional maltreatment (Briere & Runtz, 1990; Hugueneel et al., 2021; Trickett & McBride-Chang, 1995). These findings highlight the

need for identifying such behavior problems in victims of physical maltreatment specifically, and for providing personalized treatment based on those individual needs. For example, parent-child interaction therapy (PCIT) has been developed for children with externalizing behavior problems and their parents. A specific component of PCIT is to teach parents behavior management strategies, focusing on positive reinforcement rather than power assertion to reduce the disruptive behavior of their child (Thomas & Zimmer-Gembeck, 2012). A second finding was that children who experienced the co-occurrence of physical and emotional maltreatment showed more externalizing as well as internalizing problems compared to children who experienced only emotional maltreatment, but not compared to children who experienced only physical maltreatment. Those results are in line with recent findings of Huguenel et al. (2021), who suggested that despite inconsistencies in study results (English et al., 2005; Manly et al., 2001; Pears et al., 2008), the co-occurrence of one or more types of maltreatment with physical maltreatment increases the risk of severe internalizing and externalizing symptoms.

Last, the results in this study support previous findings of poorer health outcomes, such as social problems and attention problems, for victims of multi-type maltreatment compared to victims of single type maltreatment (Arata et al., 2007; Clemmons et al., 2003; Edwards et al., 2003; Gross & Keller, 1992; Huguenel et al., 2021; Ney et al., 1994; Spinazzola et al., 2014). In addition, the results in this study support previous conclusions that co-occurrence of maltreatment types is associated with more severe trauma symptoms than the experience of single-type maltreatment (Hodgdon et al., 2018; Huguenel et al., 2021; Schneider, Baumrind, & Kimerling, 2007). These findings can be explained by the strong effects of cumulative trauma exposure (i.e., simultaneous or sequential co-occurrence of maltreatment) on developing severe PTSD symptoms (Messman-Moore & Bhuptani, 2017). Posttraumatic stress as a result of child maltreatment is frequently comorbid with disorders that involve emotional dysregulation, such as substance use and eating disorders in adolescence and adulthood (Messman-Moore & Bhuptani, 2017). Therefore, clinicians should carefully assess posttraumatic stress symptoms and target emotional dysregulation in treatment for children who experienced child maltreatment, and particularly multitype maltreatment, so that adverse health outcomes at a later age can be prevented.

Limitations and further research

To our knowledge, this study was the first to examine developmental problems in victims of two child maltreatment dimensions: abuse versus neglect, and physical versus emotional maltreatment. Although the results of this study increase the understanding of developmental outcomes in victims of different

maltreatment subtypes, the results must be considered in light of the study's limitations. First, as child problem behavior was measured using the CBCL, results may be biased due to the tendency to overreport the severity of child behavior problems by parents in child protection services. For example, parents may overstate the level of problematic behavior of their children in their own defense, or because of a low tolerance for essentially "normal" child problem behaviors due to environmental stress (Reid, Kavanagh, & Baldwin, 1987). High parent-reported negative child behavior may also indicate parents' irritability with their child's behavior, and in turn a bias in which they underestimate the reciprocal effect between their parenting behavior and the negative behavior of their child (Moens, Weeland, Van der Giessen, Chhangur, & Overbeek, 2018). It is therefore recommended that in future studies on behavior problems in victims of child maltreatment, data should be gathered from various informants (e.g., teacher reports or clinical observations) whenever feasible (Reid et al., 1987). However, as this limitation concerned the data of the total study sample, it was not expected to affect the comparability of the child maltreatment dimensions.

Compared to other studies on child maltreatment, the total sample size in the current study can be considered as a "middle" sample as it included more than 100 victims (Chen & Chan, 2016). Although important significant results were found, a second limitation of this study may be that the relatively small sample sizes of children having experienced specific maltreatment types (e.g., victims of emotional maltreatment and victims of neglect) negatively affected the statistical power in the analyses. In addition, the role of other maltreatment dimensions than maltreatment type such as frequency, chronicity, and developmental timing of maltreatment could therefore not be examined. Future exploration of interactions between these dimensions may contribute to better insights into the effects of child maltreatment in different groups of victims (English et al., 2005; Pears et al., 2008).

Third, this study involved a clinical sample of families that are involved in Dutch child protection services due to the presence of child maltreatment, and this may limit the study's generalizability. However, MST-CAN is a protocolled intervention program with similar inclusion criteria across different European and Anglo-Saxon countries (e.g., Hebert, Bor, Swenson, & Boyle, 2014; Hefti et al., 2018; Swenson et al., 2010). It can therefore be assumed that the clinical sample in the current study is representative of at-risk families that are involved in child protection services in other Western countries. Nevertheless, perceptions of child maltreatment differ across countries and race, and future studies may consider to explore interactions among country-level variables and individual factors such as parenting styles and childhood experiences of maltreatment (Fakunmoju et al., 2013). In addition,

future studies may also consider including rural and urban populations, and populations that are representative of the socio-demographic backgrounds of the population across countries (Fakunmoju et al., 2013).

Last, MST-CAN includes children and adolescents in the range from six to 17 years. As age of onset of child maltreatment can affect the development of problems in psychological functioning at a later age, further research should be undertaken to examine the effects of single-type and multitype maltreatment between different age classifications in victims (Kaplow & Spatz, 2007).

Conclusion

This study aimed to examine behavior problems in children that were victims of different dimensions of child maltreatment subtypes (i.e., physical/emotional maltreatment and abuse/neglect). The results show differences in family demographics between maltreatment types, such as parent employment and family composition. Further, differences were found in child behavior problems between victims of physical and emotional maltreatment, but not between victims of abuse and neglect. Notwithstanding the relatively small and clinical sample, this work offers valuable insights into the developmental outcomes of victims of different child maltreatment subtypes. In turn, these insights can be used by child welfare practitioners to provide personalized treatment so that adverse health outcomes at a later age can be prevented.

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Notes on contributors

Anne Bijlsma, MSc, is a PhD candidate at the University of Amsterdam, the Netherlands. Her research focuses on strengthening the prevention of child abuse, by examining how treatment can best be personalized to the specific needs and characteristics of at-risk families and children.

Mark Assink, PhD, is an assistant professor at the University of Amsterdam, the Netherlands. His research is focused on developing and validating instruments for risk and needs assessment, examining risk factors for (juvenile) delinquency and the different forms of child abuse, and examining the effectiveness of psychosocial interventions. Mark has substantial expertise in meta-analytic research.

Geertjan Overbeek, PhD, is a full professor in Preventive Youth Care at the Research Institute Child Development and Education, at the University of Amsterdam (the Netherlands). His research focuses on parenting and peer influences on child and adolescent development, and on the effects of family, peer, and school based preventive interventions aimed at supporting a prosocial, healthy development in youths.

Marieke van Geffen, PhD, is principal investigator and board secretary at the Viersprong and guest researcher at the Radboud University Nijmegen, the Netherlands. Her research interest is systemic therapy for youth and quality systems in Mental Healthcare.

Claudia van der Put, PhD, is an assistant professor at the Research Institute of Child Development and Education at the University of Amsterdam, The Netherlands. Her research interest is risk assessment and prevention of adverse developmental outcomes such as juvenile delinquency and problematic child-rearing situations.

ORCID

Anne M. E. Bijlsma  <http://orcid.org/0000-0002-1694-3412>

Mark Assink  <http://orcid.org/0000-0002-2235-6548>

Marieke van Geffen  <http://orcid.org/0000-0002-1932-7439>

Ethics approval and consent to participate

The data collection in this study was approved by the Ethics Committee of the University of Amsterdam (Faculty of Social and Behavioural Sciences).

Data availability

The data that support the findings of this study are available from the corresponding author, A.M.E. Bijlsma, upon request.

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