



Universiteit  
Leiden  
The Netherlands

## **It should not hurt to be a child : prevalence of child maltreatment across the globe**

Stoltenborgh, M.

### **Citation**

Stoltenborgh, M. (2012, June 22). *It should not hurt to be a child : prevalence of child maltreatment across the globe*. Retrieved from <https://hdl.handle.net/1887/19142>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/19142>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/19142> holds various files of this Leiden University dissertation.

**Author:** Stoltenborgh, Marije

**Title:** It should not hurt to be a child : prevalence of child maltreatment across the globe

**Date:** 2012-06-22

# 5

## **The neglect of neglect: A meta-analytic review of the prevalence of neglect**

Marije Stoltenborgh, Marian J. Bakermans-Kranenburg, & Marinus H. van IJzendoorn. *Manuscript under review.*

## **ABSTRACT**

**Purpose** The aim of the current meta-analysis was to provide an estimate of the prevalence of physical and emotional neglect by integrating prevalence figures from the body of research reporting on neglect. An attempt was also made to unravel the substantial variation in prevalence figures reported in primary studies by analyzing the effects of procedural factors and sample characteristics on combined prevalence rates.

**Methods** A comprehensive meta-analysis was conducted combining prevalence figures of child physical neglect for 13 independent samples with a total of 59,406 participants, and prevalence figures of emotional neglect for 16 independent samples with a total of 59,655 participants.

**Results** The overall estimated prevalence was 163/1000 for physical neglect, and 184/1000 for emotional neglect, with no apparent gender differences. The influence of research design factors on the prevalence of physical neglect was more pronounced than their influence on the prevalence of emotional neglect. Studies on physical neglect in 'low resource' countries were conspicuously absent.

**Conclusions** Child neglect is a problem of considerable extent, and the neglect of child neglect in scientific research is deplorable, especially in low-resource countries. Recommendations for the design of future prevalence studies are proposed.

## INTRODUCTION

Although the consequences of child neglect seem to be as important as those of the more active types of abuse, and although neglect is the most frequent category of child maltreatment recorded by child protection agencies [1], child neglect has not been the primary focus of many empirical studies. Whereas in a recent meta-analysis on the prevalence of child sexual abuse (CSA) more than 200 publications were combined [Chapter 2], the search for publications reporting the prevalence of child neglect yielded as few as 16 publications. The prevalence of child neglect reported in these studies ranged from 1.4% [3] to 80.1% [4]. This substantial variation underlines the need for a meta-analytic synthesis in order to provide a baseline of child neglect prevalence and to search for determinants of the variation in prevalence estimates.

Neglect has been defined by the Consultation on Child Abuse Prevention [5] as

... the failure to provide for the development of the child in all spheres: health, education, emotional development, nutrition, shelter, and safe living conditions, in the context of resources reasonably available to the family or caretakers and causes or has a high probability of causing harm to the child's health or physical, mental, spiritual, moral or social development. This includes the failure to properly supervise and protect children from harm as much as is feasible. (p. 15)

Different subtypes of neglect exist. *Physical neglect* refers to the failure to meet children's physical needs, and includes for example the failure to provide adequate nutrition, clothing, personal hygiene, supervision, and medical attention. *Emotional neglect* refers to the failure to meet children's emotional needs, and includes for example the failure to provide adequate nurturance and affection, allowing children to be witnesses of domestic violence, to knowingly permit maladaptive behavior by the child, the failure to seek care for emotional or behavioral problems, and the failure to provide adequate structure. *Educational neglect* refers to the failure to provide the care and supervision that are necessary to secure a child's education. It includes for example failing to enroll a child of mandatory school age in school, permitting chronic absence from school, and failing to attend to special educational needs.

The consequences of neglect seem to be as important as those of abuse [1]. The documented short-term effects of childhood neglect encompass increased risk for childhood internalizing and externalizing behavior and a lack of ego resiliency [6], as well as delays in cognitive and emotional development [7]. The reported long-term effects of childhood neglect include substance abuse [8], diminished economic well-being [9], risky sexual behavior [10], increased risk for posttraumatic stress disorder [11], and an increased likelihood of using social services [12].

In order to determine the overall prevalence of physical and emotional neglect we conducted a meta-analysis of the available studies, and we also examined the influence of sample characteristics and methodological factors on the reported prevalence. Our meta-analysis comprised 16 publications including 25 independent samples and a total of 76,434 participants. These numbers are strikingly low in the light of a recently published meta-analysis on the prevalence of CSA [2] that yielded over 200 publications using self-report measures of CSA for over 400,000 participants, thus confirming the dearth of studies reporting the prevalence of neglect. Even more telling is de fact that the prevalence of neglect was always reported in combination with reports of the prevalence of CSA, child physical abuse, and/or child emotional abuse, indicating that studies on the prevalence of neglect were by-products rather than a primary interest.

### ***Measurement of Neglect***

Variability exists among studies with respect to the number of items used to establish physical or emotional neglect ranging from one [e.g., 13] to eight items [e.g., 14]. The number of items used might influence the reported prevalence because multiple items may include more – and more specific – information about neglect than a single item. For example, in the study by Young, Hansen, Gibson, and Ryan [15] physical neglect was assessed with a single item in which respondents replied “never true”, “rarely true”, or “sometimes true” to the statement “There was someone to take care of you and protect you.” (p. 1208). This statement is rather general and open to subjective interpretation by the respondents. In the study by Scher, Forde, McQuaid, and Stein [16] physical neglect was measured with the Childhood Trauma Questionnaire [17]. The CTQ contains five physical neglect items such as “I didn’t have enough to eat when I was growing up.”, which respondents had to rate on a five-point scale ranging from “never true” to “very often true”. These items are behaviorally specific and relatively objective, even though there is still some room for personal interpretation.

Another issue of interest is whether questionnaires or interviews are used, and not much is known about this possible source of influence on reported neglect prevalence. A clue as to what to expect may come from CSA research, but findings are equivocal. Some reviews have noted that studies using interviews yield higher prevalence rates than those using questionnaires [18, 19] while others have not reported such a difference [20, 21]. In our meta-analysis on the prevalence of CSA we found similar figures for face-to-face interviews and questionnaires, but somewhat lower prevalences when telephone interviews or computer-based questionnaires were used [2].

### ***Procedural Factors***

Sample size ranged from 112 [22] to 41,482 [15]. Whether sample size influences reported prevalence is not clear, but one might argue that larger samples might

better represent the population and as such provide a better and certainly more precise (i.e. with a smaller confidence interval) estimate of the prevalence of neglect. However, it is unknown whether a better representation of the population is associated with a higher or a lower prevalence of neglect. The sampling procedure was another procedural factor that differed between studies. Approximately half of the samples were various types of convenience samples, such as women recruited on postpartum wards of six hospitals in the Greater Toronto Area [13], members of a health plan in San Diego [23], or undergraduate female Latina psychology students at a private urban university in Texas [22]. The other half of the samples was randomly or modified randomly drawn, as in a national computer-generated stratified random sample in the USA [24] or a New Zealand urban region birth cohort [25]. The influence of sampling method on reported neglect prevalence is unknown. However, convenience samples have been shown to lead to biased results in other areas of investigation [26].

### ***Sample Characteristics***

A sample characteristic that might influence the reported prevalence of neglect is social economic status (SES). In individual studies low SES is often associated with more child neglect. Evidence comes from both informant-based studies and studies using self-report measures of neglect (e.g., 27, 28, 29, 30). Gender differences in the prevalence of neglect are not to be expected as a meta-analysis on risk-factors for neglect did not find gender to be a risk-factor [30], and the fourth National Incidence Study (NIS-4) [31] did not find gender differences in the prevalence of neglect either.

### ***This Study***

The current meta-analysis aims at providing an estimate of the prevalence of physical and emotional neglect by integrating prevalence figures from the body of research reporting on neglect. We attempt to unravel the substantial variation in prevalence figures reported in primary studies by analyzing the effects of procedural factors and sample characteristics on combined prevalence rates. We expect combined rates to be similar for women and for men, and we expect that rates are higher in studies with low SES samples. With respect to the other procedural factors and sample characteristics analyzed, the analyses were exploratory due to the absence of firm expectations that could be derived from existing literature.

## **METHOD**

### ***Literature Search***

Three search methods were used to identify eligible studies, published between January 1980 and January 2008. First, we searched the electronic databases PubMed, Online Contents, Picarta, ERIC, PsychInfo, and Web of Science for empirical articles using the terms *prevalence* and/or *incidence* combined with one

of the following terms: (*child\**) (*physical / emotional / educational*) *neglect*. Studies that were found with the search terms (*child\**) (*sexual / physical / emotional*) *maltreatment*, (*sexual / physical / emotional*) *abuse*, and *victimization* were also included when the prevalence of physical, emotional, or educational neglect was reported. Second, we electronically searched the specialized journals *Child Abuse and Neglect* and *Child Maltreatment* with the same terms as mentioned above. Third, the references of the collected papers, dissertations, and book chapters were searched for relevant studies, as were other reviews and meta-analyses on childhood neglect. Studies were included if the prevalence of at least one of the types of neglect was reported (a) in terms of proportions at child level (excluding studies only reporting estimates of the family level) (b) for victims under the age of 18 years in (c) non-clinical samples, and (d) if sufficient data were provided to determine this proportion as well as the sample size.

If publications reported on the same sample or on overlapping samples, the publication providing the maximum of information was included in the meta-analysis. Thus, the independence of samples and the inclusion of every participant only once in the pertinent meta-analyses were ascertained. When a publication reported the prevalence of neglect for more than one sample separately, for example for male and female participants or for participants of different ethnicities, these sub-samples were treated as independent studies. This procedure yielded 16 publications (see supplemental appendix) covering reports on the self-reported prevalence of physical neglect (13 samples) and emotional neglect (16 samples). We also found four publications in which informant-reports were used for the prevalence of physical neglect (two samples), emotional neglect (one sample), and educational neglect (one sample). These studies were not included in the current meta-analysis as the number of studies was too small to warrant further analyses.

### ***Data Extraction***

We coded two types of moderators: sample characteristics and procedural moderators. *Sample characteristics* comprised the gender distribution in the sample (100% female, 100% male, or mixed), the geographical area from which the sample originated (Australia/New Zealand, North America, Europe, Africa, South America, Asia), the level of economic development of the sample's country of origin according to the World Economic Outlook Database [32] (high-resource *versus* low-resource), the predominant ethnicity of the sample for studies originating from the USA and Canada (African American, Asian, Caucasian, or Hispanic), the predominant social economic status of the sample (high, moderate, or low), the age of the respondent at the time of assessment, and whether the respondent was an adult or a child at the time of assessment.

*Procedural moderators* included the following variables: the type of instrument used (questionnaire or interview), whether the instrument used was validated

(yes or no), the number of questions asked (recoded into two categories: up to two questions *versus* three or more questions), in case of emotional neglect: whether it was based on witnessing domestic violence only or on more indicators, the sampling procedure (randomized or convenience), the response rate (low [ $< 80.0\%$ ] *versus* high [ $\geq 80.0\%$ ]), and the sample size (small to moderate [ $< 1,000$ ] *versus* large [ $\geq 1,000$ ]). Agreement between the coders for moderators and outcome variables was satisfactory (mean kappa for categorical variables .89, percentage agreement on average 93%; mean intraclass correlations for continuous variables .93).

### ***Meta-Analytic Procedures***

The meta-analysis was performed using the Comprehensive Meta-Analysis (CMA) program [33]. For each study, the proportion of abused children was transformed into a logit event rate effect size and the corresponding standard error was calculated [34]. After the analyses, the logits were retransformed into proportions to facilitate interpretation of the results. The coded outcome was the proportion of children physically or emotionally neglected. No outlying effect sizes were detected on the basis of standardized  $z$  effect-size values larger than 3.29 or smaller than -3.29. Combined effect sizes were computed using CMA.

Significance tests and moderator analyses were performed through random effects models [35]. Fixed effects models are based on the assumption that effect sizes observed in studies estimate the corresponding population effect with random error that stems only from the chance factors associated with subject-level sampling error in that study [34, 36]. This assumption is not made in random effects models [37]. Random effects models allow for the possibility that there are also random differences between studies that are associated with variations in procedures, measures, or settings that go beyond subject-level sampling error and thus point to different study populations [34]. To test the homogeneity of the overall set and specific sets of effect sizes, we computed  $Q$ -statistics [33]. In addition, we computed 95% confidence intervals (CIs), again based on random estimates, around the point estimate of each set of effect sizes.  $Q$ -statistics and  $p$ -values were also computed to assess differences between combined effect sizes for specific subsets of studies grouped by moderators. Again, the more conservative random effects model tests were used. Contrasts were only tested when at least two of the subsets consisted of at least four studies [38]. We conducted all moderator analyses with the original sample sizes and with a winsorized sample size for the large study of Young et al. [15] ( $n = 41,482$ ). The results were similar. Therefore the results of the analyses with the original sample size are reported.

Some publications reported prevalences of physical and emotional neglect for the same samples, resulting in an overlap between samples. We therefore used 85% CIs as a conservative way of testing [39] whether the prevalences of physical and emotional neglect were statistically significantly different. Non-overlapping 85% CIs suggest a significant difference between combined effect sizes [40]. For

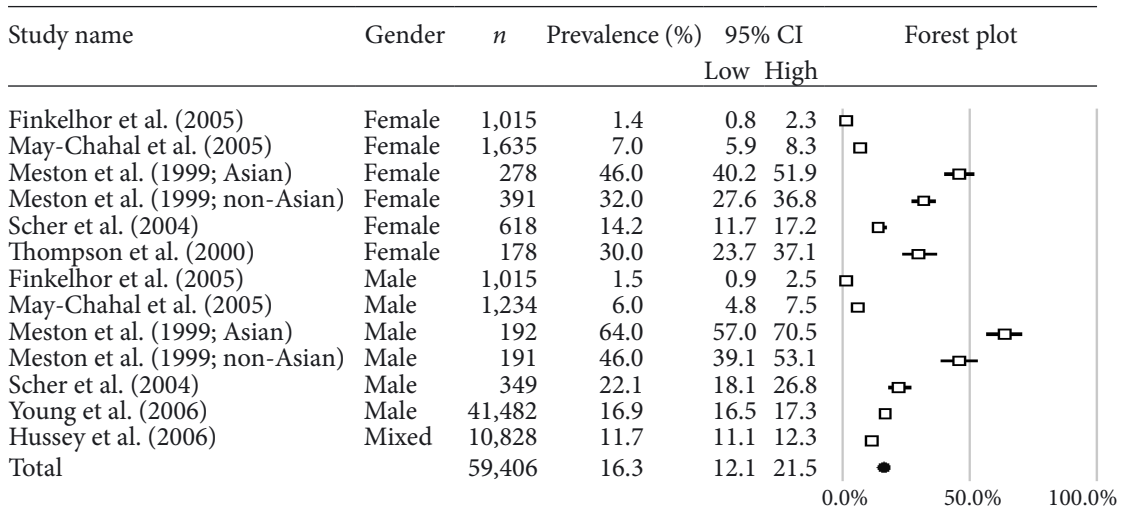


Figure 1. Statistics and forest plot for studies participating in the meta-analysis of physical neglect

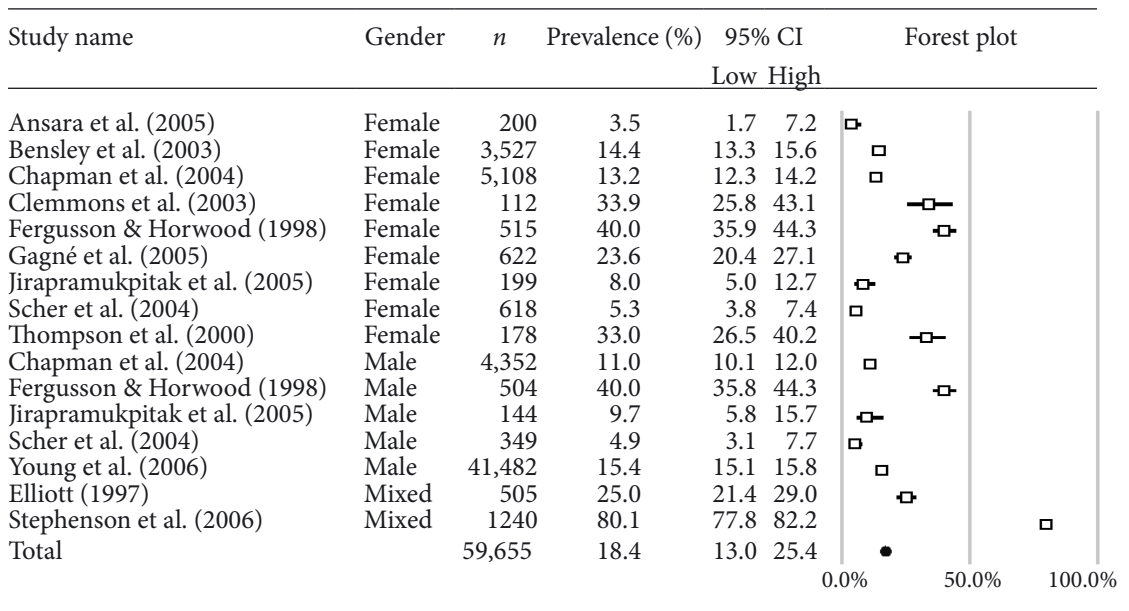


Figure 2. Statistics and forest plot for studies participating in the meta-analysis of emotional neglect

continuous moderators, Fisher's  $Z$  scores were used in weighted least squares meta-regression analyses.

We used the "trim and fill" method [41, 42] to calculate the effect of potential publication bias on the outcomes of the meta-analyses. Using this method, a funnel plot is constructed of each study's effect size against its precision (usually plotted as  $1/SE$ ). These plots should be shaped like a funnel if no publication bias is present. However, since smaller studies and studies with non-significant results are less likely to be published, studies in the bottom left-hand corner or often omitted [42, 43]. The  $k$  left-most studies considered to be symmetrically unmatched are trimmed and their missing counterparts imputed or "filled" as mirror images of the trimmed outcomes. This then allows for the computation of adjusted overall effect sizes and confidence intervals [43, 44]. We also examined the stability of the results using the 'jackknife' procedure, analyzing whether the overall effect size changed significantly when the combined effect sizes were calculated after the successive removal of one effect size [33]. We also calculated the fail-safe number, being the number of studies with average sample sizes and null outcomes that would be required to bring the combined effect size of the meta-analysis to a non-significant level [45]. Rosenthal [36] suggested that  $5k + 10$ , where  $k$  is the number of studies included, may be considered a general criterion for robustness.

## RESULTS

### *Combined Prevalence*

The combined prevalence for the set of physical neglect studies was 16.3% ( $k = 16$ ,  $N = 59,406$ ; 95%  $CI$ : 12.1% - 21.5%;  $p < .01$ ), and the combined prevalence for emotional neglect was 18.4% ( $k = 13$ ,  $N = 59,655$ ; 95%  $CI$ : 13.0% - 25.4%;  $p < .01$ ), see Table 1. Figures 1 and 2 show the distribution of the prevalence figures reported by the included studies on physical and emotional neglect, respectively. Both sets of studies were heterogeneous (for statistics, see Table 1). The 85%  $CI$ s of the combined prevalences of physical and emotional neglect (14.7% - 23.0% and 12.5% - 20.7%, respectively) overlapped, indicating that the difference in combined prevalence was not statistically significant.

Duvall and Tweedie's [41, 43] trim and fill method revealed no asymmetry in the funnel plots for physical or for emotional neglect studies suggesting that asymmetrical publication bias is unlikely. The jackknife procedure yielded the same point estimate and  $CI$ 's for both types of neglect, indicating stability of our findings. The fail-safe number - the number of studies with null-result needed to cancel out the significance of the combined prevalence - was 4,531 for the set of physical neglect studies and 7,538 for the emotional neglect studies. Thus, 4,531 physical neglect studies and 7,538 emotional neglect studies with null results would be needed to reduce the combined prevalences to non-significance.

The results of the moderator analyses will be presented separately for physical and emotional neglect. The subsets of all moderator analyses remained heterogeneous.

Table 1. Results of moderator analyses for self-report studies: number of studies and participants, and combined prevalence including 95% confidence intervals (CI).

	Physical neglect				Emotional neglect					
	K <sup>c</sup>	N	Combined prevalence (%)	95% CI	Contrast Q <sup>z</sup>	K <sup>c</sup>	N	Combined prevalence (%)	95% CI	Contrast Q <sup>d</sup>
<i>Overall estimate</i>	13	59,406	16.3**	12.1 – 21.5	1,122.82 <sup>d</sup> **	16	59,655	18.4**	13.0 – 25.4	2,554.35 <sup>d</sup>
<i>Sample characteristics</i>										
Gender					0.07					0.36
	6	4,115	15.2**	6.9 – 30.3		9	11,079	16.1**	10.6 – 23.6	
	6	44,463	17.5**	8.1 – 34.0		5	46,831	13.6**	7.7 – 22.9	
	1	10,828	11.7	1.5 – 53.1	n/a	2	1,745	53.8	30.3 – 75.7	n/a
Continent										
						3	1,583	30.1**	19.8 – 42.9	
						2	1,019	40.0	26.3 – 55.5	
	2	2,869	6.5**	3.0 – 13.7						
	11	56,537	19.2**	14.2 – 27.1	n/a	11	57,053	14.5**	11.4 – 18.3	n/a
Economic development										
	13	59,406			n/a					n/a
						13	58,072	17.2**	13.2 – 22.1	
						3	1,583	28.5**	16.9 – 43.7	
Ethnicity <sup>b</sup>										
						1	178	33.0*	21.0 – 47.6	
	1	178	30.0	8.4 – 66.7	n/a	1	178	33.0*	21.0 – 47.6	
	2	470	55.1	29.3 – 78.4		7	55,941	12.2**	10.1 – 14.8	
	7	45,061	12.5**	7.4 – 20.4		1	112	33.9*	21.0 – 49.7	
						1	112	33.9*	21.0 – 49.7	
SES										
						3	2,040	46.3	30.6 – 62.7	n/a
	1	178	30.0	9.2 – 64.5	n/a	3	2,040	46.3	30.6 – 62.7	
	7	43,501	32.2**	21.7 – 44.9		8	52,726	11.7**	8.0 – 16.8	
	2	2,030	1.4**	0.5 – 4.1		1	3,527	14.4**	5.1 – 34.5	
	11	57,376	22.7**	17.2 – 29.2	n/a	13	57,681	14.4**	10.8 – 19.0	n/a
Respondent										
	2	2,030	1.4**	0.6 – 3.4		3	1,974	46.8	30.8 – 63.4	



### ***Physical Neglect***

**Sample characteristics.** The result of the moderator analysis for gender was not significant, indicating that physical neglect occurs at approximately the same rate among females and males (see Table 1). Moderator analyses for the other sample characteristics could not be carried out due to the small set of physical neglect studies.

**Procedural moderators.** The use of validated instruments yielded a significantly higher prevalence for physical neglect than the use of non-validated instruments. The combined prevalence was significantly lower when one or two questions were used to assess the occurrence of physical neglect than when three or more questions were used. A meta-regression using the number of questions as predictor and the logit event rate as dependent variable revealed a significant model with a positive slope, indicating an increase of reported prevalence with an increasing number of questions ( $z = 3.04, p = 0.002$ ), thus confirming the result of the moderator analysis. The combined prevalence of studies using convenience samples was significantly higher than the combined prevalence of studies using randomized samples. The combined prevalence of studies with low or moderate response rates was significantly lower than the combined prevalence of studies with high response rates. For studies with small to moderate sample sizes, a higher combined prevalence was found than for studies with large sample sizes. The contrast between studies using interviews or questionnaires could not be tested due to the small set of physical neglect studies using interviews.

### ***Emotional Neglect***

**Sample characteristics.** Similar as for physical neglect, gender was not a significant moderator implying that emotional neglect occurs at about the same rate among females and males (see Table 1). Moderator analyses for the other sample characteristics could not be carried out due to the small set of physical neglect studies.

**Procedural moderators.** No difference in reported prevalence was found between studies that reported on witnessing domestic violence only and studies that used a more comprehensive definition of emotional neglect. The combined prevalence of studies using interviews was significantly higher than the combined prevalence of studies using questionnaires (see Table 1). The combined prevalence of studies with low or moderate response rates was significantly lower than the combined prevalence of studies with high response rates. The analyses of none of the other procedural moderators reached significance, indicating no differences in combined prevalence between studies using validated or non-validated instruments, between studies using fewer than three or more than three questions for the assessment of emotional neglect, between studies using convenience or randomized samples, and between studies with small to moderate or large sample sizes.

## DISCUSSION

The global prevalence of child physical neglect was estimated to be 16.3% or 163 per 1000 children based on 13 independent samples with a total of 59,406 participants, and the global prevalence of child emotional neglect was estimated to be 18.4% or 184 per 1000 children based on 16 independent samples with a total of 59,655 participants, with no apparent gender differences. A procedural factor that influenced self-reported prevalence of both physical and emotional neglect was response rate. Other factors influenced the prevalence of either physical or emotional neglect (e.g., the sampling procedure or the number of questions used to assess neglect).

The “neglect of child neglect” is apparent from the fact that we could trace only a modest number of studies reporting on the prevalence of neglect: 16 for physical neglect and 13 for emotional neglect. In such small sets of studies outlying effect sizes and sample sizes may exert a large influence on the estimated effect size. In our set of studies the largest sample size ( $N = 41,482$ ) was found in the study by Young et al. [15], and the study by Meston, Heiman, Trapnell, and Carlin [46] reported rather large prevalence rates. However, neither winsorizing the largest sample size nor the jackknife procedure, in which the reported prevalence is calculated when one study at a time is removed, resulted in meaningful changes of the estimated prevalence. Therefore, we can be reasonably certain of the robustness of our meta-analytic results.

Due to the small number of studies, the possible influence of many sample characteristics could not be tested. Also, the distribution of studies among geographical areas of origin of the sample was rather uneven with a large majority of samples originating from North America, no samples from South America, and only few from Asia, Australia, and Europe. The same applies to the level of economic development. All physical neglect samples and a majority of the emotional neglect samples originated from countries that are labeled high-resource by the International Monetary Fund [32]. This is especially unfortunate because a higher level of physical neglect may be expected in low-resource countries due to the difficult life-circumstances of most parents and children in these countries (as described by, e.g., [47]).

The contrasts based on procedural moderators showed that most procedural factors influenced the prevalence of physical neglect but not the prevalence of emotional neglect (e.g., the number of questions used to assess neglect, the sampling procedure). Exceptions were whether questionnaires or interviews were used, with questionnaires yielding lower rates of emotional but not of physical neglect, and response rate that showed higher combined prevalences for both types of neglect when studies had high response rates. Differences in moderator effects may be related to differences between physical and emotional neglect. Emotional neglect may be more difficult to rate than physical neglect as the construct of emotional neglect may be more open to personal interpretation. A

rather extreme example of an item that is open to subjectivity is “You felt loved.” to which participants could answer “never true”, “rarely true”, or “sometimes true” [15]. Although one might wonder whether subjectivity can be entirely banned from the measurement of emotional neglect, we recommend the use of multiple, behaviorally specific questions about physical and emotional neglect in order to rule out at least part of the subjectivity.

We found substantial differences in the prevalence of physical neglect for studies using different types of procedural characteristics. Interestingly, studies with seemingly better procedural characteristics showed on and off higher and lower prevalence rates. For example, randomly drawn samples, preferred from a methodological perspective, showed a lower combined prevalence than convenience samples but larger numbers of questions, yielding more precise information on neglect, were associated with a higher combined prevalence, as were higher response rates.

Trying to delineate studies with, in order, overall good and suboptimal procedural qualities, we describe two studies that might illustrate such procedural differences: May-Chahal and Cawson [14] is an example of a study with better procedural qualities, whereas the Young et al. [15] study seems less optimal. May-Chahal and Cawson [14] report the prevalence of physical neglect in two randomized samples of 1,634 female and 1,235 male adult participants aged 18 – 24 from the United Kingdom, with a response rate of 69%. Eight quite specific items on physical neglect were used, such as “Before you were 12 years old, you always/often went hungry because no one got you meals or there was no food in the house” and “You regularly had to look after yourself because your parents went away”. The physical neglect prevalence was 6.0% for boys and 7.0% for girls. As an example of a study with less optimal procedural qualities, Young et al. [15] examined the prevalence of physical neglect in a large convenience sample of 41,482 young male Marine recruits at the Marine Corps Recruit Depot in San Diego, USA, with a response rate 63.6%. A single item was used to measure physical neglect: “There was someone to take care of you and protect you before the age of 17”, which respondents had to respond to by “never true”, “rarely true”, or “sometimes true”. The physical neglect prevalence was 16.9% [15]. Interestingly, the physical neglect prevalence reported in the study with the better design features [14] was about half of the prevalence reported in the study with the less optimal procedures [15]. Although no firm conclusion can be drawn from these examples, they might indicate a potential overestimation of the physical neglect prevalence due to less optimal design features of several prevalence studies.

## CONCLUSION

The current meta-analysis shows that child neglect is a problem of considerable extent, touching the lives of many children. Given the dearth of studies investigating – the prevalence of – child neglect and given the severe consequences of neglect

[1], more studies with a primary focus on child neglect should be undertaken. Carrying out studies in low-resource countries is especially important because the body of research in these countries is even more limited than in high-resource countries. Such studies should be methodologically sound, use representative randomized population samples, and should include clear and behaviorally defined operationalizations for physical and emotional neglect.

## REFERENCES<sup>1</sup>

- 1 Gilbert R, Spatz Widom C, Browne K, Fergusson D, Webb E, Janson S (2009) Burden and consequences of child maltreatment in high-income countries. *Lancet* 373: 68-81. doi: 10.1016/S0140-6736(08)61706-7
- 2 Stoltenborgh M, Van IJzendoorn MH, Euser EM, Bakermans-Kranenburg MJ (2011) A global perspective on child sexual abuse: Meta-analysis of prevalence around the world. *Child Maltreatment* 16(2): 79-101. doi: 10.1177/1077559511403920
- 3\* Finkelhor D, Ormrod R, Turner H, Hamby SL (2005) The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment* 10: 5-25. doi: 10.1177/1077559504271287
- 4\* Stephenson R, Sheikhattari P, Assasi N, Eftekhar H, Zamani Q, Maleki B et al. (2006) Child maltreatment among school children in the Kurdistan Province, Iran. *Child Abus Negl* 30: 231-245. doi: 10.1016/j.chiabu.2005.10.009
- 5 World Health Organization (1999) Report of the Consultation on Child Abuse Prevention, 29-31 March 1999, WHO, Geneva. World Health Organization, Geneva
- 6 Todd Manly J, Kim JE, Rogosch FA, Cicchetti D (2001) Dimensions of child maltreatment and children's adjustment: Contributions of developmental timing and subtype. *Dev Psychopathol* 13: 759-782
- 7 Hildyard KL, Wolfe DA (2002) Child neglect: Developmental issues and outcomes. *Child Abus Negl* 26: 679-695. doi: 10.1016/S0145-2134(02)00341-1
- 8\* Hussey JM, Chang JJ, Kotch JB (2006) Child maltreatment in the United States: Prevalence, risk factors, and adolescent health consequences. *Pediatr* 118: 933-942. doi: 10.1542/peds.2005-2452
- 9 Currie J, Spatz Widom C (2010) Long-term consequences of child abuse and neglect on adult economic well-being. *Child Maltreatment* 15: 111-120. doi: 10.1177/1077559509355316
- 10 Wilson HW, Spatz Widom C (2010) The role of youth problem behaviors in the path from child abuse and neglect to prostitution: A prospective examination. *J Res Adolesc* 20: 210-236. doi: 10.1111/j.1532-7795.2009.00624.x
- 11 Spatz Widom CS (1999) Posttraumatic stress disorder in abused and neglected children grown up. *Am J Psychiatry*, 156: 1223-1229
- 12 Yanos PT, Czaja SJ, Spatz Widom C (2010) A prospective examination of service use by abused and neglected children followed up into adulthood. *Psychiatr Serv* 61: 796-802. doi: 10.1176/appi.ps.61.8.796

---

<sup>1</sup> Publications marked with an asterisk were both cited in the text and included in the meta-analysis. A full reference list of the studies participating in the meta-analysis can be found in the supplemental appendix.

- 13\* Ansara D, Cohen MM, Gallop R, Kung R, Schei B (2005) Predictors of women's physical health problems after childbirth. *J Psychosomat Obstet Gynecol* 26: 115-125. doi: 10.1080/01443610400023064
- 14\* May-Chahal C, Cawson P (2005) Measuring child maltreatment in the United Kingdom: A study of the prevalence of child abuse and neglect. *Child Abus Negl* 29: 969-984. doi: 10.1016/j.chiabu.2004.05.009
- 15\* Young SYN, Hansen CJ, Gibson RL, Ryan MAK (2006) Risky alcohol use, age at onset of drinking, and adverse childhood experiences in young men entering the US marine corps. *Arch Pediatr Adolesc Med* 160: 1207-1214. doi: 10.1001/archpedi.160.12.1207
- 16\* Scher CD, Forde DR, McQuaid JR, Stein MB (2004) Prevalence and demographic correlates of childhood maltreatment in an adult community sample. *Child Abus Negl* 28: 167-180. doi: 10.1016/j.chiabu.2003.09.012
- 17 Bernstein DP, Fink L (1998) *Childhood Trauma Questionnaire: A Retrospective Self-Report Manual*. The Psychological Corporation, San Antonio, TX
- 18 Pereda N, Guilera G, Fornis M, Gomez-Benito J (2009) The international epidemiology of child sexual abuse: A continuation of Finkelhor (1994). *Child Abus Negl* 33: 331-342. doi: 10.1016/j.chiabu.2008.07.007
- 19 Wyatt GE, Peters SD (1986) Methodological Considerations in Research on the Prevalence of Child Sexual Abuse. *Child Abus Negl* 10: 241-251. doi: 10.1016/0145-2134(86)90085-2
- 20 Goldman JDG, Padayachi UK (2000) Some methodological problems in estimating incidence and prevalence in child sexual abuse research. *J Sex Res* 37: 305-314. doi: 10.1080/00224490009552052
- 21 Pereda N, Guilera G, Fornis M, Gomez-Benito J (2009). The prevalence of child sexual abuse in community and student samples: A meta-analysis. *Clin Psychol Rev* 29: 328-338. doi: 10.1016/j.cpr.2009.02.007
- 22\* Clemmons JC, DiLillo D, Martinez IG, Degue S, Jeffcott M (2003) Co-occurring forms of child maltreatment and adult adjustment reported by Latina college students. *Child Abus Negl* 27: 751-767. doi: 10.1016/S0145-2134(03)00112-1
- 23\* Chapman DP, Whitfield CL, Felitti VJ, Dube SR, Edwards, VJ, Anda RF (2004) Adverse childhood experiences and the risk of depressive disorders in adulthood. *J Affect Disord* 82: 217-225. doi: 10.1016/j.jad.2003.12.013
- 24\* Elliott DM (1997). Traumatic events: Prevalence and delayed recall in the general population. *J Consult Clin Psychol* 65: 811-820. doi: 10.1037//0022-006X.65.5.811
- 25\* Fergusson DM, Horwood LJ (1998) Exposure to interparental violence in childhood and psychosocial adjustment in young adulthood. *Child Abus Negl* 22: 339-357. doi: 10.1016/S0145-2134(98)00004-0
- 26 Barel E, Van IJzendoorn MH, Sagi-Schwartz A, Bakermans-Kranenburg MJ (2010) Surviving the holocaust: A meta-analysis of the long-term sequelae of a genocide. *Psychol Bull* 136: 677-698. doi: 10.1037/a0020339

- 27 Brown J, Cohen P, Johnson JG, Salzinger S (1998) A longitudinal analysis of risk factors for child maltreatment: Findings of a 17-year prospective study of officially recorded and self-reported child abuse and neglect. *Child Abuse Negl* 22: 1065-1078. doi: 10.1016/S0145-2134(98)00087-8
- 28 Euser EM, Van IJzendoorn MH, Prinzie P, Bakermans-Kranenburg MJ (2010) Prevalence of child maltreatment in the Netherlands. *Child Maltreatment* 15: 5. doi: 10.1177/1077559509345904
- 29 Sedlak AJ, Broadhurst D (1996) Executive Summary of the Third National Incidence Study of Child Abuse and Neglect. U.S. Department of Health and Human Services, Washington, D.C.
- 30 Stith SM, Liu T, Davies LC, Boykin EL, Adler MC, Harris JM et al. (2009) Risk factors in child maltreatment: A meta-analytic review of the literature. *Aggress Violent Behav* 14: 13-29. doi: 10.1016/j.avb.2006.03.006
- 31 Sedlak AJ, Mettenburg J, Basena M, Petta I, McPherson K, Greene A, Li S (2010) Fourth National Incidence Study of Child Abuse and Neglect (NIS-4): Report to Congress. U.S. Department of Health and Human Services, Administration for Children and Families, Washington, DC
- 32 International Monetary Fund (2010) World Economic Outlook: Spillovers and Cycles in the Global Economy. International Monetary Fund, Washington, D.C.
- 33 Borenstein M, Rothstein D, Cohen J (2005) Comprehensive Meta-Analysis: A Computer Program for Research Synthesis [Computer software]. Biostat, Englewood, NJ
- 34 Lipsey MW, Wilson DB (2001) *Practical Meta-Analysis*. Sage, Thousand Oaks, CA
- 35 Borenstein M, Hedges L, Rothstein D (2007) Meta-Analysis: Fixed Effect vs. Random Effects. [http://www.meta-analysis.com/downloads/Meta-analysis\\_fixed\\_effect\\_vs\\_random\\_effects\\_sv.pdf](http://www.meta-analysis.com/downloads/Meta-analysis_fixed_effect_vs_random_effects_sv.pdf) [On-line]. Available: [http://www.meta-analysis.com/downloads/Meta-analysis\\_fixed\\_effect\\_vs\\_random\\_effects\\_sv.pdf](http://www.meta-analysis.com/downloads/Meta-analysis_fixed_effect_vs_random_effects_sv.pdf).
- 36 Rosenthal R (1991) *Meta-Analytic Procedures for Social Research*. Sage, Newbury Park, CA
- 37 Hedges LV, Olkin I (1985) *Statistical Methods for Meta-Analysis*. Academic Press, Orlando
- 38 Bakermans-Kranenburg MJ, Van IJzendoorn MH, Juffer F (2003) Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychol Bull* 129: 195-215. doi: 10.1037/0033-2909.129.2.195
- 39 Goldstein H, Healy MJR (1995) The graphical presentation of a collection of means. *J R Stat Soc, Series A, Statistics in Society* 158: 175-177. doi: 10.2307/2983411
- 40 Van IJzendoorn MH, Juffer F, Klein-Poelhuis CW (2005) Adoption and cognitive development: A meta-analytic comparison of adopted and non-adopted children's IQ and school performance. *Psychol Bull* 131: 301-316

- 41 Duval S, Tweedie R (2000) A nonparametric “trim and fill” method of accounting for publication bias in meta-analysis. *J Am Stat Assoc* 95: 89-98
- 42 Duval S, Tweedie R (2000) Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biom* 56: 455-463
- 43 Sutton AJ, Duval SJ, Tweedie RL, Abrams KR, Jones DR (2000) Empirical assessment of effect of publication bias on meta-analyses. *Br Med J* 320: 1574-1577
- 44 Gilbody SM, Song FJ, Eastwood AJ, Sutton A (2000) The causes, consequences and detection of publication bias in psychiatry. *Acta Psychiatr Scand* 102: 241-249
- 45 Mullen B (1989) *Advanced Basic Meta-Analysis*. Lawrence Erlbaum Associates, Hillsdale, New Jersey
- 46\* Meston CM, Heiman JR, Trapnell PD, Carlin AS (1999) Ethnicity, desirable responding, and self-reports of abuse: A comparison of European- and Asian-ancestry undergraduates. *J Consult and Clin Psychol* 67: 139-144. doi: 10.1037//0022-006X.67.1.139
- 47 Mbagaya CV (2010) *Child Maltreatment in Kenia, Zambia and the Netherlands. A Cross-Cultural Comparison of Prevalence, Psychopathological Sequelae, and Mediation by PTSS*. Leiden University, Leiden

