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**Title:** It should not hurt to be a child: prevalence of child maltreatment across the globe  
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A global perspective on child sexual abuse: Meta-analysis of prevalence around the world

Chapter 2

**Abstract**

Our comprehensive meta-analysis combined prevalence figures of childhood sexual abuse (CSA) reported in 217 publications published between 1980 and 2008, including 331 independent samples with a total of 9,911,748 participants. The overall estimated CSA prevalence was 127/1000 in self-report studies and 4/1000 in informant studies. Self-reported CSA was more common among female (180/1000) than among male participants (76/1000). Lowest rates for both girls (113/1000) and boys (41/1000) were found in Asia, and highest rates were found for girls in Australia (215/1000) and for boys in Africa (193/1000). The results of our meta-analysis confirm that CSA is a global problem of considerable extent, but also show that methodological issues drastically influence the self-reported prevalence of CSA.
INTRODUCTION
There is no question about the negative effects of child sexual abuse (CSA) on children's psychological well-being and their development into adulthood. CSA is associated with a variety of problems in the short and the long term for both male and female victims (Beitchman, Zucker, Hood, Dacosta, & Akman, 1991; Beitchman et al., 1992; Browne & Finkelhor, 1986; Chapman, Whitfield, Felitti, Dube, Edwards, & Anda, 2004; Jumper, 1995; Kendall Tackett, Williams, & Finkelhor, 1993; Paolucci, Genuis, & Violato, 2001; Romano & De Luca, 2001; Spatz Widom, Czaja, & Dutton, 2008; Spatz Widom, DuMont, & Czaja, 2007). Although there seems to be some consensus on the global and persistent occurrence of CSA, controversy exists as to the overall prevalence of CSA with rates varying from 0.1% (Mackenzie, Blaney, Chivers, & Vincent, 1993) to 71.0% (Everill & Waller, 1995). We conducted a comprehensive meta-analysis of 217 publications on CSA published from 1982 to 2008, including 331 independent samples with a total of 9,911,748 participants, aiming to reveal the extent of the problem and to examine the influence of geographical and sample characteristics as well as procedural factors on the estimated prevalence of CSA.

Influence of Geographical and Sample Characteristics
Higher prevalences of CSA among girls than among boys are consistently found (Finkelhor & Baron, 1986; Finkelhor, 1994; Pereda, Guiler, Forns, & Gomez-Benito, 2009a; Pereda, Guiler, Forns, & Gomez-Benito, 2009b; Putnam, 2003; Rind, Tromovitch, & Bauserman, 1998). Besides gender, the geographical origin of the samples may influence prevalence. Although geographical area and culture are not isomorphic, differences in cultural beliefs and values might be the underlying mechanism affecting the estimated prevalence of CSA across countries and continents (Kenny & McEachern, 2000b). For example, in collectivist cultures like the Asian's the needs of a group tend be considered somewhat more important than those of an individual (Hofstede, 2001). This might result in ignoring the abuse experiences of an individual family member in order to protect the family from the shame associated with a reported case of abuse (Back et al., 2003). Also, cultural differences with regard to sexuality and to sexual restraint might influence the prevalence of sexual abuse and/or the willingness of sexual abuse victims to disclose their experiences (Kenny & McEachern, 2000b; Runyan, 1998). Examples are the taboo around girls losing their virginity before marriage and the taboo on boys' homosexual experiences that are often found in Hispanic cultures (Kenny & McEachern, 2000b).

Despite the fact that the body of international research about sexual abuse has widely expanded since Finkelhor (1994) called for more prevalence studies, not much research has compared prevalence rates among countries or continents. One meta-analysis reported that the highest prevalence rates were found in Africa and the lowest in Europe (Pereda et al., 2009b). A clue as to what to expect might
also come from studies comparing different ethnic groups in predominantly Caucasian countries like the USA. In this type of study, Asian minorities often show lower prevalence rates whereas Hispanic minorities often show higher prevalence rates compared to Caucasians (Kenny & McEachern, 2000b). Findings are not unequivocal, however, and it remains to be seen whether the pattern that is found for immigrant groups also emerges from comparisons among continents.

**Procedural Factors**

Sampling has been identified more than once as contributing to the diversity in CSA prevalence rates (Goldman & Padayachi, 2000; Wyatt & Peters, 1986). It has been argued that lower prevalence rates are found in convenience samples such as college student samples that are widely used for research on CSA, compared to random samples representing the wider community (Goldman & Padayachi, 2000).

A possible reason for the lower prevalence in college samples is that they may be a psychologically healthier group (Goldman & Padayachi, 2000). CSA is found to be related to adverse psychological adjustment (Jumper, 1995) and as such, better psychological health may be associated with lower CSA prevalence. College students may also be more aware of the study’s aims and thus more liable to response biases.

Studies on CSA also differ in the method of data collection. Studies in which children or adults report on their own CSA experiences mainly use interviews and questionnaires. Whether or not differences between these two data collection methods are related to differences in prevalence rates of CSA remains unclear. Some reviews have noted that studies using interviews show higher prevalence rates than those using questionnaires (Pereda et al., 2009a; Wyatt & Peters, 1986) while others did not report such a difference (Goldman & Padayachi, 2000; Pereda et al., 2009b; Wyatt & Peters, 1986). It should be noted that both interviews and questionnaires are based on self-reported retrospective recollection (Fergusson & Mullen, 1999), with some uncertainty about whether the reported experiences actually took place (Goldman & Padayachi, 2000), although according to Koss (1993) it is widely accepted that the underreporting of rape is a greater threat to validity than fabrication. Reports of professionals, dossier or chart reviews, and informant observations of children, such as teachers observing their students in primary schools, do not rely on potentially biased memories of the respondents and document child abuse from the view of a trained observer or expert. A possible drawback of such informant studies is that CSA may be difficult to be detected by informants because CSA might be less ‘visible’ to outsiders than other types of abuse.
**Incidence and Prevalence**

For the difference between studies using self-report measures of CSA and informant studies the distinction between incidence and prevalence rates might be of interest. *Prevalence* refers to the number of individuals having experienced sexual abuse during childhood (Fallon et al., 2010; Peters, Wyatt, & Finkelhor, 1986). Life-time prevalences are generally assessed in self-report studies, since participants are usually asked to report on their experiences of abuse during their entire childhood and adolescence. *Incidence*, on the other hand, refers to the number of new cases of abuse reported or detected during a specific, restricted period of time (Fallon et al., 2010; Peters et al., 1986), often in the context of child protective services. Incidence studies may underestimate the occurrence of CSA (Leventhal, 1998) because only a small proportion of abuse cases may be reported to child protective services or other authorities (Goldman & Padayachi, 2000; Leventhal, 1998; Peters et al., 1986). Moreover, incidence studies capture fewer CSA experiences than prevalence studies because the time frame of incidence studies is more limited than the life-time reports in prevalence studies.

However, with regard to studies of CSA based on informants (in combination with child protective services files) the distinction between incidence and prevalence may not be as clear-cut as it seems to be. First, the informants might cover more cases than those that are officially reported to child protective services, certainly in countries without the legal obligation to report (Euser, Van IJzendoorn, Prinzie, & Bakermans-Kranenburg, 2010). Second, it is impossible to ascertain that the cases reported by informants in incidence studies are the very first sexual abuse experiences of a child and therefore incidence studies of CSA might better be regarded as studies of the current prevalence of CSA during a limited period of time (Van IJzendoorn et al., 2007). Based on the above discussion, prevalence rates from informant studies might underestimate the prevalence of CSA whereas rates from self-report studies might have a bias toward overestimation (Van IJzendoorn, 2007).

**Defining CSA**

In self-report studies, participants are sometimes asked questions about CSA without specification of experiences or behaviors that constitute CSA. The answers to these questions may be heavily influenced by the participants’ subjective perceptions and definitions of CSA. An extreme example is ‘Have you been sexually abused?’ (e.g., Diaz, Simantov, & Rickert, 2002; Hibbard, Ingersoll, & Orr, 1999). This type of question does not include a clear operationalization of CSA as presented by the researcher. How CSA is defined and subsequently operationalized might have an impact on the reported prevalence. Of course, this is true for both self-report and informant studies. A definition of CSA includes several aspects. Defining the cut-off age for childhood is an important factor, as is the decision whether or not to define a minimum age difference between
victim and perpetrator to rule out sexual activity among peers. Moreover, the acts that constitute CSA are a crucial criterion that could influence the reported CSA prevalence. It is easy to imagine that including for example non-contact abuse such as sexual propositions and exhibitionism would yield higher prevalence rates than including contact abuse only. However, Pereda et al. (2009b) found no difference in combined prevalence rates between their broad definition (including non-contact CSA) and their narrow definition (including contact CSA only). According to these authors, this puzzling finding is due to the inclusion of some experiences in both their broad definition and their narrow definition. Related to this issue, the number of questions asked in order to assess CSA may affect the prevalence estimates to some extent because multiple questions can include more specific information about the definition of CSA than a single question can, and more questions might also cover more aspects of CSA, and thus lead to higher prevalence rates.

This Study
The current meta-analysis aims at providing an estimate of the world-wide prevalence of CSA by integrating prevalence figures from a large body of research on CSA and its correlates. We focused on unraveling the substantial variation in prevalence figures reported in primary studies by analyzing the effects of geographical and sample characteristics and of procedural factors on combined prevalence rates. It is crucial to know whether design and measurement differences between prevalence studies partly or largely determine the outcomes. Meta-analyses might help to identify the set of studies with optimal design features for comparison across time and cultures.

We replicated and extended a previous meta-analysis on the same subject (Pereda et al., 2009b) by including a considerably larger number of studies (331 studies in our meta-analysis versus 100 in Pereda et al. [2009b]) and a larger number of moderators. A larger number of studies has several advantages. It increases the power of the analyses, which is important for the detection of smaller effect sizes and imperative in case of methodological heterogeneity of the studies included in the analyses (Valentine, Pigott, & Rothstein, 2010). Furthermore, the larger number of studies allows us to test the influence of moderators on estimates of prevalence rates separately for girls and boys, which was not done by Pereda et al. (2009b). CSA experiences of boys and girls show considerable divergence in prevalence and consequences.

Another important difference between Pereda et al. (2009b) and our meta-analysis is that Pereda et al. (2009b) included only self-report studies whereas we also included informant studies using reports of professionals. Exploring potential differences in prevalence estimates resulting from these rather different approaches is important because policy decisions regarding several aspects of (the prevention of) CSA are often based on government initiated informant studies.
Sexual Abuse

such as the National Incidence Study of Child Abuse and Neglect (NIS; Sedlak, 2001) in the United States, the Canadian Incidence Study of Reported Child Maltreatment (CIS; Trocmé, Tourigny, MacLaurin, & Fallon, 2003) in Canada, and the Nationale Prevalentiestudie Mishandeling van Kinderen en Jeugdigen (NPM; Van IJzendoorn et al., 2007) in the Netherlands. We expected prevalence rates to be higher for self-report studies than for informant studies, in which case policy decisions might be based on a possible underestimate of CSA prevalence if we have reason to suspect that self-reported prevalences would be closer to the true rate in the population.

We also expected combined rates to be higher for girls than for boys, and higher for studies using a more inclusive definition of CSA compared to studies using a more exclusive definition of CSA. Since previous results were inconclusive with regard to the influence on CSA prevalence of geographical area of origin of the sample, the method of sampling, and the method of data collection, analyses on these moderator variables were exploratory.

**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*) (sexual) maltreatment, (sexual) abuse, and victimization. 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 child sexual abuse (CSA). Studies were included if the prevalence of CSA 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-analysis were ascertained. When possible and necessary, the coding form (Table 1) for the study was supplemented with information from the other -excluded- publications on the same sample. When a publication reported the prevalence of CSA 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 217 publications, published from 1982 to 2008, covering a total of 331 samples.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Coding</th>
<th>Description</th>
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<td>Continent</td>
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</tr>
<tr>
<td></td>
<td>2</td>
<td>North America Including USA and Canada</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Europe</td>
</tr>
<tr>
<td></td>
<td>4</td>
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</tr>
<tr>
<td></td>
<td>5</td>
<td>South America</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Asia</td>
</tr>
<tr>
<td>Country’s level of economic development</td>
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<tr>
<td></td>
<td>2</td>
<td>Developed</td>
</tr>
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<td></td>
<td>2</td>
<td>Caucasian</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Asian</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Hispanic</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>African</td>
</tr>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>Mixed</td>
</tr>
<tr>
<td><strong>Procedural moderators</strong></td>
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<td></td>
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<td>Definition of abuse</td>
<td>1</td>
<td>According to NIS-3 Based on the types of behavior included in the definition</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Broader than NIS-3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Stricter than NIS-3</td>
</tr>
<tr>
<td>Prevalence period</td>
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<td>0-12 Age criterion that was used to define CSA; each participant was included in a single category</td>
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<tr>
<td></td>
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<td>0-13</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>7</td>
<td>0-18</td>
</tr>
<tr>
<td></td>
<td>8</td>
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</tr>
<tr>
<td></td>
<td>9</td>
<td>Limited period &gt; 1 year</td>
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<td>Age difference</td>
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<td></td>
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<td></td>
<td>2</td>
<td>Interview face-to-face</td>
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<tr>
<td></td>
<td>3</td>
<td>Telephone interview</td>
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<tr>
<td></td>
<td>4</td>
<td>Computerized interview</td>
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<tr>
<td></td>
<td>5</td>
<td>Observation</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Reports of professionals</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Dossier or chart study</td>
</tr>
<tr>
<td>Instrument validated</td>
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</tr>
<tr>
<td></td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
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<td>Continuous; if a range was provided, the minimum number was coded</td>
</tr>
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<td>Respondent</td>
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<tr>
<td></td>
<td>2</td>
<td>Parent</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Adult</td>
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<td>Response rate</td>
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<td>Sampling procedure</td>
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<td>Modified random</td>
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<td></td>
<td>3</td>
<td>Convenience sample</td>
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<tr>
<td>Sample size</td>
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<td>Informant</td>
</tr>
<tr>
<td>Year of publication</td>
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</tr>
<tr>
<td>Publication outlet</td>
<td>2</td>
<td>Dissertation</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Book chapter</td>
</tr>
<tr>
<td><strong>Background moderators</strong></td>
<td></td>
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</tr>
</tbody>
</table>

*Self report was coded when parents were respondents*
**Data Extraction**

We coded three types of moderators: sample characteristics, procedural moderators, and publication moderators (see Table 1). **Sample characteristics** comprised 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 (high-resource or low-resource according to the World Economic Outlook Database [International Monetary Fund, 2010]), the predominant ethnicity of the sample (only used for the subset of studies originating from the USA and Canada), the age of the respondent at the time of assessment (recoded into three categories using the 33rd and 67th percentile scores: < 20 years, 20 – 30 years, > 30 years), and the gender distribution in the sample (100% female, 100% male, or mixed). The coded outcome was the proportion of children sexually abused. In order to be able to weight effect sizes, sample size was also coded.

**Procedural moderators** included the definition of CSA that was coded in accordance with the acts of perpetrators included in the definition used by the third National Incidence Study (Sedlak, 2001; see Appendix). This resulted in three categories ranging from stricter to broader than the NIS-3 definition. When the definition of CSA did not include all of the perpetrators’ acts specified in the Appendix, ‘stricter than NIS-3’ was coded. When all and only those perpetrators’ acts specified in the appendix were included in a study’s definition of CSA, ‘according to NIS-3’ was coded. ‘Broader than NIS-3’ was coded when non-contact abuse (such as exhibitionism) was included in the study’s CSA definition. Furthermore, procedural moderators included the period of prevalence (0-12, 0-13, 0-14, 0-15, 0-16, 0-17, 0-18, limited period 1 year, limited period > 1 year; each participant was included in a single category), and whether the definition of CSA in the study included the specification of an age difference between victim and perpetrator (difference specified, no difference specified). Procedural moderators regarding the measurement of CSA were the type of instrument used for the study (questionnaire, face-to-face interview, telephone interview, computerized interview, observation, reports of professionals, dossier/chart study), whether the instrument was validated (as reported by the studies; yes or no), and the number of questions asked (recoded into three categories using the 33rd and 67th percentile scores: less than 3, 3 to 7, 8 or more). Other procedural moderators included who the respondent was in the case of self-report (children/adolescents, adults, parents), the response rate (recoded into three categories using the 33rd and 67th percentile scores: low [< 66.8%], medium [66.8% – 85.2%], high [> 85.2%]), the sampling procedure (randomized - including random and modified random samples -, convenience, or other), the sample size (recoded into three categories using the 33rd and 67th percentile scores: small [< 265], medium [265 – 733], large [> 733]), and the kind of evidence used to determine CSA (self-report - scored also when parents reported on abuse of their children - versus informant, based on clinical judgment, medical evaluation, or jurisprudence).
Publication moderators were publication outlet (journal article, dissertation, book chapter, other) and year of publication (recoded into decades). To assess intercoder reliability, thirty publications were coded by two coders. Agreement between the coders for moderators and outcome variables was satisfactory (kappas for categorical variables between .52 and 1.00, average .78, and agreement between 65% and 100%, average 86%; intraclass correlations for continuous variables between .78 and 1.00, average .95; lowest inter-rater agreement for period of prevalence, complete agreement for continent, economic development, ethnicity, age respondent, gender, sample size, evidence, year of publication, publication outlet).

**Meta-Analytic Procedures**

Meta-analytical approaches are well-known in medical science, for example to test the effectiveness of an intervention on a disease. This type of research question requires methodological homogeneity of the studies included that ideally should be randomized controlled trials. In contrast, our meta-analysis included studies that were heterogeneous in their methodology, and one of our aims was to explore the possible influence of methodological factors on reported prevalence. This type of approach has been used earlier in other meta-analyses aiming at estimating prevalence (e.g., De Sanjosé et al., 2007; Pereda et al., 2009b; Van Os, Linscott, Myin-Germeyns, Delspaul, & Krabbendam, 2009), as well as in many meta-analyses on non-experimental, correlational studies in human development (e.g., Barel, Van IJzendoorn, Sagi-Schwartz, & Bakermans-Kranenburg, 2010; Cyr, Euser, Bakermans-Kranenburg, & Van IJzendoorn, 2010; Juffer, & Van IJzendoorn, 2005).

The meta-analysis was performed using the Comprehensive Meta-Analysis (CMA) program (Borenstein, Rothstein, & Cohen, 2005). For each study, the proportion of abused children was transformed into a logit event rate effect size and the corresponding standard error was calculated (Lipsey & Wilson, 2001). After the analyses, the logits were retransformed into proportions to facilitate interpretation of the results. Combined effect sizes were computed using CMA. Analyses were carried out both including and excluding outlying logit event rates and including and excluding multivariate outlying studies. Multivariate outliers were detected after multiple imputation of missing values, using the missing values analysis in SPSS 17.0. Because no significant differences were found between analyses including and excluding outliers, results are reported including outliers.

Significance tests and moderator analyses were performed through random effects models (Borenstein, Hedges, & Rothstein, 2007). Fixed effects models are based on the assumption that effect sizes observed in a study estimate the corresponding population effect with random error that stems only from the chance factors associated with subject-level sampling error in that study (Lipsey & Wilson, 2001; Rosenthal, 1991). This assumption is not made in random effects models (Hedges & Olkin, 1985). 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 (Lipsey & Wilson, 2001). To test the homogeneity of the overall set and specific sets of effect sizes, we computed Q-statistics (Borenstein et al., 2005). 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 (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003).

We used the “trim and fill” method (Duval & Tweedie, 2000a; Duval & Tweedie, 2000b) 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 are often omitted (Duval & Tweedie, 2000b; Sutton, Duval, Tweedie, Abrams, & Jones, 2000). We used the logit of the reported prevalence as effect size. The k right-most studies considered to be symmetrically unmatched were trimmed. The trimmed studies can be replaced 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 (Gilbody, Song, Eastwood, & Sutton, 2000; Sutton et al., 2000).

**Results**

**Combined Prevalence**

The combined prevalence for the total set of studies (k = 331, N = 9,911,748) was 11.8% (95% CI: 10.0% – 13.8%; p < .01). The set of studies was heterogeneous, Q(330) = 269,244.78; p < .01, indicating that differences among the effect sizes existed within this set of studies that originate from another source than sampling error. We conducted a moderator analysis contrasting self-report studies with studies based on informants, which was significant, Q(1) = 30.03; p < .01, reflecting a difference in combined prevalence between studies using informants and studies using self-report measures of CSA. The combined prevalence was 0.4% (95% CI: 0.1% – 1.5%) for informant studies (k = 8, N = 9,500,797) and 12.7% (95% CI: 10.7% – 15.0%) for self-report studies (k = 323, N = 410,951). The confidence intervals of informant and self-report studies did not overlap. Therefore, these sets of studies were treated as representing separate populations of studies. We report the results of the moderator analyses for the set of self-report studies only because moderator analyses were not possible within the set of informant studies due to the small number of studies.
Table 2. Results of moderator analyses for self-report studies: number of studies and participants, and combined prevalence including 95% confidence intervals (CI).

<table>
<thead>
<tr>
<th>Sample characteristics</th>
<th>Female samples</th>
<th>Male samples</th>
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<tbody>
<tr>
<td></td>
<td>$k^3$</td>
<td>$N$</td>
</tr>
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<td><strong>Continent</strong></td>
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<td>Africa</td>
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<td>USA/Canada</td>
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<tr>
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</tr>
<tr>
<td>Asian</td>
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<tr>
<td><strong>Age of respondent</strong></td>
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<tr>
<td>Under 20 years</td>
<td>40</td>
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</tr>
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<td>20 – 30 years</td>
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<td>15,949</td>
</tr>
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<td>59</td>
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<tr>
<td>0-18</td>
<td>94</td>
<td>135,778</td>
</tr>
</tbody>
</table>

Age difference

| Difference specified | 54    | 31,689 | 22.0** | 18.8 – 25.6 | 8.29** | 25   | 18,935 | 12.9** | 9.0 – 18.1 |

Note: *p < .05, **p < .01; 1subgroups with $k < 4$ or 'other' categories are excluded from contrasts; 2for the subset of studies originating from the USA and Canada; 3differences in totals of $k$ are due to the exclusion from the pertinent analysis of studies with missing values; 4all participants are included in a single category.
<table>
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<th>Sample characteristics</th>
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<th>95% CI</th>
<th>Contrast Q</th>
<th>Prevalence (%)</th>
<th>95% CI</th>
<th>Contrast Q</th>
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<td>7.5 – 16.6</td>
<td>8</td>
<td>3,888</td>
<td>4.1**</td>
<td>2.0 – 8.3</td>
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<td>4.2 – 10.1</td>
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<td></td>
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<td>17.1 – 25.5</td>
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<td>70,949</td>
<td>7.0**</td>
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<tr>
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<td>46</td>
<td>56,566</td>
<td>6.8**</td>
<td>5.1 – 9.0</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01; 'subgroups with k < 4 or 'other' categories are excluded from contrasts; 1 for the subset of studies originating from the USA and Canada; 2 differences in totals of k are due to the exclusion from the pertinent analysis of studies with missing values; 3 all participants are included in a single category
Chapter 2

Duvall and Tweedie's (2000a; 2000b) trim and fill method revealed no asymmetry in the funnel plots for self-report and informant studies. The absence of unmatched studies on the right side suggests that asymmetrical publication bias is unlikely.

**Moderator Analyses**

The results of all moderator analyses on the set of self-report prevalence studies are presented in Table 2, in the left-hand column for girls and in the right-hand column for boys. The results of the moderator analyses using gender are presented separately in the next paragraph.

**Sample characteristics.** The result of the moderator analysis for gender (female, male, mixed) was significant, $Q(2) = 105.33; p < .01$, as was the result of the analysis contrasting studies with female and male samples, $Q(1) = 92.63; p < .01$. The combined prevalence for female samples was 18.0% (95% CI: 16.4% – 19.7%; $p < .01$), for male samples 7.6% (95% CI: 6.6% – 8.8%; $p < .01$), and for samples with mixed gender 8.7% (95% CI: 6.5% – 11.6%; $p < .01$). Because the confidence intervals of female and male samples did not overlap, we decided to conduct further moderator analyses separately for female and male samples (see Table 2).

![Figure 1. Estimated combined prevalence for self-report studies of CSA, separated according to geographical area of origin of the sample and to gender, including the overall combined prevalence for girls and boys. Stars represent a significant difference between girls and boys within a geographical area of origin of the sample (*p<.05; **p<.01).](image-url)

*The significance of the analyses on the South American samples could not be tested, due to k<4.*
Significant differences were found between the continents of origin of the sample for girls as well as for boys. The highest combined prevalence was found in Australia for girls and in Africa for boys whereas the lowest combined prevalence was found in Asia for both genders. This can also be seen in Figure 1, representing the results of moderator analyses using gender, carried out separately for each continent. Significant gender differences were found in Asia, Australia, Europe, and USA/Canada, with girls showing a higher combined prevalence than boys. With respect to the level of economic development of the sample’s country of origin, significant differences were found for boys but not for girls. For boys, the combined prevalence was higher in low-resource countries than in high-resource countries. When ethnicity was used as a moderator on the sub-sample of studies with samples originating from the USA and Canada, differences between ethnic groups were found for boys but not for girls. For boys only, the combined prevalence for African-American samples was higher than for Caucasian samples. No significant differences were found related to the age of the respondent at the time of the study, indicating a comparable combined prevalence for studies using respondents younger than 20 years old, 20 to 30 years old, and older than 30 years.

Procedural moderators. Figure 2 shows the procedural moderator analyses resulting in significant effects for girls, boys, or both genders. Regarding the definition of CSA, significant differences were found for girls only, with the studies using the NIS-3 definition yielding the highest combined prevalence, followed by studies using a broader definition. Studies using a stricter definition reported the lowest combined prevalence. For girls, the combined prevalence differed according to the period of prevalence used in studies in order to assess the occurrence of CSA. The combined prevalence was highest in studies using a 0-14 year period, followed by 0-16 and 0-18 periods and by 0-17 and 0-15 periods. The lowest combined prevalence was reported in studies using a 0-13 period. For girls and boys, the reported prevalence was significantly influenced by the inclusion or exclusion of an age difference criterion between perpetrator and victim. The reported age difference was usually five years (52 out of 54 studies on girls and all of the studies on boys), and only twice an age difference of three years was used. The combined prevalence of studies including such an age-difference criterion was higher than the combined prevalence of studies without an age-difference criterion.

For girls but not for boys, the combined prevalence differed between the types of instrument used to assess CSA. The lowest combined prevalence was found in studies using a computerized questionnaire, the highest in studies using paper-and-pencil questionnaires. The combined prevalence of both types of interviews – face-to-face and by telephone – was in between the types of questionnaires. For both genders, whether studies used a validated or a non-validated instrument was not a factor of influence on combined prevalence. With respect to number
Figure 2. The influence on estimated prevalence of self-report studies of CSA of (a) the definition of CSA, (b) the period of prevalence, (c) whether an age difference was specified in the definition of CSA, (d) the type of instrument, (e) the number of questions that were used to assess CSA, (f) the respondent, (g) the response rate, (h) the sampling procedure, and (i) the sample size. Dotted lines represent the overall mean estimated reported prevalence for girls and boys. Stars represent a significant difference between categories within female or male studies (*p<.05; **p<.01).
of questions, a larger number of questions about CSA concurred with a higher combined prevalence for girls but not for boys. For boys but not for girls, the respondent used in studies mattered with respect to the combined prevalence, with adult men showing a higher combined prevalence than boys.

Regarding response rate, the lowest combined prevalence was found in the medium range for both genders, the highest in the low range for girls and in the high range for boys. The results of moderator analyses with sampling procedure were significant for boys only. The combined prevalence reported in studies using male convenience samples was approximately twice the combined prevalence reported in studies using male randomized samples. Furthermore, the larger the sample size, the lower the combined prevalence for both girls and boys.

Publication moderators. No significant differences in combined prevalence existed with regard to the year of publication, independent of the gender of the sample. For girls but not for boys, the result of the analysis with publication outlet was significant. The combined prevalence of the studies reported in dissertations was significantly higher than the combined prevalence in studies reported in journals.

**Discussion**

Using meta-analytical methods, we combined prevalence figures on CSA reported in 217 publications published between 1982 and 2008. The global prevalence of CSA was estimated to be 11.8% or 118 per 1000 children, based on 331 independent samples with a total of 9,911,748 participants. As hypothesized, a gap existed between the combined prevalence from self-report studies and from informant studies. The difference was much larger than expected with self-report studies yielding a combined rate that was 30 times higher than the rate of informant studies (127 per 1000 children versus 4 per 1000 children). Sample characteristics and methodological aspects of the informant studies might account for part of the difference in reported prevalence. For example, four out of eight informant studies were based on reports of CSA during the last year whereas most of the self-report studies used an up-to-18 year’s period of prevalence. Reporting CSA over a one year period limits the time frame and reduces the number of persons that experienced CSA compared to reporting CSA over the entire childhood period. Also, seven out of eight informant studies used randomized samples whereas only about half of the self-report studies did so. In the set of male self-report studies random sampling resulted in a lower reported prevalence compared to convenience samples, which points to the possibility that randomized studies are associated with lower estimates. Last but not least, all informant studies used reports registered by professionals, thus excluding unreported cases of CSA that might have been reported had self-report measures been used.
Chapter 2

Gender
A substantial difference in the prevalence of self-reported CSA was found between girls and boys. This was true globally and for most continents separately. Women reported CSA more often than men, which is convergent with the meta-analysis by Pereda et al. (2009b). The prevalence rates we found were comparable to those reported in Pereda et al. (2009b): 18.0% for girls and 7.6% for boys (Pereda et al. [2009b]: 19.7% and 7.9% respectively). Gender differences for reported prevalence of CSA may be due to either higher occurrence of CSA among girls than among boys, or to boys’ more reluctant attitude towards disclosing their CSA experiences, or both causes might play a role (Dhaliwal, Gauzas, Antonowicz, & Ross, 1996; Finkelhor & Baron, 1986; O’Leary & Barber, 2008; Romano & De Luca, 2001). Men might be reluctant to disclose CSA for several reasons, among which feelings of weakness and of failure because of society’s traditional view of men as aggressors rather than as victims (Dhaliwal et al., 1996; Romano & De Luca, 2001).

Moreover, boys might be afraid of being considered the instigator of CSA rather than the victim (Dhaliwal et al., 1996), or they may not view their sexual experiences with older women as sexual abuse because of sex stereotypes (Coxell, King, Mezey, & Gordon, 1999). As the majority of CSA perpetrators are male, male victims may also fear being regarded as homosexual (Dhaliwal et al., 1996; Romano & De Luca, 2001). Male victims who disclose their CSA experiences tend to do so later than female victims (O’Leary & Barber, 2008). On average, it would take most male CSA victims more than ten years before they start to discuss their CSA experiences. For women, the average period between the CSA experiences and disclosure was found to be much shorter (O’Leary & Barber, 2008). This might contribute to higher rates for girls than for boys, and explain our finding that for boys the prevalence was higher in adult samples than in child samples, a finding that was not replicated for girls.

Continent of Origin of the Sample
Continent of origin of the sample influenced the CSA prevalence as well. This converges with the results of the meta-analysis of Pereda et al. (2009b), but in that meta-analysis separate prevalences for boys and girls per continent were not reported. It should be noted that most prevalence studies have not been conducted with the explicit goal to compare prevalence rates across a variety of cultures. In fact, the cultural perspective on prevalence of child maltreatment across cultures is still underdeveloped although recently some progress has been made (Mbagaya, 2010). Geographical area and culture may be overlapping but are not necessarily similar, and any comparison between countries or continents might not be generalized to cultural differences. Nevertheless, Hofstede (2001) proposed some major cultural dimensions that are globally related to countries and geographic areas, and one of the dimensions is individualism or the emphasis on the collective (Hofstede, 2001), which might be relevant to child maltreatment prevalence estimates.
For example, for girls and boys, we found the lowest combined prevalence in Asia. The fairly low CSA rates for both genders in Asia seem to be consistent with the idea that abuse experiences are less often disclosed in a collectivist culture than in individualistic cultures. The highest prevalence for girls found in more individualistic countries like Australia and New Zealand might partially stem from culturally based willingness to disclose their sexual experiences and the ease with which they talk about sexuality (Kenny & McEachern, 2000b; Runyan, 1998). Values related to taboos on sexuality found in many Hispanic cultures, or shame associated with disclosure of CSA, are thought to prevent abused persons from talking about their experiences. In the Hispanic cultures of South America one might expect to find fairly low rates of reported prevalence because of the secrecy around early sexual experiences. The high combined rate of 22.2% among the female Hispanic American samples is not consistent with this expectation. Unfortunately, the number of studies originating from South America was too small to be contrasted with those of other continents. More studies on the prevalence of CSA research in this geographical area are badly needed.

The alternative explanation would be that differences between continents reflect real differences in the prevalence of CSA. Mbagaya (2010), for example, argued that differences in prevalence rates between countries may not (only) be due to disclosure issues but to real socio-economic and cultural differences. On the African continent, initiation rites representing the “transition into adulthood” in early and mid-adolescence may encourage sexual behaviors with older persons (Mbagaya, 2010). Myths associated with HIV cure and avoidance strategies may increase the prevalence of CSA in sub-Saharan Africa (Lalor, 2008). In addition, young partners are considered less likely to have HIV, and are thus preferred as sexual partners (Madu & Peltzer, 2000). Furthermore, Madu and Peltzer (2000) pointed out that the male dominant society in South Africa may be responsible for high CSA rates because men in such societies feel that they have authority over women and children. The socialization of African children to unquestioningly obey older people puts them at risk for sexual abuse by people to whom they are expected to pay their respects (Lalor, 2008; Mbagaya, 2010). Lastly, the rapid social changes in Africa along with increases in urbanization and individualism have led to greater isolation of families. In situations where children are left with biologically unrelated caregivers when parents go to work, the risk of sexually abusive experiences increases (Mbagaya, 2010).

Procedural Moderators
Some procedural factors influenced self-reported prevalence of CSA for boys and girls (e.g., sample size showing the same pattern of influence for both genders), other factors influenced the prevalence for only one of the genders (e.g., number of questions showed a significant effect for girls but not for boys).
Based on the effects on reported prevalence of procedural moderators in our set of self-report studies, and the speculation that the combined prevalence from informant studies might underestimate while the combined prevalence from self-report studies might overestimate the CSA prevalence rate, we suggest some recommendations aiming at the reduction of possible biases in estimations of CSA prevalence in self-report studies. The use of sufficiently large population-based randomized samples is indicated, and this not only because of the formal aspect of generalizability to the general population of a country. In our meta-analysis, a lower combined prevalence for self-report studies was found in male randomized samples compared to male convenience samples, and self-report studies with larger sample sizes resulted in a lower combined prevalence compared to studies with medium or small sample sizes for both genders. The findings indicate that studies with better methodological qualities yield lower estimated prevalence rates. Tentatively, this could be seen as evidence that lower prevalence estimates could be more accurate compared to higher prevalence estimates.

**Limitations and Future Research**

The heterogeneity in the subsets of studies, despite the moderators that were taken into account, indicates that the sample characteristics and methodological factors included in this meta-analysis did not yet fully explain the vast variation in self-reported rates of CSA. Unfortunately, the small number of informant studies did not allow for examining the influence of sample characteristics and methodological factors on the estimated prevalence. Comparing moderators of prevalence estimates for informant and self-report studies could add to our understanding of the strengths and weaknesses of both types of studies.

Studies using both informants and self-report data within a single, nationally representative randomized sample could contribute to clarifying the large difference in reported prevalence between these two study types. To ensure comparability of the prevalence rates it would be imperative that identical, clearly operationalized criteria for CSA are used for both the informant and the self-report measurements. We would recommend using CSA criteria that correspond to the legal definition of CSA in the specific country, so that the results of studies will be useful for local policy makers. Alternatively, the criteria for CSA could be derived from official international organizations, e.g., the definition provided by the Consultation on Child Abuse Prevention of the World Health Organization (1999). This would ensure the comparability of prevalence among countries.

With regard to the measurement of CSA, the results of this meta-analysis emphasize the recommendation of the use of multiple behaviorally-specific questions instead of a single-item label question, in line with Koss’ (1993) recommendation with regard to rape. By analogy with the measurement of infant temperament, answers on behaviorally-specific questions such as “During the past week, when being undressed, how often did your baby cry?” (Infant Behavior...
Sexual Abuse Questionnaire; Rothbart, 1981) provide more precise information than broad questions such as “How much does your baby fuss / cry in general?” (Infant Characteristics Questionnaire; Bates, Bennett Freeland, & Lounsbury, 1979). In this study, the use of one or two questions was associated with a stricter definition of CSA whereas a broader definition of CSA was reflected in the use of more questions. The use of behaviorally-specific questions about CSA would also eliminate a possible drawback of self-report studies that leave the interpretation of the global term ‘sexual abuse’ to the participants’ subjective perceptions and definitions. Developing an instrument including behaviorally-specific questions based on the rather broad, non behaviorally-specific definitions of CSA provided by international organizations might prove to be quite challenging, especially if one would like the instrument to be universally applicable. The development of such an instrument might be preceded by a clearer specification of the acts that constitute CSA according to international organizations and across a wide variety of cultures. An empirical conceptual analysis focusing at more concrete and precise operationalizations of CSA might be especially useful. Such an approach has for example been successful in the area of attachment and sensitivity research (Posada et al., 1995; De Wolff & Van IJzendoorn, 1997).

In our opinion, the large costs to society of (the consequences of) CSA would warrant the investment in a study using both informant and self-report measures including multiple behaviorally specific questions in the same large, randomized, population-based sample, as such a study could provide the most accurate estimate of CSA prevalence as a basis for preventive policy measures.

**Conclusion**
The current meta-analysis shows that CSA is a global problem of considerable extent, even though methodological differences between studies have an impact on the reported prevalence of CSA. The prevalence rates contrast sharply with the United Nation’s Convention on the Rights of the Child (1989) in which the 194 ratifying countries (November 2009) explicitly state that they shall take all appropriate legislative, administrative, social, and educational measures, either nationally, bilaterally, or multilaterally, in order to protect children from sexual abuse. The results of our meta-analysis show a lower limit estimate of self-reported CSA prevalence in girls of 164/1000 and an upper limit estimate of 197/1000. For boys the lower limit is 66/1000 and the upper limit is 88/1000. Even the lower bound estimates are alarming in their demonstration that CSA is a global phenomenon affecting the lives of millions of children.


Chapter 2

REFERENCES


1 Publications marked with an asterisk were included in the meta-analysis.


* Bergdahl, J. B. (1983). *Differences in demographic features and present anxiety level among college women who report type, extent and rated severity of childhood and adolescent sexual contacts with adults.* Dissertation-Abstracts-International 44[01], 296-B.


Chapter 2


Chapter 2


### Appendix A

NIS-3 Definitions of Child Sexual Abuse

<table>
<thead>
<tr>
<th>Specific Form of Maltreatment (NIS-3 code)</th>
<th>Acts/Omissions Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penile Intrusion (01.0)</td>
<td>Sexually assaulting or exploiting a child or permitting sexual assault or exploitation of a child where acts involving penile penetration of or by child have occurred. Such acts include oral (fellatio), anal (sodomy), or genital intercourse, whether heterosexual or homosexual. Category includes cases where sexual exploitation (involving intrusion) by other persons was knowingly permitted by a person responsible for the child (e.g., child's prostitution, child's involvement in pornography with intrusion, child's nonvoluntary involvement in intrusion sex). Category does not include sexual abuse of an unknown nature, situations encompassed by categories in 02 or 03, nor inadequate supervision of child's voluntary sexual activities. The mere presence of venereal disease does not constitute adequate evidence to support that this form of maltreatment occurred.</td>
</tr>
<tr>
<td>Intrusion by Finger or Any Object (01.1)</td>
<td>Sexually assaulting or exploiting a child or permitting sexual assault or exploitation of a child where acts involving penetration with fingers or any object, of or by child, have occurred.</td>
</tr>
<tr>
<td>Molestation with Genital Contact (02.0)</td>
<td>Sexually assaulting or exploiting a child or permitting sexual assault or exploitation of a child where acts involving genital contact of or by child— but not involving (specific indications of) actual intrusion— have occurred. Such acts would include penile or vaginal fondling or stimulation of or by child, whether heterosexual or homosexual.</td>
</tr>
<tr>
<td>Other or Unknown Sexual Abuse (03.0)</td>
<td>Committing or permitting sexual assault, exploitation, maltreatment, or abuse other than categories 01 and 02, above. This could include: sexual assault or exploitation where acts did not involve actual intrusion or genital contact (e.g., exposure, inappropriate kissing, hugging, fondling of breasts, buttocks, or other nongenital areas; etc.); and sexual assault or molestation where acts were of unknown or unspecified nature (i.e., no specific indication that intrusion or genital contact had occurred). Category includes all allegations involving child's voluntary sexual activities, such as allegations concerning inadequate or inappropriate supervision of child's voluntary sexual activities. Category does not include attempted, threatened, or potential sexual assault or exploitation if no actual sexual contact was indicated to have occurred. When no physical contact appears to have occurred, allegation should be coded elsewhere (see categories 06 and 07).</td>
</tr>
</tbody>
</table>

1 Extracted from Sedlak, 1996
2 Emotional Abuse, category Verbal or Emotional Assault
3 Emotional Abuse, category Other or Unknown Abuse