

The impact of child sexual abuse on health: A systematic review of reviews

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ABSTRACT

A large amount of studies and literature reviews on the consequences of child sexual abuse has appeared over the past twenty years. To prevent that the inconsistency in their conclusions along with their methodological differences and limitations may create interpretative difficulties, mistaken beliefs, or confusion among all professionals who turn to this literature for guidance, this paper addresses the best available scientific evidence on the topic, by providing a systematic review of the several reviews that have investigated the literature on the effects of child sexual abuse. Seven databases were searched, supplemented with hand-search of reference lists from retrieved papers. The author and a psychiatrist independently evaluated the eligibility of all studies identified, abstracted data, and assessed study quality. Disagreements were resolved by consensus. Fourteen reviews, including more than 270,000 subjects from 587 studies, were analyzed. There is evidence that survivors of childhood sexual abuse are significantly at risk of a wide range of medical, psychological, behavioral, and sexual disorders. Relationships are small to medium in magnitudes and moderated by sample source and size. Child sexual abuse should be considered as a general, nonspecific risk factor for psychopathology. The implications for research, treatment, and health policy are discussed.

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1. Introduction

Awareness of the impact on human development that may result from early experiences of sexual abuse is of relatively recent origin. Ongoing concern over the potential consequences of child sexual

abuse is reflected in the exponential increase in research in this area. A growing number of studies and literature reviews on child sexual abuse have appeared over the past twenty years.

However, such large amount of research has not been unanimous in its conclusions. Indeed, there is considerable controversy concerning the relationship between child sexual abuse and later negative outcomes. While many studies and reviews have concluded that survivors of childhood sexual abuse are highly likely to experience several adverse effects, strongly implying a causal relationship

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between child sexual abuse and the later development of psychopathology, others have been more cautious, arguing that outcomes are variable, rather than being consistently and intensely negative (see, for example, Paolucci, Genuis & Violato, 2001; Rind & Tromovitch, 1997; Rind, Tromovitch & Bauserman, 1998; Sharpe & Faye, 2006; Smolak & Murnen, 2002).

Furthermore, there is no conclusive agreement concerning those variables (such as gender, age when abused, type and severity of abuse, and relationship to the perpetrator) which are usually highlighted as potential contributors to the outcomes of child sexual abuse. For example, while some reviews have concluded that girls react more negatively than boys, others have implied that sexual abuse is an equivalent experience for boys and girls in terms of its negative impact (Rind & Tromovitch, 1997; Rind et al., 1998).

Therefore, although efforts to synthesize the literature have resulted in several qualitative and quantitative reviews, even these have generated conflicting results and conclusions have not yet been definitively drawn.

Although several theoretical explanations of how child sexual abuse affects children's development have been proposed (see Cicchetti & Toth, 2005; Freeman & Morris, 2001; Hulme, 2004), in the absence of consistent empirical evidence, theories accounting for the impact of child abuse on human development lack support.

Much of the controversy in the literature may be a reflection of the differences between studies (Roodman & Clum, 2001) as well as of the methodological limitations of the literature (Rind & Tromovitch, 1997; Rind et al., 1998; Sharpe & Faye, 2006). Many studies are characterized by serious design and measurement problems, including poor sampling methods, absence of matched comparison groups, and inadequate control for effect modifiers and confounders (see Briere, 1992; Kilpatrick, 1987; Sharpe & Faye, 2006). Moreover, many literature reviews are characterized by imprecision and subjectivity (Rind & Tromovitch, 1997; Rind et al., 1998). For example, some reviewers have specified neither the data sources that were searched nor the criteria used for including studies, paying more attention to study findings indicating harmful effects.

A more objective process has been provided by some meta-analytic reviews, which have attempted to infer whether child sexual abuse is significantly associated with specific outcomes and to estimate the strength of this association. Based on the transformation of the results of all the relevant studies to a common statistical metric, which are then combined into one overall statistic, these reviews have used a more rigorous and transparent approach to reduce the potential for bias, avoiding imprecision and subjectivity.

However, some have criticized the aggregation of findings from studies that are too diverse (either clinically or methodologically) to be combined in a meta-analysis (see Centre for Reviews and Dissemination, 2008; Lipsey & Wilson, 2000), because such aggregation might be inappropriate and meaningless, and genuine differences in effects might be obscured (Higgins & Green, 2006). Further, it should be noted that meta-analysis does not allow for causal inferences to be made, thus findings must be interpreted with caution (Hall & Rosenthal, 1995).

In conclusion, although studies and reviews abound, the inconsistency in their conclusions along with their methodological differences and limitations may create interpretative difficulties, mistaken beliefs, or confusion among all individuals (including policymakers, physicians, psychologists, other professionals who treat children, and other individuals responsible for the welfare of children) who turn to this literature for guidance.

In response to these difficulties and with the current high level of societal interest in child maltreatment, it seems evident that, despite a growing body of literature addressing the potential impact of child sexual abuse on health, the issue needs further careful consideration. An analysis of what is currently known about the consequences of childhood sexual abuse is required in order to implement research and health policy.

In order to address the best available scientific evidence on the topic, this paper provides a qualitative and semi-quantitative analysis

of the findings of the several reviews that have investigated the literature on the short- and long-term effects of child sexual abuse.

2. Methods

According to recent guidelines for systematic reviews (Centre for Reviews and Dissemination, 2008; Egger, Davey Smith & Altman, 2001; Higgins & Green, 2006; Lipsey & Wilson, 2000; Petticrew & Roberts, 2006; Stroup, Berlin, Morton, Olkin, Williamson, Rennie, et al., 2000), a protocol was prospectively developed by the author, R.M., detailing the specific objectives, criteria for study selection, approach to abstracting data and assessing study quality, outcomes, and statistical methods.

2.1. Data sources

Two methods were used to obtain relevant studies: an internet-based search and a manual search.

First, seven internet-based databases (AMED, Cochrane Reviews, EBSCO, ERIC, MEDLINE, PsycINFO, and ScienceDirect) were searched for articles published between January 1966 and December 2008. Separate searches were conducted for the keywords *child(hood) sexual abuse, child(hood) sexual maltreatment*.

Second, further articles were identified by a manual search of reference lists from retrieved papers.

The databases were used again to retrieve the abstracts and, if appropriate, the full-text articles.

2.2. Study selection

Studies were included if they (1) appeared in peer-reviewed journals; (2) were published in full; (3) were critical reviews of the literature; (4) were not dissertation papers, editorials, letters, conference proceedings, books, and book chapters; (5) reviewed studies sampling human subjects; (6) investigated medical, neurobiological, psychological, behavioral, sexual, or other health problems following childhood sexual abuse; (7) had primary and sufficient data derived from longitudinal, cross-sectional, case-control, or cohort studies.

These criteria were applied to all titles, abstracts, and full manuscripts.

For multiple publications of the same study, the one with the most complete primary outcomes was used.

2.3. Data extraction and quality assessment

According to guidelines for systematic reviews (Centre for Reviews and Dissemination, 2008; Egger et al., 2001; Higgins & Green, 2006; Lipsey & Wilson, 2000; Petticrew & Roberts, 2006; Stroup et al., 2000), data were abstracted and study quality was assessed on the basis of the following criteria: (1) evidence identification; (2) study selection; (3) data extraction; (4) quality assessment; (5) data synthesis and analysis.

First, "evidence identification" refers to the description of the data sources (e.g., computerized databases, key journals, reference lists from pertinent articles and books, experts, organizations or institutions active in the field) used to identify studies, including years searched, keywords, and constraints (e.g., language limits).

Second, "study selection" refers to the criteria used to select studies for inclusion in the review, including any restrictions on age groups, diagnoses, diseases or conditions of interest, interventions, settings, and study designs, along with any thresholds for inclusion based on the conduct or quality of the studies. If possible, the method used to apply the selection criteria had to be described, including the number of researchers who screened titles, abstracts, and full papers, along with how disagreements were resolved.

Third, "data extraction" refers to the process by which researchers obtained the necessary information about study characteristics and

findings from the included studies. If possible, the procedure for data extraction had to be stated, including the number of researchers who extracted data and the method for resolving disagreements.

Fourth, the quality of the included studies had to be formally assessed (e.g., appropriateness of study design to the research objective, selection and representativeness of the study groups, comparability of the groups, risk of bias, and choice of outcome measure) and the criteria or guidelines used for assessing data quality and validity (such as scales or checklists that provide an overall numerical quality score for each study) had to be described. If possible, the method by which the guidelines for quality assessment were applied had to be stated, including the number of researchers who assessed data quality and how disagreements were resolved.

Fifth, “data synthesis and analysis” refers to the description of the main results in an objective fashion, with the highest quality evidence available receiving the greatest emphasis. The methods used to obtain these results, whether qualitative or quantitative, had to be outlined. As well as drawing results together, synthesis had to consider the strength of evidence, explore whether any observed effects were consistent across studies, and investigate possible reasons for any inconsistencies. If a meta-analysis was undertaken, effect sizes or odds ratios, sources of variation between studies, and, if possible, sensitivity analyses had to be reported. How heterogeneity was explored and quantified had to be outlined. Any planned subgroup or sensitivity analyses or investigation of publication bias had to be described. Numerical results had to be accompanied by confidence intervals, if applicable, and exact levels of statistical significance. If a narrative synthesis of studies was undertaken, the approach used had to be rigorous and transparent to reduce the potential for bias.

On the basis of these criteria, each study was assigned one of the following ratings: “good” (study meets all criteria well), “fair” (study does not meet one criterion), or “poor” (study does not meet more than one criterion). Those studies which were judged “poor” were rejected, because they had important methodological limitations that could invalidate their results.

2.4. Procedure

According to guidelines for systematic reviews (Centre for Reviews and Dissemination, 2008; Higgins & Green, 2006), it is desirable to ensure that study selection, data extraction, and quality assessment are conducted by two independent researchers, because there is evidence that the assessment of all the papers by at least two researchers working independently may limit bias, minimize errors, improve reliability of findings, reduce the possibility that relevant reports will be discarded, and ensure that decisions and judgments are reproducible (Buscemi, Hartling, Vandermeer, Tjosvold & Klassen, 2006; Edwards, Clarke, DiGuseppi, Pratap, Roberts and Wentz, 2002).

It is also important that at least one researcher has an adequate understanding of the area under review as well as of the relevant methodological issues, because experts may give more consistent assessment of the validity of studies (Higgins & Green, 2006; Jadad, Moore, Carroll, Jenkinson, Reynolds, Gavaghan, et al., 1996). However, it may be an advantage to have a second author who is not knowledgeable in the topic area, because experts in a particular area may have pre-formed opinions that can bias their assessment (Cooper & Ribble, 1989; Oxman & Guyatt, 1993).

Therefore, the author, R. M., and a psychiatrist, professor of Criminology, independently evaluated the eligibility of all studies identified, abstracted data, and assessed study quality. While both are knowledgeable in systematic review methodology, only the author, R. M., is expert in the area under review.

Given the resources required and the uncertain benefit in terms of protecting against bias, blind assessments of study eligibility and quality were not warranted, because, although they ensure that judgments may be not affected by knowledge of the authors,

institutions, journals, or results of a study (Jadad et al., 1996; Moher, Pham, Jones, Cook, Jadad, Moher, et al., 1998), some empirical evidence suggests that blinding is difficult to achieve and time consuming, does not substantially alter the results of a review, and is likely to be of limited value (Centre for Reviews and Dissemination, 2008; Berlin, 1997; Higgins & Green, 2006).

Thirty-eight reviews (0.18%) created disagreements among authors. Disagreements about study selection occurred 31 times (0.15%). Nine (29%) of these disagreements were simple oversights and were resolved by consensus which was reached by discussion among authors, after having reviewed the article and the review protocol (Centre for Reviews and Dissemination, 2008; Higgins & Green, 2006). Twenty-two (71%) disagreements were due to lack of additional information. In these cases, the authors chose to categorize the study in their review as one that was awaiting assessment until the additional information was obtained. In all these cases, agreement was achieved when the additional information was obtained. Disagreements concerning quality assessment occurred 7 times (7.45%). Such disagreements were due to a difference in interpretation, because 7 reviews were ambiguous about some quality criteria, such as “evidence identification” (i.e. description of the data sources used, years searched, keywords, and constraints), and “study selection” (i.e. description of the criteria used to include or exclude studies). All of these disagreements concerning quality assessment (100%) were discussed and resolved by consensus, after having reviewed the article and the review protocol. For example, those reviews that did not clearly describe the data sources or the criteria used to include or exclude studies were judged as not meeting the criterion in question.

A summary of the study selection process is illustrated in Fig. 1. A total of 20,535 articles were identified. The internet-based search identified 20,502 articles, 0 from AMED, 9 from Cochrane, 1550 from EBSCO, 1154 from ERIC, 2514 from MEDLINE, 7956 from PsycINFO, and 7319 from ScienceDirect. Thirty-three articles were identified by the manual search of reference lists. Two hundred and forty-four full-text articles were retrieved for more detailed evaluation and ninety-four fulfilled all inclusion criteria. Of these, eighty did not meet more than one of the quality criteria. For these reasons, these studies were judged “poor” and were rejected.

Fourteen reviews were included in this systematic review (Table 1).

All the reviews detailed the data sources that were used to identify studies, the criteria used to select studies for inclusion in the review, and the process by which researchers obtained the necessary information about study characteristics and findings from the included studies. Four of these studies (Arriola, Loudon, Doldren and Fortenberry, 2005; Latthe, Mignini, Gray, Hills and Khan, 2006; Reading & Rannan-Eliya, 2007; Whitaker, Le, Hanson, Baker, McMahon, Ryan, et al., 2008) specified that multiple researchers selected studies and extracted data, with disagreements resolved by consensus or by a third reviewer.

The quality of the included studies was formally assessed by two reviews (Latthe et al., 2006; Reading & Rannan-Eliya, 2007). All the other reviews did not assess data quality and validity and aggregated different study findings, particularly those with different levels of methodological quality.

All the reviews described the main results in an objective fashion, outlined the methods used to obtain these results, considered the strength of evidence, explored whether any observed effects were consistent across studies, and investigated possible reasons for any inconsistencies.

Thirteen reviews undertook a quantitative analysis of the data (i.e. meta-analysis), to infer whether child sexual abuse was significantly associated with specific outcomes and to estimate the strength of this association. These reviews reported effect sizes or odds ratios and sources of variation between studies, outlining how heterogeneity was explored and quantified.

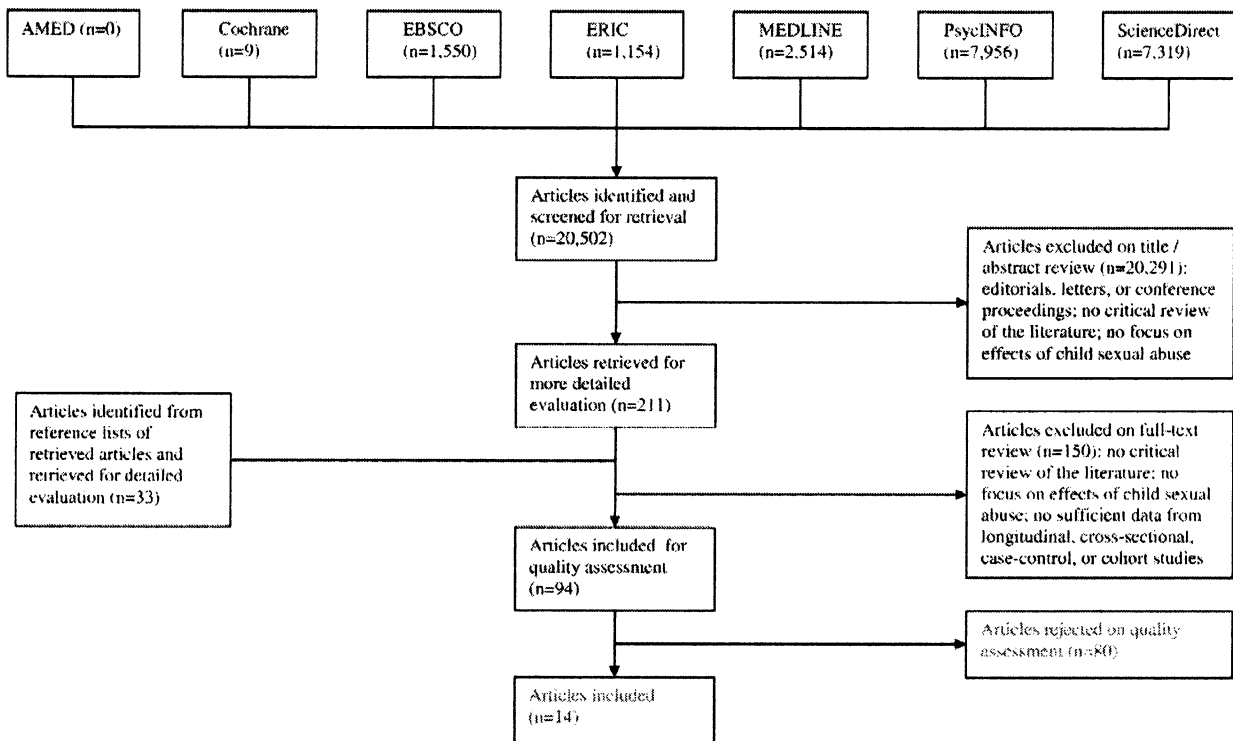


Fig. 1. Summary of study selection process.

Another review provided a narrative synthesis of studies in a rigorous, transparent and objective fashion, with the highest quality evidence available receiving the greatest emphasis.

For all these reasons, while only two of these reviews met all the quality criteria and were judged “good” (Latthe et al., 2006; Reading & Rannan-Eliya, 2007), all the others did not meet the fourth criterion (i.e. they lacked a formal “quality assessment”) and were judged “fair”.

All the reviews were published between 1995 and 2008 and reviewed a total of 587 studies (including more than 270,000 subjects), although 35 (4.65%) of these studies were analyzed by more than one review (28 studies were included in two reviews, 4 studies in three reviews, and 3 studies in four reviews).

The following sample types were investigated: both adults and children or adolescents, only adults, only children or adolescents, both males and females, and only females.

The following short- and long-term outcomes were assessed: chronic pelvic pain, non-epileptic seizures, genital herpes, revictimization, and a variety of psychological, behavioral, and sexual disorders.

The following moderator variables were analyzed: form and date of publication of the study, site of the study, main focus of the study (e.g., personality disorder), abuse status as the independent variable, size and source of the samples, gender, race, socioeconomic status, and age of the subjects at the time of assessment, patient characteristics (e.g., inpatients), sampling strategy, source of the comparison group, method of assessment of abuse and of outcomes (e.g., questionnaire list), type of statistic used, definition of child sexual abuse based on maximum age of victim, level of contact, consent, force, frequency, severity, and duration of abuse, number of perpetrators, relationship to the perpetrator (e.g., parent), age when abused, age cut-off for child abuse, perpetrator age in relation to the victim, disclosure after abuse, and request for help.

To determine if these variables accounted for significant heterogeneity in effect size estimates, a number of procedures were used,

such as linear or multiple regression, meta-regression, analysis of variance, and test of categorical models. In the categorical model testing, a categorical variable was considered to be a moderator of the relationship between child sexual abuse and outcomes (i.e. that variable adequately accounted for the variability in effect sizes) when there was heterogeneity in effect sizes between categories (i.e. the effect size estimates of the categories defined by the moderator variable varied significantly across classes), but there was homogeneity within categories (i.e. the effect size estimates within each category were homogeneous) (Lipsey & Wilson, 2000).

The main findings of the fourteen reviews included in this systematic review are qualitatively and semi-quantitatively analyzed in an evidence-based, objective, and balanced fashion, with the highest quality evidence available receiving the greatest emphasis (Slavin, 1995). The thirteen meta-analyses included in this review are well suited not only for inferring whether child sexual abuse was significantly associated with specific outcomes but also for estimating the strength of this association. To represent the degree of the relationship between child sexual abuse and outcomes, the effect size estimators d , r , phi , and odds ratios (OR) were used. Positive d , r , phi , and OR values indicate worse outcomes for sexually abused participants compared to control participants. According to Cohen (1988), d of .20, .50, and .80, and to r of .10, .30, and .50 correspond to “small”, “medium”, and “large” effect sizes.

3. Results

The results of the fourteen reviews included in this systematic review are synthesized in Table 2.

3.1. Medical problems

Focusing on factors predisposing women to chronic pelvic pain, Latthe et al. (2006) found that child sexual abuse was significantly

Table 1
Description of the included reviews.

| Source | Main methods | Subjects (N of studies) | Outcome variables | Moderator variables |
|-------------------|---|---|--|--|
| Arriola | Systematic search; study selection; meta-analysis | Female adult patients or nonpatients (46) | Unprotected sex, multiple partners, sex trading, sexual revictimization | Sample source, age of victim in abuse definition, level of contact of abuse |
| Fossati | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (21) | Borderline personality | Publication date, study site, study focus, sample size and source, gender and age of subjects at the time of assessment, patient characteristics, assessment of abuse and of outcomes, level of contact, force, frequency, severity, and duration of abuse, number of perpetrators, relationship to the perpetrator, age when abused, disclosure after abuse, request for help |
| Jumper | Systematic search; study selection; meta-analysis | Male and female adult patients and nonpatients (26) | Depression, self-esteem, other | Publication date, sample source, gender of the subjects, level of contact or consent of abuse |
| Klonsky | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (43) | Self-injury | Sample size and source, gender and age of the subjects at the time of assessment |
| Larthe | Systematic search; study selection; quality assessment; meta-analysis | Female young and adult patients and nonpatients (122) | Chronic non-cyclical pelvic pain | Publication date and form, sample size and source, age of subjects at the time of assessment, assessment of abuse, type of statistic, relationship to the perpetrator |
| Neuman | Systematic search; study selection; meta-analysis | Female adult patients or nonpatients (38) | Overall psychopathology, anger, anxiety, depression, revictimization, self-mutilation, sex problems, substance abuse, suicide, self-concept, interpersonal problems, dissociation, obsessions or compulsions, somatization, posttraumatic stress, general symptoms | Publication date and form, sample size and source, age of subjects at the time of assessment, assessment of abuse, type of statistic, relationship to the perpetrator |
| Paolucci | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (37) | Posttraumatic stress, depression, suicide or self-hijury, early sex or prostitution, sex perpetration, intelligence or learning | Gender and socioeconomic status of subjects at the time of assessment, level of contact and frequency of abuse, relationship to the perpetrator, age when abused |
| Reading | Systematic search; study selection; quality assessment; narrative synthesis | Male and female young patients (13) | Psychological impairment | Gender of subjects at the time of assessment, level of consent of abuse |
| Rind & Tromovitch | Systematic search; study selection; meta-analysis | Male and female young and adult nonpatients (7) | | |
| Rind et al. | Systematic search; study selection; meta-analysis | Male and female adult nonpatients (59) | Overall psychopathology, alcohol, anxiety, depression, dissociation, eating disorders, hostility, interpersonal sensitivity, locus of control, obsessions or compulsions, paranoia, phobia, psychosis, self-esteem, sex problems, social impairment, somatization, suicide, general symptoms | Publication form, study site, sampling strategy, gender and age of the subjects at the time of assessment, sampling strategy, assessment of abuse, age of victim in abuse definition, level of contact, consent, force, frequency, and duration of abuse, relationship to the perpetrator |
| Roodman | Systematic search; study selection; meta-analysis | Female adult patients and nonpatients (19) | Sexual revictimization | Publication form, sample source, race, age of the subjects at the time of assessment, assessment of abuse, age cut-off for child abuse, level of contact, perpetrator age in relation to the victim |
| Sharpe | Systematic search; study selection; meta-analysis | Male and female adult patients (14) | Non-epileptic seizures | |
| Smolak | Systematic search; study selection; meta-analysis | Female young and adult patients and nonpatients (53) | Eating disorders | Study focus, abuse status as the independent variable, age of the subjects at the time of assessment, source of the comparison group, assessment of outcomes |
| Whitaker | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (89) | Sexual offences against children | |

Table 2
Results of the included reviews.

| Source | Significant outcomes (effect sizes or odds ratios [95% confidence interval; homogeneity]) | Significant moderators | |
|---------------------------------|---|--|--|
| Artiola | Unprotected sex ($r = .05$ [.02-.09], $p = .003$; $Q_i = 30.82$, $p < .01$); multiple partners ($r = .13$ [.06-.20], $p = .001$; $Q_i = 286.46$, $p < .001$); sex trading ($r = .12$ [.06-.18], $p < .001$; $Q_i = 92.72$, $p < .001$); sexual revictimization ($r = .17$ [.12-.23], $p < .001$; $Q_i = 31.433$, $p < .001$); borderline personality ($r = .279$ [.242-.315], $p < .001$; $\chi^2 = 28.702$, $p < .094$) | Sex trading: age in abuse definition ($Q_b = 29.92$, $p = .01$) | |
| Fossati | | Sample size ($\chi^2 = 8.948$, $p < .00278$), duration of abuse ($r = .368$; $z = 3.452$, $p = .0006$; $\chi^2 = 1.638$), penetration ($r = .293$; $z = 4.916$, $p < .001$); $\chi^2 = 0.910$), age of abuse (7-12 years: $r = .328$; $z = 4.662$, $p = .0001$; $\chi^2 = 2.669$); relation to perpetrator (father: $r = .131$; $z = 2.666$, $p = .0076$; $\chi^2 = 5.293$); other relatives: $r = .140$; $z = 2.848$, $p = .0044$; $\chi^2 = 11.638$; nonrelatives: $r = .206$; $z = 4.222$, $p < .001$; $\chi^2 = 3.529$), severity ($r = .168$; $z = 2.688$, $p = .0072$; $\chi^2 = 0.868$); genital fondling ($r = .175$; $z = 2.881$, $p = .0038$; $\chi^2 = 0.000$), number of perpetrators ($r = .251$; $z = 4.525$, $p < .001$); contact/consent ($Q_b = 33.09$, $p < .001$); self-esteem: sample source ($Q_b = 64.59$, $p < .001$), contact/consent ($Q_b = 65.43$, $p < .001$); publication date ($Q_b = 15.30$, $p < .01$), gender ($Q_b = 29.61$, $p < .001$); other: sample source ($Q_b = 65.75$, $p < .001$), contact/consent ($Q_b = 15.28$, $p < .001$), publication date ($Q_b = 20.25$, $p < .001$) Sample source ($Q = 5.34$, $p < .001$), sample size ($N > 125$; $\phi = 0.21$) | Overall impairment: sample source ($Q_b = 9.40$, $p < .01$) |
| Juniper | Depression ($r = .22$ [.21-.35], $p < .001$; $Q_i = 84.11$, $p < .001$); self-esteem ($r = .17$ [.14-.34], $p < .001$; $Q_i = 85.95$, $p < .001$); other ($r = .27$ [.20-.32], $p < .001$; $Q_i = 147.77$, $p < .001$) | | |
| Klonsky Lathie Newman | Self-injury ($\phi = .23$ [.20-.26], $p < .001$; $Q = 90.47$, $p < .001$) Chronic non-cyclical pelvic pain (OR = 1.51 [1.16-1.97], $p < .001$) Overall ($d = .37$ [.33-.41]; $Q = 62.36$, $p < .01$), anger ($d = .39$ [.25-.51]), anxiety ($d = .40$ [.34-.47]), depression ($d = .41$ [.36-.46]), evictimization ($d = .67$ [.50-.84]), self-mutilation ($d = .42$ [.19-.64]), sex problems ($d = .36$ [.30-.42]), substance abuse ($d = .41$ [.31-.51]), suicide ($d = .34$ [.24-.44]), self-concept ($d = .32$ [.32-.47]), interpersonal problems ($d = .39$ [.22-.46]), dissociation ($d = .39$ [.32-.47]), obsessions/compulsions ($d = .34$ [.22-.46]), somatization ($d = .34$ [.24-.45]), posttraumatic stress ($d = .52$ [.44-.59]), general symptoms ($d = .46$ [.40-.52]) Posttraumatic stress ($d = .40$ [.37-.43]), depression ($d = .44$ [.41-.47]), suicide/self-injury ($d = .44$ [.40-.48]), early sex/prostitution ($d = .29$ [.25-.32]), sex perpetration ($d = .16$ [.11-.21]), intelligence/learning ($d = .19$ [.12-.26]) 9 of 15 children with genital herpes reported sexual transmission Psychological impairment (males: $r = .07$ [.04-.10], $p < .001$; $\chi^2 = 3.63$, $p > .40$; females: $r = .10$ [.07-.12], $p < .001$; $\chi^2 = 15.01$, $p < .05$) | | |
| Reading Rind & Tromovitch | | For females: consent ($\chi^2 = 14.38$, $p < .001$) | |
| Rind et al | Overall ($r = .09$ [.08-.11]; $\chi^2 = 49.19$, $p > .50$), alcohol ($r = .07$ [.02-.12]; $\chi^2 = 2.97$), anxiety ($r = .13$ [.10-.15]; $\chi^2 = 4.62$), depression ($r = .12$ [.10-.14]; $\chi^2 = 2.57$), #socialization ($r = .09$ [.04-.15]; $\chi^2 = 1.86$), eating disorders ($r = .06$ [.02-.10]; $\chi^2 = 9.92$), hostility ($r = .11$ [.06-.16]; $\chi^2 = 11.22$, $p < .05$), interpersonal sensitivity ($r = .10$ [.06-.15]; $\chi^2 = 11.78$), obsessions/compulsions ($r = .10$ [.06-.15]; $\chi^2 = 5.01$), paranoia ($r = .11$ [.07-.16]; $\chi^2 = 10.34$), phobia ($r = .12$ [.07-.17]; $\chi^2 = 8.08$), psychosis ($r = .11$ [.06-.15]; $\chi^2 = 10.13$), self-esteem ($r = .04$ [.01-.07]; $\chi^2 = 51.31$, $p < .05$); sex problems ($r = .09$ [.07-.11]; $\chi^2 = 39.49$, $p < .05$), social impairment ($r = .07$ [.04-.10]; $\chi^2 = 20.37$), somatization ($r = .09$ [.06-.12]; $\chi^2 = 15.20$), suicide ($r = .09$ [.06-.12]; $\chi^2 = 10.94$), general symptoms ($r = .12$ [.08-.15]; $\chi^2 = 18.77$) Sexual revictimization ($d = .59$; $Z = 22.66$, $p < .0001$) | Incest ($r = .09$), gender/consent interaction ($Z = 2.51$, $p > .02$; females, $r = .11$ [.09-.13]; $\chi^2 = 14.50$) | |
| Roodman | | Sample source ($Z = 3.15$, $p < .001$), age ($Z = 3.03$, $p < .0001$), child abuse definition ($Z = 5.67$, $p = .0001$), perpetrator/victim age ($Z = 1.84$, $p < .05$), child/adult abuse assessment ($Z = 1.90$, $p < .05$), child/adult abuse definition ($Z = 1.64$, $p = .05$), age/abuse age cur-off ($Z = 8.73$, $p < .0001$) | |
| Shupe Smolak | Non-epileptic seizures (OR = 2.940 [2.291-3.772], $p < .001$; $Q = 24.40$, $p < .14$) Eating disorders ($r = .101$; $\chi^2 = 340.88$, $p < .01$) | Sample source ($\chi^2 = 10.04$, $p < .01$), eating disorder diagnosis ($\chi^2 = 31.76$, $p < .01$), abuse status as the independent variable ($R = .181$) | |
| Whitaker | Sexual offenders against children more likely to have a history of child sexual abuse than non-sex offenders ($d = .70$ [.44-.96]; $Q = 14.9$, $p = .038$) or non-offenders ($d = .75$ [.43-1.07]; $Q = 73.8$, $p = .000$) | | |

associated with chronic non-cyclical pelvic pain, but not with menstrual pain (dysmenorrhoea).

In their narrative synthesis of evidence for sexual transmission of genital herpes in children, Reading and Rannan-Eliya (2007) found that among children assessed for possible, probable, or known sexual abuse, genital herpes was rarely reported; however, among children presenting either to hospitals or clinics with genital herpes, sexual transmission occurred in just over half the cases. However, according to the authors, this evidence is weak. Sexual transmission was reported more commonly in older children, in children presenting with genital lesions alone, and where type 2 herpes simplex virus was isolated.

In the review by Sharpe and Faye (2006) the odds of having a history of child sexual abuse were almost three times greater given the presence of non-epileptic seizures (i.e. seizures lacking the physiological symptoms of genuine epilepsy and being psychological in origin). Because effect sizes were homogeneous, further partitioning of effect sizes by study characteristics was not warranted.

3.2. Psychological, behavioral, and sexual problems

Focusing on female samples, Arriola et al. (2005) found that child sexual abuse was significantly related to later engagement in unprotected sexual intercourse, sex with multiple partners, and sex trading (i.e. sex for money, drugs, or shelter). Such relationships were small in magnitudes. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that only child abuse definition predicted effect size variance. Only for sex trading, larger effect sizes were significantly linked to a definition of child sexual abuse based on a maximum victim age of 14–17 years.

Fossati, Madeddu and Maffei (1999) found a moderate, significant association between child sexual abuse and borderline personality disorder. Although a significant heterogeneity of effect size estimates was found, linear regression showed that effect sizes were significantly linked to none of the moderators. However, analysis of effect sizes revealed that some explanation of effect size variance was partially accounted for by certain variables. Studies with smaller samples ($N < 50$), duration of abuse, penetration, and abuse occurred when the victim was 7–12 years of age yielded larger effect sizes than did severity of abuse, genital fondling, number of perpetrators, abuse perpetrated by father, other relatives, or nonrelatives.

In the review by Jumper (1995), child sexual abuse was significantly related to depression, self-esteem impairment, and other psychological problems (i.e. suicidal ideation or behavior, anxiety, personality, psychotic, somatoform, and dissociative disorders). The magnitudes of such relationships were small to medium. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that effect sizes were significantly related to none of the moderators. However, analysis of effect sizes revealed that some explanation of effect size variance was partially accounted for by sample source. Student samples generated smaller effect sizes than did community, clinical, or other sample populations.

Klonsky and Moyer (2008) found a small, significant association between child sexual abuse and self-injurious behavior (i.e. intentional, direct damage to body tissue without suicidal intent). The distribution of effect size estimates exhibited significant heterogeneity. An analogue of an analysis of variance procedure appropriate for effect size data showed that sample type was a significant moderator of the relationship between abuse and self-injurious behavior. This relationship was stronger for the clinical samples than for the nonclinical samples. Further analysis of effect sizes revealed that some explanation of effect size variance was also accounted for by sample size. Studies with larger samples ($N > 125$) reported smaller effect sizes.

In their review of female samples, Neumann, Houskamp, Pollock and Briere (1996) found that child sexual abuse was significantly

related to anxiety, anger, depression, self-mutilation, sexual problems, substance abuse, suicidal ideation or behavior, self-concept impairment, interpersonal problems, dissociation, obsessions or compulsions, somatization, traumatic stress responses, general symptomatology. The magnitudes of such relationships were small to medium. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that only sample source predicted effect size variance. Clinical samples generated larger effect sizes. Furthermore, there was a tendency for studies with smaller samples ($N < 50$) to yield comparatively high mean effect sizes, compared to studies that examined larger numbers of subjects.

In the review by Paolucci et al. (2001), child sexual abuse was significantly related to posttraumatic stress disorder, depression, suicidal/self-injurious ideation/behavior, early involvement in sexual activity or prostitution, sexual perpetration, and intelligence/learning impairment. The magnitudes of such relationships were small to medium. A series of analyses of variance revealed that none of the moderators was statistically significant.

Focusing on national probability samples, Rind and Tromovitch (1997) found a small, significant association between child sexual abuse and psychological disorders (e.g., depression or sexual dysfunction). A significant heterogeneity among female effect sizes was found. Categorical model testing revealed that a definition of abuse based on level of consent predicted effect size variance. For females, a definition of abuse including both willing and unwanted sex generated larger effect sizes.

In their review of student samples, Rind et al. (1998) found that child sexual abuse was significantly related to alcohol problems, anxiety, depression, dissociation, eating disorders, hostility or anger, interpersonal sensitivity (i.e. feelings of inadequacy, inferiority, or discomfort when interacting with others), obsessions or compulsions, paranoid ideation, phobia, psychotic symptoms, self-esteem impairment, sexual dysfunction, social maladjustment, somatization, suicidal ideation or behavior, general symptomatology. The magnitudes of such relations were small. Only effect sizes concerning hostility, self-esteem, and sexual adjustment were heterogeneous. Further analysis of effect sizes revealed that larger effect sizes were significantly linked to intrafamilial abuse and definition of abuse including both willing and unwanted sex (only for women).

In their review of female samples, Smolak and Murnen (2002) found a small, significant association between child sexual abuse and eating disorders. A significant heterogeneity among effect sizes was found. Procedures analogous to analysis of variance revealed that the nature of the sample and the operationalization of having an eating problem or disorder explained a significant proportion of the effect size variance. Larger effect sizes were related to comparing a clinical group with eating disorders to a nonclinical group and using a more general diagnosis of eating disorder. Furthermore, analysis of effect sizes revealed that some explanation of effect size variance was also accounted for by the use of abuse status as the independent or dependent variable. Larger effect sizes were related to studies using abuse status as the independent variable and eating problems as the dependent variable.

Focusing on risk factors for the perpetration of child sexual abuse, Whitaker et al. (2008) found that sexual offenders against children were highly likely to have a history of child sexual abuse in comparison with both individuals who had committed an offence of a non-sexual nature and individuals who had not committed any offence.

3.3. Revictimization

Focusing on female samples, Arriola et al. (2005) found that child sexual abuse was significantly related to later sexual revictimization. Such relationship was small in magnitude. Although a significant

heterogeneity was found, none of the moderators predicted effect size variance.

In their review of female samples, Neumann et al. (1996) found that child sexual abuse was significantly related to later revictimization. Such relationship was medium in magnitude. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that only sample source predicted effect size variance. Clinical samples generated larger effect sizes. Furthermore, there was a tendency for studies with smaller samples ($N < 50$) to reported larger effect sizes.

Focusing on female samples, Roodman and Clum (2001) found a significant association between child sexual abuse and adult sexual victimization. The magnitude of such relationship was of medium size. Diffuse comparisons evidenced significant heterogeneity. Focused comparisons indicated that some explanation of effect size variance was significantly accounted for by certain variables. Smaller effect sizes were observed for student samples, greater percent of the sample that was White, younger mean age at the time of assessment, combination of the assessments of child sexual abuse (i.e. questionnaire list) and adult victimization (i.e. single question), definition of child abuse including both contact and noncontact, combination of definitions of child and adult victimization including both contact and noncontact, perpetrator 3 years older than victim, younger mean age at the time of assessment combined with older age cut-off for abuse.

4. Discussion

Fourteen reviews addressing the potential impact of child sexual abuse on health and having no important limitations that could invalidate their results were included in this systematic review.

In considering the results as a whole, there is evidence that across methodologies, samples, and measures survivors of child sexual abuse are significantly at risk of a wide range of health problems, i.e. psychotic symptomatology (especially paranoid ideation), depression, anxiety (including posttraumatic stress and obsessive-compulsive symptomatology), dissociation, eating disorders, somatization, personality disorders (especially borderline personality disorder), self-esteem and self-concept impairment, suicidal and self-injurious ideation or behavior, substance abuse, sexual dysfunction, engagement in high-risk sexual behaviors (such as unprotected sexual intercourse, sex with multiple partners, early involvement in sexual activity, and prostitution), social impairment, interpersonal problems (including feelings of inadequacy, inferiority, or discomfort when interacting with others), hostility, anger, perpetration of sexual abuse, intelligence or learning impairment, revictimization, chronic non-cyclical pelvic pain, and non-epileptic seizures. The evidence for sexually transmitted diseases, such as genital herpes, is weak. Therefore, it is apparent that child sexual abuse should be considered as a general, nonspecific risk factor for psychopathology (including psychologically, behaviorally, and sexually related problems and later revictimization as well as certain medical problems which are psychological in origin).

Because of the variation across outcomes and sample characteristics in the thirteen meta-analytic reviews, the magnitude of the relation between childhood sexual abuse and health problems ranged from small to medium.

Although significant, certain problems (e.g., eating disorders, unprotected sex, and intelligence or learning impairment) were less related to child sexual abuse than others (e.g., posttraumatic stress symptomatology and revictimization). Therefore, it is possible that survivors of child sexual abuse may be especially at risk of certain outcomes.

Moderator analyses revealed that some explanation of effect size variance was partially accounted for by sample source and size. Indeed, nonclinical samples (e.g., college samples) yielded smaller magnitudes than did clinical samples, although in both groups

outcomes were significant (Jumper, 1995; Klonsky & Moyer, 2008; Neumann et al., 1996; Roodman & Clum, 2001). Therefore, it is apparent that survivors of child sexual abuse among nonclinical populations may experience fewer health problems than do survivors of child sexual abuse among clinical populations. It is possible that clinical samples may exclude well adjusted survivors of child abuse or constitute the negative extreme of abuse outcomes (Okami, 1991). Furthermore, it has been suggested that data coming from clinical samples are vulnerable to several biases that threaten their validity (Pope & Hudson, 1995; Rind & Tromovitch, 1997). Conversely, nonclinical samples may include more well adjusted survivors of child abuse. For example, it is possible that students may need a certain level of wellness to be able to handle the rigors of college life (see Jumper, 1995; Roodman & Clum, 2001). Further, it has also been suggested that some negative long-term effects may have not yet manifested at college age (see Rind et al., 1998).

Moreover, studies with smaller samples reported larger effect sizes (Fossati et al., 1999; Klonsky & Moyer, 2008; Neumann et al., 1996). Klonsky and Moyer (2008) found evidence of publication bias and suggested that smaller studies with positive findings were more likely to be published than smaller studies with null or negative findings.

It is noteworthy that all the other moderators generated conflicting or nonsignificant results.

Although the results of this systematic review provide clear evidence that the relationship between child sexual abuse and health problems does exist, the presence of confounding variables and the generally poor quality of the studies included in each review do not allow for causal inferences to be made, thus findings must be interpreted with caution.

First, studies included in each review were generally methodologically limited (e.g., poor sampling methods, absence of matched comparison groups, poor description of methods of eliciting abuse histories, inadequate control for effect modifiers and confounders, or designs inappropriate to prove causality). Consequently, associations were confounded and causal inferences not feasible.

Second, it is possible that several antecedent or concurrent third variables (e.g., family environment and other traumatic events, including other forms of maltreatment) may be responsible for the observed outcomes.

Additional biological, psychological, or social factors, especially the negative family circumstances in which many sexually abused children are raised (e.g., high conflict, other forms of maltreatment, parent's mental illness or substance abuse), have been cited as factors contributing to negative outcomes among survivors of child sexual abuse (see, for example, Briere, 1988; Briere & Elliot, 1993; Schmidt, Humfress & Treasure, 1997).

For example, in their review, Rind et al. (1998) found that certain family variables (e.g., conflict, pathology, neglect, physical or emotional abuse) were confounded with child sexual abuse and explained considerably more variance than abuse; the relationship between a history of abuse and later maladjustment generally became nonsignificant when studies controlled for family environment. Furthermore, in their review, Klonsky and Moyer (2008) found that all studies that controlled for other risk factors (e.g., family environment variables, such as childhood separation, attachment, neglect, physical or emotional abuse) found either minimal or negligible unique associations between child sexual abuse and self-injurious behavior. Finally, in a review not included in this systematic review (Weiss, Longhurst & Mazure, 1999), of eight studies examining the relationship between family dysfunction, child sexual abuse, and adult-onset depression, six found a positive correlation between child sexual abuse and various markers of familial dysfunction (e.g., early parental separation, family violence, physical punishment, and lack of parental warmth) and/or a positive correlation between poor parenting and adult-onset depression, even in the absence of abuse; in one of these studies poor parental support was a better predictor of

subsequent impaired psychological functioning than child sexual abuse. Thus, additional social, psychological, or biological factors may either independently increase the likelihood of both child sexual abuse and adult-onset psychopathology or increase the risk of psychological impairment in children who have been sexually abused.

Therefore, it is possible that child sexual abuse may not have a primary role in the development of certain disorders. Being a victim of child sexual abuse is a significant risk factor, but may not be the only important risk factor. For example, two meta-analyses (Latthe et al., 2006; Whitaker et al., 2008) included in this systematic review showed that chronic pelvic pain and perpetration of child sexual abuse were associated with several other physical, psychological, sexual, and family risk factors.

It is apparent that an increased presence of biological, psychological, or social risk factors may enhance the likelihood of deviating from the conditions that promote normal development and manifesting negative developmental outcomes (Cicchetti & Toth, 1995). Thus, for certain disorders, a multifactorial etiological model is required. For example, a meta-analytic review not included in this systematic review (Stice, 2002), found a variety of risk and maintenance factors (e.g., thin-ideal internalization and negative affect) for eating pathology, suggesting it will be important to develop more comprehensive multivariate models that may attempt to explain how risk factors work together to promote or maintain eating disorders.

This systematic review has some other limitations. First, only the findings of those studies selected by the fifteen reviews included in this systematic review were analyzed. Therefore, other issues (e.g., neurobiological sequelae) were not addressed. Second, excluding two reviews, all studies included in this review did not assess data quality and validity. Therefore, they aggregated different study findings, particularly those with different levels of methodological quality. Third, because of the variety of samples, definitions, methods, and outcomes of the studies included in each review, genuine differences in effects might have been obscured by meta-analytic techniques (Higgins & Green, 2006).

Despite these limitations, this systematic review has several implications for research, treatment, and health policy.

4.1. Implications for research

Although a large amount of studies and literature reviews on the consequences of child sexual abuse has been published in the past twenty years, the inconsistency in their conclusions along with their methodological differences and limitations may create interpretative difficulties and confusion among all professionals who turn to this literature for guidance. To prevent these professionals from creating mistaken beliefs about the potential impact of child sexual abuse on health, this paper has attempted to address the best available scientific evidence on the topic, by providing a qualitative and semi-quantitative analysis of the findings of the several reviews that have investigated the literature on the short- and long-term effects of child sexual abuse.

According to the results of this systematic review, being a victim of child sexual abuse should be considered as a general, nonspecific, risk factor for psychopathology, but not the only important one. Indeed, additional biological, psychological, or social factors may contribute to increase the risk of negative outcomes among survivors of child sexual abuse.

To explain how risk factors work together to promote or maintain psychopathology, the development and empirical validation of more comprehensive, multifactorial etiological models are required. However, to date, relatively few studies have attempted to account for the role of third variables, such as family environment or genetic vulnerabilities. Although it is difficult to separate the consequences of child abuse from the effects of the context in which these children live, further research should elucidate the causal mechanisms and

processes that contribute to the adverse consequences associated with child sexual abuse.

Future investigations should also search for additional mediators and moderators of outcomes, given that the results of this systematic review do not confirm suspicions that some variables concerning aspects of the abuse experience (such as age when abused, incestuous forms of abuse, level of contact, use of force, frequency, and duration of abuse) influence the outcomes of child sexual abuse.

Moreover, it is essential that future research discover not only the mechanisms, both psychosocial and neurobiological, by which child sexual abuse may result in mental disorders in adulthood, but also the compensatory processes whereby some children who have been sexually abused achieve positive adaptation. In fact, not all children who have been sexually abused manifest negative developmental sequelae. Indeed, some maltreated children develop and utilize compensatory mechanisms that enable them to function adaptively despite experiencing significant adversity (see Cicchetti & Toth, 2005). For example, some studies have identified certain personality characteristics (e.g., high self-esteem) as protective factors (Cicchetti & Rogosch, 1997; Moran & Eckenrode, 1992). Nevertheless, much less effort has been directed toward delimiting pathways to the achievement of positive adaptation in maltreated children than has been directed toward elucidating problems (Cicchetti & Toth, 2005).

To achieve all these goals, a number of methodological advances in research in this area must be implemented.

Future investigations should (1) use longitudinal designs; (2) study samples representative of the general population; (3) employ matched comparison groups; (4) use standard measures and instruments designed to assess child sexual abuse and outcomes; (5) control for confounders.

Future literature reviews should (1) use recent advances in methodology, as highlighted by guidelines for systematic reviews, in order to select studies, abstract data, and assess data quality; (2) describe the criteria used for selecting studies, abstracting data, and assessing data quality, including the number of researchers who applied such criteria along with how disagreements were resolved; (3) describe the main results in an objective fashion, with the highest quality evidence available receiving the greatest emphasis; (4) provide an accurate estimate of the strength of evidence; (5) explore whether any observed effects are consistent across studies and investigate possible reasons for any inconsistencies; (6) use a rigorous and transparent approach to reduce the potential for bias, when conducting a narrative synthesis of studies.

4.2. Implications for treatment and health policy

Some directions for improving treatment and health policy are suggested by this systematic review. In considering child sexual abuse as a general risk factor for the development of psychopathology, the provision of services designed to prevent the occurrence of child sexual abuse and to treat its sequelae may decrease the incidence and prevalence of certain psychological symptoms and disorders in our society. Thus, current child abuse prevention services (e.g., public awareness campaigns, home visitation programs, or family resource centers) must be implemented. Particular attention should be given to children with disabilities, who may be at increased risk of abuse (Maniglio, 2009).

For all victims of recent abuse, early intervention as well as careful monitoring over time for potential negative outcomes that may present during adulthood must be a priority to decrease the risk of psychological disturbance.

All the children who have been sexually abused recently must be assessed for the presence of psychological disturbance. With the current state of knowledge, it seems appropriate to target available treatment resources at symptomatic children, because sexually abused children who have symptoms (e.g., symptoms of posttraumatic stress disorder or

behavioral problems) are more likely to demonstrate benefit from psychotherapy (see Ramchandani & Jones, 2003; Stevenson, 1999). However, services for abused children must have a long-term orientation, because these children may experience enduring problems, such as personality disorders, or the later onset of severe mental illness.

To be effective, programs for sexually abused children should focus not only on treating symptoms, but also on reducing additional biological, psychological, or social risk factors associated with the occurrence of child sexual abuse (especially the negative family circumstances in which some sexually abused children are raised) as well as on increasing protective factors, such as self-esteem, social support, relationships, and related skills.

For all adults with psychiatric disorders as well as with medical problems which are psychological in origin, a review of child sexual experiences should be a routine part of the clinical history. Given that a certain number of individuals who seek psychiatric treatment have a history of child sexual abuse, this places a clear responsibility on mental health services in the first instance to enquire about early abuse within admission procedures and take appropriate action.

It is important for clinicians to be aware that their patients may have a history of sexual abuse and that such a history may be relevant to the development and maintenance of their psychopathology. When dealing with a patient with a history of child abuse, clinicians should assess the relevance of such a history to the current diagnosis and address it therapeutically. Psychiatric patients with histories of sexual abuse may respond with a reduction in overall psychopathology if the abuse experience is addressed (Jehu, 1988).

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Study concept and design, acquisition of data, analysis and interpretation of data, drafting of the manuscript, critical revision of the manuscript for important intellectual content, study supervision, and final approval of the version to be published: Maniglio.

Oronzo Greco, MD, University of Salento, Lecce, Italy, has contributed to the work reported in the manuscript but does not fulfill authorship criteria. No compensation was received for such contributions.

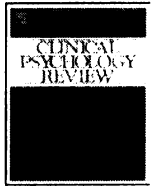
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The impact of child sexual abuse on health: A systematic review of reviews

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ABSTRACT

A large amount of studies and literature reviews on the consequences of child sexual abuse has appeared over the past twenty years. To prevent that the inconsistency in their conclusions along with their methodological differences and limitations may create interpretative difficulties, mistaken beliefs, or confusion among all professionals who turn to this literature for guidance, this paper addresses the best available scientific evidence on the topic, by providing a systematic review of the several reviews that have investigated the literature on the effects of child sexual abuse. Seven databases were searched, supplemented with hand-search of reference lists from retrieved papers. The author and a psychiatrist independently evaluated the eligibility of all studies identified, abstracted data, and assessed study quality. Disagreements were resolved by consensus. Fourteen reviews, including more than 270,000 subjects from 587 studies, were analyzed. There is evidence that survivors of childhood sexual abuse are significantly at risk of a wide range of medical, psychological, behavioral, and sexual disorders. Relationships are small to medium in magnitudes and moderated by sample source and size. Child sexual abuse should be considered as a general, nonspecific risk factor for psychopathology. The implications for research, treatment, and health policy are discussed.

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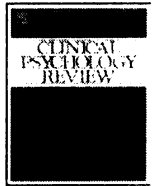
1. Introduction

Awareness of the impact on human development that may result from early experiences of sexual abuse is of relatively recent origin. Ongoing concern over the potential consequences of child sexual

abuse is reflected in the exponential increase in research in this area. A growing number of studies and literature reviews on child sexual abuse have appeared over the past twenty years.

However, such large amount of research has not been unanimous in its conclusions. Indeed, there is considerable controversy concerning the relationship between child sexual abuse and later negative outcomes. While many studies and reviews have concluded that survivors of childhood sexual abuse are highly likely to experience several adverse effects, strongly implying a causal relationship

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1. Introduction

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However, such large amount of research has not been unanimous in its conclusions. Indeed, there is considerable controversy concerning the relationship between child sexual abuse and later negative outcomes. While many studies and reviews have concluded that survivors of childhood sexual abuse are highly likely to experience several adverse effects, strongly implying a causal relationship

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between child sexual abuse and the later development of psychopathology, others have been more cautious, arguing that outcomes are variable, rather than being consistently and intensely negative (see, for example, Paolucci, Genuis & Violato, 2001; Rind & Tromovitch, 1997; Rind, Tromovitch & Bauserman, 1998; Sharpe & Faye, 2006; Smolak & Murnen, 2002).

Furthermore, there is no conclusive agreement concerning those variables (such as gender, age when abused, type and severity of abuse, and relationship to the perpetrator) which are usually highlighted as potential contributors to the outcomes of child sexual abuse. For example, while some reviews have concluded that girls react more negatively than boys, others have implied that sexual abuse is an equivalent experience for boys and girls in terms of its negative impact (Rind & Tromovitch, 1997; Rind et al., 1998).

Therefore, although efforts to synthesize the literature have resulted in several qualitative and quantitative reviews, even these have generated conflicting results and conclusions have not yet been definitively drawn.

Although several theoretical explanations of how child sexual abuse affects children's development have been proposed (see Cicchetti & Toth, 2005; Freeman & Morris, 2001; Hulme, 2004), in the absence of consistent empirical evidence, theories accounting for the impact of child abuse on human development lack support.

Much of the controversy in the literature may be a reflection of the differences between studies (Roodman & Clum, 2001) as well as of the methodological limitations of the literature (Rind & Tromovitch, 1997; Rind et al., 1998; Sharpe & Faye, 2006). Many studies are characterized by serious design and measurement problems, including poor sampling methods, absence of matched comparison groups, and inadequate control for effect modifiers and confounders (see Briere, 1992; Kilpatrick, 1987; Sharpe & Faye, 2006). Moreover, many literature reviews are characterized by imprecision and subjectivity (Rind & Tromovitch, 1997; Rind et al., 1998). For example, some reviewers have specified neither the data sources that were searched nor the criteria used for including studies, paying more attention to study findings indicating harmful effects.

A more objective process has been provided by some meta-analytic reviews, which have attempted to infer whether child sexual abuse is significantly associated with specific outcomes and to estimate the strength of this association. Based on the transformation of the results of all the relevant studies to a common statistical metric, which are then combined into one overall statistic, these reviews have used a more rigorous and transparent approach to reduce the potential for bias, avoiding imprecision and subjectivity.

However, some have criticized the aggregation of findings from studies that are too diverse (either clinically or methodologically) to be combined in a meta-analysis (see Centre for Reviews and Dissemination, 2008; Lipsey & Wilson, 2000), because such aggregation might be inappropriate and meaningless, and genuine differences in effects might be obscured (Higgins & Green, 2006). Further, it should be noted that meta-analysis does not allow for causal inferences to be made, thus findings must be interpreted with caution (Hall & Rosenthal, 1995).

In conclusion, although studies and reviews abound, the inconsistency in their conclusions along with their methodological differences and limitations may create interpretative difficulties, mistaken beliefs, or confusion among all individuals (including policymakers, physicians, psychologists, other professionals who treat children, and other individuals responsible for the welfare of children) who turn to this literature for guidance.

In response to these difficulties and with the current high level of societal interest in child maltreatment, it seems evident that, despite a growing body of literature addressing the potential impact of child sexual abuse on health, the issue needs further careful consideration. An analysis of what is currently known about the consequences of childhood sexual abuse is required in order to implement research and health policy.

In order to address the best available scientific evidence on the topic, this paper provides a qualitative and semi-quantitative analysis

of the findings of the several reviews that have investigated the literature on the short- and long-term effects of child sexual abuse.

2. Methods

According to recent guidelines for systematic reviews (Centre for Reviews and Dissemination, 2008; Egger, Davey Smith & Altman, 2001; Higgins & Green, 2006; Lipsey & Wilson, 2000; Petticrew & Roberts, 2006; Stroup, Berlin, Morton, Olkin, Williamson, Rennie, et al., 2000), a protocol was prospectively developed by the author, R.M., detailing the specific objectives, criteria for study selection, approach to abstracting data and assessing study quality, outcomes, and statistical methods.

2.1. Data sources

Two methods were used to obtain relevant studies: an internet-based search and a manual search.

First, seven internet-based databases (AMED, Cochrane Reviews, EBSCO, ERIC, MEDLINE, PsycINFO, and ScienceDirect) were searched for articles published between January 1966 and December 2008. Separate searches were conducted for the keywords *child(hood) sexual abuse*, *child(hood) sexual maltreatment*.

Second, further articles were identified by a manual search of reference lists from retrieved papers.

The databases were used again to retrieve the abstracts and, if appropriate, the full-text articles.

2.2. Study selection

Studies were included if they (1) appeared in peer-reviewed journals; (2) were published in full; (3) were critical reviews of the literature; (4) were not dissertation papers, editorials, letters, conference proceedings, books, and book chapters; (5) reviewed studies sampling human subjects; (6) investigated medical, neurobiological, psychological, behavioral, sexual, or other health problems following childhood sexual abuse; (7) had primary and sufficient data derived from longitudinal, cross-sectional, case-control, or cohort studies.

These criteria were applied to all titles, abstracts, and full manuscripts.

For multiple publications of the same study, the one with the most complete primary outcomes was used.

2.3. Data extraction and quality assessment

According to guidelines for systematic reviews (Centre for Reviews and Dissemination, 2008; Egger et al., 2001; Higgins & Green, 2006; Lipsey & Wilson, 2000; Petticrew & Roberts, 2006; Stroup et al., 2000), data were abstracted and study quality was assessed on the basis of the following criteria: (1) evidence identification; (2) study selection; (3) data extraction; (4) quality assessment; (5) data synthesis and analysis.

First, "evidence identification" refers to the description of the data sources (e.g., computerized databases, key journals, reference lists from pertinent articles and books, experts, organizations or institutions active in the field) used to identify studies, including years searched, keywords, and constraints (e.g., language limits).

Second, "study selection" refers to the criteria used to select studies for inclusion in the review, including any restrictions on age groups, diagnoses, diseases or conditions of interest, interventions, settings, and study designs, along with any thresholds for inclusion based on the conduct or quality of the studies. If possible, the method used to apply the selection criteria had to be described, including the number of researchers who screened titles, abstracts, and full papers, along with how disagreements were resolved.

Third, "data extraction" refers to the process by which researchers obtained the necessary information about study characteristics and

findings from the included studies. If possible, the procedure for data extraction had to be stated, including the number of researchers who extracted data and the method for resolving disagreements.

Fourth, the quality of the included studies had to be formally assessed (e.g., appropriateness of study design to the research objective, selection and representativeness of the study groups, comparability of the groups, risk of bias, and choice of outcome measure) and the criteria or guidelines used for assessing data quality and validity (such as scales or checklists that provide an overall numerical quality score for each study) had to be described. If possible, the method by which the guidelines for quality assessment were applied had to be stated, including the number of researchers who assessed data quality and how disagreements were resolved.

Fifth, “data synthesis and analysis” refers to the description of the main results in an objective fashion, with the highest quality evidence available receiving the greatest emphasis. The methods used to obtain these results, whether qualitative or quantitative, had to be outlined. As well as drawing results together, synthesis had to consider the strength of evidence, explore whether any observed effects were consistent across studies, and investigate possible reasons for any inconsistencies. If a meta-analysis was undertaken, effect sizes or odds ratios, sources of variation between studies, and, if possible, sensitivity analyses had to be reported. How heterogeneity was explored and quantified had to be outlined. Any planned subgroup or sensitivity analyses or investigation of publication bias had to be described. Numerical results had to be accompanied by confidence intervals, if applicable, and exact levels of statistical significance. If a narrative synthesis of studies was undertaken, the approach used had to be rigorous and transparent to reduce the potential for bias.

On the basis of these criteria, each study was assigned one of the following ratings: “good” (study meets all criteria well), “fair” (study does not meet one criterion), or “poor” (study does not meet more than one criterion). Those studies which were judged “poor” were rejected, because they had important methodological limitations that could invalidate their results.

2.4. Procedure

According to guidelines for systematic reviews (Centre for Reviews and Dissemination, 2008; Higgins & Green, 2006), it is desirable to ensure that study selection, data extraction, and quality assessment are conducted by two independent researchers, because there is evidence that the assessment of all the papers by at least two researchers working independently may limit bias, minimize errors, improve reliability of findings, reduce the possibility that relevant reports will be discarded, and ensure that decisions and judgments are reproducible (Buscemi, Hartling, Vandermeer, Tjosvold & Klassen, 2006; Edwards, Clarke, DiGuseppi, Pratap, Roberts and Wentz, 2002).

It is also important that at least one researcher has an adequate understanding of the area under review as well as of the relevant methodological issues, because experts may give more consistent assessment of the validity of studies (Higgins & Green, 2006; Jadad, Moore, Carroll, Jenkinson, Reynolds, Gavaghan, et al., 1996). However, it may be an advantage to have a second author who is not knowledgeable in the topic area, because experts in a particular area may have pre-formed opinions that can bias their assessment (Cooper & Ribble, 1989; Oxman & Guyatt, 1993).

Therefore, the author, R. M., and a psychiatrist, professor of Criminology, independently evaluated the eligibility of all studies identified, abstracted data, and assessed study quality. While both are knowledgeable in systematic review methodology, only the author, R. M., is expert in the area under review.

Given the resources required and the uncertain benefit in terms of protecting against bias, blind assessments of study eligibility and quality were not warranted, because, although they ensure that judgments may be not affected by knowledge of the authors,

institutions, journals, or results of a study (Jadad et al., 1996; Moher, Pham, Jones, Cook, Jadad, Moher, et al., 1998), some empirical evidence suggests that blinding is difficult to achieve and time consuming, does not substantially alter the results of a review, and is likely to be of limited value (Centre for Reviews and Dissemination, 2008; Berlin, 1997; Higgins & Green, 2006).

Thirty-eight reviews (0.18%) created disagreements among authors. Disagreements about study selection occurred 31 times (0.15%). Nine (29%) of these disagreements were simple oversights and were resolved by consensus which was reached by discussion among authors, after having reviewed the article and the review protocol (Centre for Reviews and Dissemination, 2008; Higgins & Green, 2006). Twenty-two (71%) disagreements were due to lack of additional information. In these cases, the authors chose to categorize the study in their review as one that was awaiting assessment until the additional information was obtained. In all these cases, agreement was achieved when the additional information was obtained. Disagreements concerning quality assessment occurred 7 times (7.45%). Such disagreements were due to a difference in interpretation, because 7 reviews were ambiguous about some quality criteria, such as “evidence identification” (i.e. description of the data sources used, years searched, keywords, and constraints), and “study selection” (i.e. description of the criteria used to include or exclude studies). All of these disagreements concerning quality assessment (100%) were discussed and resolved by consensus, after having reviewed the article and the review protocol. For example, those reviews that did not clearly describe the data sources or the criteria used to include or exclude studies were judged as not meeting the criterion in question.

A summary of the study selection process is illustrated in Fig. 1. A total of 20,535 articles were identified. The internet-based search identified 20,502 articles, 0 from AMED, 9 from Cochrane, 1550 from EBSCO, 1154 from ERIC, 2514 from MEDLINE, 7956 from PsycINFO, and 7319 from ScienceDirect. Thirty-three articles were identified by the manual search of reference lists. Two hundred and forty-four full-text articles were retrieved for more detailed evaluation and ninety-four fulfilled all inclusion criteria. Of these, eighty did not meet more than one of the quality criteria. For these reasons, these studies were judged “poor” and were rejected.

Fourteen reviews were included in this systematic review (Table 1).

All the reviews detailed the data sources that were used to identify studies, the criteria used to select studies for inclusion in the review, and the process by which researchers obtained the necessary information about study characteristics and findings from the included studies. Four of these studies (Arriola, Loudon, Doldren and Fortenherry, 2005; Latthe, Mignini, Gray, Hills and Khan, 2006; Reading & Rannan-Eliya, 2007; Whitaker, Le, Hanson, Baker, McMahon, Ryan, et al., 2008) specified that multiple researchers selected studies and extracted data, with disagreements resolved by consensus or by a third reviewer.

The quality of the included studies was formally assessed by two reviews (Latthe et al., 2006; Reading & Rannan-Eliya, 2007). All the other reviews did not assess data quality and validity and aggregated different study findings, particularly those with different levels of methodological quality.

All the reviews described the main results in an objective fashion, outlined the methods used to obtain these results, considered the strength of evidence, explored whether any observed effects were consistent across studies, and investigated possible reasons for any inconsistencies.

Thirteen reviews undertook a quantitative analysis of the data (i.e. meta-analysis), to infer whether child sexual abuse was significantly associated with specific outcomes and to estimate the strength of this association. These reviews reported effect sizes or odds ratios and sources of variation between studies, outlining how heterogeneity was explored and quantified.

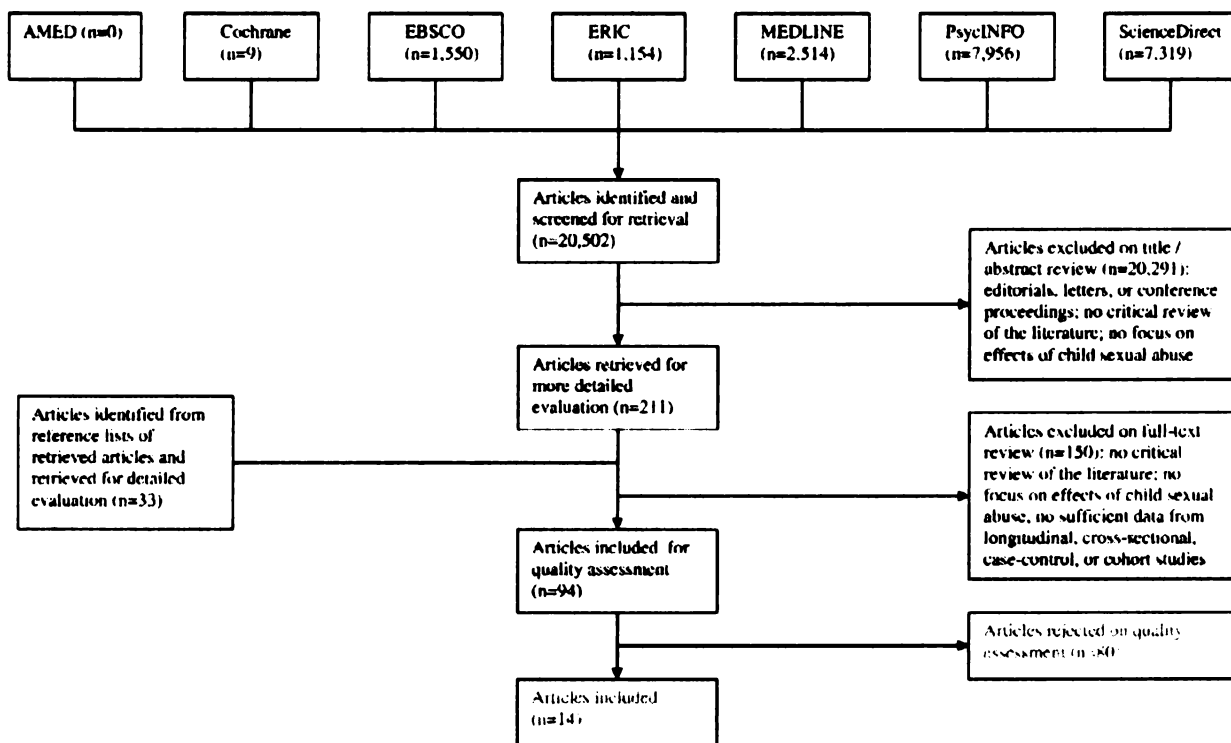


Fig. 1. Summary of study selection process.

Another review provided a narrative synthesis of studies in a rigorous, transparent and objective fashion, with the highest quality evidence available receiving the greatest emphasis.

For all these reasons, while only two of these reviews met all the quality criteria and were judged “good” (Latthe et al., 2006; Reading & Rannan-Eliya, 2007), all the others did not meet the fourth criterion (i.e. they lacked a formal “quality assessment”) and were judged “fair”.

All the reviews were published between 1995 and 2008 and reviewed a total of 587 studies (including more than 270,000 subjects), although 35 (4.65%) of these studies were analyzed by more than one review (28 studies were included in two reviews, 4 studies in three reviews, and 3 studies in four reviews).

The following sample types were investigated: both adults and children or adolescents, only adults, only children or adolescents, both males and females, and only females.

The following short- and long-term outcomes were assessed: chronic pelvic pain, non-epileptic seizures, genital herpes, revictimization, and a variety of psychological, behavioral, and sexual disorders.

The following moderator variables were analyzed: form and date of publication of the study, site of the study, main focus of the study (e.g., personality disorder), abuse status as the independent variable, size and source of the samples, gender, race, socioeconomic status, and age of the subjects at the time of assessment, patient characteristics (e.g., inpatients), sampling strategy, source of the comparison group, method of assessment of abuse and of outcomes (e.g., questionnaire list), type of statistic used, definition of child sexual abuse based on maximum age of victim, level of contact, consent, force, frequency, severity, and duration of abuse, number of perpetrators, relationship to the perpetrator (e.g., parent), age when abused, age cut-off for child abuse, perpetrator age in relation to the victim, disclosure after abuse, and request for help.

To determine if these variables accounted for significant heterogeneity in effect size estimates, a number of procedures were used,

such as linear or multiple regression, meta-regression, analysis of variance, and test of categorical models. In the categorical model testing, a categorical variable was considered to be a moderator of the relationship between child sexual abuse and outcomes (i.e. that variable adequately accounted for the variability in effect sizes) when there was heterogeneity in effect sizes between categories (i.e. the effect size estimates of the categories defined by the moderator variable varied significantly across classes), but there was homogeneity within categories (i.e. the effect size estimates within each category were homogeneous) (Lipsey & Wilson, 2000).

The main findings of the fourteen reviews included in this systematic review are qualitatively and semi-quantitatively analyzed in an evidence-based, objective, and balanced fashion, with the highest quality evidence available receiving the greatest emphasis (Slavin, 1995). The thirteen meta-analyses included in this review are well suited not only for inferring whether child sexual abuse was significantly associated with specific outcomes but also for estimating the strength of this association. To represent the degree of the relationship between child sexual abuse and outcomes, the effect size estimators d , r , ϕ , and odds ratios (OR) were used. Positive d , r , ϕ , and OR values indicate worse outcomes for sexually abused participants compared to control participants. According to Cohen (1988), d of .20, .50, and .80, and to r of .10, .30, and .50 correspond to “small”, “medium”, and “large” effect sizes.

3. Results

The results of the fourteen reviews included in this systematic review are synthesized in Table 2.

3.1. Medical problems

Focusing on factors predisposing women to chronic pelvic pain, Latthe et al. (2006) found that child sexual abuse was significantly

Table 1
Description of the included reviews.

| Source | Main methods | Subjects (N of studies) | Outcome variables | Moderator variables |
|-------------------|---|---|--|--|
| Arriola | Systematic search; study selection; meta-analysis | Female adult patients or nonpatients (46) | Unprotected sex, multiple partners, sex trading, sexual revictimization | Sample source, age of victim in abuse definition, level of contact of abuse |
| Fossati | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (21) | Borderline personality | Publication date, study site, study focus, sample size and source, gender and age of subjects at the time of assessment, patient characteristics, assessment of abuse and of outcomes, level of contact, force, frequency, severity, and duration of abuse, number of perpetrators, relationship to the perpetrator, age when abused, disclosure after abuse, request for help |
| Jumper | Systematic search; study selection; meta-analysis | Male and female adult patients and nonpatients (26) | Depression, self-esteem, other | Publication date, sample source, gender of the subjects, level of contact or consent of abuse |
| Klonsky | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (43) | Self-injury | Sample size and source, gender and age of the subjects at the time of assessment |
| Laithe | Systematic search; study selection; quality assessment; meta-analysis | Female young and adult patients and nonpatients (122) | Chronic non-cyclical pelvic pain | |
| Neuman | Systematic search; study selection; meta-analysis | Female adult patients or nonpatients (38) | Overall psychopathology, anger, anxiety, depression, revictimization, self-mutilation, sex problems, substance abuse, suicide, self-concept, interpersonal problems, posttraumatic stress, general symptoms | Publication date and form, sample size and source, age of subjects at the time of assessment, assessment of abuse, type of statistic, relationship to the perpetrator |
| Paolucci | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (37) | Posttraumatic stress, depression, suicide or self-injury, early sex or prostitution, sex perpetration, intelligence or learning | Gender and socioeconomic status of subjects at the time of assessment, level of contact and frequency of abuse, relationship to the perpetrator, age when abused |
| Reading | Systematic search; study selection; quality assessment; narrative synthesis | Male and female young patients (13) | Genital herpes | |
| Rind & Tromovitch | Systematic search; study selection; meta-analysis | Male and female young and adult nonpatients (7) | Psychological impairment | Gender of subjects at the time of assessment, level of consent of abuse |
| Rind et al. | Systematic search; study selection; meta-analysis | Male and female adult nonpatients (59) | Overall psychopathology, alcohol, anxiety, depression, dissociation, eating disorders, hostility, interpersonal sensitivity, locus of control, obsessions or compulsions, paranoia, phobia, psychosis, self-esteem, sex problems, social impairment, somatization, suicide, general symptoms | Publication form, study site, sampling strategy, gender and age of the subjects at the time of assessment, sampling strategy, assessment of abuse, age of victim in abuse definition, level of contact, consent, force, frequency, and duration of abuse, relationship to the perpetrator |
| Roodman | Systematic search; study selection; meta-analysis | Female adult patients and nonpatients (19) | Sexual revictimization | Publication form, sample source, race, age of the subjects at the time of assessment, assessment of abuse, age cut-off for child abuse, level of contact, perpetrator age in relation to the victim |
| Sharpe | Systematic search; study selection; meta-analysis | Male and female adult patients (14) | Non-epileptic seizures | |
| Smolak | Systematic search; study selection; meta-analysis | Female young and adult patients and nonpatients (53) | Eating disorders | Study focus, abuse status as the independent variable, age of the subjects at the time of assessment, source of the comparison group, assessment of outcomes |
| Whitaker | Systematic search; study selection; meta-analysis | Male and female young and adult patients and nonpatients (89) | Sexual offences against children | |

Table 2
Results of the included reviews.

| Source | Significant outcomes (effect sizes or odds ratios [95% confidence interval; homogeneity]) | Significant moderators |
|---------------------------------|---|--|
| Arnold | Unipartnered sex ($r = .05$ [.02-.09], $p = .003$; $Q = 30.82$, $p < .01$), multiple partners ($r = .13$ [.06-.20], $p = .001$; $Q = 286.46$, $p < .001$), sex trading ($r = .12$ [.05-.18], $p < .001$; $Q = 92.72$, $p < .001$), sexual revictimization ($r = .17$ [.12-.23], $p < .001$; $Q = 314.35$, $p < .001$) Borderline personality ($r = .279$ [.242-.315], $p < .001$; $\chi^2 = 28.702$, $p < .004$) | Sex trading: age in abuse definition ($Q_b = 29.92$, $p = .01$) |
| Fossati | | Sample size ($\chi^2 = 8.948$, $p < .00778$), duration of abuse ($r = .368$; $z = 3.452$, $p = .0006$; $\chi^2 = 1.638$), penetration ($r = .293$; $z = 4.916$, $p < .001$; $\chi^2 = 0.90$), age of abuse (7-12 years: $r = .328$; $z = 4.662$, $p = .0001$; $\chi^2 = 2.669$), relation to perpetrator (father: $r = .131$; $z = 2.666$, $p = .0076$; $\chi^2 = 5.293$; other relatives: $r = .140$; $z = 2.848$, $p = .0044$; $\chi^2 = 11.638$; nonrelatives: $r = .206$; $z = 4.222$, $p < .001$; $\chi^2 = 3.529$), severity ($r = .168$; $z = 2.688$, $p = .0072$; $\chi^2 = 0.868$), genital fondling ($r = .175$; $z = 2.881$, $p = .0038$; $\chi^2 = 0.000$), number of perpetrators ($r = .251$; $z = 4.525$, $p < .001$; $\chi^2 = 3.531$) |
| Juniper | Depression ($r = .22$ [.21-.35], $p < .001$; $Q = 84.11$, $p < .001$); self-esteem ($r = .17$ [.14-.34], $p < .001$; $Q = 85.95$, $p < .001$); other ($r = .27$ [.20-.32], $p < .001$; $Q = 147.77$, $p < .001$) | Depression: sample source ($Q_b = 49.64$, $p < .001$), contact/consent ($Q_b = 33.09$, $p < .001$); self-esteem: sample source ($Q_b = 64.59$, $p < .001$), contact/consent ($Q_b = 65.43$, $p < .001$); publication date ($Q_b = 15.30$, $p < .01$), gender ($Q_b = 29.61$, $p < .001$); other: sample source ($Q_b = 65.75$, $p < .001$); contact/consent ($Q_b = 15.28$, $p < .001$); publication date ($Q_b = 20.25$, $p < .001$) Sample source ($Q = 5.34$, $p < .001$), sample size ($N > 125$; $\varphi = 0.21$) |
| Klonsky Larthe Neuman | Self-injury ($\varphi = .23$ [.20-.26], $p < .001$; $Q = 90.47$, $p < .001$) Chronic non-cyclical pelvic pain (OR = 1.51 [1.16-1.97], $p < .001$) Overall ($d = .37$ [.33-.41]; $Q = 62.36$, $p < .01$), anger ($d = .39$ [.25-.51]), anxiety ($d = .40$ [.34-.47]), depression ($d = .41$ [.36-.46]), revictimization ($d = .67$ [.50-.84]), self-mutilation ($d = .42$ [.19-.64]), sex problems ($d = .36$ [.30-.42]), substance abuse ($d = .41$ [.31-.51]), suicide ($d = .34$ [.24-.44]), self-concept ($d = .32$ [.32-.47]), interpersonal problems ($d = .39$ [.22-.46]), dissociation ($d = .39$ [.32-.47]), obsessions/compulsions ($d = .34$ [.22-.46]), somatization ($d = .46$ [.40-.52]), posttraumatic stress ($d = .52$ [.44-.59]), general symptoms ($d = .46$ [.40-.52]) Posttraumatic stress ($d = .40$ [.37-.43]), depression ($d = .44$ [.41-.47]), suicide/self-injury ($d = .44$ [.40-.48]), early sex/prostitution ($d = .29$ [.25-.32]), sex perpetration ($d = .16$ [.11-.21]), intelligence/learning ($d = .19$ [.12-.26]) 9 of 15 children with genital herpes reported sexual transmission Psychological impairment (males: $r = .07$ [.04-.10], $p < .001$; $\chi^2 = 3.63$, $p > .40$; females: $r = .10$ [.07-.12], $p < .001$; $\chi^2 = 15.01$, $p < .05$) | Overall impairment: sample source ($Q_b = 9.40$, $p < .01$) |
| Packici | | For females: consent ($\chi^2 = 14.38$, $p < .001$) |
| Reading Rind & Tronovitch | | Incest ($r = .09$), gender/consent interaction ($z = 2.51$, $p > .02$); females: $r = .11$ [.08-.13]; $\chi^2 = 14.50$) |
| Rind et al. | Overall ($r = .09$ [.08-.11]; $\chi^2 = 49.19$, $p > .50$), alcohol ($r = .07$ [.02-.12], $\chi^2 = 2.97$), anxiety ($r = .13$ [.10-.15], $\chi^2 = 4.62$), depression ($r = .12$ [.10-.14], $\chi^2 = 25.71$), dissociation ($r = .09$ [.04-.15], $\chi^2 = 1.86$), eating disorders ($r = .06$ [.02-.10], $\chi^2 = 9.92$), hostility ($r = .11$ [.06-.16], $\chi^2 = 11.22$, $p < .05$), interpersonal sensitivity ($r = .10$ [.06-.15], $\chi^2 = 11.78$), phobia ($r = .12$ [.07-.17], $\chi^2 = 8.08$), psychosis ($r = .11$ [.06-.15], $\chi^2 = 10.34$), obsessions/compulsions ($r = .10$ [.06-.15], $\chi^2 = 5.01$), paranoia ($r = .11$ [.07-.16], $\chi^2 = 10.34$), self-esteem ($r = .04$ [.01-.07], $\chi^2 = 51.31$, $p < .05$); sex problems ($r = .09$ [.07-.11], $\chi^2 = 39.49$, $p < .05$), social impairment ($r = .07$ [.04-.10], $\chi^2 = 20.37$), somatization ($r = .09$ [.06-.12], $\chi^2 = 15.20$), suicide ($r = .09$ [.06-.12], $\chi^2 = 10.94$), general symptoms ($r = .12$ [.08-.15], $\chi^2 = 18.77$) Sexual revictimization ($d = .59$; $Z = 22.66$, $p < .0001$) | Sample source ($Z = 3.15$, $p < .001$), age ($Z = 3.07$, $p < .0001$), child abuse definition ($Z = 5.67$, $p = .0001$), perpetrator/victim age ($Z = 1.84$, $p < .05$), child/adult abuse assessment ($Z = 1.90$, $p < .05$), child/adult abuse definition ($Z = 1.64$, $p = .05$), age abuse cut-off ($Z = 8.73$, $p < .0001$) Sample source ($\chi^2 = 10.04$, $p < .01$), eating disorder diagnosis ($\chi^2 = 31.76$, $p < .01$), abuse status as the independent variable ($R = .181$) |
| Roodman | | |
| Sharpe Smedak | Non-epileptic seizures (OR = 2.940 [2.291-3.772], $p < .001$; $Q = 24.40$, $p < .14$) Eating disorders ($r = .101$; $\chi^2 = 340.88$, $p < .01$) | |
| Whitaker | Sexual offenders against children more likely to have a history of child sexual abuse than non-sex offenders ($d = .70$ [.44-.96]; $Q = 14.9$, $p = .038$) or non-offenders ($d = .75$ [.43-1.07]; $Q = 73.8$, $p = .000$) | |

associated with chronic non-cyclical pelvic pain, but not with menstrual pain (dysmenorrhoea).

In their narrative synthesis of evidence for sexual transmission of genital herpes in children, Reading and Rannan-Eliya (2007) found that among children assessed for possible, probable, or known sexual abuse, genital herpes was rarely reported; however, among children presenting either to hospitals or clinics with genital herpes, sexual transmission occurred in just over half the cases. However, according to the authors, this evidence is weak. Sexual transmission was reported more commonly in older children, in children presenting with genital lesions alone, and where type 2 herpes simplex virus was isolated.

In the review by Sharpe and Faye (2006) the odds of having a history of child sexual abuse were almost three times greater given the presence of non-epileptic seizures (i.e. seizures lacking the physiological symptoms of genuine epilepsy and being psychological in origin). Because effect sizes were homogeneous, further partitioning of effect sizes by study characteristics was not warranted.

3.2. Psychological, behavioral, and sexual problems

Focusing on female samples, Arriola et al. (2005) found that child sexual abuse was significantly related to later engagement in unprotected sexual intercourse, sex with multiple partners, and sex trading (i.e. sex for money, drugs, or shelter). Such relationships were small in magnitudes. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that only child abuse definition predicted effect size variance. Only for sex trading, larger effect sizes were significantly linked to a definition of child sexual abuse based on a maximum victim age of 14–17 years.

Fossati, Madeddu and Maffei (1999) found a moderate, significant association between child sexual abuse and borderline personality disorder. Although a significant heterogeneity of effect size estimates was found, linear regression showed that effect sizes were significantly linked to none of the moderators. However, analysis of effect sizes revealed that some explanation of effect size variance was partially accounted for by certain variables. Studies with smaller samples ($N < 50$), duration of abuse, penetration, and abuse occurred when the victim was 7–12 years of age yielded larger effect sizes than did severity of abuse, genital fondling, number of perpetrators, abuse perpetrated by father, other relatives, or nonrelatives.

In the review by Jumper (1995), child sexual abuse was significantly related to depression, self-esteem impairment, and other psychological problems (i.e. suicidal ideation or behavior, anxiety, personality, psychotic, somatoform, and dissociative disorders). The magnitudes of such relationships were small to medium. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that effect sizes were significantly related to none of the moderators. However, analysis of effect sizes revealed that some explanation of effect size variance was partially accounted for by sample source. Student samples generated smaller effect sizes than did community, clinical, or other sample populations.

Klonsky and Moyer (2008) found a small, significant association between child sexual abuse and self-injurious behavior (i.e. intentional, direct damage to body tissue without suicidal intent). The distribution of effect size estimates exhibited significant heterogeneity. An analogue of an analysis of variance procedure appropriate for effect size data showed that sample type was a significant moderator of the relationship between abuse and self-injurious behavior. This relationship was stronger for the clinical samples than for the nonclinical samples. Further analysis of effect sizes revealed that some explanation of effect size variance was also accounted for by sample size. Studies with larger samples ($N > 125$) reported smaller effect sizes.

In their review of female samples, Neumann, Houskamp, Pollock and Briere (1996) found that child sexual abuse was significantly

related to anxiety, anger, depression, self-mutilation, sexual problems, substance abuse, suicidal ideation or behavior, self-concept impairment, interpersonal problems, dissociation, obsessions or compulsions, somatization, traumatic stress responses, general symptomatology. The magnitudes of such relationships were small to medium. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that only sample source predicted effect size variance. Clinical samples generated larger effect sizes. Furthermore, there was a tendency for studies with smaller samples ($N < 50$) to yield comparatively high mean effect sizes, compared to studies that examined larger numbers of subjects.

In the review by Paolucci et al. (2001), child sexual abuse was significantly related to posttraumatic stress disorder, depression, suicidal/self-injurious ideation/behavior, early involvement in sexual activity or prostitution, sexual perpetration, and intelligence/learning impairment. The magnitudes of such relationships were small to medium. A series of analyses of variance revealed that none of the moderators was statistically significant.

Focusing on national probability samples, Rind and Tromovitch (1997) found a small, significant association between child sexual abuse and psychological disorders (e.g., depression or sexual dysfunction). A significant heterogeneity among female effect sizes was found. Categorical model testing revealed that a definition of abuse based on level of consent predicted effect size variance. For females, a definition of abuse including both willing and unwanted sex generated larger effect sizes.

In their review of student samples, Rind et al. (1998) found that child sexual abuse was significantly related to alcohol problems, anxiety, depression, dissociation, eating disorders, hostility or anger, interpersonal sensitivity (i.e. feelings of inadequacy, inferiority, or discomfort when interacting with others), obsessions or compulsions, paranoid ideation, phobia, psychotic symptoms, self-esteem impairment, sexual dysfunction, social maladjustment, somatization, suicidal ideation or behavior, general symptomatology. The magnitudes of such relations were small. Only effect sizes concerning hostility, self-esteem, and sexual adjustment were heterogeneous. Further analysis of effect sizes revealed that larger effect sizes were significantly linked to intrafamilial abuse and definition of abuse including both willing and unwanted sex (only for women).

In their review of female samples, Smolak and Murnen (2002) found a small, significant association between child sexual abuse and eating disorders. A significant heterogeneity among effect sizes was found. Procedures analogous to analysis of variance revealed that the nature of the sample and the operationalization of having an eating problem or disorder explained a significant proportion of the effect size variance. Larger effect sizes were related to comparing a clinical group with eating disorders to a nonclinical group and using a more general diagnosis of eating disorder. Furthermore, analysis of effect sizes revealed that some explanation of effect size variance was also accounted for by the use of abuse status as the independent or dependent variable. Larger effect sizes were related to studies using abuse status as the independent variable and eating problems as the dependent variable.

Focusing on risk factors for the perpetration of child sexual abuse, Whitaker et al. (2008) found that sexual offenders against children were highly likely to have a history of child sexual abuse in comparison with both individuals who had committed an offence of a non-sexual nature and individuals who had not committed any offence.

3.3. Revictimization

Focusing on female samples, Arriola et al. (2005) found that child sexual abuse was significantly related to later sexual revictimization. Such relationship was small in magnitude. Although a significant

heterogeneity was found, none of the moderators predicted effect size variance.

In their review of female samples, Neumann et al. (1996) found that child sexual abuse was significantly related to later revictimization. Such relationship was medium in magnitude. Although a significant heterogeneity among effect sizes was found, tests of categorical models revealed that only sample source predicted effect size variance. Clinical samples generated larger effect sizes. Furthermore, there was a tendency for studies with smaller samples ($N < 50$) to reported larger effect sizes.

Focusing on female samples, Roodman and Clum (2001) found a significant association between child sexual abuse and adult sexual victimization. The magnitude of such relationship was of medium size. Diffuse comparisons evidenced significant heterogeneity. Focused comparisons indicated that some explanation of effect size variance was significantly accounted for by certain variables. Smaller effect sizes were observed for student samples, greater percent of the sample that was White, younger mean age at the time of assessment, combination of the assessments of child sexual abuse (i.e. questionnaire list) and adult victimization (i.e. single question), definition of child abuse including both contact and noncontact, combination of definitions of child and adult victimization including both contact and noncontact, perpetrator 3 years older than victim, younger mean age at the time of assessment combined with older age cut-off for abuse.

4. Discussion

Fourteen reviews addressing the potential impact of child sexual abuse on health and having no important limitations that could invalidate their results were included in this systematic review.

In considering the results as a whole, there is evidence that across methodologies, samples, and measures survivors of child sexual abuse are significantly at risk of a wide range of health problems, i.e. psychotic symptomatology (especially paranoid ideation), depression, anxiety (including posttraumatic stress and obsessive-compulsive symptomatology), dissociation, eating disorders, somatization, personality disorders (especially borderline personality disorder), self-esteem and self-concept impairment, suicidal and self-injurious ideation or behavior, substance abuse, sexual dysfunction, engagement in high-risk sexual behaviors (such as unprotected sexual intercourse, sex with multiple partners, early involvement in sexual activity, and prostitution), social impairment, interpersonal problems (including feelings of inadequacy, inferiority, or discomfort when interacting with others), hostility, anger, perpetration of sexual abuse, intelligence or learning impairment, revictimization, chronic non-cyclical pelvic pain, and non-epileptic seizures. The evidence for sexually transmitted diseases, such as genital herpes, is weak. Therefore, it is apparent that child sexual abuse should be considered as a general, nonspecific risk factor for psychopathology (including psychologically, behaviorally, and sexually related problems and later revictimization as well as certain medical problems which are psychological in origin).

Because of the variation across outcomes and sample characteristics in the thirteen meta-analytic reviews, the magnitude of the relation between childhood sexual abuse and health problems ranged from small to medium.

Although significant, certain problems (e.g., eating disorders, unprotected sex, and intelligence or learning impairment) were less related to child sexual abuse than others (e.g., posttraumatic stress symptomatology and revictimization). Therefore, it is possible that survivors of child sexual abuse may be especially at risk of certain outcomes.

Moderator analyses revealed that some explanation of effect size variance was partially accounted for by sample source and size. Indeed, nonclinical samples (e.g., college samples) yielded smaller magnitudes than did clinical samples, although in both groups

outcomes were significant (Jumper, 1995; Klonsky & Moyer, 2008; Neumann et al., 1996; Roodman & Clum, 2001). Therefore, it is apparent that survivors of child sexual abuse among nonclinical populations may experience fewer health problems than do survivors of child sexual abuse among clinical populations. It is possible that clinical samples may exclude well adjusted survivors of child abuse or constitute the negative extreme of abuse outcomes (Okami, 1991). Furthermore, it has been suggested that data coming from clinical samples are vulnerable to several biases that threaten their validity (Pope & Hudson, 1995; Rind & Tromovitch, 1997). Conversely, nonclinical samples may include more well adjusted survivors of child abuse. For example, it is possible that students may need a certain level of wellness to be able to handle the rigors of college life (see Jumper, 1995; Roodman & Clum, 2001). Further, it has also been suggested that some negative long-term effects may have not yet manifested at college age (see Rind et al., 1998).

Moreover, studies with smaller samples reported larger effect sizes (Fossati et al., 1999; Klonsky & Moyer, 2008; Neumann et al., 1996). Klonsky and Moyer (2008) found evidence of publication bias and suggested that smaller studies with positive findings were more likely to be published than smaller studies with null or negative findings.

It is noteworthy that all the other moderators generated conflicting or nonsignificant results.

Although the results of this systematic review provide clear evidence that the relationship between child sexual abuse and health problems does exist, the presence of confounding variables and the generally poor quality of the studies included in each review do not allow for causal inferences to be made, thus findings must be interpreted with caution.

First, studies included in each review were generally methodologically limited (e.g., poor sampling methods, absence of matched comparison groups, poor description of methods of eliciting abuse histories, inadequate control for effect modifiers and confounders, or designs inappropriate to prove causality). Consequently, associations were confounded and causal inferences not feasible.

Second, it is possible that several antecedent or concurrent third variables (e.g., family environment and other traumatic events, including other forms of maltreatment) may be responsible for the observed outcomes.

Additional biological, psychological, or social factors, especially the negative family circumstances in which many sexually abused children are raised (e.g., high conflict, other forms of maltreatment, parent's mental illness or substance abuse), have been cited as factors contributing to negative outcomes among survivors of child sexual abuse (see, for example, Briere, 1988; Briere & Elliot, 1993; Schmidt, Humfress & Treasure, 1997).

For example, in their review, Rind et al. (1998) found that certain family variables (e.g., conflict, pathology, neglect, physical or emotional abuse) were confounded with child sexual abuse and explained considerably more variance than abuse; the relationship between a history of abuse and later maladjustment generally became nonsignificant when studies controlled for family environment. Furthermore, in their review, Klonsky and Moyer (2008) found that all studies that controlled for other risk factors (e.g., family environment variables, such as childhood separation, attachment, neglect, physical or emotional abuse) found either minimal or negligible unique associations between child sexual abuse and self-injurious behavior. Finally, in a review not included in this systematic review (Weiss, Longhurst & Mazure, 1999), of eight studies examining the relationship between family dysfunction, child sexual abuse, and adult-onset depression, six found a positive correlation between child sexual abuse and various markers of familial dysfunction (e.g., early parental separation, family violence, physical punishment, and lack of parental warmth) and/or a positive correlation between poor parenting and adult-onset depression, even in the absence of abuse; in one of these studies poor parental support was a better predictor of

subsequent impaired psychological functioning than child sexual abuse. Thus, additional social, psychological, or biological factors may either independently increase the likelihood of both child sexual abuse and adult-onset psychopathology or increase the risk of psychological impairment in children who have been sexually abused.

Therefore, it is possible that child sexual abuse may not have a primary role in the development of certain disorders. Being a victim of child sexual abuse is a significant risk factor, but may not be the only important risk factor. For example, two meta-analyses (Latthe et al., 2006; Whitaker et al., 2008) included in this systematic review showed that chronic pelvic pain and perpetration of child sexual abuse were associated with several other physical, psychological, sexual, and family risk factors.

It is apparent that an increased presence of biological, psychological, or social risk factors may enhance the likelihood of deviating from the conditions that promote normal development and manifesting negative developmental outcomes (Cicchetti & Toth, 1995). Thus, for certain disorders, a multifactorial etiological model is required. For example, a meta-analytic review not included in this systematic review (Stice, 2002), found a variety of risk and maintenance factors (e.g., thin-ideal internalization and negative affect) for eating pathology, suggesting it will be important to develop more comprehensive multivariate models that may attempt to explain how risk factors work together to promote or maintain eating disorders.

This systematic review has some other limitations. First, only the findings of those studies selected by the fifteen reviews included in this systematic review were analyzed. Therefore, other issues (e.g., neurobiological sequelae) were not addressed. Second, excluding two reviews, all studies included in this review did not assess data quality and validity. Therefore, they aggregated different study findings, particularly those with different levels of methodological quality. Third, because of the variety of samples, definitions, methods, and outcomes of the studies included in each review, genuine differences in effects might have been obscured by meta-analytic techniques (Higgins & Green, 2006).

Despite these limitations, this systematic review has several implications for research, treatment, and health policy.

4.1. Implications for research

Although a large amount of studies and literature reviews on the consequences of child sexual abuse has been published in the past twenty years, the inconsistency in their conclusions along with their methodological differences and limitations may create interpretative difficulties and confusion among all professionals who turn to this literature for guidance. To prevent these professionals from creating mistaken beliefs about the potential impact of child sexual abuse on health, this paper has attempted to address the best available scientific evidence on the topic, by providing a qualitative and semi-quantitative analysis of the findings of the several reviews that have investigated the literature on the short- and long-term effects of child sexual abuse.

According to the results of this systematic review, being a victim of child sexual abuse should be considered as a general, nonspecific, risk factor for psychopathology, but not the only important one. Indeed, additional biological, psychological, or social factors may contribute to increase the risk of negative outcomes among survivors of child sexual abuse.

To explain how risk factors work together to promote or maintain psychopathology, the development and empirical validation of more comprehensive, multifactorial etiological models are required. However, to date, relatively few studies have attempted to account for the role of third variables, such as family environment or genetic vulnerabilities. Although it is difficult to separate the consequences of child abuse from the effects of the context in which these children live, further research should elucidate the causal mechanisms and

processes that contribute to the adverse consequences associated with child sexual abuse.

Future investigations should also search for additional mediators and moderators of outcomes, given that the results of this systematic review do not confirm suspicions that some variables concerning aspects of the abuse experience (such as age when abused, incestuous forms of abuse, level of contact, use of force, frequency, and duration of abuse) influence the outcomes of child sexual abuse.

Moreover, it is essential that future research discover not only the mechanisms, both psychosocial and neurobiological, by which child sexual abuse may result in mental disorders in adulthood, but also the compensatory processes whereby some children who have been sexually abused achieve positive adaptation. In fact, not all children who have been sexually abused manifest negative developmental sequelae. Indeed, some maltreated children develop and utilize compensatory mechanisms that enable them to function adaptively despite experiencing significant adversity (see Cicchetti & Toth, 2005). For example, some studies have identified certain personality characteristics (e.g., high self-esteem) as protective factors (Cicchetti & Rogosch, 1997; Moran & Eckenrode, 1992). Nevertheless, much less effort has been directed toward delimiting pathways to the achievement of positive adaptation in maltreated children than has been directed toward elucidating problems (Cicchetti & Toth, 2005).

To achieve all these goals, a number of methodological advances in research in this area must be implemented.

Future investigations should (1) use longitudinal designs; (2) study samples representative of the general population; (3) employ matched comparison groups; (4) use standard measures and instruments designed to assess child sexual abuse and outcomes; (5) control for confounders.

Future literature reviews should (1) use recent advances in methodology, as highlighted by guidelines for systematic reviews, in order to select studies, abstract data, and assess data quality; (2) describe the criteria used for selecting studies, abstracting data, and assessing data quality, including the number of researchers who applied such criteria along with how disagreements were resolved; (3) describe the main results in an objective fashion, with the highest quality evidence available receiving the greatest emphasis; (4) provide an accurate estimate of the strength of evidence; (5) explore whether any observed effects are consistent across studies and investigate possible reasons for any inconsistencies; (6) use a rigorous and transparent approach to reduce the potential for bias, when conducting a narrative synthesis of studies.

4.2. Implications for treatment and health policy

Some directions for improving treatment and health policy are suggested by this systematic review. In considering child sexual abuse as a general risk factor for the development of psychopathology, the provision of services designed to prevent the occurrence of child sexual abuse and to treat its sequelae may decrease the incidence and prevalence of certain psychological symptoms and disorders in our society. Thus, current child abuse prevention services (e.g., public awareness campaigns, home visitation programs, or family resource centers) must be implemented. Particular attention should be given to children with disabilities, who may be at increased risk of abuse (Maniglio, 2009).

For all victims of recent abuse, early intervention as well as careful monitoring over time for potential negative outcomes that may present during adulthood must be a priority to decrease the risk of psychological disturbance.

All the children who have been sexually abused recently must be assessed for the presence of psychological disturbance. With the current state of knowledge, it seems appropriate to target available treatment resources at symptomatic children, because sexually abused children who have symptoms (e.g., symptoms of posttraumatic stress disorder or

behavioral problems) are more likely to demonstrate benefit from psychotherapy (see Ramchandani & Jones, 2003; Stevenson, 1999). However, services for abused children must have a long-term orientation, because these children may experience enduring problems, such as personality disorders, or the later onset of severe mental illness.

To be effective, programs for sexually abused children should focus not only on treating symptoms, but also on reducing additional biological, psychological, or social risk factors associated with the occurrence of child sexual abuse (especially the negative family circumstances in which some sexually abused children are raised) as well as on increasing protective factors, such as self-esteem, social support, relationships, and related skills.

For all adults with psychiatric disorders as well as with medical problems which are psychological in origin, a review of child sexual experiences should be a routine part of the clinical history. Given that a certain number of individuals who seek psychiatric treatment have a history of child sexual abuse, this places a clear responsibility on mental health services in the first instance to enquire about early abuse within admission procedures and take appropriate action.

It is important for clinicians to be aware that their patients may have a history of sexual abuse and that such a history may be relevant to the development and maintenance of their psychopathology. When dealing with a patient with a history of child abuse, clinicians should assess the relevance of such a history to the current diagnosis and address it therapeutically. Psychiatric patients with histories of sexual abuse may respond with a reduction in overall psychopathology if the abuse experience is addressed (Jehu, 1988).

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Study concept and design, acquisition of data, analysis and interpretation of data, drafting of the manuscript, critical revision of the manuscript for important intellectual content, study supervision, and final approval of the version to be published: Maniglio.

Oronzo Greco, MD, University of Salento, Lecce, Italy, has contributed to the work reported in the manuscript but does not fulfill authorship criteria. No compensation was received for such contributions.

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