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Childhood Sexual Abuse and Social Functioning: A Systematic Review of Reviews

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CHILDHOOD SEXUAL ABUSE AND SOCIAL FUNCTIONING: A SYSTEMATIC REVIEW OF REVIEWS

An Honor's Thesis

Submitted in Partial Fulfillment of the

Requirements for the degree of

Bachelor of Arts in Psychology

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by

Evan A. LeClair

Abstract

Many studies have attempted to link childhood sexual abuse (CSA) to social functioning in adult life. Previous reviews of these studies have linked CSA to such dysfunctions as risky sex, depression, teenage pregnancy, drug use, sexual re-victimization, and health disorders. Systematic reviews and meta-analyses both apply scientific methods to gather and evaluate empirical evidence. The conclusions of reviews with low quality methods should not be trusted. The current project evaluated the quality of 23 reviews that addressed the link between CSA and social functioning in men and women using a modification of the AMSTAR scale developed Shea et al. (2007). Systematic reviews have significantly improved over time, however their quality still does not match those of meta-analyses; in contrast, narrative reviews' quality has remained low over time. Future reviews may improve by following conventional definitions of CSA, investigating the frequency of abuse, identifying the relationship of the abuser to the victim, and identifying factors that may buffer against or worsen trauma.

Introduction

Childhood sexual abuse (CSA) is a phenomenon that plagues the lives of many people today. Several studies have been done to determine how CSA affects the life of the victim. Since many different outcomes have been identified, it is difficult to come to a consensus regarding CSA's impact. Some studies have found that CSA definitively leads to poorer outcomes than non-victims. Others have found that CSA shows adverse affects only under specific circumstances, and some studies have argued that there are little or no problems associated with CSA (see Rind et al. 1998).

The differences in these conclusions are due in part to inconsistencies in the research. Many studies differ in their notions of abuse, and it is common for studies to fail to account for variables such as age of victim, duration of abuse, and environmental factors. While there is a multitude of studies and reviews on the topic, inconsistencies in their conclusions, coupled with the differences in their methodology make it difficult to determine which review's conclusions are correct. This review aims to examine the methodological quality of the reviews regarding CSA's effect on social functioning, including three different types of reviews, meta-analyses, systematic reviews, and narrative reviews.

Methods

Search Strategies and Inclusion Criteria

Reviews were obtained using searches of PsycINFO, Ebscohost, and CINAHL. Key terms used in these databases were *Childhood or Child, Sex Abuse or Sexual,*

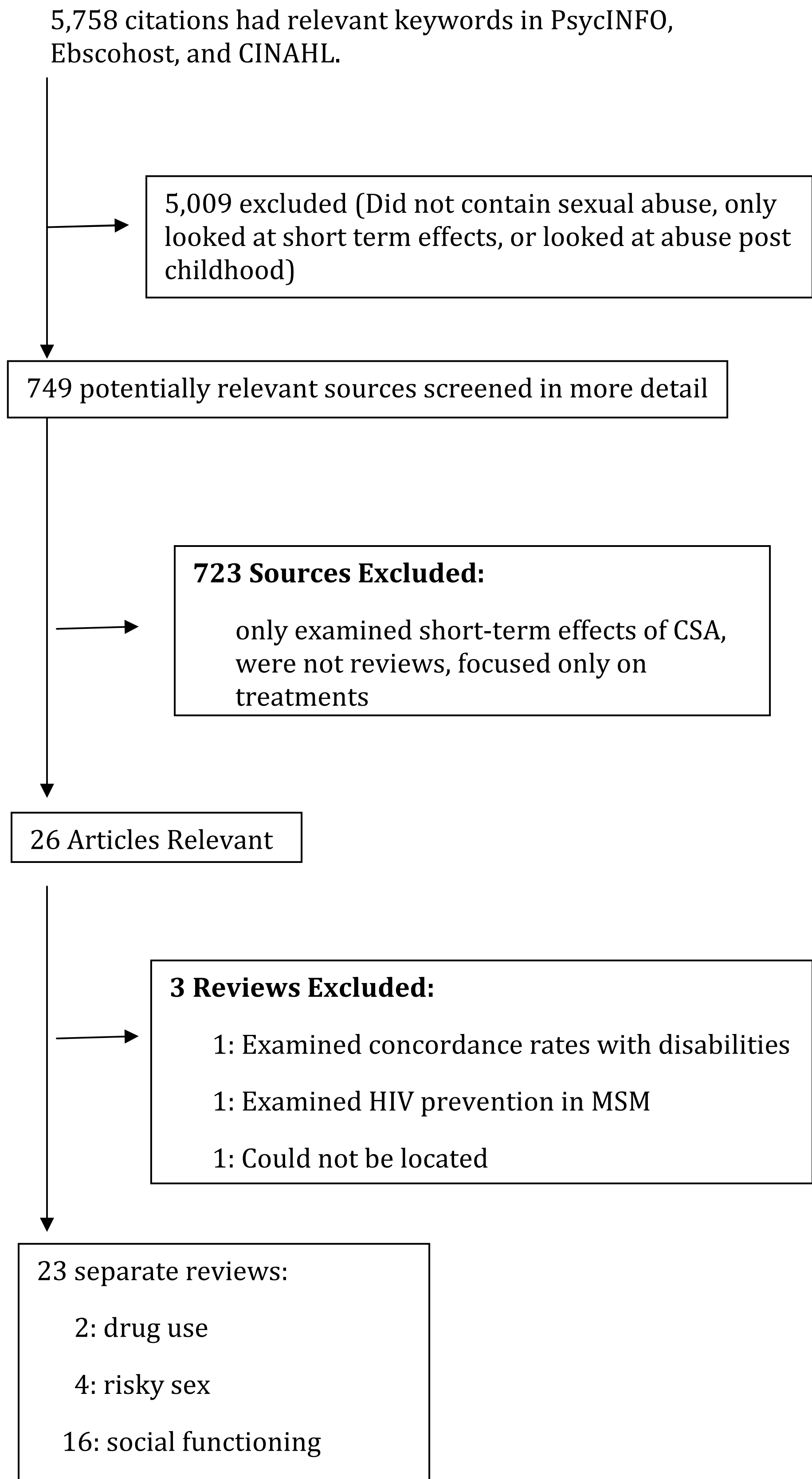
Longitudinal or Long term, Depression, Drug use, Risky behavior. To be included, studies needed to be a review of current literature (systematic reviews, meta-analyses, and narrative reviews) discussing childhood sexual abuse and its effect on social functioning in later life. *Childhood Sexual Abuse* was defined as any unwanted sexual activity before the age of 18. *Social functioning* was defined across three domains: risky sex, drug use, and general functioning. *Risky sex* was defined as impulsive and/or unprotected sex with multiple partners, and was often associated with teenage pregnancy. *Drug use* was defined as any recreational or dependence related use of illegal substances or alcohol. *General functioning* was defined as the prevalence and severity of mental, and health-related complications such as anxiety, depression, and obesity. After searching three databases, 26 reviews matched inclusion criteria, with 3 omitted for unique reasons (see figure 1). Studies were included if they appeared in peer-reviewed journals, were published in full, were either a meta-analysis, systematic review, or narrative review, and investigated the medical, behavioral, psychological, or sexual functioning of adult survivors of childhood sexual abuse.

Review Quality Coding

Reviews were quality graded on a checklist based on standardized criteria. In an effort to increase reliability and reduce bias, two researchers independently worked independently to code for study quality. Quality was judged using a modification of the "Assessment of Multiple Systematic Reviews" (AMSTAR) scale, developed by Shea et al. (2007). The AMSTAR scale is a questionnaire designed to

assess the quality of systematic reviews. For the purposes of this review, the scale was modified to accommodate conceptual aspects of CSA. In addition to adding six questions regarding how CSA was defined, the scoring criteria was modified to better address grey areas in grading. The average agreement across the questions was 66.13%, with the highest agreement occurring on item 14 of the quality scale, and the lowest agreement occurring in questions 5 and 6. Disagreements regarding study quality were often due to either, different interpretation of ambiguous quality criteria, or simple oversights. These discrepancies were discussed and resolved via consensus. The agreement on items 5 and 6 of the grading scale (Appendix A) was deemed too low to warrant using these in the conclusions, although they were allowed to remain in the total scale because in theory these items only introduce psychometric noise. These disagreements were due to different interpretations of the questions being asked. Impact was assessed using the number of citations on Google Scholar as of April 23, 2012, divided by the number of years since publication of the review.

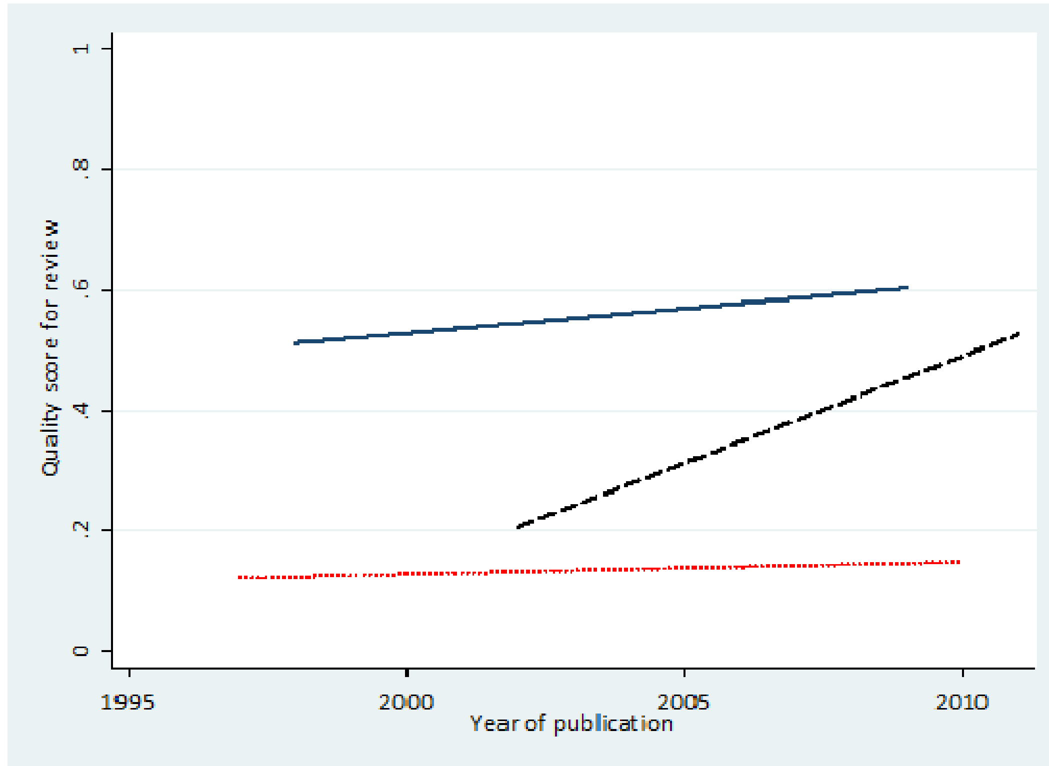
Figure 1. Flow chart of included reviews.



Results

The number of reviews regarding childhood sexual abuse has increased in recent years. Reviews have been published as early as 1997 and as recently 2011. The earliest review used was a narrative review by Brown, 1997. Of the reviews evaluated, no more than 2 reviews were found in any given year between 1997 and 2008. A total of 6 reviews gathered were published in 2009, and 4 were published in 2010, showing an increase in frequency of reviews being published over time. However, this increase in quantity of reviews does not necessarily translate to an increase in quality. It was found that overall, while meta-analyses have the highest quality, they did not significantly increase in quality over time. Systematic reviews quality did increase significantly over time (Figure 2), with the most recent review over taking the earliest meta-analysis in terms of quality. Narrative reviews had, over all, the lowest quality, and did not significantly increase over time (Figure 2). These trends may be due in part to the sample of studies used. Only 4 of the 23 studies examined were meta-analyses, which lowered statistical power. While it was found that meta-analyses did not increase in quality significantly and systematic reviews did increase significantly, overall there was no significant difference in quality between meta-analyses and systematic reviews.

Figure 2. *Systematic reviews (dashed line) significantly increased in quality over time, but narrative reviews quality remained low.*



Overall, reviews scored relatively low on quality. The mean for the proportion of answers satisfied across all 19 items was 34%. Of the 23 studies used, only 5 were deemed to be of high enough quality that their conclusions could be considered trustworthy (see Table 3). The findings of these studies concluded that CSA was a significant but non-specific risk factor for poor social functioning. The quality of reviews showed no significant correlation with their impact, r=.172, p=.433. This may be due to the fact that higher quality reviews tend to have been published later, and therefore have had less time to be noticed by the research community.

Table 1. Reviews rank-ordered from highest to lowest quality, clustered by meta-analyses, systematic review, and narrative reviews.

No.	Review	Quality	*k* of studies reviewed	Impact
	Meta-Analyses			
1	Taylor, & Harvey, 2009	66%	44	2
2	Arriola, Louden, Doldren & Fortenberry, 2005	61%	46	9
3	Noll, Shenk, & Putnam, 2008	51%	21	7
4	Rind, Bauserman, & Tromovitch, 1998	50%	59	52
	Systematic Reviews			
5	Maniglio, 2010	76%	4	9
6	Maniglio, 2009	68%	14	18
7	Maniglio, 2011	66%	6	0
8	Butt, Chou, & Browne, 2010	54%	18	1
9	Leonard, & Follete, 2003	32%	NA	9
10	McGrath, Nilsen, & Kerley, 2010	26%	20	1
11	Messman-Moore, & Long, 2003	26%	NA	21
12	Senn, Carey, & Vanable, 2007	26%	73	13
13	Tyler, & Harvey, 2002	21%	41	16
14	Yancey, & Hansen, 2009	18%	NA	3
	Narrative Reviews			
15	Lalor, & McElvaney, 2010	29%	NA	7
16	Rumstein-McKean, & Hunsley, 2001	29%	NA	8
17	Sarkar, 2009	29%	NA	2
18	Ahmad, 2006	11%	NA	2
19	Hall, 2008	11%	NA	1
20	Valle, & Silovsky, 2002	11%	NA	7
21	Sachs-Ericsson, Cromer, Hernandez, & Kendall-Tackett, 2009	8%	NA	9
22	Wilson, 2009	8%	NA	8
23	Brown, 1997	5%	NA	1

Table 2. Quality of reviews

Question	highest possible score	Review (See table 1 to identify particular reviews)																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1. Was CSA clearly defined (and used as a search criteria)?	1	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0	1	0
2. Were the abusers identified?	2	2	1	0	0	0	0	2	0	0	0	0	0	1	1	1	0	2	0	1	0	0	0	0
3. Was the age of abuse identified?	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
4. Was the frequency of abuse identified?	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5. Were possible confounds for CSA addressed?	2	2	1	1	2	2	2	2	1	0	2	2	2	1	2	1	1	0	1	0	0	1	1	1
6. Were possible mitigators of trauma addressed?	2	2	1	2	1	2	1	1	0	2	0	2	0	2	2	1	0	0	1	2	2	2	0	1
7.Was an 'a priori' design provided?	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	0	0	0
8.Were population variables defined and considered in the methods?	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
9.Was there duplicate study selection and data extraction?	2	2	1	1	1	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.Was a comprehensive literature search performed?	2	1	2	2	2	2	2	2	2	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0
11.Is it possible to replicate the search?	2	1	1	1	1	2	2	2	1	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0
12.Did the inclusion criteria permit grey literature?	1	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
13.Was a list of studies (included and excluded) provided?	2	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.Were the characteristics of the included studies provided?	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0
15.Was the scientific quality of the included studies assessed and documented?	2	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16.Did results depend on study quality, either overall, or in interaction with moderators?	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.Were the methods used to combine the findings of studies appropriate?	3	3	3	2	3	3	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.Was the effect size index chosen justified, statistically? (0 – 2)	2	2	2	1	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19.Was the likelihood of publication bias assessed?	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3. Summary of conclusions of the 5 highest quality reviews

Review	Findings
Maniglio, 2009	Found that victims of CSA are at risk for a wide range of health problems such as psychotic symptomatology, depression, and anxiety. Noticed that survivors of CSA in nonclinical populations may experience fewer health problems than those in clinical populations. This, however, could be due to clinical samples excluding well-adjusted survivors. Concluded that while CSA is a significant risk factor for health problems it may not be the only contributing factor, and for certain disorders, a multifactorial etiological model is required.
Maniglio, 2010	Found that while CSA was significantly correlated with depression, it was also significantly correlated with other forms of psychopathology. Concluded that CSA is a non-specific risk factor for depression and trauma involved may manifest itself through many other symptoms.
Maniglio, 2011	Found that CSA was significantly associated with substance-abuse problems, however it was concluded to be a non-specific risk factor for substance-abuse disorders. Found that all other moderators generated either conflicting or non-significant results. Claims that risk might increase depending on severity and duration of abuse.
Taylor, & Harvey, 2010	Found that different treatment styles better addressed the traumas that affect CSA victims. Therapy that included homework was more effective than clinical-only approaches. Found that while psychotherapeutic approaches were effective for at least six months following treatment, different characteristics of therapy vary in effectiveness depending on specific domain of interest.
Arriola, Louden, Doldren, & Fortenberry, 2004	Found a positive relationship between CSA and each of the four identified HIV risk behaviors among women. "Across the four dependent variables, the average effect size estimates ranged from small (.05 for unprotected sexual intercourse) to moderate (.17 for adult sexual revictimization)" (Arriola et al, 2005, p. 739). Definition of CSA based on victim's age was found to moderate the relationship between CSA and sex trading

Discussion

Twenty-three reviews examining the link between childhood sexual abuse and later social function were included in this review. When taken as a whole, the results of these reviews show that victims of CSA are significantly at risk of developing social functioning problems. Due to the low average quality of these reviews, it is difficult to rely on those conclusions. Out of the 23 reviews evaluated, only 3 systematic review and 2 meta-analyses rated high enough on the total proportion of questions scored (Table 1) that their conclusions might prove most trustworthy (See Table 3). The conclusions drawn in these reviews were generalized and compared to one another; in an effort to create a single generalizible conclusion. Each of these studies concluded that CSA was significantly correlated with poorer outcomes than non-victims. It is of note that three of the reviews with the highest scored were written by a single author, Roberto Maniglio (see Tables 1 and 3)

These studies indicated that CSA was significantly related to various aspects of social functioning such as, depression, anxiety, substance abuse, and HIV risk behaviors. CSA was identified as a non-specific risk factor for these outcomes, and similar trauma could result in similar symptoms. Trauma associated with CSA may also manifest itself to varying degrees depending on a number of factors. Maniglio et al. (2011) suggested that, while CSA was a significant risk factor for drug use, family conflict or violence might contribute to, or in some cases be the primary cause of, negative outcomes, with CSA working as an additional risk factor.

When looking at the correlation between date of publication and review quality, evidence showed that, overall reviews did not increase in quality over time. However when examining different types of reviews it was shown that systematic reviews did significantly increase in quality over time. This may be due in part to there being an increase in the number of systematic reviews in recent years. The more researchers who take notice of the topic, the more likely that higher quality reviews will be produced.

Personal factors such as different cognitive and personality characteristics of the victim may mediate between CSA and later social functioning. CSA may lead to maladaptive personality traits, which may in turn lead to other environmental stressors that may then lead to poor social functioning. Maniglio, 2011 also noted that, in both human and animal studies, early stress and trauma resulted in neurobiological changes that may affect functioning. Such changes include: reduction in size of the mid-portions of the corpus callosum, attenuated development of left neo-cortex, hippocampus, and amygdala, abnormal frontotemporal electrical activity, and reduced functional activity of the cerebellar vermis. It is important to note that clinical groups tend to show stronger correlations between CSA and poor social functioning than do nonclinical groups, though in most cases both correlations are significant. This may be due to nonclinical populations having higher resilience, better coping strategies, or a more supportive environment to help deal with the traumas related to CSA, or symptoms may have not manifested themselves fully in nonclinical populations yet.

It is also of note that impact does not seem to depend heavily on study quality. Maniglio et al. (2011), the fourth highest review by quality, scored a 0 on impact (Table 1), where-as Rind et al. (1998), scored highest on impact with a 52, despite being eighth in quality (Table 1). This is most likely due to a combination of study content and time since publication. While Maniglio (2011) was a high quality review, there has been little time since it's publication to make an impact on the literature. Rind et al. (1998) by contrast, has had over a decade to be noticed. This particular review also reached very controversial conclusions, claiming that CSA has little to no impact on the victims when factors like home environment are controlled. This conclusion counters those found in the majority of other studies, which lead to increased interest in its results.

Implications for Research

While a large quantity of reviews have been published on the effects of childhood sexual abuse in recent years, the quality of these reviews if often lacking. This is due less in part to poor quality reviewing techniques, and more due to the difficulties with reviewing studies on the topic. The inconsistent definitions of CSA, coupled with the methodological differences of the studies, make interpreting the findings of these studies difficult. Efforts to create a standard definition of CSA may help to make the studies findings more consistent.

Systematic reviews have improved significantly over time. This may be due in part to an increase in the number of reviews being published; however it is important to note that the more recent reviews must review more data. It is likely

this trend will continue as more reviews are published, however to ensure an increase in quality for all reviews, certain trends must be addressed.

To increase reliability, future investigations should attempt to agree on a more concrete definition of CSA. There is a general trend in the literature that demonstrates the difficulties involved with creating a comprehensive definition of CSA. Only 7 of the 23 reviews used scored perfect scores on question 1 of the grading scale (Appendix A). This result may be due in part to the wide range of definitions used in CSA research. Definitions often depend on the variable being examined, and can vary in terms of age cutoff for abuse, age gap between victim and perpetrator, level of abuse (touching, exhibitionism, penetration), and level of consent. Lack of a concrete definition of CSA makes it difficult to review all studies regarding CSA, as one study may have a drastically different idea of what constitutes abuse from another. It is a common trend, however, for reviews to acknowledge that it is difficult to find a consistent definition of CSA. Senn et al. (2008) for example, provided no working definition of abuse in their inclusion criteria, but noted that very few of the studies that they reviewed provide their own definition. This trend may lead to blurred results, as it may be difficult to generalize effects between studies that examine different populations under different circumstances. A related trend is the failure to report on the victim perpetrator relationship. Yancey et al. (2009) found mixed results regarding victim perpetrator relationship, with some studies reviewed showing a significant correlation between severity of symptoms and closeness of perpetrator and others showing so significant correlation. Yancey and colleagues concluded that while relationship might not have a direct impact on

severity, closeness of perpetrator might, with abuse from fathers being followed by more severe symptoms than abuse from stepfathers. Victim-perpetrator relationships can also give insight to the frequency and duration of abuse, as intra-familiar perpetrators may have easier access to the victim and more opportunities that result in abuse.

Further investigations should look into other mediating factors between CSA and social functioning. The results studies often show that CSA is a non-specific risk factor, and other variables may contribute to the outcomes seen in victims. While many reviews conclude that CSA is significantly correlated with poor outcomes in later life, the specific mechanisms that lead to these outcomes are difficult to identify. Few reviews account for third variables, which can lead to inaccurate results. Future studies should pay special attention to other environmental factors of victims, along with personal resilience of victims to better understand what it is about CSA that can lead to these outcomes.

Acknowledgements

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Entries marked with an asterisk (*) were included in the review.

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Appendix A.

Question	**Rationale for Question** (Source)	Score
A. Defining Childhood Sexual Abuse		
1. Was CSA clearly defined (and used as a search criteria)? (0 – 1)	Definitions of CSA vary widely. Reviews must have a specific a priori concept of CSA that then was used in the literature search.	
2. Were the abusers identified? (0 – 2)	CSA involves a victim and an abuser. The review should identify not only the victims of abuse but also the abusers. A score of 1. should be given if abuser is identified as being either a stranger or trusted adult, clearly describing the relationship between the abuser and victim earns a score of 2. A 0. Is scored if abusers are not identified. (e.g. a family member or stranger)	
3. Was the age of abuse identified? (0 – 1)	CSA is often defined to occur within a range of ages. Reviews should identify at what age participants were abused. A 1. Is earned if specific age of abuse is identified, merely saying that participants were within an age group yields a score of 0.	
4. Was the frequency of abuse identified? (0 – 2)	Articles should identify how often victims were abused. A single incident may be an isolated trauma where as long term abuse may be indicative of an overall abusive environment. A score of 1. Is earned if number of times abused is identified, a score of 2. Is earned if number of times abused and the time between incidences are identified. A score of 0. Is earned if no mention of frequency is used or if incidences are only described as being multiple or singular.	
5. Were possible confounds for CSA addressed? (0 – 2)	The review should explore other variables that may have lead to the findings otherwise attributed to CSA such as death of a loved one and substance abuse. A score of 1. Is earned if possible confounds are mentioned in discussion, to earn a score of 2. Studies must give descriptions of what confounds could be and the possible effects they could have on the data. Not mentioning possible confounds or mentioning that there are confounds without identifying them yields a score of 0.	
6. Were possible mitigators of trauma addressed? (0 – 2)	Some of the symptoms related to CSA may be mitigated by social support or therapy. The review should acknowledge that some of the people in samples they studied may have varying degrees of these cushions that change how CSA relates to functioning. A score of 1. Is earned if mitigators are identified, a score of 2. Is earned if mitigators are identified and their effects are discussed. Ignoring mitigators or mentioning the possibility of mitigators without exploring what they could be earns a 0.	
B. A priori design		
7. Was an 'a priori' design provided? (0 – 1)	The research question and inclusion criteria should be established before the conduct of the review. *Is it stated that these were finalized before commencing the review?* (Clarified form of AMSTAR item 1)	
C. Literature Search and Duplicate Effort		
8. Were population variables defined and considered in the methods? (0 – 1)	The authors should have defined the variables they will measure as indicators of the variables in the relationship or effect studied. (Authors)	
9. Was there duplicate study selection and data extraction? (0 – 2)	There should be independent data extractors and a consensus procedure for disagreements should be in place to *score 1*. *If inter-rater reliability reported, then score 2*. (Augmented from AMSTAR item 2)	
10. Was a comprehensive literature search performed? (0 – 2)	At least two electronic sources should be searched. The report must include years and databases used (e.g. Central, EMBASE, and MEDLINE) to score 1. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found to *score 2*. (Augmented from AMSTAR item 3)	
11. Is it possible to replicate the search? (0 – 2)	*The Method or Supplementary Materials should make it possible for a second party to replicate the search, including all databases, search terms, and operators.* Key words and/or MESH terms must be stated or available from the authors and where feasible the search strategy should be provided to score 1. *If authors report MeSH terms were used for searching, they must be stated in methods OR provided in supplementary material to be considered a "2." A note to contact the author for complete search strategy is*	

	also acceptable. (Augmented from AMSTAR item 3)	
12. Did the inclusion criteria permit grey literature? (0 – 1)	The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc. (AMSTAR item 4)	
13. Was a list of studies (included and excluded) provided? (0 – 2)	A list of included and excluded studies should be provided. *A descriptive summary of reasons for excluding studies should be provided such as in a QUORUM or PRISMA figure to score 1. If an actual list of excluded studies is included or available upon request then will be scored 2.* (Augmented from AMSTAR item 5)	
D. Coding of Studies		
14. Were the characteristics of the included studies provided? (0 – 1)	In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed e.g. age range, race, sex, relevant socioeconomic data, and type of population. *Data must be presented for each study individually in a table to receive a score of "1" simply providing population or study description in the text is not sufficient.* (Clarified form of AMSTAR item 6)	
15. Was the scientific quality of the included studies assessed and documented? (0 – 2)	'A priori' methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant. *If study quality was assessed and documented with a tool and/or scale choose 2; if only discussed choose 1"* (Augmented from AMSTAR item 7)	
E. Analysis and Interpretation		
16. Did results depend on study quality, either overall, or in interaction with moderators? (0 – 1)	*Studies with higher methodological rigor (e.g., with a scale such as PEDro, Jadad's scale) should yield clearer findings, other factors equal.* (Clarified from AMSTAR item 8)	
17. Were the methods used to combine the findings of studies appropriate? (0 – 3)	For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e., χ^2 for homogeneity or I^2). If heterogeneity exists, *random-effects assumptions should be incorporated* and/or the clinical appropriateness of combining should be taken into consideration (i.e. is it sensible to combine?). *If a test of homogeneity was conducted, the χ^2 or I^2 value is reported along with a report of the statistical assumptions (i.e., fixed vs. random-effects), and moderator analysis was conducted choose 3; if they report at least weighted effect size, choose 1; if they report some of the information about heterogeneity but not all, choose 2; if they do not information about analysis, choose 0.* (Augmented from AMSTAR item 9)	
18. Was the effect size index chosen justified, statistically? (0 – 2)	*Comparisons of studies' results may be biased in the face of uncontrolled variables (e.g., standard deviations and sample sizes that vary widely across studies). If authors provide ES equation/ explain their ES calculation and relate it to the various study designs and methods of reporting results, choose 2; if authors provide ES information but do not relate it to various study designs, choose 1; if ES is not discussed at all, choose 0.* (Authors)	
19. Was the likelihood of publication bias assessed? (0 – 1)	Asymmetries in effect sizes are examined as evidence of potential publication bias and includes a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test). (AMSTAR item 10)	