

Child Sexual Abuse in the Etiology of Anxiety Disorders: A Systematic Review of Reviews

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Abstract

There is considerable controversy about the role of child sexual abuse in the etiology of anxiety disorders. Although a growing number of research studies have been published, these have produced inconsistent results and conclusions regarding the nature of the associations between child sexual abuse and the various forms of anxiety problems as well as the potential effects of third variables, such as moderators, mediators, or confounders. This article provides a systematic review of the several reviews that have investigated the literature on the role of child sexual abuse in the etiology of anxiety disorders. Seven databases were searched, supplemented with hand search of reference lists from retrieved papers. Four meta-analyses, including 3,214,482 subjects from 171 studies, were analyzed. There is evidence that child sexual abuse is a significant, although general and non-specific, risk factor for anxiety disorders, especially posttraumatic stress disorder, regardless of gender of the victim and severity of abuse. Additional biological or psychosocial risk factors (such as alterations in brain structure or function, information processing biases, parental anxiety disorders, family dysfunction, and other forms of child abuse) may interact with child sexual abuse or act independently to cause anxiety disorders in victims in abuse survivors. However, child sexual abuse may sometimes confer additional risk of developing anxiety disorders either as a distal and indirect cause or as a proximal and direct cause. Child sexual abuse should be considered one of the several risk factors for anxiety disorders and included in multifactorial etiological models for anxiety disorders.

Keywords

Child abuse, sexual abuse, anxiety disorders, etiology, risk factors, systematic review

Key Points of the Research Review

- Child sexual abuse is a risk factor for anxiety disorders.
- Posttraumatic stress disorder is more related to child sexual abuse than other anxiety disorders.
- Male victims of child sexual abuse have the same risk of developing anxiety disorders as female victims.
- The risk of developing anxiety problems may be unrelated to the severity of abuse.
- Alterations in brain structure or function, information processing biases, parental anxiety disorders, family dysfunction, and other forms of child abuse may interact with child sexual abuse or act independently to cause anxiety disorders in victims.

Anxiety disorders are among the most common mental disorders worldwide. International epidemiologic studies show a 1-year prevalence of 10.6% and a lifetime prevalence of 16.6% in the adult population (Somers, Goldner, Waraich, & Hsu, 2006). Anxiety disorders can cause a great deal of suffering as well as substantial disability in occupational and social functioning, strongly affecting the quality of life of patients (Olatunji, Cisler, & Tolin, 2007). In addition, these disorders impose considerable direct and indirect costs, especially those

associated with lost productivity and treatment (Konnopka, Leichsenring, Leibing, & König, 2009). The recognition of the adverse social, economic, and personal consequences associated with anxiety disorders is reflected in the intensification of research in the etiology of these disorders. Research on the topic is aimed to highlight the factors that promote the development and maintenance of anxiety problems in order to implement prevention and treatment strategies.

Research to date has shown that the etiology of anxiety disorders is complex. Both genetic and environmental factors appear to account for significant variance in the development of these disorders (Afifi, Asmundson, Taylor, & Jang, 2010; Gordon & Hen, 2004; Gregory & Eley, 2007; Hettema, Neale, & Kendler, 2001). However, there is evidence that nonshared environmental factors (i.e., those factors in the environment that make siblings different from each other) are significantly

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stronger than any genetic influences measured to date (Gregory & Eley, 2007; Hettema et al., 2001; Keane, Marshall, & Taft, 2006; Rapee, Schniering, & Hudson, 2009). Early traumatic experiences, especially child abuse, are among the environmental factors potentially involved in the etiology of anxiety disorders that have received much attention (Heim & Nemeroff, 2001; Kaysen, Resick, & Wise, 2003; Rodriguez, Vande Kemp, & Foy, 1998).

The Relationship Between Child Sexual Abuse and Anxiety Disorders

Significance and Nature of the Relationship

A growing number of studies investigating the potential link between childhood sexual abuse and later anxiety problems have been published over the past 20 years. Efforts to summarize the findings of these studies have resulted in several qualitative and quantitative reviews.

The majority of these studies and literature reviews have suggested that child sexual abuse is a risk factor for the development of anxiety problems. Indeed, some reviews have stated that survivors of child sexual abuse show higher levels of anxiety symptoms or disorders (e.g., Black & DeBlassie, 1993; Briere & Elliot, 1994), especially posttraumatic stress disorder (e.g., Holmes & Slap, 1998). In addition, several reviews have concluded that survivors of early sexual victimization are at increased risk for anxiety symptoms or disorders evidenced immediately after the event or with onset years later (e.g., Black & DeBlassie, 1993; Bohn & Holz, 1996; Briere & Elliot, 1994; Briere & Runtz, 1993; Browne & Finkelhor, 1986; Fine, 1990; Holmes & Slap, 1998; Murray, 1993; Rowan & Foy, 1993; Valente, 2005). Most of these reviews have implied a causal association between child sexual abuse and anxiety problems, with some researchers explicitly stating that such association persists even when controlling for other variables that may be independently related to the development of anxiety disorders (e.g., Black & DeBlassie, 1993; Briere & Elliot, 1994). A number of reviews (Bohn & Holz, 1996; Briere & Elliot, 1994; Briere & Runtz, 1993) have suggested that sexual abuse constitutes an acute traumatic event for the child, generating immediate phobic responses and anxiety-related symptoms, including posttraumatic stress symptoms as well as long-term, chronic sequelae, especially posttraumatic stress disorder. Some reviewers (e.g., Bohn & Holz, 1996; Browne & Finkelhor, 1986; Valente, 2005) have considered anxiety symptoms and disorders, including panic, fear, phobias, and especially posttraumatic stress disorder, some of the most common responses to child sexual abuse, perhaps second only to depression as the most common sequelae of incest (Fine, 1990). Among the various forms of anxiety disorders, posttraumatic stress disorder has been suggested to be the most prevalent psychological problem in child sexual abuse survivors (e.g., Briere & Elliot, 1994). Posttraumatic stress disorder has been indicated as the diagnosis which best fits the syndrome commonly seen in victims of early sexual victimization (see

Rowan & Foy, 1993). According to a review (Murray, 1993), evidence that a relationship between child sexual abuse and posttraumatic stress disorder exists appears convincing.

In contrast, other reviews have suggested that child sexual abuse is associated with anxiety problems, without necessarily implying a causal association between child sexual abuse and later anxiety symptoms or disorders. More specifically, many researchers (e.g., Beitchman et al., 1992; Kendall-Tackett, Williams, & Finkelhor, 1993; Kuyken, 1995; Nurcombe, 2000; Polusny & Follette, 1995) have expressed caution about a causal association between child sexual abuse and anxiety disorders. It has been stated that the specific effects of sexual abuse, independent of family variables, such as parental psychopathology, are still to be clarified (e.g., Beitchman et al., 1992). In addition, it has been suggested that firm conclusions related to the relationship between child sexual abuse and posttraumatic stress disorder cannot be made because the researchers have not controlled for the influence of physical abuse or other traumatic experiences (Polusny & Follette, 1995). Furthermore, some reviews have suggested that anxiety symptoms or disorders, especially posttraumatic stress disorder, do not seem to be so highly prevalent, given that they are not found in many cases of child sexual abuse (Green, 1988; Kendall-Tackett et al., 1993; Nurcombe, 2000), particularly in victims of single episodes of abuse (Green, 1988; Kaysen et al., 2003; Kendall-Tackett et al., 1993; Nurcombe, 2000; Terr, 1991).

Thus, to date, research examining the role of child sexual abuse in the etiology of anxiety disorders has not led to unanimous conclusions. In fact, there are fundamental questions concerning the nature of the association between child sexual abuse and anxiety disorders that remain unanswered.

Moderating Factors

It has been hypothesized that certain factors, especially gender of the victim and severity of child sexual abuse, might moderate the relationship between child sexual abuse and anxiety problems (see Freeman & Morris, 2001; Hulme, 2004).

For example, much empirical research (see, e.g., Beitchman et al., 1992; Briere & Elliot, 1994; Browne & Finkelhor, 1986; Kendall-Tackett et al., 1993; Polusny & Follette, 1995) has suggested that the relationship between child sexual abuse and anxiety disorders seems to be greater for more severe and traumatic forms of sexual victimization, such as those involving force, violence, penetration, and multiple perpetrators. Nevertheless, these studies are not in agreement on the specific aspects of the abuse experience that should be considered as more traumatic and, thus, as factors that have the potential to increase the likelihood of anxiety symptoms or disorders. In fact, empirical research has highlighted a wide range of moderators concerning severity of child sexual abuse. More specifically, increased anxiety symptoms and disorders have been associated with genital contact (Browne & Finkelhor, 1986), penetration (Beitchman et al., 1992; Kendall-Tackett et al., 1993; Polusny & Follette, 1995), use of force (Beitchman

et al., 1992; Briere & Elliot, 1994; Browne & Finkelhor, 1986; Kendall-Tackett et al., 1993), abuse involving a parent (Beitchman et al., 1992; Briere & Elliot, 1994; Browne & Finkelhor, 1986; Kendall-Tackett et al., 1993), repeated episodes of abuse (Green, 1988; Kaysen et al., 2003; Kendall-Tackett et al., 1993; Nurcombe, 2000; Terr, 1991), longer duration (Beitchman et al., 1992; Kendall-Tackett et al., 1993), or high frequency of sexual contact (Briere & Elliot, 1994; Kendall-Tackett et al., 1993). Moreover, it is unknown how and why more severe and traumatic forms of child sexual abuse may lead to increased anxiety problems. It has been proposed that severe forms of sexual victimization may lead to the development of anxiety problems, especially posttraumatic stress symptoms or disorders, because severity of child sexual abuse may influence a person's reaction to such traumatic event (Wolfe, Gentile, & Wolfe, 1989). Alternatively, it has been hypothesized that the development of posttraumatic stress symptomatology may be due to physical injury, pain, or danger resulting from child sexual abuse (see Browne & Finkelhor, 1986; Rodriguez et al., 1998; Spaccarelli, 1994).

The relation between gender of the victim and outcomes is even more equivocal. Indeed, some reviews have found high rates of anxiety symptoms or disorders in women who have been sexually abused as children (e.g., Bachmann, Moeller, & Benett, 1988; Beitchman et al., 1992), suggesting that female survivors of child sexual abuse are more likely to develop anxiety problems than male victims of early sexual victimization (e.g., Putnam, 2003). Nevertheless, other reviews (Black & DeBlasie, 1993; Holmes & Slap, 1998; Nielsen, 1983; Valente, 2005) have also shown great evidence of anxiety symptoms or disorders in males with a history of child sexual abuse. A recent meta-analysis of studies yielding sex-specific risk of potentially traumatic events and posttraumatic stress disorder (Tolin & Foa, 2006) showed no significant differences in prevalence and severity of posttraumatic stress disorder between male and female victims of child sexual abuse.

Mediating Factors

Theoretical models of how child sexual abuse affects children's development have proposed certain factors that might mediate the relationship between child sexual abuse and anxiety problems (for reviews see Freeman & Morris, 2001; Hulme, 2004). For example, according to theoretical models based on family dynamics (e.g., Finkelhor, 1984), a dysfunctional family environment is the source of many mediating variables, such as family structure, family functioning, parental support, parental nurturance, confused family roles, parental separation or divorce, parental alcoholism, and other forms of child abuse (see Hulme, 2004). Nevertheless, empirical research aimed at investigating such hypotheses is scant.

In sum, although efforts to conceptualize those factors that have the potential to moderate or mediate the relationship between child sexual abuse and anxiety problems are ongoing, empirical research has not led to unanimous conclusions, given

that different studies and reviews have highlighted different moderators and mediators.

Aims of the Study

In sum, despite a large number of empirical studies and literature reviews, both studies and reviews have produced inconsistent results and conclusions. The inconsistency of the literature, in turn, has the potential to generate interpretative difficulties, uncertainties, mistaken beliefs, or confusion among those researchers and practitioners in the field who turn to this literature for guidance, including all professionals who are responsible for the welfare of children or are involved in the prevention and treatment of anxiety disorders. In response to these difficulties and uncertainties, this article provides a qualitative analysis of the findings of the several reviews that have investigated the literature on the relationship between child sexual abuse and anxiety disorders. By addressing the best available scientific evidence on the topic, this article is aimed at understanding how and why some people who have been sexually abused in childhood develop anxiety disorders in later life. More precisely, the objective of the present umbrella review is to clarify the nature of the associations between child sexual abuse and the various forms of anxiety problems by considering the significance and strength of such associations as well as the potential effects of third variables, such as moderators, mediators, or confounders. It seems evident that, with the current high levels of public and scientific interest in both child maltreatment and anxiety disorders, an analysis of what is currently known about the potential role of child sexual abuse in the development, maintenance, and recurrence of anxiety disorders is required in order to effectively implement research and health policy.

Methods

Study Identification and Selection

The present systematic review is part of a more comprehensive research project aimed at reviewing the literature on child sexual abuse. The methods of this comprehensive review of the whole literature on the topic are illustrated in detail elsewhere (Maniglio, 2009b, 2010a, 2011a, 2011b) and are only briefly described here.

In the more comprehensive review of the literature on child sexual abuse, to obtain relevant studies, 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 key words *child (hood) sexual abuse*, *child(hood) sexual maltreatment*. Further articles were identified by a manual search of reference lists from retrieved papers. In addition, in the present umbrella review on the role of child sexual abuse in the etiology of anxiety disorders, to obtain more recent articles on the topic, the seven Internet-based databases were searched again in

December 2010 for further articles published between January 2009 and December 2010.

To be included, studies needed to (1) appear in peer-reviewed journals; (2) be published in full; (3) be critical reviews of the literature; (4) not be dissertation papers, editorials, letters, conference proceedings, books, and book chapters; (5) review studies sampling human subjects; (6) investigate medical, neurobiological, psychological, behavioral, sexual, or other health problems following child sexual abuse; (7) have primary and sufficient data derived from longitudinal, cross-sectional, case-control, or cohort studies. For the purposes of the present umbrella review, only those reviews addressing the significance, strength, and/or nature of the relationship between child sexual abuse and later anxiety symptoms or disorders and/or the potential effects of third variables (such as moderators, mediators, or confounders) on such relationship were included.

Data Extraction

In accordance with the 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 et al., 2000), data were abstracted on the basis of the following criteria: (1) evidence identification methods, that is, the data sources (e.g., computerized databases, key journals, or reference lists from pertinent articles and books) used to identify studies, including years searched, key words, and constraints; (2) study selection methods, that is, the criteria used to select studies for inclusion in the review; (3) data extraction approach, that is, the process by which researchers obtained the necessary information about study characteristics and findings from the included studies; (4) quality assessment methods, that is, the criteria or guidelines used for assessing data quality and validity; (5) data synthesis and analysis methods, that is, the methods used to analyze the results and the strength of evidence, including methods or statistics used to explore and quantify magnitudes, heterogeneity, moderators, mediators, and confounders. In addition, for each study, the following information, if provided, was extracted: (1) effect sizes or odds ratios; (2) methods (e.g., interviews or questionnaires) or instruments (e.g., standardized questionnaires or investigator-authored questions) used in individual studies to assess or operationalize child sexual abuse and anxiety symptoms or disorders; (3) source and size of the included samples; (4) types of outcome, moderator, mediator, and confounder reported.

Quality Assessment

In accordance with the Methodological Quality Checklist, which was adapted by Bambra and colleagues (2009) from the Database of Abstracts of Reviews of Effects (Egan, Tannahill, Petticrew, & Thomas, 2008; Main et al., 2008), study quality was assessed on the basis of the following criteria: (1) existence of a well-defined question, that is, the question should define at

least the participants, the intervention, the outcomes, and the study designs; (2) existence of a defined search strategy, that is, a search strategy including at least one named database combined with reference checking, hand searching, citation follow-up, or expert contact; (3) report of inclusion/exclusion criteria, that is, the review should make the grounds for study inclusion and exclusion transparent in terms of participants, intervention, outcomes, and study design; (4) report of the primary study designs and the number of studies in the final synthesis; (5) quality assessment of the primary studies, that is, the description of the quality assessment process, which quality appraisal tool is used, and the relative quality of each included study; (6) appropriate synthesis of the studies, that is, the review should use meta-analysis or narrative synthesis, whichever is most suitable, given the heterogeneity of studies and their methodological quality; (7) involvement of more than one author at each stage (study selection, data extraction, quality appraisal, synthesis) of the review process.

On the basis of these criteria, each study was assigned one of the following ratings: “good” (study meets all the seven 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. Thus, a cutoff score of 5 resulted in exclusion of the study.

Procedure

The author, R M, and a professor of criminology, independently evaluated the eligibility of all studies identified, abstracted data, and assessed study quality in order to limit biases, minimize errors, improve reliability of findings, reduce the possibility that relevant reports will be discarded, and ensure that decisions and judgments are reproducible (Centre for Reviews and Dissemination, 2008; Higgins & Green, 2006). Disagreements among authors were discussed and resolved by consensus after review of the article and the review protocol.

A summary of the study selection process is illustrated in Figure 1. The Internet-based search identified 20,502 articles. By reviewing the titles and abstracts of all these articles, 211 potentially relevant papers were identified and retrieved for more detailed evaluation. By the manual search of reference lists of these 211 papers, additional 33 potentially relevant articles were identified and retrieved for detailed evaluation. Of all these 244 potentially relevant papers, 42 fulfilled all inclusion criteria and were assessed for study quality. Of these 42 studies, only 3, published between 1966 and 2008, met six quality criteria well. For these reasons, these studies were judged “fair” and were included in the present umbrella review. In addition, a more recent article, fulfilling all the inclusion criteria and meeting all the seven quality criteria well, was identified. This study was judged “good” and was included in this systematic review. Thus, a total of four reviews were included in the present umbrella review.

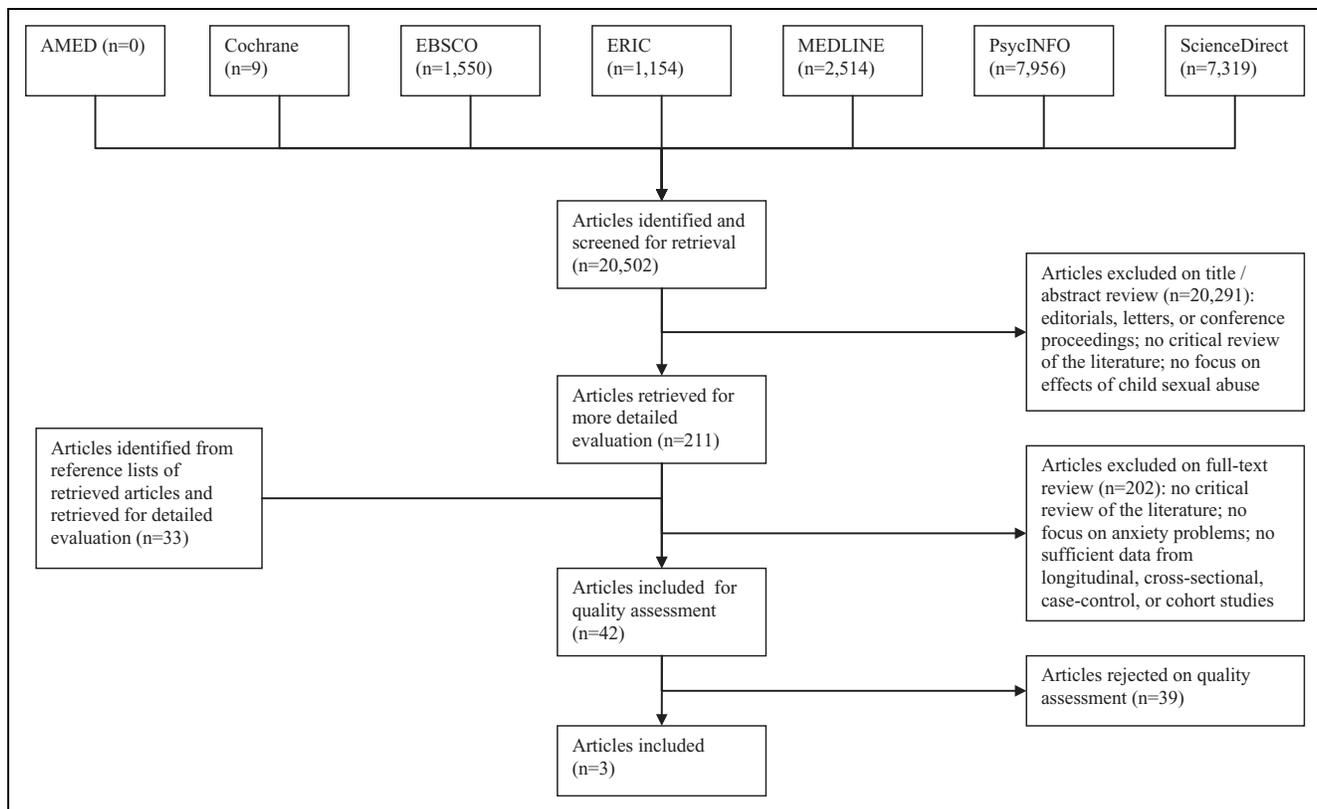


Figure 1. Summary of study selection process.

Description of studies. The main methods and results of the reviews included in the present umbrella review are described in Tables 1 and 2. All the reviews were published between 1996 and 2010 and assessed anxiety problems as well as several other potential psychological effects of child sexual abuse. More specifically, in the review by Neumann, Houskamp, Pollock, and Briere (1996), 15 meta-analyses were undertaken to address the relationship of child sexual abuse with a variety of psychological, behavioral, and sexual problems, including generic anxiety symptoms and obsessive-compulsive and post-traumatic stress symptomatology. In the review by Rind, Tromovitch, and Bauserman (1998), 18 meta-analyses were provided to address the relationship of child sexual abuse with a variety of psychological, behavioral, and sexual problems, including generic anxiety and phobic symptoms and obsessive-compulsive symptomatology. Paolucci, Genuis, and Violato (2001) provided six meta-analyses to address the association of child sexual abuse with a number of psychological, behavioral, and sexual outcomes, including posttraumatic stress symptomatology. Chen and colleagues (2010) provided eight meta-analyses to address the association of a history of sexual abuse with a variety of psychiatric symptoms or disorders, including generic anxiety symptoms and posttraumatic stress symptomatology.

The four reviews focused on different types of samples. While Paolucci and colleagues (2001) and Chen and colleagues (2010) reviewed a wide range of samples (i.e., young and adult,

male and female, clinical and nonclinical samples), Neumann and colleagues (1996) and Rind and colleagues (1998) focused, respectively, on adult female (both clinical and nonclinical) samples and college (both male and female) samples.

All the reviews specified the data sources used to identify studies and the criteria employed to select studies for inclusion in the review. Only the review by Chen and colleagues (2010) assessed the quality of each eligible study. All the reviews provided a quantitative analysis of the data (i.e., meta-analysis) to infer whether child sexual abuse was significantly associated with anxiety symptoms or disorders and to estimate the strength of this association. In the review by Chen and colleagues (2010), subgroup-effect interactions were explored based on the age at which sexual abuse occurred (childhood vs. adult). To test the hypothesis of a subgroup effect, a test of interaction with a predetermined two-tailed α of .05 was used. All these meta-analyses described the main results in an objective fashion, detailed the methods that were employed to obtain these results, took into account the strength of evidence, investigated whether any observed effects were consistent across studies, explored possible reasons for any inconsistencies, and outlined how heterogeneity of effect sizes (i.e., variability in the effects being evaluated in the different studies) was explored and quantified in order to ensure that the combined effect from a group of similar studies would be a meaningful description of that set of studies. Effect sizes and sources of variation between studies were reported. Based on all these factors, only the

Table 1. Methods of the Included Reviews.

Source	Main methods	Computerized database search	Manual search	Years searched	Search terms	Inclusion criteria
Chen et al., 2010	Systematic search; study selection; quality assessment; meta-analysis	MEDLINE, EMBASE, CINAHL, Current Contents, PsycINFO, ACP Journal Club, CCTR, CDSR, DARE PsycLIT	Not provided	1980–2008	Unspecified key words concerning sexual abuse and psychiatric disorders	longitudinal observational studies comparing individuals who had a history of sexual abuse with a control group, regardless of publication status or language of publication
Neumann et al., 1996	Systematic search; study selection; meta-analysis	PsycLIT	Reference lists of retrieved studies and previously published reviews	1974–1992	Child abuse or sexual incest or early experiences and human females and adult	All English-language studies having (1) designs aimed to examine psychological or behavioral correlates of child sexual abuse in groups of adult females; (2) results based on empirical measures; (3) comparison groups in individual studies equivalent to the child abuse group in terms of clinical status
Paolucci et al., 2001	Systematic search; study selection; meta-analysis	PsycLIT, Sociofile, ERIC	Reference lists of retrieved studies	1977–1996	Child sexual abuse	All studies: (1) focusing on at least one of the six identified outcome effects of child sexual abuse; (2) reporting findings on the specific dependent variable measure; (3) including empirical data on a contrast group of persons who were not known to have experienced child sexual abuse; (4) using psychometric measures; (5) having sample sizes of 12 or greater, regardless of publication status or language of publication
Rind, Tromovitch, & Bauserman, 1998	Systematic search; study selection; meta-analysis	PsycLIT, Sociofile, PsycInfo, Dissertation Abstracts International, ERIC	Reference lists of retrieved studies; studies already known	1966–1995	Adjustment or effect or effects and college or undergraduate or undergraduates and sex abuse or sexual abuse or child and adult and sexual	All studies: (1) using samples exclusively of college students or having results of measures of college students reported separately; (2) including a control group containing no students with experiences of child sexual abuse; (3) using a distinct "child sexual abuse" group, rather than a general "abused" group including participants without child sexual abuse; (4) reporting on at least one of the identified outcome effects of child sexual abuse; (5) providing sufficient data to compute one or more effect sizes, regardless of publication status or language of publication

Table 2. Results of the Included Reviews.

Source	Subjects	Outcome variables	Moderator variables	Significant outcomes (effect sizes or odds ratios [95% confidence interval]; homogeneity)	Significant moderators (between-group homogeneity)	Significant confounders (effect sizes [95% confidence interval]; homogeneity)
Chen et al., 2010	Male & female young & adult patients & nonpatients (37 studies, 3,162,318 subjects)	Anxiety, posttraumatic stress, depression, eating disorders, sleep disorders, suicide attempts, schizophrenia, somatoform disorders	publication form, type of statistic, gender, penetration	anxiety (OR=3.09 [2.43-3.94]), posttraumatic stress (OR = 2.34 [1.59, 3.43]), depression (OR = 2.66 [2.14, 3.30]), eating (OR = 2.72 [2.04, 3.63]), sleep (OR=16.17 [2.06-126.76]), suicide (OR = 4.14 [2.98, 5.76])	posttraumatic stress: history of rape (females abused in adulthood, OR = 2.57 [1.13, 5.87])	
Neumann et al., 1996	Female adult patients & nonpatients (38 studies, 11,162 subjects)	Anxiety, obsessions or compulsions, posttraumatic stress, anger, depression, revictimization, self-mutilation, sex problems, substance abuse, suicide, self-concept, interpersonal problems, dissociation, somatization, general symptoms, overall psychopathology	Publication date and form, assessment of abuse, type of statistic, sample size and source, age of subjects at the time of assessment, relationship to the perpetrator	Anxiety ($d = .40$ [.34,.47]), obsessions/compulsions ($d = .34$ [.22, .46]), posttraumatic stress ($d = .52$ [.44, .59]), depression ($d = .41$ [.36, .46]), anger ($d = .39$ [.25, .51]), 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]), somatization ($d = .34$ [.24, .45]), general symptoms ($d = .46$ [.40, .52]), overall psychopathology ($d = .37$ [.33, .41]; $Q = 62.36, p < .01$)	Overall impairment: sample source ($Q_B = 9.40, p < .01$)	
Paolucci et al., 2001	Male & female young & adult patients & nonpatients (37 studies, 88 samples, 25,367 subjects)	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	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])		
Rind et al., 1998	male & female adult nonpatients (59 studies, 51 samples, 15,635 subjects)	anxiety, obsessions or compulsions, phobia, alcohol, depression, dissociation, eating disorders, hostility, interpersonal sensitivity, locus of control, paranoia, psychosis, self-esteem, sex problems, social impairment, somatization, suicide, general symptoms, overall psychopathology	publication form, study site, sampling strategy, type of institution, gender and age of the subjects at the time of assessment, assessment of abuse, age of victim in abuse definition, level of contact, consent, force, penetration, frequency, and duration of abuse, relationship to the perpetrator	anxiety ($r = .13$ [.10, .15]; $\chi^2 = 4.62$), obsessions / compulsions ($r = .10$ [.06, .15]; $\chi^2 = 5.01$), phobia ($r = .12$ [.07, .17]; $\chi^2 = 8.08$), alcohol ($r = .07$ [.02, .12]; $\chi^2 = 2.97$), 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]; $\chi^2 = 11.78$), paranoia ($r = .11$ [.07, .16]; $\chi^2 = 10.34$), 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]; $\chi^2 = 18.77$), overall psychopathology ($r = .09$ [.08, .11]; $\chi^2 = 49.19, p > .50$)	overall impairment: published study ($r = .25, p = .08$), incest ($r = .09$ [.01-.17]; $\chi^2 = 15.20$), consent \times gender interaction ($z = 2.51, p > .02$; females, $r = .11$ [.09-.13]; $\chi^2 = 4.50$)	Overall impairment: nonsexual abuse or neglect ($r = .19$ [.13, .25]; $\chi^2 = 2.36$), family adaptability ($r = .13$ [.06, .19]; $\chi^2 = 20.38$), family conflict or pathology ($r = .14$ [.12, .17]; $\chi^2 = 0.74$), family structure ($r = .09$ [.06, .12]; $\chi^2 = 6.54$), family support or bonding ($r = .13$ [.09, .16]; $\chi^2 = 36.46$), family traditionalism ($r = .16$ [.09, .22]; $\chi^2 = 8.26$) Anxiety: overall family ($r = .34$ [-.28, .40]; $\chi^2 = 19.80$) Obsessions / compulsions: overall family ($r = .27$ [-.20, .34]; $\chi^2 = 4.02$) Phobia: overall family ($r = .18$ [-.08, .28]; $\chi^2 =$ value not provided)

review by Chen and colleagues (2010) was judged “good,” because it met all the seven criteria of the Methodological Quality Checklist. In contrast, the other three reviews were judged “fair,” because they did not meet the fifth criterion of the Methodological Quality Checklist (i.e., they lacked a formal quality assessment of the primary studies).

In the studies included in each review, anxiety symptoms or disorders were usually measured by anxiety inventories, scales, or questionnaires, investigator-authored items or questions, or anxiety-related items or subscales from clinical questionnaires, scales, and inventories.

The following moderator variables were analyzed: form and date of publication of the study, site of the study, size and source of the samples, gender, socioeconomic status, and age of the subjects at the time of assessment, sampling strategy, method of assessment of abuse (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, and duration of abuse, relationship to the perpetrator (e.g., parent), age when abused.

These four meta-analyses reviewed a total of 171 studies (including 220 different subject samples, with 3,214,482 subjects). Because of differences in methods used to identify studies (i.e., data sources, key words, and years searched), and criteria used to select studies for inclusion (especially types of study design and sample included), only five (2.92%) of these studies were analyzed by more than one review.

In the present umbrella review, the main findings of the four meta-analyses are qualitatively analyzed in an evidence-based, objective, and balanced fashion, with the highest quality evidence available receiving the greatest emphasis (Slavin, 1995).

To represent the degree of the relationship between child sexual abuse and anxiety disorders, the weighted effect size estimators d , r , and odds ratios (ORs) were used. Positive d and r values and OR greater than 1.0 indicate higher levels of symptomatology for sexually abused participants compared to control participants. According to Cohen (1988), d of .20, .50, and .80, r of .10, .30, and .50, and OR of 1.49, 3.45, and 9 correspond to “small,” “medium,” and “large” effect sizes, respectively.

To organize the results, three major categories were used: (1) magnitudes of the associations between child sexual abuse and anxiety disorders; (2) moderators of such relationships; and (3) confounders. Such categorization resulted from the extraction from each study of information concerning types of anxiety problem, moderator, mediator, and confounder reported. Once all the anxiety problems, moderators, mediators, and confounders had been listed, they were classified into a smaller number of distinct categories. For anxiety problems, four general categories emerged: generic anxiety symptoms, posttraumatic stress symptoms, obsessive–compulsive symptoms, and phobic symptoms; for moderators, three general categories emerged: study characteristics, sample characteristics, and abuse characteristics; for mediators, no categories emerged because none of the included reviews addressed potential mediating variables; for confounders, only one category emerged: family factors.

Results

Magnitudes of the Associations Between Child Sexual Abuse and Anxiety Disorders

Generic anxiety symptoms. Three reviews provided data on the relationship between child sexual abuse and generic anxiety symptoms. In the review of both clinical and nonclinical adult females by Neumann and colleagues (1996), a meta-analysis of 11 studies revealed that child sexual abuse was significantly related to generic anxiety symptoms. The association was small to medium in magnitude. In the review of male and female college students by Rind and colleagues (1998), a meta-analysis of 16 samples, with a total of 6,870 subjects, showed that child sexual abuse was significantly related to generic anxiety symptoms. The magnitude of the relationship was of small size. In the review by Chen and colleagues (2010), a meta-analysis of eight samples revealed that lifetime sexual abuse was significantly related to generic anxiety symptoms. The association was nearly medium in magnitude. To determine the effects of the specific experience of sexual abuse in childhood, subgroup analyses were conducted; results revealed that the relationship between sexual abuse and generic anxiety symptoms persisted regardless of the age at which abuse occurred (childhood vs. adult).

Posttraumatic stress symptoms. Two reviews provided data on the relationship between child sexual abuse and posttraumatic stress symptomatology. In the review by Neumann and colleagues (1996), a meta-analysis of four studies indicated that child sexual abuse was significantly related to adult posttraumatic stress symptoms. The magnitude of the relationship was of medium size. In the review by Paolucci and colleagues (2001), a meta-analysis of 26 studies, with a total of 6,860 subjects, showed a significant association between child sexual abuse and posttraumatic stress disorder. This relationship was small to medium in magnitude. Another review (Chen et al., 2010) provided only data on the relationship between lifetime sexual abuse and posttraumatic stress disorder. In fact, in the review by Chen and colleagues (2010), a meta-analysis of three studies revealed that lifetime sexual abuse was significantly related to a lifetime diagnosis of posttraumatic stress disorder. The association was small to medium in magnitude. However, data were insufficient to conduct subgroup analyses based on the age at which abuse occurred (childhood vs. adult); thus, it was not possible to clarify if and how the specific experience of sexual abuse in childhood impacted the outcome variable (i.e., diagnosis of posttraumatic stress disorder).

Obsessive–compulsive symptoms. Two reviews provided data on the relationship between child sexual abuse and obsessive–compulsive symptomatology. In the review by Neumann and colleagues (1996) a meta-analysis of seven studies revealed that child sexual abuse was significantly related to adult obsessive–compulsive symptoms. The association was small to medium in magnitude. In the review by Rind and

colleagues (1998), a meta-analysis of seven samples, with a total of 1,934 subjects, showed that child sexual abuse was significantly related to obsessive-compulsive symptomatology. The magnitude of the relationship was of small size.

Phobic symptoms. One review provided data on the relationship between child sexual abuse and phobic symptomatology, defined as a persistent fear response of an irrational and disproportionate nature to a specific person, place, object, or situation. In this review, Rind and colleagues (1998) meta-analyzed five samples, with a total of 1,497 subjects. Results showed that child sexual abuse was significantly related to phobic symptomatology. The magnitude of the relationship was of small size.

Variability among effect sizes. Three reviews used a number of procedures based on the chi-square test to explore and quantify heterogeneity of effect sizes in order to verify whether there was more variation among effect estimates than would be expected by random error (i.e. chance) alone. Chen and colleagues (2010) used the I^2 statistic (i.e., $I^2 = [(Q - df)/Q] \times 100\%$, where Q is the chi-square statistic and df is its degrees of freedom; see Higgins, & Thompson, 2002; Higgins, Thompson, Deeks, & Altman, 2003). Low to moderate heterogeneity was present in the analyses of generic anxiety symptoms and posttraumatic stress disorder. Focusing on the sample-level effect sizes, Neumann and colleagues (1996) used Hedges' between-group heterogeneity statistic (i.e., Q_{BET} , distributed as chi-square; see Hedges & Olkin, 1985). Results revealed a significant heterogeneity. Focusing on the symptom-level effect sizes, Rind and colleagues (1998), used a statistic (i.e., normal deviate z) that is equivalent to Hedges between-group heterogeneity statistic (i.e., Q_{BET} , distributed as chi-square; see Hedges, 1994), in that the square of z is equal to the chi-square value (see Higgins & Green, 2006). Initial meta-analyses yielded homogeneous results for the obsessive-compulsive symptomatology and the phobic symptomatology and heterogeneous results for the generic anxiety symptoms. In an attempt to achieve homogeneity with heterogeneous sets, the authors examined the distribution of effect sizes within each of these sets to detect outliers, removed all such deviant effect sizes, and then recomputed the meta-analyses. This procedure resulted in achieving homogeneity for the generic anxiety symptoms.

Moderators

To determine whether moderator variables accounted for significant heterogeneity in effect size estimates, a number of procedures were used, such as multiple regression, analysis of variance, test of interaction, 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; Hedges & Olkin, 1985; Lipsey & Wilson, 2000).

Study characteristics. Three reviews analyzed the following moderator variables concerning methodological and other characteristics of the individual studies included in each review: form and date of publication of the study (e.g., whether and when the study was published), sampling strategy (e.g., a convenience sample of introductory psychology students vs. a broader sample of students obtained by random sampling), method of assessment of abuse (e.g., face-to-face interview vs. questionnaire), and type of statistic used. Focusing on the sample-level effect sizes, Neumann and colleagues (1996) used the categorical model testing to assess moderators. Results showed that none of the moderators (i.e., publication date and form, method of assessment of abuse, and type of statistic used) were statistically significant. Focusing on the sample-level effect sizes, Rind and colleagues (1998) used weighted correlational analyses to examine the association between some study characteristics and the sample-level effect sizes. Method of assessment of abuse and sampling strategy were not related to effect sizes. The relationship between whether a study was published and the sample-level effect sizes was marginally significant; the samples with published results had a slightly larger effect size estimate than that of the samples whose results were unpublished. Chen and colleagues (2010) conducted a sensitivity analysis to determine whether the statistical methods (random-effects model vs. fixed-effect model) would alter study conclusions. The analysis revealed that conclusions were not altered by changes in the choice of statistical model. To assess the potential effect of publication bias, Chen and colleagues visually inspected funnel plots for asymmetry and used the Duval and Tweedie trim-and-fill method and the Begg and Mazumdar rank correlation test. The inspection of funnel plots and the statistical tests did not reveal an obvious effect of publication bias.

Sample characteristics. Although the four reviews focused on different types of sample, the following moderator variables regarding size and demographic characteristics of the samples included in each individual study were analyzed: size and source of the samples, type of institution (e.g., public vs. private college), and gender, socioeconomic status, and age of the subjects at the time of assessment. In their review of both clinical and nonclinical adult females, Neumann and colleagues (1996) used the categorical model testing to assess moderators. Results showed that the variability in sample-level effect sizes could be accounted for by sample source; clinical samples generated larger effect sizes than nonclinical samples. Sample size was not statistically significant, although 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. There were no significant effect-size differences based on age of the subjects at the time of assessment. In their review, Paolucci and colleagues (2001) assessed two potential moderators concerning sample

characteristics (i.e., gender and socioeconomic status of subjects at the time of assessment), using univariate analyses. A series of analyses of variance showed that these variables were not statistically significant. Chen and colleagues (2010) used a test of interaction to explore subgroup interactions based on the sex of the abused person. For generic anxiety symptoms, no significant subgroup–effect interactions based on the gender of the victim were found; for posttraumatic stress disorder, data were insufficient to conduct subgroup analyses. In their review of male and female college students, Rind and colleagues (1998) examined the associations between mean age of students at time of assessment and type of college and the sample-level effect sizes, using weighted correlational analyses. These correlations were not significant. Focusing again on the sample-level effect sizes, the authors also performed semipartial correlation and contrast analyses to examine gender differences. More specifically, the authors performed multiple regression analyses and found that consent, gender, and the Consent \times Gender interaction were significantly related to the effect sizes. To qualify these results, the authors investigated the Consent \times Gender interaction. A series of contrast analyses revealed that adjustment was associated with level of consent for men but not for women. According to the authors, because all levels of consent corresponded to social and legal definitions of child sexual abuse, these results implied that, in the college population, the association between child sexual abuse and adjustment problems was not equivalent for men and women. If the definition of child sexual abuse was restricted to unwanted sex only, however, then these results implied a gender equivalence between men and women in the association between child sexual abuse and adjustment problems.

Abuse characteristics. Four reviews analyzed the following moderator variables concerning aspects of the abuse experience and definition: penetration, level of contact, consent, force, frequency (i.e., number of episodes of child sexual abuse), and duration (i.e., length of involvement in the episode of abuse), relationship to the perpetrator (e.g., parent), age when abused, and definition of child sexual abuse based on maximum age of victim. Focusing on the sample level, Neumann and colleagues (1996) used the categorical model testing to assess the relationship with the perpetrator. Results showed that such moderator was not statistically significant. Using univariate analyses, Paolucci and colleagues (2001) assessed the level of contact and frequency of abuse, relationship with the perpetrator, and age when abused; a series of analyses of variance revealed that none of these variables was statistically significant. Chen and colleagues (2010) conducted a sensitivity analysis to determine the effect of the severity of sexual abuse. The analysis of one study on females abused in adulthood revealed that the association between sexual abuse and posttraumatic stress disorder was strengthened by a history of rape, defined as penetration with a body part or foreign object (intra-vaginal or anal). No data were available to conduct sensitivity analysis for generic anxiety symptoms. Using weighted correlational analyses, Rind and colleagues (1998) examined the

association between the maximum age for a “child” in the study’s definition of child sexual abuse and the sample-level effect sizes. Such correlation was not significant. Focusing again on the sample-level effect sizes, the authors also performed semipartial correlation and contrast analyses to examine the level of contact and consent in the study’s definition of child sexual abuse. As described in the previous section, the authors found that adjustment was associated with level of consent for men but not for women. According to the authors, because all levels of consent corresponded to social and legal definitions of child sexual abuse, these results implied that, in the college population, the association between child sexual abuse and adjustment problems was not equivalent for men and women. Furthermore, Rind and colleagues provided a series of meta-analyses of the moderator–outcome relations to examine five moderators concerning aspects of the abuse experience (i.e., force, penetration, duration, frequency, and incest). Results showed that incest (i.e., close familial abuse) was associated with outcomes; the magnitude of this relation was small. Force, penetration, frequency, and duration of abuse were not related to symptoms. These results implied that, in the college population, the association between child sexual abuse and adjustment problems was strengthened by a history of incest (i.e., child sexual abuse perpetrated by family members) but not by other aspects of the abuse experience (such as force, penetration, duration, and frequency of abuse).

Confounders

Family factors. Only the review of college samples by Rind and colleagues (1998) addressed potential confounding variables. More specifically, the authors analyzed the relationship between family environment and child sexual abuse to determine whether they were confounded. The authors coded each study that assessed family environment factors and classified them into six distinct general categories: nonsexual abuse and neglect, adaptability, conflict and pathology, family structure, support and bonding, and traditionalism. The effect sizes for each family environment category were meta-analyzed. For all 6 categories, the effect size estimates were statistically significant. According to the authors, the positive values of the effect size estimates implied that college students with a history of child sexual abuse came from more problematic home environments than control students, implying that child sexual abuse and family environment were confounded in this population. The confounding of child sexual abuse and family environment raised the possibility that child sexual abuse was not causally related to outcomes or was related in a smaller way than uncontrolled analyses had indicated. To address this issue, the authors combined all of the family environment variables into one variable and examined the relationship between family environment and symptoms. For each study assessing the relationship between these two factors, effect sizes were computed for all family environment–symptom relations. A series of symptom-level meta-analyses were then performed. Three samples, including 788 subjects, were used in the generic

anxiety symptoms meta-analysis; two samples, including 634 subjects, were used in the obsessive–compulsive symptomatology meta-analysis; only one sample, including 383 subjects, was used in the phobic symptomatology meta-analysis. Results showed that family environment was significantly related to generic anxiety symptoms, obsessive–compulsive symptomatology, and phobic symptomatology. The magnitudes of such relationships ranged from small to medium size and were generally larger than those of the associations between child sexual abuse and anxiety problems, especially for anxious and obsessive–compulsive symptomatology.

Discussion

Strength of the Association Between Child Sexual Abuse and Anxiety Disorders

The results of the four meta-analyses included in this systematic review show that across methodologies, samples, and measures survivors of child sexual abuse are significantly at risk for anxiety problems, such as generic anxiety, obsessive–compulsive, phobic, and posttraumatic stress symptomatology. However, as shown in Table 2, child sexual abuse was found to be significantly linked with several other psychological and behavioral problems. Therefore, child sexual abuse should be considered a general, nonspecific risk factor for anxiety symptoms or disorders.

Because of the variation across outcomes and sample characteristics in the four meta-analytic reviews, the magnitudes of the associations between child sexual abuse and the various forms of anxiety problems ranged from small to medium. Although significant, certain anxiety problems (e.g., phobic symptomatology among college males and females) were less related to child sexual abuse than others (e.g., posttraumatic stress symptomatology among female patients and nonpatients). Therefore, it is possible that child sexual abuse may be a more potent risk factor for some anxiety problems than others.

Moderators of the Relationship Between Child Sexual Abuse and Anxiety Disorders

Moderator analyses revealed that some explanation of effect size variance was partially accounted for by only a few of the several hypothesized moderator variables of the relationship between child sexual abuse and anxiety problems, given that the majority of them generated conflicting or nonsignificant results.

More specifically, of the moderators concerning characteristics of the individual studies included in each review, form of publication generated conflicting results, with some evidence suggesting larger effect sizes in studies with college samples whose results were published. None of the other moderators (i.e., publication date, sampling strategy, method of assessment of abuse, and type of statistic used) was statistically significant.

Of the moderators concerning characteristics of the samples included in each study, only sample source was significant.

More precisely, samples drawn from nonclinical populations, especially samples drawn from college population, yielded smaller effect sizes than did clinical samples. In other words, psychiatric patients with a history of early sexual abuse showed greater evidence of anxiety symptoms or disorders than did survivors of child abuse among community, student, or other populations. It is clear that psychiatric samples tend to exclude well-adjusted survivors of sexual victimization because these samples are likely to constitute the negative extreme of abuse outcomes (Okami, 1991). In contrast, community and student samples tend to include more well-adjusted abuse victims, because a certain level of wellness is required to perform daily activities, such as occupational tasks, school obligations, family responsibilities, or household activities. Furthermore, in regard to student samples, it has been suggested that some adverse long-term sequelae of child abuse may have not yet manifested at college age (see Rind, Tromovitch, & Bauserman, 1998). None of the other moderators (i.e., sample size and source, type of institution, and gender, socioeconomic status, and age of the subjects at the time of assessment) was statistically significant, although there was a tendency for studies with smaller samples to yield larger effect sizes. Noteworthy was the finding that gender did not moderate the association between child sexual abuse and anxiety problems. In fact, gender was generally nonsignificant, while it was significant when considering only college samples along with definitions of child sexual abuse including both willing and unwanted sex. The fact that gender did not moderate the association between child sexual abuse and anxiety problems in the present systematic review confirms the results of another meta-analytic review (Tolin & Foa, 2006) that was not included in the present umbrella review because it did not fulfill all inclusion criteria. In fact, the meta-analysis by Tolin and Foa (2006) focused on studies yielding sex-specific risk of potentially traumatic events and posttraumatic stress disorder, without addressing the significance, strength, and/or nature of the relationship between child sexual abuse and later anxiety symptoms or disorders. The meta-analytic review by Tolin and Foa (2006) showed no significant differences in prevalence and severity of posttraumatic stress disorder between male and female victims of child sexual abuse. Thus, the greater risk of anxiety problems among female subjects seems to be not true for victims of child sexual abuse, although, in general, females appear to be more likely than males to exhibit anxiety disorders (Somers et al., 2006), especially posttraumatic stress disorder (Tolin & Foa, 2006) as well as to experience both adult sexual assault and child sexual abuse (Tolin & Foa, 2006).

Of the moderators concerning aspects of the abuse experience and definition (i.e., penetration, force, frequency, and duration of abuse, relationship to the perpetrator, age when abused, and definition of child sexual abuse based on maximum age of victim, level of contact, and consent), definition of abuse including consent, abuse involving contact, and relationship to the perpetrator generated conflicting results, with some evidence suggesting greater risk of anxiety problems in college survivors of intrafamilial abuse, and, only for females,

in college victims of abuse including both willing and unwanted sex. All the other moderators concerning abuse characteristics generated nonsignificant results. As described in the introduction section, much literature has suggested more negative outcomes in victims of more severe and traumatic forms of sexual victimization, such as those involving force, violence, and multiple perpetrators. Nevertheless, the results of this systematic review do not confirm suspicions that such factors along with other variables concerning aspects of the victimization experience (such as younger age when abused, longer duration or higher frequency of abuse) increase anxiety symptoms or disorders in people who have been sexually victimized as children.

Mediators of the Relationship Between Child Sexual Abuse and Anxiety Disorders

Although the reviews included in this umbrella review did not investigate potential mediating variables, it is possible that some antecedent or concurrent third variables might contribute to the onset of anxiety disorders by mediating the relationship between child sexual abuse and anxiety disorders.

For example, it is possible that early sexual victimization might contribute to anxiety disorders through the development of certain cognitive or personality characteristics, such as cognitive biases, that fit the view of the world as dangerous or threatening. Several studies have suggested that information processing biases, that is, the tendency to preferentially process threatening information, intervening in cognitive processes such as attention, memory, and interpretation, are involved in the development and maintenance of anxiety disorders (for reviews, see Alfano, Beidel, & Turner, 2002; Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van IJzendoorn, 2007; Cisler & Koster, 2010; Daleiden & Vasey, 1997; Ehrenreich & Gross, 2002; Hadwin, Garner, & Perez-Olivas, 2006; Musa & Lépine, 2000; Ouimet, Gawronski, & Dozois, 2009). More precisely, a large amount of studies shows that anxious subjects pay more attention to potentially threatening stimuli (Bar-Haim et al., 2007; Cisler & Koster, 2010; Musa & Lépine, 2000; Ouimet et al., 2009) and more frequently interpret ambiguous events or situations as threatening than do nonanxious controls (Musa & Lépine, 2000; Ouimet et al., 2009). Thus, it is possible that child sexual abuse might promote in children a hypervigilant information processing style for the detection of threat (see Hadwin et al., 2006). Although such an increased vigilance for threat reflects effective adaptation to avoid danger, it may, in turn, predispose to the development of anxiety disorders.

Furthermore, both preclinical and clinical studies suggest that childhood trauma and early stressful events, such as child sexual abuse, may induce a cascade of neurobiological events that have the potential to produce persistent sensitization of central nervous system circuits, including long-lived hyperactivity of corticotropin-releasing factor systems and alterations in other neurotransmitter systems (Heim & Nemeroff, 2001) as well as enduring changes in brain structure or function, including reduced size of the mid-portions of the corpus

callosum, attenuated development of the left neocortex, hippocampus, and amygdala, abnormal frontotemporal electrical activity, and reduced functional activity of the cerebellar vermis (Teicher, Andersen, Polcari, Anderson, & Navalta, 2002; Teicher et al., 2003). These neurobiological sequelae, in turn, seem to provide the neurobiological substrate through which child sexual abuse might increase the risk of developing anxiety disorders.

Therefore, it is possible that certain neurobiological and psychosocial factors might mediate the association between prior sexual abuse and subsequent anxiety disorders. In other words, it is possible that child sexual abuse may promote other biological (such as alterations in brain structure or function) or psychological (such as information processing biases) conditions which, in turn, might predispose to the onset of anxiety disorders. In these cases, child sexual abuse would not have a direct pathway to anxiety disorders but instead would have a direct relationship with another condition, which in turn would have a direct pathway to anxiety disorders. Thus, in some cases, child sexual abuse might be a distal and indirect cause, rather than a proximal and direct cause, of anxiety disorders.

Confounders, Causation, and Methodological Limitations

The results of this systematic review support evidence for an association between child sexual abuse and anxiety symptoms and disorders. However, causal inferences cannot be made, because of the presence of both confounding variables and methodological limitations in the studies included in each review.

The majority of the primary studies were characterized by poor methodological quality and it should be noted that only one of the reviews included in this systematic review assessed data quality and validity; furthermore, these meta-analyses aggregated various findings regardless of the level of methodological quality. Most studies had design, sampling, and measurement problems, such as poor sampling methods, absence of appropriate comparison groups, inadequate operationalization and measurement of abuse histories and/or anxiety disorders, insufficient control for effect modifiers and confounders, or designs inappropriate to prove causality (see, also, Briere, 1992; Kilpatrick, 1987; Sharpe & Faye, 2006). More specifically, most studies addressing the potential relationship between child sexual abuse and anxiety problems employed retrospective designs that required participants to rely on their memory to identify an event that occurred in the past and might have caused their current disease. Because of the limitations of the individual's memory and the influence of disease/exposure status on the recalling process in humans (Grimes & Schulz, 2002; Hassan, 2006), results from studies employing retrospective designs with self-report measures of child abuse should be interpreted with caution (Maniglio, 2009a). It has been shown that retrospective designs are capable of producing false positive results (see, e.g., Raphael, Widom, & Lange, 2001; Widom, Weiler, & Cottler, 1999),

with the possibility of recall bias threatening the internal validity and credibility of studies with self-reported data by inflating the estimated risk attributed to the exposure under investigation (e.g., Green et al., 2010) and yielding potential spurious association (Grimes & Schulz, 2002; Hassan, 2006). Furthermore, the vast majority of these studies have relied on self-report measures of child abuse and/or anxiety disorders of questionable reliability and validity (e.g., investigator-authored questions or only single item indicators of anxious symptomatology or sexual victimization) rather than employing well-established measures or formal classification systems to operationalize anxiety symptoms and disorders and/or child abuse. Moreover, many individual studies sampled only individuals who were seeking or receiving psychiatric services, thus producing a high risk of sampling bias. Such convenience sampling raises questions regarding the generalizability and interpretation of research results, not only because clinical samples cannot be assumed to be representative of the general population, but also because data coming from these samples are vulnerable to several biases that threaten their validity (Pope & Hudson, 1995; Rind et al., 1998; Rind & Trovitch, 1997; Sharpe & Faye, 2006). For example, participants drawn from clinical samples may be more likely than nonclinical participants to recall events of early traumatic experiences, including child sexual abuse, thus inflating the relationship between child abuse and adult psychopathology (Pope & Hudson, 1995). Moreover, child abuse and family problems are highly confounded in clinical populations; thus causality cannot be inferred from clinical samples (Beitchman, Zucker, Hood, DaCosta, & Akman, 1991; Ney, Fung, & Wickett, 1994; Pope & Hudson, 1995). In sum, because of these methodological limitations, associations were confounded and causal inferences not feasible. Thus, findings must be interpreted with caution.

Importantly, most studies investigating the relationship between child sexual abuse and anxiety disorders have not controlled for the overlap with other traumatic events, especially co-occurring forms of maltreatment such as physical and emotive abuse. It has been shown that childhood adversities, especially those associated with maladaptive family functioning (e.g., family violence and parental mental illness, substance abuse, or criminality), are highly prevalent and intercorrelated in people with anxiety disorders (Green et al., 2010; McLaughlin et al., 2010). Thus, it is uncertain whether anxiety symptoms and disorders in subjects with a history of child sexual abuse may be attributable to such traumatic experience rather than any other childhood adversity that may precede, accompany, or follow the experience of child sexual abuse.

Speaking more broadly, several risk factors other than child sexual abuse, such as parental mental illness and/or substance abuse, family conflict or dysfunction, and other forms of child abuse, might be present in a maltreated child's life or environment (Maniglio, 2010b, 2011c, 2012). Some of these factors might better account for the anxiety symptoms or disorders found in subjects who have been sexually victimized as children rather than the experience of child sexual abuse itself having a causal role in the etiology of anxiety problems.

For example, it is possible that anxiety disorders in parents might independently increase the risk of their children themselves developing anxiety symptoms or disorders in adolescence or adulthood. It is well known that parental anxiety disorders confer significant risk for anxiety in offspring. A recent meta-analysis (Micco et al., 2009) has revealed that offspring of parents with anxiety disorders have greater risk for anxiety disorders than offspring of psychiatric and nonpsychiatric controls. According to a series of meta-analyses of data from family and twin studies (Hettema et al., 2001), panic disorder, generalized anxiety disorder, phobias, and obsessive-compulsive disorder (OCD) all have significant familial aggregation that is largely explained by genes. In fact, both family and twin studies indicate that genetic factors account for significant variance in the development of anxiety disorders (for reviews, see, e.g., Afifi et al., 2010; Gordon & Hen, 2004; Gregory & Eley, 2007; Hettema et al., 2001). Thus, in people who have been sexually abused as children, anxiety disorders might be due to genetic components rather than child abuse.

Research also suggests that the impact of family goes beyond heritability. Several reviews (Bögels & Brechman-Toussaint, 2006; Gerlsma, Emmelkamp, & Arrindell, 1990; McLeod, Wood, & Weisz, 2007; Rapee, 1997; Wood, McLeod, Sigman, Hwang, & Chu, 2003) have suggested that parenting styles characterized by overcontrol, rejection, and lack of warmth have an impact on child anxiety. Thus, in sexually victimized children, parenting might be a better predictor of anxiety disorders than is child sexual abuse. In a meta-analysis included in the present review (Rind et al., 1998), certain family variables (e.g., conflict, pathology, neglect, physical or emotional abuse) were confounded with child sexual abuse and independently related to anxious, obsessive-compulsive, and phobic symptomatology. Family variables were more strongly linked with anxiety problems, especially for generic anxiety symptoms and obsessive-compulsive symptomatology, than was child sexual abuse.

In sum, it is possible that certain variables, other than child sexual abuse, might act independently to cause anxiety disorders in subjects who were sexually abused as children.

Implications for Research, Prevention, and Treatment

The results of this systematic review show that child sexual abuse is a significant, although general and nonspecific, risk factor for anxiety disorders. However, being a victim of child sexual abuse is not the only important risk factor and often does not have a primary role in the development of anxiety disorders. Evidence to date suggests that, in some cases, additional biological, psychological, or social risk factors may be directly responsible for anxiety disorders in child abuse survivors; in other cases, certain biological and psychosocial risk factors may interact with child sexual abuse to increase the risk of anxiety disorders in survivors of early sexual victimization. However, it is apparent that being a victim of child sexual abuse may sometimes confer additional risk of developing

anxiety disorders either as a distal and indirect cause or as a proximal and direct cause.

Thus, child sexual abuse should be considered one of the several risk factors for anxiety disorders and included, along with other childhood adversities, in multifactorial etiological models for anxiety disorders in order to elucidate not only the processes that contribute to the development of anxiety problems in child abuse victims but also the compensatory mechanisms whereby some abuse survivors achieve positive adaptation despite experiencing significant adversity. To achieve this goal, several methodological advances in research in this area are required, such as use of prospective, longitudinal designs, control for confounders, employment of study samples representative of the general population and matched comparison groups, and, for literature reviews, assessment of data quality and validity.

Since child sexual abuse is a statistically significant risk factor for the development of anxiety disorders, the implementation of programs and services designed to prevent the occurrence of early traumatic experiences, such as child sexual abuse, and to treat their sequelae may decrease the incidence and prevalence of anxiety disorders in our society. Although children who have posttraumatic stress symptomatology are more likely to demonstrate benefit from psychotherapy than asymptomatic children (see Ramchandani & Jones, 2003; Stevenson, 1999), programs and services for child abuse survivors should have a long-term orientation and focus not only on treating actual symptoms and disorders but also on reducing additional risk factors that may increase the likelihood of later onset of anxiety disorders, especially the negative family circumstances in which many abused children are raised.

Implications for Practice, Policy, and Research

- Child sexual abuse should be included in multifactorial etiological models for anxiety disorders.
- Future studies should use longitudinal designs, control for confounders, and employ study samples representative of the general population.
- Further research should elucidate the processes that contribute to the development of anxiety problems in child abuse victims.
- Future research should discover the compensatory mechanisms whereby some abuse survivors achieve positive adaptation despite experiencing significant adversity.
- Programs and services for child abuse survivors should address additional risk factors, especially family variables, that may increase the likelihood of later onset of anxiety disorders.

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References

- Afifi, T. O., Asmundson, G. J., Taylor, S., & Jang, K. L. (2010). The role of genes and environment on trauma exposure and posttraumatic stress disorder symptoms: A review of twin studies. *Clinical Psychology Review, 30*, 101–112.
- Alfano, C. A., Beidel, D. C., & Turner, S. M. (2002). Cognition in childhood anxiety: Conceptual methodological and developmental issues. *Clinical Psychology Review, 22*, 1209–1238.
- Bachmann, G. A., Moeller, T. P., & Benett, J. (1988). Childhood sexual abuse and the consequences in adult women. *Obstetrics and Gynecology, 71*, 631–642.
- Bambra, C., Gibson, M., Sowden, A. J., Wright, K., Whitehead, M., & Petticrew, M. (2009). Working for health? Evidence from systematic reviews on the effects of health and health inequalities of organizational changes to the psychosocial work environment. *Preventive Medicine, 48*, 454–461.
- Bar-Haim, Y., Lamy, D., Pergamin, L., Bakermans-Kranenburg, M. J., & van Ijzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: A meta-analytic study. *Psychological Bulletin, 133*, 1–24.
- Beitchman, J. H., Zucker, K. J., Hood, J. E., DaCosta, G. A., & Akman, D. (1991). A review of the short-term effects of child sexual abuse. *Child Abuse and Neglect, 15*, 537–556.
- Beitchman, J. H., Zucker, K. J., Hood, J. E., DaCosta, G. A., Akman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse and Neglect, 16*, 101–118.
- Black, C. A., & DeBlassie, R. R. (1993). Sexual abuse in male children and adolescents: Indicators, effects, and treatments. *Adolescence, 28*, 123–133.
- Bögels, S. M., & Brechman-Toussaint, M. (2006). Family issues in child anxiety: Attachment, family functioning, parental rearing and beliefs. *Clinical Psychology Review, 7*, 834–856.
- Bohn, D. K., & Holz, K. A. (1996). Sequelae of abuse. Health effects of childhood sexual abuse, domestic battering, and rape. *Journal of Nurse-Midwifery, 41*, 442–456.

- Briere, J. (1992). Methodological issues in the study of sexual abuse effects. *Journal of Consulting and Clinical Psychology, 60*, 196–203.
- Briere, J. N., & Elliot, D. M. (1994). Immediate and long term impacts of child sexual abuse. *The Future of Children, 4*, 54–69.
- Briere, J. N., & Runtz, M. (1993). Childhood sexual abuse: Long-term sequelae and implications for psychological assessment. *Journal of Interpersonal Violence, 8*, 312–330.
- Browne, A., & Finkelhor, D. (1986). Impact of child sexual abuse: A review of the research. *Psychological Bulletin, 99*, 66–77.
- Centre for Reviews and Dissemination. (2008). *CRD's guidance for undertaking reviews in health care*. York: University of York Press.
- Chen, L. P., Murad, M. H., Paras, M. L., Colbenson, K. M., Sattler, A. L., & Goranson, E. N., . . . Zirakzadeh, A. (2010). Sexual abuse and lifetime diagnosis of psychiatric disorders: Systematic review and meta-analysis. *Mayo Clinic Proceedings, 85*, 618–629.
- Cisler, J. M., & Koster, E. H. W. (2010). Mechanisms of attentional biases towards threat in anxiety disorders: An integrative review. *Clinical Psychology Review, 30*, 203–216.
- Cohen, J. (1988). *Statistical power analyses for the behavioral sciences*. (2nd ed.). Hillsdale, NJ: Erlbaum.
- Daleiden, E. L., & Vasey, M. W. (1997). An information-processing perspective on childhood anxiety. *Clinical Psychology Review, 17*, 407–429.
- Egan, M., Tannahill, C., Petticrew, M., & Thomas, S. (2008). Psychosocial risk factors in home and community settings and their associations with population health and health inequalities: A systematic meta-review. *BMC Public Health, 8*, 239.
- Egger, M., Davey Smith, G., & Altman, D. G. (2001). *Systematic reviews in health care: Meta-analysis in context*. (2nd ed.). London, UK: BMJ Publication Group.
- Ehrenreich, J. T., & Gross, A. M. (2002). Biased attentional behavior in childhood anxiety: A review of theory and current empirical investigation. *Clinical Psychology Review, 22*, 991–1008.
- Fine, C. G. (1990). The cognitive sequelae of incest. In R. Kluff (Ed.), *Incest-related syndromes of adult psychopathology* (pp. 161–182). Washington, DC: American Psychiatric Press.
- Finkelhor, D. (1984). *Child sexual abuse: New theory and research*. New York: Free Press.
- Freeman, K. A., & Morris, T. L. (2001). A review of conceptual models explaining the effects of child sexual abuse. *Aggression and Violent Behavior, 6*, 357–373.
- Gerlsma, C., Emmelkamp, P. M. G., & Arrindell, W. A. (1990). Anxiety, depression, and perception of early parenting: A meta-analysis. *Clinical Psychology Review, 10*, 251–277.
- Gordon, J. A., & Hen, R. (2004). Genetic approaches to the study of anxiety. *Annual Review of Neuroscience, 27*, 193–222.
- Green, A. H. (1988). Child maltreatment and its victims. A comparison of physical and sexual abuse. *The Psychiatric Clinics of North America, 11*, 591–610.
- Green, J. G., McLaughlin, K. A., Berglund, P. A., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication I: Associations with first onset of DSM-IV disorders. *Archives of General Psychiatry, 67*, 113–123.
- Gregory, A. M., & Eley, T. C. (2007). Genetic influences on anxiety in children: What we've learned and where we're heading. *Clinical Child and Family Psychology Review, 10*, 199–212.
- Grimes, D., & Schulz, K. (2002). Bias and causal association in observational research. *Lancet, 359*, 248–252.
- Hadwin, J. A., Garner, M., & Perez-Olivas, G. (2006). The development of information processing biases in childhood anxiety: A review and exploration of its origins in parenting. *Clinical Psychology Review, 26*, 876–894.
- Hassan, E. (2006). Recall bias can be a threat to retrospective and prospective research designs. *Internet Journal of Epidemiology, 3*, 2.
- Hedges, L. (1994). Fixed effects models. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 285–299). New York, NY: Russell Sage Foundation.
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analyses*. San Diego, CA: Academic Press.
- Heim, C., & Nemeroff, C. B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biological Psychiatry, 49*, 1023–1039.
- Hettema, J. M., Neale, M. C., & Kendler, K. S. (2001). A review and meta-analysis of the genetic epidemiology of anxiety disorders. *American Journal of Psychiatry, 158*, 1568–1578.
- Higgins, J. P. T., & Green, S. (2006). *Cochrane handbook for systematic reviews of interventions*. Chichester, England: John Wiley & Sons.
- Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine, 21*, 1539–1558.
- Higgins, J. P. T., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal, 327*, 557–560.
- Holmes, W. C., & Slap, G. B. (1998). Sexual abuse of boys: Definition, prevalence, correlates, sequelae, and management. *Journal of the American Medical Association, 280*, 1855–1862.
- Hulme, P. A. (2004). Theoretical perspectives on the health problems of adults who experienced childhood sexual abuse. *Issues in Mental Health Nursing, 25*, 339–361.
- Kaysen, D., Resick, P. A., & Wise, D. (2003). Living in danger: The impact of chronic traumatization and the traumatic context on posttraumatic stress disorder. *Trauma, Violence & Abuse, 4*, 247–264.
- Keane, T. M., Marshall, A. D., & Taft, C. T. (2006). Posttraumatic stress disorder: Etiology, epidemiology, and treatment outcome. *Annual Review of Clinical Psychology, 2*, 161–197.
- Kendall-Tackett, K., Williams, L. M., & Finkelhor, D. (1993). Impact of sexual abuse on children: A review and synthesis of recent empirical studies. *Psychological Bulletin, 113*, 164–180.
- Kilpatrick, A. C. (1987). Childhood sexual experiences: Problems and issues in studying long-range effects. *Journal of Sex Research, 23*, 173–196.
- Konnopka, A., Leichenring, F., Leibing, E., & König, H. H. (2009). Cost-of-illness studies and cost-effectiveness analyses in anxiety disorders: A systematic review. *Journal of Affective Disorders, 114*, 14–31.
- Kuyken, W. (1995). The psychological sequelae of childhood sexual abuse: A review of the literature and implications for treatment. *Clinical Psychology & Psychotherapy, 2*, 108–121.

- Lipsey, M. W., & Wilson, D. B. (2000). *Practical meta-analysis*. Thousand Oaks, CA: Sage.
- Main, C., Thomas, S., Ogilvie, D., Stirk, L., Petticrew, M., Whitehead, M., & Sowden, A. (2008). Population tobacco control interventions and their effects on social inequalities in smoking: Placing an equity lens on existing systematic reviews. *BMC Public Health*, *8*, 178.
- Maniglio, R. (2009a). Severe mental illness and criminal victimization: A systematic review. *Acta Psychiatrica Scandinavica*, *119*, 180–191.
- Maniglio, R. (2009b). The impact of child sexual abuse on health: A systematic review of reviews. *Clinical Psychology Review*, *29*, 647–657.
- Maniglio, R. (2010a). Child sexual abuse in the etiology of depression: A systematic review of reviews. *Depression and Anxiety*, *27*, 631–642.
- Maniglio, R. (2010b). The role of deviant sexual fantasy in the etiology of sexual homicide: A systematic review. *Aggression and Violent Behavior*, *15*, 294–302.
- Maniglio, R. (2011a). The role of child sexual abuse in the etiology of substance-related disorders. *Journal of Addictive Diseases*, *30*, 216–228.
- Maniglio, R. (2011b). The role of child sexual abuse in the etiology of suicide and non-suicidal self-injury: A systematic review of reviews. *Acta Psychiatrica Scandinavica*, *124*, 30–41.
- Maniglio, R. (2011c). The role of childhood trauma, psychological problems, and coping in the development of deviant sexual fantasies in sexual offenders. *Clinical Psychology Review*, *31*, 748–756.
- Maniglio, R. (2012). The role of parent-child bonding, attachment, and interpersonal problems in the development of deviant sexual fantasies in sexual offenders. *Trauma, Violence & Abuse*, *13*, 83–96.
- McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication II: Associations with persistence of DSM-IV disorders. *Archives of General Psychiatry*, *67*, 124–132.
- McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review*, *27*, 155–172.
- Micco, J. A., Henin, A., Mick, E., Kim, S., Hopkins, C. A., Biederman, J., & Hirshfeld-Becker, D. R. (2009). Anxiety and depressive disorders in offspring at high risk for anxiety: A meta-analysis. *Journal of Anxiety Disorders*, *23*, 1158–1164.
- Murray, J. B. (1993). Relationship of childhood sexual abuse to borderline personality disorder, posttraumatic stress disorder, and multiple personality disorder. *Journal of Psychology*, *127*, 657–676.
- Musa, C. Z., & Lépine, J. P. (2000). Cognitive aspects of social phobia: A review of theories and experimental research. *European Psychiatry*, *15*, 59–66.
- Neumann, D. A., Houskamp, B. M., Pollock, V. E., & Briere, J. (1996). The long-term sequelae of childhood sexual abuse in women: A meta-analytic review. *Child Maltreatment*, *1*, 6–16.
- Ney, P. G., Fung, T., & Wickett, A. R. (1994). The worst combinations of child abuse and neglect. *Child Abuse & Neglect*, *18*, 705–714.
- Nielsen, T. (1983). Sexual abuse of boys: Current perspectives. *Personnel and Guidance Journal*, *62*, 139–142.
- Nurcombe, B. (2000). Child sexual abuse I: Psychopathology. *Australian and New Zealand Journal of Psychiatry*, *34*, 85–91.
- Okami, P. (1991). Self-reports of “positive” childhood and adolescent sexual contacts with older persons: An exploratory study. *Archives of Sexual Behavior*, *20*, 437–457.
- Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: A meta-analytic review. *Clinical Psychology Review*, *27*, 572–581.
- Ouimet, A. J., Gawronski, B., & Dozois, D. J. A. (2009). Cognitive vulnerability to anxiety: A review and an integrative model. *Clinical Psychology Review*, *29*, 459–470.
- Paolucci, E. O., Genuis, M. L., & Violato, C. (2001). A meta-analysis of the published research on the effects of child sexual abuse. *Journal of Psychology*, *135*, 17–36.
- Petticrew, M., & Roberts, H. (2006). *Systematic reviews in the social sciences: A practical guide*. Malden, MA: Blackwell Publishing.
- Polusny, M. A., & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied & Preventive Psychology*, *4*, 143–166.
- Pope, H. G., & Hudson, J. I. (1995). Does childhood sexual abuse cause adult psychiatric disorders? Essentials of methodology. *Journal of Psychiatry and Law*, *23*, 363–381.
- Putnam, F. (2003). Ten year research update review: Child sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*, 269–278.
- Ramchandani, P., & Jones, D. P. H. (2003). Treating psychological symptoms in sexually abused children: From research findings to service provision. *British Journal of Psychiatry*, *183*, 484–490.
- Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review*, *17*, 47–67.
- Rapee, R. M., Schniering, C. A., & Hudson, J. L. (2009). Anxiety disorders during childhood and adolescence: Origins and treatment. *Annual Review of Clinical Psychology*, *5*, 311–341.
- Raphael, K. G., Widom, C. S., & Lange, G. (2001). Childhood victimization and pain in adulthood: A prospective investigation. *Pain*, *92*, 283–293.
- Rind, B., & Tromovitch, P. (1997). A meta-analytic review of findings from national samples on psychological correlates of child sexual abuse. *Journal of Sex Research*, *34*, 237–255.
- Rind, B., Tromovitch, P., & Bauserman, R. (1998). A meta-analytic examination of assumed properties of child sexual abuse using college samples. *Psychological Bulletin*, *124*, 22–53.
- Rodriguez, N., Vande Kemp, H., & Foy, D. W. (1998). Posttraumatic stress disorder in survivors of childhood sexual and physical abuse: A critical review of the empirical research. *Journal of Child Sexual Abuse*, *7*, 17–45.
- Rowan, A. B., & Foy, D. W. (1993). Post-traumatic stress disorder in child sexual abuse survivors: A literature review. *Journal of Traumatic Stress*, *6*, 3–20.
- Sharpe, D., & Faye, C. (2006). Non-epileptic seizures and child sexual abuse: A critical review of the literature. *Clinical Psychology Review*, *26*, 1020–1040.

- Slavin, R. E. (1995). Best evidence synthesis: An intelligent alternative to meta-analysis. *Journal of Clinical Epidemiology*, *48*, 9–18.
- Somers, J. M., Goldner, E. M., Waraich, P., & Hsu, L. (2006). Prevalence and incidence studies of anxiety disorders: A systematic review of the literature. *Canadian Journal of Psychiatry*, *51*, 100–113.
- Spaccarelli, S. (1994). Stress, appraisal, and coping in child sexual abuse: A theoretical and empirical review. *Psychological Bulletin*, *116*, 340–362.
- Stevenson, J. (1999). The treatment of the long-term sequelae of child abuse. *Journal of Child Psychology and Psychiatry*, *40*, 89–111.
- Stroup, D. F., Berlin, J. A., Morton, S. C., Olkin, I., Williamson, G. D., Rennie, D., . . . Thacker, S. B., Meta-analysis Of Observational Studies in Epidemiology (MOOSE) Group (2000). Meta-analysis of observational studies in epidemiology: A proposal for reporting. *Journal of the American Medical Association*, *283*, 2008–2012.
- Teicher, M. H., Andersen, S. L., Polcari, A., Anderson, C. M., & Navalta, C. P. (2002). Developmental neurobiology of childhood stress and trauma. *Psychiatric Clinics of North America*, *25*, 397–426.
- Teicher, M. H., Andersen, S. L., Polcari, A., Anderson, C. M., Navalta, C. P., & Kim, D. M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience and Biobehavioral Reviews*, *27*, 33–44.
- Terr, L. C. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry*, *148*, 10–20.
- Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and post-traumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin*, *132*, 959–992.
- Valente, S. M. (2005). Sexual abuse of boys. *Journal of Child and Adolescent Psychiatric Nursing*, *18*, 10–16.
- Widom, C. S., Weiler, B. L., & Cottler, L. B. (1999). Childhood victimization and drug abuse: A comparison of prospective and retrospective findings. *Journal of Consulting and Clinical Psychology*, *67*, 867–880.
- Wolfe, V. V., Gentile, C., & Wolfe, D. A. (1989). The impact of sexual abuse on children: A PTSD formulation. *Behavior Therapy*, *20*, 215–228.
- Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W. C., & Chu, B. C. (2003). Parenting and childhood anxiety: Theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry*, *44*, 134–151.

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