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Childhood and Adolescent Sexual Abuse and Subsequent Sexual Risk Behavior: Evidence from Controlled Studies, Methodological Critique, and Suggestions for Research

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Abstract

Childhood and adolescent sexual abuse (CSA) is associated with a wide variety of adverse psychological and health outcomes, including negative sexual health outcomes. In this paper, we review the literature investigating the relation between CSA and subsequent sexual risk behaviors among men and women. Previous research has found a relatively consistent association between CSA and higher rates of sexual risk behaviors, particularly sex trading, more sexual partners, and an earlier age of first intercourse. However, there are a number of limitations to this research, including lack of a consistent definition of CSA, failure to investigate gender as a moderator, and possible confounding of the CSA experience with some of the sexual behavior outcome variables. Further, although there appears to be an association between CSA and later sexual risk behavior, researchers have not established whether this association is causal. Suggestions for future research and implications for clinical practice are discussed.

The association between childhood and adolescent sexual abuse (CSA) and adverse psychological functioning has been well-documented, in both literature reviews (e.g., Beitchman, Zucker, Hood, daCosta, & Akman, 1991; Beitchman et al., 1992) and meta-analyses (e.g., Jumper, 1995; Paolucci, Genuis, & Violato, 2001). Recently, researchers have also documented an association between CSA and adverse health outcomes, including sexual health outcomes (e.g., Bartholow et al., 1994; Senn, Carey, Vanable, Coury-Doniger, & Urban, 2006). However, few systematic reviews of this literature have been undertaken. Thus, the purpose of this paper is to review the literature investigating the relation between CSA and subsequent sexual risk behavior, and to provide researchers with directions for future studies in this area. In this paper, we first review how CSA has been defined, and then review measures used to assess CSA. Next, we briefly summarize the mental health outcomes of CSA. The bulk of the paper examines findings from previous studies investigating the association between CSA and subsequent sexual behavior. Finally, we conclude by suggesting directions for future studies, and discussing practice implications.

Definition of CSA

The definition of CSA has varied widely across studies. First, researchers have used different *age* criteria for “childhood sexual abuse.” Often, this term is used to refer to sexual abuse that

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occurs during either childhood or adolescence (e.g., Bensley, Van Eenwyk, & Simmons, 2000; Hillis, Anda, Felitti, & Marchbanks, 2001), that is, sexual activity before age 18. However, other age cut-offs have also been reported, including age 17 (e.g., Paul, Catania, Pollack, & Stall, 2001; Walser & Kern, 1996) age 16 (e.g., Bartoi & Kinder, 1998; Kalichman, Gore-Felton, Benotsch, Cage, & Rompa, 2004), age 15 (e.g., Jinich et al., 1998; Mayall & Gold, 1995), age 14 (e.g., Merrill, Guimond, Thomsen, & Milner, 2003), and age 13 (e.g., Carballo-Dieguez & Dolezal, 1995; DiIorio, Hartwell, & Hansen, 2002).

The type of *sexual act* that is considered abusive also differs across studies. Less restrictive definitions include any type of sexual act, even noncontact sexual acts such as a sexual request or exhibitionism (e.g., Finkelhor, 1979). Other definitions require some contact, such as kissing or fondling; the most restrictive definitions consider only penetrative contact (i.e., oral, vaginal, or anal intercourse), to be sexual abuse.

Some researchers have used an age-discrepancy definition of sexual abuse, in which the perpetrator must be a certain number of years older than the child for an act to be considered sexual abuse (e.g., Briere, 1992; Briere, Elliott, Harris, & Cotman, 1995). A variant of the age-discrepancy definition is the graded age-discrepancy definition, where the age discrepancy requirement is less for younger children than for older children; for example, an act might be considered sexual abuse if it occurred before age 13 with someone 5 or more years older, or between ages 13 and 16 with someone 10 or more years older (e.g., Finkelhor, 1979).

The use of force has also been incorporated into researchers' definitions of CSA (e.g., Briere, 1992; Briere et al., 1995; Wyatt, 1985; Wyatt, Lawrence, Vodounon, & Mickey, 1992). Some researchers have considered an act to be sexual abuse if force or threat of force was used, regardless of age. Many researchers have combined both age-discrepancy and force into the definition of CSA, such that a child meeting either criterion would be considered sexually abused. Finally, some researchers have preferred to let participants define themselves as sexually abused during childhood, without providing an operational definition of CSA.

In an attempt to make the definition of CSA consistent across research studies, several researchers have developed structured or semi-structured interviews or questionnaires to assess CSA. Kinsey and colleagues were among the first researchers to question participants about childhood sexual experiences with both peers and adults (Kinsey, Pomeroy, Martin, & Gebhard, 1953). They reported on situations, ranging from noncontact experiences to intercourse, involving a child who was pre-adolescent, and an adult who was at least adolescent, at least 15 years old, and at least 5 years older than the child (Kinsey et al., 1953).

Finkelhor (1979) developed an extensive questionnaire of childhood sexual experiences, in which participants are asked to report their childhood sexual experiences before age 13, and their sexual experiences between the ages of 13 and 16. Respondents are asked detailed questions about these experiences, including their age, the other person's age, the type of sexual act, their relationship to the other person, and whether force or threat of force was involved. Age-discrepancy was used by Finkelhor (1979) to define CSA. Any type of sexual experiences, including noncontact experiences, were considered sexual abuse if they involved a child age 12 or younger and someone 5 or more years older, or if they involved an adolescent ages 13 to 16 and an adult at least 10 or more years older (Finkelhor, 1979).

More recently, the 478-item Wyatt Sex History Questionnaire (Wyatt, 1985; Wyatt et al., 1992) was developed to assess women's sexual experiences, including CSA. CSA is defined as any sexual behavior before age 18 (including noncontact sexual behavior, such as exhibitionism), with someone 5 or more years older, or any sexual experience before age 18 that was not wanted. Briere's Childhood Maltreatment Checklist (CMC; Briere, 1992) includes a section of questions on sexual abuse. In subsequent research using the CMC, Briere et al.

(1995) defined CSA as sexual contact before age 17 with someone 5 or more years older, or forced sexual contact before age 17.

Despite these attempts to develop structured interviews and standardized questionnaires to assess CSA, many researchers continue to use their own definitions of CSA, making it challenging to compare results across studies that have used inconsistent definitions. Perhaps one reason the questionnaires have not been widely adopted is because they are lengthy, with considerable respondent burden. In the present review, we included studies that stated they investigated child or adolescent sexual abuse; the definitions used in each of the studies we included are reported in Table 1.

CSA and Mental Health Outcomes

A large number of studies have investigated the association between CSA and mental health sequelae, and there have been several literature reviews (e.g., Beitchman et al., 1991; Beitchman et al., 1992) and meta-analyses (e.g., Jumper, 1995; Neumann, 1994; Paolucci et al., 2001; Rind, Tromovitch, & Bauserman, 1998) summarizing and integrating the empirical findings. In several of these meta-analyses, CSA has been associated with increased risk of psychological symptoms in general, and post-traumatic stress disorder (PTSD), depression, and suicidality specifically (Jumper, 1995; Paolucci et al., 2001). In contrast, one meta-analysis generated considerable controversy, including a vote on the floor of the US Congress (Garrison & Kobor, 2002) when the authors found that, among studies sampling college students, there was little or no association between CSA and psychological symptoms, after controlling for family environment (Rind et al., 1998). However, it is possible that the results of Rind et al. (1998) meta-analysis are not representative of trends in the general population because college students tend to be a relatively high-functioning group. In support of this idea, Jumper (1995) found that the effect size on psychological functioning for student samples was smaller than the effect size for clinical or community samples. Overall, these meta-analyses provide evidence of an empirical association between CSA and later poorer psychological functioning, including PTSD, depression, and suicidality, particularly among clinic and community samples.

CSA and Subsequent Sexual Risk Behavior: Literature Review

Numerous researchers have investigated whether CSA is associated with subsequent sexual risk behavior, including the number of lifetime and recent sexual partners, the frequency of unprotected sex, the age at first sex, the likelihood of engaging in sex work, the use of drugs or alcohol with sex, the likelihood of contracting a sexually transmitted disease (STD), and the likelihood of contracting HIV. Two previous reviews have summarized the literature about CSA and subsequent sexual behavior. Paolucci et al. (2001) included articles published through 1996, and reported an association between CSA and sexual promiscuity (defined as early sexual activity and/or sex trading). More recently, Arriola, Louden, Doldren, and Fortenberry (2005) conducted a meta-analysis using studies that sampled women that were published through 2002; they found that CSA was associated with unprotected sex, multiple partners, and sex trading. Although informative, these earlier reviews have several limitations, including: (a) sampling studies of only women; (b) including a limited number of studies (14 studies in the Paolucci et al. (2001) meta-analysis; 23 studies in the Arriola et al. (2005) meta-analysis); (c) investigating only a limited number of sexual behavior outcomes; and (d) not including the last 5 to 10 years of published research. Therefore, we sought to systemically review studies published through 2006 that sampled either women, men, or both, and provide a comprehensive, state-of-the-science overview of the relationship between CSA and subsequent sexual behavior. We first present studies with female samples and then present studies with male samples. Studies that sampled both males and females, but conducted only

separate analyses for males and females, will be included in these sections. We conclude with studies that have assessed and compared both men and women.

Method

To be included in this literature review, a study needed to satisfy the following conditions: (a) sampled men and/or women from the United States, (b) been published in a peer-reviewed journal, (c) included participants who were sexually abused as children or adolescents, (d) compared sexually abused individuals to a comparison group of non-sexually abused individuals, and (e) published in 1990 to 2006, to include only the most current and relevant research. Exclusion criteria were: (a) sampled only adults who reported both CSA and adult sexual assault (because the effects of the former and the latter would be difficult to separate, and because the focus of the current paper is on consensual adult sexual behavior); (b) did not report data on sexual behavior outcomes; and (c) were published prior to 1990. Literature searches were conducted using PsycINFO and Medline. “Child sexual abuse” was used as a keyword, along with “HIV,” “STD,” and “sexual risk behavior.” We obtained further articles from the reference lists of relevant articles.

Results

Overall, we identified 73 studies that addressed the relationship between CSA and subsequent sexual risk behavior and met the inclusion criteria (see Table 1; unless otherwise indicated, univariate results are reported). We organize the findings of our literature search by population sub-group, to discern differential results as a function of gender, current age, or other characteristics, such as drug use, mental illness, or incarceration.

Females—Many researchers have found an association between CSA and greater sexual risk behavior among the *general population of women*. Researchers investigating self-reported sexual behavior in national surveys of women found that CSA is associated with an earlier age of first intercourse, more sexual partners, some risk of contracting HIV, and a greater likelihood of having an STD (Bensley et al., 2000; Browning & Laumann, 1997; B. C. Miller, Monson, & Norton, 1995; Wilsnack, Vogeltanz, Klassen, & Harris, 1997). Similarly, researchers have found associations between CSA and later sexual risk behavior among women who were part of a managed care organization or women attending primary care clinics (presumed to represent the general population of women), including earlier age of first intercourse, a greater number of sexual partners, and a greater likelihood of having been diagnosed with any STD (Hillis et al., 2001; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000; Lechner, Vogel, Garcia-Shelton, Leichter, & Steibel, 1993; Springs & Friedrich, 1992). Noll, Horowitz, Bonanno, Trickett, and Putnam (2003) compared women whose CSA was substantiated in childhood (by Child Protective Services) with a non-CSA comparison group, and found that CSA was associated with younger age of consensual sex. Convenience samples of community women, recruited from various sites (e.g., health clinics, vocational schools, and colleges and universities) have yielded similar results, with CSA associated with previous STD diagnosis and with promiscuity (not further defined; Kenney, Reinholtz, & Angelini, 1998; Wind & Silvern, 1994).

Among *ethnic minority women*, such as low-income, African-American women, CSA has been associated with a younger age of first consensual intercourse, sex trading, ever being diagnosed with an STD, and having multiple partners in the past 3 months (Fiscella, Kitzman, Cole, Sidora, & Olds, 1998; Miner, Flitter, & Robinson, 2006; Wingood & DiClemente, 1997). Among Native Americans, CSA was related to having a greater number of STDs, although this association was no longer significant when analyses controlled for physical and emotional abuse (Hobfoll et al., 2002).

Associations between CSA and sexual risk behaviors also have been reported in *college student samples*. In college samples, sexual abuse has been associated with more sexual partners, more adult sexual experience, and younger age at first intercourse (Gidycz, Hanson, & Layman, 1995; Johnsen & Harlow, 1996; Mayall & Gold, 1995).

The association between CSA and sexual behavior may begin during *adolescence* or earlier. For example, in a study of over 3500 sexually active, adolescent girls in grades 7 through 12 who participated in the National Longitudinal Study of Adolescent Health, there was an association between CSA and adolescent sexual risk behavior (Upchurch & Kusunoki, 2004). In this study, CSA was defined as being physically forced to have sexual intercourse; questions were administered by a computerized survey. CSA was associated with a greater number of sexual partners, a greater likelihood of having intercourse before age 14, and a greater likelihood of using alcohol or drugs at the participant's most recent sexual experience. Additionally, being sexually abused was associated with a greater likelihood of ever being diagnosed with an STD (Upchurch & Kusunoki, 2004). In other samples of adolescents, CSA has been similarly associated with a variety of sexual risk behaviors, including: ever having intercourse, having more sexual partners, younger age of first intercourse, and not using birth control at last intercourse (Luster & Small, 1997; Nagy, DiClemente, & Adcock, 1995; Nelson, Higginson, & Grant-Worley, 1994; Stock, Bell, Boyer, & Connell, 1997). Among sexually experienced female adolescents, CSA was associated with younger age at first intercourse, more sexual partners, and a greater likelihood of substance use before sex (Raj, Silverman, & Amaro, 2000; Shrier, Pierce, Emans, & DuRant, 1998).

CSA and sexual risk behavior also are associated in *at-risk samples of female adolescents*. Pregnant adolescents who experienced CSA were more likely to have exchanged sex for money or drugs (Boyer & Fine, 1992). Adolescents in public child welfare who were sexually abused were more likely to have engaged in consensual intercourse, either before or while a teenager, were younger at first intercourse, and had more frequent sex in the past 3 months (Polit, White, & Morton, 1990), and adolescent runaways who reported CSA were more likely to have traded sex (Simons & Whitbeck, 1991).

Among *at-risk populations of adult women*, CSA has been associated with sexual risk behavior in women who were infected with HIV or at elevated risk for HIV, women who use drugs, women who have a mental illness, women who are incarcerated, and women who are homeless. For example, Cohen et al. (2000), in a sample of 1288 women who were infected with HIV, and a comparison group of 357 women who were HIV negative, found that CSA, defined as pressured or forced sexual contact before age 18, was associated with having (a) a male partner who was at risk for HIV, (b) more than 10 lifetime male sexual partners, and (c) having traded sex.

The NIMH Multisite Prevention Trial Group (2001) investigated CSA, defined as unwanted sexual activity before the age of 13 with someone 5 or more years older, in a sample of 3346 women attending STD clinics and health service organizations. The 38% of women who reported CSA were more likely than those who did not report CSA to have: (a) engaged in sex trading; (b) had more episodes of unprotected intercourse in the past 3 months; (c) had more partners in the past 3 months; and (d) had a greater proportion of episodes of intercourse involving alcohol or drugs. The CSA and non-CSA groups did not differ in the proportion of unprotected sex acts in the past 3 months (NIMH Multisite Prevention Trial Group, 2001).

Among women who are *at-risk for HIV*, researchers also found associations between CSA and adult sexual risk behavior. In this population of women who engaged in drug risk or sexual risk behavior (including women who had a male sexual partner who injected drugs, women who attended an STD clinic, or women who traded sex), CSA has been associated with a greater

number of sexual partners, sex trading, not using a condom, having an STD, and engaging in a cluster of high-risk sexual behaviors or scoring high on a composite measure of high-risk sexual behavior (Greenberg et al., 1999; Harlow et al., 1998; Klein & Chao, 1995; Parillo, Freeman, Collier, & Young, 2001; Thompson, Potter, Sanderson, & Maibach, 1997). Among women attending a methadone maintenance clinic, CSA has been associated with a greater likelihood of trading sex for money or drugs (El-Bassel, Simoni, Cooper, Gilbert, & Schilling, 2001). CSA is more common among female sexworkers, compared to non-sexworkers (Earls & David, 1990).

CSA has been associated with adult sexual risk in other high-risk populations. Among women who had a mental illness or were receiving outpatient psychotherapy, CSA was associated with sex trading and with higher scores on an assessment of risky sexual behavior (Goodman & Fallot, 1998; Walser & Kern, 1996). Women who were *incarcerated* were more likely to have traded sex, to have engaged in unprotected anal sex, had multiple partners, had sex with someone who injects drugs, and to be infected with HIV (McClanahan, McClelland, Abram, & Teplin, 1999; Mullings, Marquart, & Brewer, 2000; Stevens et al., 1995). Among *homeless women*, CSA was associated with sex trading (Simons & Whitbeck, 1991).

A few studies failed to find hypothesized differences between CSA and non-CSA groups on some sexual behavior outcomes, including age at first intercourse, the number of sexual partners, the frequency of intercourse, the frequency of condom use, the frequency of sex while using drugs, having an STD, or HIV status (Bartoi & Kinder, 1998; Medrano, Desmond, Zule, & Hatch, 1999; Noell, Rohde, Seeley, & Ochs, 2001; Vlahov et al., 1998). Relatively small samples of women reporting CSA may have led to low power to detect a small effect in some of these studies (e.g., Bartoi & Kinder, 1998; Medrano et al., 1999; Noell et al., 2001).

Overall, however, the majority of studies found an association between CSA and subsequent sexual risk behavior among women. This association was found across a variety of populations, including both samples drawn from the general population of women, as well as samples drawn from vulnerable women. A number of different sexual risk behaviors were relatively consistently associated with CSA, including younger age at first intercourse, a greater number of sexual partners, a greater likelihood of engaging in sex trading, and a greater likelihood of having been diagnosed with an STD. Many of these studies benefited from samples of more than 1000 participants (e.g., Browning & Laumann, 1997; Cohen et al., 2000; Fiscella et al., 1998; Hillis et al., 2001; Klein & Chao, 1995; Luster & Small, 1997; McClanahan et al., 1999; Nagy et al., 1995; NIMH Multisite Prevention Trial Group, 2001; Parillo et al., 2001; Stock et al., 1997; Upchurch & Kusunoki, 2004).

Males—In contrast to the research done with women, relatively few studies have explored the association of CSA to later sexual behavior in males. However, the few studies that are available support the idea that CSA is associated with later sexual risk behavior in men.

In one of the few studies to investigate a *sample of men drawn from the general population*, Holmes, Foa, and Sammel (2005) interviewed by telephone men living in areas with a high incidence of HIV; 22% of the men reported a history of CSA, defined by an age-graded discrepancy, or a sexual experience involving coercion or an authority figure, or a sexual experience before age 12 involving penetration. CSA was associated with a greater number of lifetime sexual partners, and the combination of CSA and mental illness (PTSD or depression) was associated with an even greater number of sexual partners than CSA alone (Holmes et al., 2005). Among men participating in a state-wide survey, CSA was associated with reporting at least one HIV risk behavior (Bensley et al., 2000). CSA was also associated with a greater likelihood of having ever been diagnosed with an STD among men who were part of a managed care organization (Hillis et al., 2000).

DiIorio et al. (2002) investigated CSA in a population of 2676 male *patients attending an STD clinic* who reported sexual risk behavior in the past 3 months. A history of CSA was associated with engaging in sex work, having a greater number of partners in the past 90 days, and having more episodes of unprotected sex in the past 90 days (DiIorio et al., 2002). CSA was also associated with a greater likelihood of sex trading among men (Earls & David, 1990).

In a large survey of *adolescents* participating in a state-wide survey, CSA among males was associated with ever having sex, and having three or more lifetime sexual partners (Nelson et al., 1994). In sexually experienced male adolescents, CSA was associated with an earlier age of first intercourse, more sexual partners, a greater likelihood of substance use at last sex, and less likelihood a condom was used at last sex (Raj et al., 2000; Shrier et al., 1998). In adolescents who were at risk for HIV infection, CSA was associated with a greater likelihood of being infected with HIV (Futterman, Hein, Reuben, Dell, & Shaffer, 1993).

All of the studies we found reported an association between CSA and at least one sexual risk behavior outcome among men. Researchers consistently found an association between CSA and sex trading, more sexual partners, more unprotected sex, and STD or HIV infection in men. Thus, the findings are largely similar to those reported for women. However, there is a relative paucity of studies investigating the relation between CSA and later sexual behavior among heterosexual men.

Men who have sex with men—The majority of studies investigating the relation between CSA and later sexual risk behavior solely among men have largely involved *men who have sex with men (MSM)*. In a study of 1941 MSM recruited from gay bars and from household telephone surveys, Jinich et al. (1998) found that CSA, defined by a combination of age-graded discrepancy or force or coercion, was associated with having unprotected anal intercourse with a non-steady partner in the past year, more sexual episodes (total and with a non-steady partner), more male sexual partners, more sexual episodes while using drugs, and a greater likelihood of being HIV positive. In a telephone survey of 2881 MSM, Paul et al. (2001) found that CSA was associated with engaging in high-risk sexual behavior (defined as having unprotected anal intercourse with a non-steady sexual partner, a sexual partner whose HIV status was unknown, or a sexual partner who was serodiscordant), having sex while using drugs, and being infected with HIV.

Other studies have similarly found an association between CSA and later sexual behavior in MSM. Among MSM, CSA was associated with having engaged in recent unprotected anal sex, having engaged in unprotected anal sex with more partners, having more lifetime partners, having engaged in sex trading, and being infected with HIV (Bartholow et al., 1994; Carballo-Dieguez & Dolezal, 1995; Kalichman et al., 2001; Kalichman et al., 2004; Lenderking et al., 1997). In a sample of MSM who were HIV positive, O'Leary, Purcell, Remien, and Gomez (2003) found that those who were sexually abused as children were more likely to have had recent (past 90 days) unprotected anal intercourse than those who were not sexually abused as children.

The relation between CSA and adult sexual behavior has been studied more extensively in MSM than in heterosexual men. Similar to findings with heterosexual men, CSA was associated with engaging in adult sexual risk behavior among MSM. CSA was consistently associated with sex trading, and was often associated with a greater number of sexual partners, more episodes of unprotected sex, and HIV infection.

Males and Females—A number of studies have investigated both males and females. In a sample of 602 males and females *attending a public health clinic*, Cunningham, Stiffman,

Dore, and Earls (1994) found that CSA, defined as pressured or forced sex, was associated with a greater number of sex partners and engaging in sex work.

Several studies have investigated sexual behavior correlates of CSA in samples of male and female adolescents. Many of these studies have investigated *middle and high school student samples*, perhaps due to the ease of obtaining data from a large number of students. In one of the few national studies of adolescents, Howard and Wang (2005) used data from 13,601 9th through 12th graders who participated in the national Youth Risk Behavior Survey (YRBS). Overall, 8% of the sample reported that they had been physically forced to have intercourse when they did not want to. CSA was associated with having more than one recent sexual partner, not using a condom at the most recent sexual experience, and using alcohol or drugs at the most recent sexual experience (Howard & Wang, 2005).

Other studies utilizing student samples have found that those who were sexually abused as children were more likely to be sexually active, have begun sexual activity at an earlier age, and were more likely to have unprotected sex than those who were not sexually abused (Erickson & Rapkin, 1991; Lodico & DiClemente, 1994; Riggs, Alario, & McHorney, 1990).

At-risk samples of children and adolescents also have been investigated, including homeless adolescents, adolescents who were HIV positive or had engaged in sexual behavior that put them at risk for HIV, children and adolescents in psychiatric treatment, and incarcerated adolescents. Among homeless or adolescent runaways, CSA was associated with being sexually active, more lifetime sexual partners, engaging in sex work, less frequent condom use, ever having anal sex, and ever having been diagnosed with an STD (Johnson, Aschkenasy, Herbers, & Gillenwater, 1996; Rotheram-Borus, Mahler, Koopman, & Langabeer, 1996; Yates, MacKenzie, Pennbridge, & Swofford, 1991). In a study comparing adolescents who were HIV positive and adolescents who were HIV negative, Hein, Dell, Futterman, Rotheram-Borus, and Shaffer (1995) found that those who were HIV positive were more likely to report a history of CSA than those who were HIV negative. Among children and adolescents in psychiatric treatment, CSA has been associated with inconsistent condom use, having engaged in sexual activity, and ever being diagnosed with an STD (Brown, Lourie, Zlotnick, & Cohn, 2000; Kolko, Moser, & Weldy, 1990). Among children in psychiatric treatment who were sexually active, CSA was associated with less use of contraception (Kolko et al., 1990). In samples of adolescents who are incarcerated, CSA has been associated with less use of contraception and testing positive for an STD (Mason, Zimmerman, & Evans, 1998; Vermund, Alexander-Rodriquez, Macleod, & Kelley, 1990).

Among *men and women at risk for HIV infection*, CSA was associated with sex work and having more than two sexual partners in the past year (Zierler et al., 1991). In a sample of *patients attending an STD clinic* who had engaged in recent sexual risk behavior, Senn et al. (2006) found that CSA was associated with a greater number of sexual partners (lifetime and past 3 months), a greater number of episodes of unprotected sex, sex trading, and ever being diagnosed with an STD.

Finally, among *men and women who had been abused as children* (physical abuse, sexual abuse, and/or neglect), Widom and Ames (1994) found that those who had been sexually abused were more likely to have been arrested for sex trading.

Most studies of both males and females did not report gender comparisons. Two studies included a CSA-by-gender interaction term, with different results. Rotheram-Borus et al. (1996) found that men who were sexually abused as children reported more episodes of unprotected sex and had more sexual partners than all females (CSA and non-CSA) and than men who were not sexually abused. In contrast, Senn et al. (2006) did not find a significant CSA-by-gender interaction.

Other studies, although they have not included a CSA-by-gender interaction, have reported results separately for males and females. Often, the same associations between CSA and sexual risk behavior are reported for both males and females in these studies (e.g., Bensley et al., 2000; Earls & David, 1990; Hillis et al., 2000; Howard & Wang, 2005; Shrier et al., 1998; Vermund et al., 1990). However, some studies have found slightly different results for males and females. In some studies, CSA has been associated with more alcohol use before sex, less likelihood of condom use at last intercourse, and being infected with HIV for males, but not for females (Futterman et al., 1993; Lodico & DiClemente, 1994; Raj et al., 2000; Zierler et al., 1991). However, Mason et al. (1998) found that CSA was associated with a younger age of first intercourse for females, but not for males.

CSA was consistently associated with a variety of sexual risk behaviors in samples of males and females, including sex trading and earlier onset of sexual activity. CSA was relatively consistently associated with more sexual partners, more unprotected sex, and STD diagnoses.

Summary—CSA has been associated with later sexual risk behaviors across many studies (Table 2). This association has been found in both men and women, in adolescents and adults, in the general population and in vulnerable populations, such as individuals who use drugs, who have a mental illness, or who are incarcerated. Unlike some mental health outcomes (e.g., Rind et al., 1998), the association between CSA and sexual behavior was found even among relatively high-functioning samples (e.g., college students). In particular, most studies have found an association between CSA and sex trading, more sexual partners, and an earlier age of first intercourse.

Table 2 provides an overview of significant and nonsignificant findings. In studies that did not report on an outcome variable, it is possible that these variables were investigated and not found to be associated with CSA; because significant results are often considered the most interesting, those are often the results that are focused on in journal articles. However, given the large number of studies that have found an association between CSA and later sexual risk behavior, and the wide variety of populations in which this association has been found, we conclude that the association between CSA and later sexual risk behavior is robust and it is not likely to reflect a reporting bias by investigators.

CSA and Subsequent Sexual Risk Behavior: Methodological Critique

Methodological Flaws and Limitations

Definitional issues—Nearly 30 years ago, Finkelhor commented that “There is not yet in this field any generally accepted definition of sexual victimization” (Finkelhor, 1979). Unfortunately, this observation remains as true today as it was then. One of the biggest limitations of the research reviewed here, and, indeed, with all CSA research, is the lack of consensus about the definition of CSA. This limitation has been extensively discussed (e.g., Haugaard, 2000), but researchers continue to use different definitions of CSA, which can result in widely differing estimates of rates of CSA. Definitions that include only the most severe types of CSA may result in a lack of recognition that less severe CSA may also be associated with negative outcomes. Definitions that are very broad, and define a wide range of sexual experiences as CSA, may obscure the effects of CSA that are apparent when CSA is defined more restrictively. For example, Senn, Carey, Vanable, Coury-Doniger, and Urban (in press) found that participants who experienced child sexual abuse involving penetration and/or force reported more adult sexual risk behavior, including the number of lifetime partners and number of previous STD diagnoses, than those who were not sexually abused and those who were abused without force or penetration. Lack of a consistent definition of CSA also makes it difficult to compare results across studies.

There are several ways researchers could come to a consensus on the definition of CSA. Leading researchers and practitioners in the field could meet (perhaps with the support of the NIMH or other funding agency) and debate the merits of different definitions until agreement on the definition is reached. In an empirical approach, researchers might investigate which types of childhood sexual experiences are associated with any negative outcomes, and whether some childhood sexual experiences that are included in current research definitions of CSA tend not to be associated with negative outcomes. For example, if there were no negative outcomes for older adolescents who engaged in consensual sex with a young adult, these sexual experiences would not be included in the definition of CSA. Instead of choosing one definition of CSA, researchers could report results using different definitions of CSA, although, given the large number of possible ways to define CSA, reporting results for all of the different definitions could make it difficult to interpret results, and could take up more space than journal editors would allow.

Alternatively, rather than conceptualizing CSA as a categorical variable, researchers could conceptualize CSA as a continuum, with experiences ranging from mild to severe. Agreement would need to be reached on what characteristics of the abuse should be considered when determining the severity of the abuse. Abuse-related events that have been associated with negative outcomes include longer duration of abuse, coercion (including use of force, threats of force, or psychological coercion), trust violation (which may be related to the child's relationship to the perpetrator), age of onset of abuse, and the type of sexual act involved in the abuse (e.g., Spaccarelli, 1994). Such a continuum definition would allow researchers to better understand the relation between CSA and later outcomes, and could help to clarify inconsistent research findings. Thus, for example, if less severe CSA is not associated with some outcomes, the inclusion of individuals with less severe CSA in a categorical approach could lead to inconsistent findings; in contrast, a continuum definition would allow researchers to see a dose-response relationship. Drawbacks to the continuum definition approach are that it would take additional research and consensus to develop the continuum definition, and it may be burdensome to participants to respond to all the questions necessary to determine CSA severity.

There are merits and drawbacks to all of these definitional approaches, but it is imperative that researchers reach a consensus on the definition of CSA, to clarify findings and to allow for comparisons across studies.

Effect of gender—It is unclear whether gender moderates the relation between CSA and sexual behavior outcomes. The majority of research has focused on women, perhaps because the rate of CSA is much higher in women than in men (30% vs. 15%; Briere & Elliott, 2003; Finkelhor, Hotaling, Lewis, & Smith, 1990; Vogeltanz et al., 1999), thus making it easier to obtain an adequate sample of women who were sexually abused in childhood. Research studying only men has tended to focus on homosexual or bisexual men (e.g., Bartholow et al., 1994; Carballo-Dieguez & Dolezal, 1995; Jinich et al., 1998; Paul et al., 2001); little research has been conducted specifically with heterosexual men. However, it is important to include men in CSA research. In some populations, CSA is common among men, sometimes equaling the rate of CSA in women. For example, Senn et al. (2006), in a sample of men and women attending an STD clinic, found that 49% of men reported CSA, which was not significantly different from the percentage of women in the sample reporting CSA. Although in some populations men have reported lower rates of CSA than women, it is still important to study CSA in men, especially in light of the research reviewed here, which found an association between CSA and sexual risk behavior in men.

Among studies that have investigated both men and women, some have grouped men and women together, and not investigated gender as a moderating variable (e.g., Brown et al.,

2000; Cunningham et al., 1994; Hein et al., 1995; Riggs et al., 1990; Yates et al., 1991). Others have examined men and women separately, and reported separate outcomes for men and women (e.g., Bensley et al., 2000; Hillis et al., 2000; Nelson et al., 1994; Raj et al., 2000; Shrier et al., 1998). Statistically, the most appropriate way to investigate gender as a moderator of the relation between CSA and later sexual risk behavior is to include as a predictor a CSA-by-gender interaction term, but only a few studies have done this, with mixed results. Further research is needed before we can say with certainty whether gender acts as a moderator. We recommend that, where possible, researchers include both males and females in CSA research. To empirically test for a moderating effect of gender, researchers should include a CSA-by-gender interaction term in their analyses.

Effect of other types of abuse on adult sexual risk behavior—CSA is correlated with childhood physical abuse, as well as with other types of childhood abuse, neglect, and adverse experiences (Briere & Elliott, 2003; Dong, Anda, Dube, Giles, & Felitti, 2003; Dong et al., 2004; Kang, Deren, & Goldstein, 2002). However, the possibly additive effects of other types of abuse (in addition to CSA) on adult sexual risk behavior have rarely been studied. Some researchers have combined individuals with physical and sexual abuse, or individuals with any type of abuse, into a single group, and compared them to nonabused individuals; abused individuals generally engaged in riskier sexual behaviors than nonabused individuals (e.g., Felitti et al., 1998; Widom & Kuhns, 1996). However, in these studies it is not clear whether both types of abuse are associated with adult sexual risk behavior, or whether the individuals who experienced CSA are driving this association.

A few studies have found that physical and emotional abuse are associated with adult sexual risk behavior (e.g., Kang et al., 2002; Medrano & Hatch, 2005), but the literature on this relation is much less extensive than the literature on the relation between CSA and adult sexual risk behavior. Very few studies have considered the additive effects of multiple types of abuse on adult sexual risk behavior, perhaps because of the strong correlation between the different types of abuse, which makes it difficult to recruit an adequate sample size of individuals who experienced only one type of abuse. In one of the few studies to do so, Bensley et al. (2000) reported that, for women, CSA alone and CSA in combination with physical abuse were associated with sexual risk behavior; physical abuse alone was not associated with adult sexual risk behavior. For men, however, CSA alone and physical abuse alone were associated with sexual risk behavior, but the combination of CSA and physical abuse were not associated with adult sexual risk behavior (Bensley et al., 2000), although the size of the combined group for men was small, possibly limiting the power to detect an effect. At the least, CSA researchers should ask about other types of childhood abuse, and investigate whether there are additional effects on adult sexual risk behavior for individuals who experienced multiple types of childhood abuse.

CSA outcomes confounded with CSA—Another limitation of the literature on the relation between CSA and sexual behavior outcomes is that some outcomes are confounded with CSA. For example, age at first intercourse, which is often used as an outcome, may be confounded with CSA. Some researchers avoid this limitation by asking participants about age of first consensual or voluntary intercourse (e.g., Fiscella et al., 1998; M. Miller, 1999; Noll et al., 2003; Wilsnack et al., 1997); however, in some research it is not clear whether the age of first intercourse is the age of first consensual intercourse, or whether the age of first intercourse could be a penetrative sexual abuse experience. If the definition of CSA includes consensual sexual experiences, even if researchers specify they are asking about the age of first consensual intercourse, participants could respond with the age of their first consensual, penetrative CSA experience.

The number of lifetime sexual partners, which is sometimes investigated as an outcome in CSA research, also may be confounded with CSA, if participants include their CSA experiences in their number of sexual partners. Some research with adolescents has investigated whether participants engaged in any sexual activity as an outcome; again, this outcome may be confounded with the CSA experience. Finally, if participants began sex trading at a young age, this outcome also would be confounded with CSA.

Researchers studying the relation between CSA and sexual behavior need to phrase their questions precisely when asking about sexual behavior outcomes, to ensure that the sexual behavior outcomes they are investigating are not confounded with CSA. When asking about these outcomes (e.g., age of first intercourse, number of sexual partners), researchers should specify that if participants had any experiences that met the research definition of CSA, they should not include those experiences in their responses to the sexual behavior items.

CSA is often assessed retrospectively—Much of the research on CSA has involved adults' retrospective recall of their early sexual experiences. Events that took place many years ago may be recalled with less accuracy than recent events, and events that occurred after the CSA may influence perceptions of the CSA. To avoid possible recall biases, some researchers have longitudinally followed participants whose CSA was documented during childhood (e.g., Noll et al., 2003; Widom & Ames, 1994). Although this approach avoids retrospective recall biases about the CSA, only children with substantiated cases of CSA were included in these studies; these incidents of CSA may be very different from incidents that were not disclosed or were not substantiated. Other researchers have assessed CSA during childhood or adolescence (e.g., Hein et al., 1995; Howard & Wang, 2005; Kolko et al., 1990); although this approach also may make the reporting of the CSA experience less subject to recall biases, longer-term outcomes were not assessed. To avoid recall biases in reporting CSA experiences, researchers could survey children about their sexual experiences, and then follow the children longitudinally, to assess adult outcomes associated with CSA.

Causality has not been established—All of the research reported in this article used correlational data. Thus, although the bulk of the research has found an association between CSA and later sexual behavior, we cannot be certain that the association is causal. Obviously, random assignment to groups, considered the gold standard for establishing causality, is not possible in CSA research. The best researchers can do to establish causality is to eliminate plausible rival hypotheses (Cook & Campbell, 1979).

One plausible rival hypothesis is that a third variable causes both CSA and consensual risk behavior. For example, family environment has been investigated as a possible third variable. A few studies have controlled for different family variables, including parental monitoring, support from mother and father, parental attitudes about teenage sex, family stability, parent-child interaction, and parental adjustment (Fergusson, Horwood, & Lynskey, 1997; Luster & Small, 1997). These studies still found an association between CSA and sexual risk behavior (Fergusson et al., 1997; Luster & Small, 1997), suggesting that family variables are unlikely to be the cause of both CSA and sexual risk behavior. However, because few studies have investigated and controlled for these family variables, they deserve further research before we can conclusively rule them out as a plausible rival hypothesis.

Other possible third-variable explanations have rarely been considered in the literature. Interpersonal variables may be related to both CSA and to subsequent sexual behavior. For example, children or adolescents who use alcohol or drugs may be more likely to be in situations in which they are sexually abused; substance use later in life may also be associated with sexual risk behavior. Both theory (e.g., alcohol myopia theory; Steele & Josephs, 1990) and research link substance use to sexual risk behavior in both adolescence (Fortenberry, 1995) and

adulthood (George & Stoner, 2000). Early onset of substance use is predictive of substance us in adulthood (Grant & Dawson, 1997), suggesting that substance use could be a factor in both CSA and adult sexual experiences.

The possibility that interpersonal variables are related to both CSA and subsequent sexual behavior have received scant attention in the literature, likely for two reasons: (1) it would be difficult to study these possibilities, as data on the interpersonal variable of interest would need to be collected on a large number of children, who would then need to be followed throughout childhood and questioned about CSA; and (2) these possibilities could be misconstrued as victim-blaming. We would like to make it clear that we are not condoning sexual activity between adults and children; to the contrary, we believe it is unacceptable for an adult to engage in sexual activity with a child. However, from a methodological standpoint, we are setting forth possible rival hypotheses that must be ruled out if we are to state with certainty that there is a causal link between CSA and later sexual risk behavior.

Researchers should use both theory and common sense to guide research on potential third-variable explanations that are most plausible; those that are deemed plausible need to be investigated. Although family environment and some child variables could be measured retrospectively, they would likely be subject to a great deal of recall bias. To avoid recall bias, these variables could be measured during childhood, after the abuse is disclosed. However, disclosure of abuse might affect the family environment, and the CSA could certainly affect child characteristics. Therefore, to fully rule out these plausible rival hypotheses, researchers need to investigate family and child characteristics before any abuse occurs, and follow children and families longitudinally. Until causality has been reasonably established, researchers should be cautious about drawing causal inferences.

Conclusions

Although there is a large body of evidence, from both large and small studies, that CSA is associated with later sexual risk behavior, many of these studies have methodological limitations, including an inconsistent definition of CSA, lack of statistical comparison of outcomes among males and females, and use of sexual behavior outcomes that may be confounded with the CSA experience. In addition, although there is ample evidence of an association between CSA and later sexual behavior, researchers have not established that CSA has a causal influence on later sexual behavior.

CSA and Subsequent Sexual Risk Behavior: Suggestions for Research

Directions for Future Studies

Even though research has established a strong link between CSA and later sexual behavior, there is still much work to be done in this area. First and foremost, researchers need to reach a consensus on the definition of CSA, for research purposes. Second, researchers need to assemble stronger evidence for a causal link between CSA and sexual risk behavior, by ruling out plausible rival hypotheses such as family environment or child characteristics. These two research foci will benefit all research on CSA, not just research on CSA and sexual health outcomes. Although large-scale, longitudinal studies may not be feasible (i.e., because of funding priorities and the time required to complete such work), innovative methods employing quasi-experimental designs and sophisticated data analytic strategies may allow investigators to strengthen the empirical evidence for the causal linkage between CSA and sexual risk behavior. We encourage research on this topic.

Although it is important to strengthen the evidence for a causal association between CSA and subsequent sexual risk behavior, we encourage further research on the relation between CSA and sexual risk behavior, even in the absence of established causality. Thus, a third important

research focus will be to determine the underlying mechanisms that mediate the relation between CSA and sexual risk behavior. A number of researchers have proposed potential mediators through which CSA may lead to sexual risk behavior, including: psychological functioning; self-efficacy or assertiveness; substance use; sexual revictimization; and partner violence (Malow, Devieux, & Lucenko, 2006; M. Miller, 1999; Purcell, Malow, Dolezal, & Carballo-Dieguez, 2004).

Several studies have established a link between CSA and substance use problems (e.g., Bartholow et al., 1994; DiIorio et al., 2002; Howard & Wang, 2005; Kalichman et al., 2001; Wilsnack et al., 1997), and between CSA and the co-occurrence of substance use and sex (e.g., Greenberg et al., 1999; Lodico & DiClemente, 1994; NIMH Multisite Prevention Trial Group, 2001; Upchurch & Kusunoki, 2004). Individuals who were sexually abused may use alcohol or drugs to cope with the abuse; this substance use may, in turn, lead to engaging in sexual risk behavior, either through reduced information-processing capacity (e.g., alcohol myopia theory; Steele & Josephs, 1990), or through sex trading for drugs.

CSA has also commonly been associated with mental health problems in general (e.g., Bartholow et al., 1994; Lechner et al., 1993), and depression and suicidal thoughts or attempts specifically (Jinich et al., 1998; B. C. Miller et al., 1995; Riggs et al., 1990; Stock et al., 1997). CSA may lead to a variety of mental health problems. These mental health problems may be associated with impaired judgment or decision-making, which could, in turn, lead to engagement in sexual risk behaviors.

Studies have also established a link between CSA and intimate partner violence (e.g., Boyer & Fine, 1992; Cohen et al., 2000; Howard & Wang, 2005; Wingood & DiClemente, 1997). Past abuse (i.e., CSA) may lead individuals to consider abuse to be a normal part of a relationship, and thus they may resign themselves to staying with sexual partners who are abusive. Partner violence may make the abused individual more likely to engage in risky sex, as he or she may fear reprisal if they request safer sex. Alternatively, Testa, VanZile-Tamsen, and Livingston (2005) found that past abuse was associated with partner aggression, which was in turn associated with lower relationship satisfaction and therefore higher numbers of sexual partners.

Theories of CSA outcomes and theories of sexual behavior also provide researchers with possible mediators to investigate. Finkelhor and Browne (1985) proposed a traumagenic dynamics model, in which they hypothesized that CSA may lead to four different outcomes: (a) traumatic sexualization; (b) stigmatization; (c) betrayal; and (d) powerlessness. Traumatic sexualization is the development of maladaptive scripts for sexual behavior, which result from a child being rewarded (with affection) for engaging in sexual activity. Those who are sexually abused may come to view sex as necessary for affection, and thus engage in sexual activity with many partners, or be willing to engage in risky sexual activity with their partner. Stigmatization, in which the child may feel stigmatized as someone who is sexually deviant, could lead to later sexual risk behavior, if feelings of being sexually deviant become internalized and part of the child's self-concept. Betrayal, in which the child feels betrayed by someone close to him/her (by the abuser, by other's reactions to disclosure of the abuse, or by other's failure to realize the abuse is occurring), may make it difficult for abused individuals to form trusting relationships, and thus may lead to a series of brief but abusive relationships. Children who are abused also may have difficulty learning how to judge who is trustworthy; as adults, this impairment in judgment could also lead to multiple, brief relationships. Finally, powerlessness, in which children who are abused learn that they do not have the ability to control the sexual aspects of relationships, could lead to sexual risk behavior, if, as adults, individuals feel they have no control and must acquiesce to whatever others want them to do sexually.

Spaccarelli (1994) proposed that cognitive appraisals of and coping responses to the CSA experience mediate the relation between CSA and later outcomes. Spaccarelli identifies two appraisal processes that may predict adult sexual behavior: (a) the child's perception that the CSA experienced threatened existing relationships; and (b) negative evaluations of others as a result of the abuse. If relationships were disrupted because of the CSA, adults (with a history of CSA) may be reluctant to jeopardize an adult relationship by insisting on the use of a condom, or refusing sex with a partner. Alternatively, negative evaluations of others may lead to difficulty in forming close relationships, and to difficulties with relationship formation and maintenance (e.g., a series of relatively brief relationships – serial monogamony). In addition, Spaccarelli proposed that avoidant coping may be associated with worse outcomes. Substance use may be one form of avoidant coping, which could lead to subsequent sexual risk behavior.

Briere's (1996; 2002) self-trauma theory describes four pathways through which CSA can disrupt development and result in negative outcomes. Similar to Spaccarelli (1994), Briere proposed that CSA leads to the use of maladaptive coping strategies, and to a distorted cognitive appraisal of others, as well as a distorted appraisal of the self and the future. In addition, Briere proposed that CSA also affects attachment and leads to PTSD; these proposed consequences of CSA also have possible implications for subsequent sexual behavior. Difficulties with attachment in childhood may make it difficult for individuals to form lasting romantic attachments and relationships as adults, and thus could lead to difficulties with relationship maintenance as adults (e.g., serial monogamy or concurrent partnerships, both of which are known to involve more risk for STDs). PTSD could lead individuals to engage in multiple sexual relationships as a way of trying to overcome and master the trauma of being sexually abused as a child. Thus, cognitive appraisals, coping strategies, attachment patterns, and PTSD symptoms all merit further investigation as possible mediators of the CSA-risky sexual behavior relation.

Aspects of the Information, Motivation, Behavioral Skills model (Fisher & Fisher, 1992), also provide researchers with possible mediators of the relation between CSA and sexual risk behavior. In particular, individuals who were sexually abused may lack the behavioral skills necessary to avoid risky sexual behavior. Because they could not control the sexual situation as children, they may lack the skills and the self-efficacy to manage sexual situations as adults, through talking to a partner about abstaining, using a condom, or other safer sex options. CSA has been associated with lower condom use or birth control self-efficacy (Brown, Kessel, Lourie, Ford, & Lipsitt, 1997; Brown et al., 2000; Noll et al., 2003), less assertiveness to refuse sex (Johnsen & Harlow, 1996), and lower scores on a sexual role play activity (Brown et al., 1997).

In qualitative interviews, women who were HIV positive and who had been sexually abused as children reported that the effects of CSA included: being unable to trust others, making it difficult to form healthy intimate relationships; using substances to cope with the sequelae of CSA; using sex to get men's approval or to have power over men; and isolating themselves from others so they would not get hurt again (Tarakeshwar et al., 2005). When questioned about a possible link between CSA and HIV infection, women reported feeling men were only interested in them for sex, and a fear of men that led to difficulties in refusing sex or unprotected sex (Tarakeshwar et al., 2005). These variables merit further investigation as possible mediators of the relation between CSA and later sexual behavior.

A few researchers have statistically tested potential mediators of the association between CSA and sexual risk behavior. Among women, researchers have found that drug use (NIMH Multisite Prevention Trial Group, 2001), the co-occurrence of drug use and sex (Senn et al., 2006), sex trading (NIMH Multisite Prevention Trial Group, 2001), and partner violence (Senn et al., 2006) mediated this relation. Among men who have sex with men, substance use during

sex and recent partner violence mediated the relation between CSA and later sexual risk behavior (Paul et al., 2001). Among mostly heterosexual men attending an STD clinic, only the cooccurrence of alcohol use and sex mediated the relation between CSA and the number of recent sexual partners (Senn et al., 2006).

So far, the research on possible mediators of the relation between CSA and later sexual behavior has been sparse. There are many promising potential mediators to investigate, including substance use, sexual attitudes, and self-efficacy; however, mediational associations have rarely been empirically tested.

Fourth, in addition to understanding little about the mechanisms that may underlie the relation between CSA and sexual risk behavior, we also know little about variables that moderate this association. Gender is a possible moderator of the association between CSA and later sexual behavior. Rind et al. (1998) found that men did not view CSA experiences as negatively as did women; if men and women perceive the abuse differently, then CSA may be associated with different outcomes for men and women. A few studies have investigated the possibility that gender moderates the relation between CSA and later sexual behavior; however, results have been inconsistent, and further research is needed.

Luster and Small (1997) found that the effects of physical abuse, parental monitoring, maternal support, and parental disapproval of adolescent sex on the number of sexual partners were stronger for individuals who were sexually abused, indicating that these variables may also serve as important moderators. More research is needed about these moderators, as well as other moderators researchers may hypothesize. Complex conceptualizations of how moderators may act should also be developed and tested. For example, Senn et al. (2006) tested moderated mediation, in which they hypothesized, and found, that mediators of the relation between CSA and later sexual risk behavior were different for men and women (moderator).

Fifth, once we understand more about the mechanisms that mediate the relation between CSA and later risky sexual behavior, and about variables that may moderate this relation, researchers can begin to determine whether the association between CSA and later sexual risk behavior can be explained by existing theories of the effects of CSA (e.g., traumagenic dynamics; Browne & Finkelhor, 1986), or whether new theories about the consequences of CSA need to be developed. Models, whether existing or new, should be empirically tested but, as Kurt Lewin observed, “There is nothing so practical as a good theory” (Lewin, 1952, p. 169).

A sixth direction for future research is to conduct a meta-analysis of the existing research on the association between CSA and sexual risk behavior. Although the research seems to be in relative agreement that there is an association between CSA and sexual risk behavior, a meta-analysis could help to clarify the strength of the association across a diverse set of outcomes. In addition, a meta-analysis could be used to systematically investigate whether the relation between CSA and later sexual risk behavior is affected by methodological moderators, such as the definition of CSA and the method used to assess abuse (e.g., paper and pencil survey, interview, computer-assisted self-interview). A meta-analysis could also be used to determine which sexual behavior outcomes (e.g., sex trading, number of partners, frequency of unprotected sex) are more strongly associated with CSA.

Seventh, research (especially randomized controlled trials) should evaluate the efficacy of interventions designed to reduce subsequent sexual risk behavior. Typical sexual risk reduction interventions may be less effective with individuals who were sexually abused as children (Brown et al., 1997; Greenberg, 2001). A few sexual risk reduction interventions have been developed specifically for adults who were sexually abused as children. For example, Wyatt et al. (2004) found that an intervention addressing sexual, health, and interpersonal behaviors, and linking CSA to current functioning and behavior, was more effective in reducing sexual

risk behavior among women who were sexually abused as children who were infected with HIV than was an attention control condition (Chin, Wyatt, Carmona, Loeb, & Myers, 2004; Wyatt et al., 2004). Among men and women who were sexually abused as children, and who were infected with HIV, an intervention focused on coping with stressors (related to both participants' CSA and to their HIV diagnosis) and discussing CSA experiences and HIV infection was more effective than a comparison intervention support group to discuss HIV, relationships, and CSA (Sikkema et al., 2007).

Few interventions have focused on those who are at-risk of contracting HIV (but are not infected with HIV), and who were sexually abused as children. Limited evidence suggests that a trauma-focused intervention may be more effective in reducing sexual risk behavior than an intervention focused on current problems (Spiegel, Classen, Thurston, & Butler, 2004), but research has not yet conclusively determined whether an intervention should focus on the trauma of the abuse, current sexual risk behavior, or both. Additionally, much research is needed to determine optimal intervention components to reduce sexual risk among individuals who were sexually abused as children. Research into possible mediators of the association between CSA and sexual risk behavior (discussed above) are possible topics that could be targeted in an intervention. Although intervention studies cannot definitively establish causality, they could potentially bolster support for the notion of a causal association between CSA and adult sexual risk behavior. For example, if an intervention focused on coping with CSA was successful in reducing current adult sexual risk behavior, that would bolster support for a causal relation between CSA and adult sexual risk behavior.

Implications for Clinical Practice

The research summarized here has practice implications for both mental health therapists and (biomedical) health care providers. First, both therapists and health care providers should be aware that research has found an association between CSA and later sexual risk behavior.

Health care providers should screen for childhood sexual experiences when obtaining a sexual behavior history, and should be prepared to provide therapy referrals to those who disclose childhood sexual abuse experiences. Because there is no agreed-upon definition of CSA, practitioners should ask specific questions about the nature of the childhood sexual experiences, including age at the time of the experience, the other person's age, the types of sexual acts involved, and whether or not force was used. Practitioners may also want to ask patients if they were ever sexually abused as a child (allowing for self-definition of CSA). Both males and females should be asked these questions.

Therapists should also ask similar questions about CSA and, with patients who report CSA, should ask about current sexual behavior. Some evidence suggests that it may be more useful to focus on the CSA experience than to focus on current sexual behavior in therapy (Spiegel et al., 2004); thus, therapy addressing CSA could be a therapists' first step. However, because little is currently known about the effectiveness of such an approach, therapists may also want to consider discussing current sexual risk behavior, and discussing a possible connection between CSA and current sexual risk behavior. Therapists also might ask about variables that are hypothesized to mediate the relation between CSA and sexual risk behavior, (e.g., substance use, partner violence and healthy relationships, coping, sexual self-efficacy), and provide therapy in those areas, if indicated. Briere (2004) provides an excellent overview of some of the therapies and techniques that could be used with individuals who were sexually abused, and who are currently engaging in risky sexual behavior.

Conclusions

In conclusion, there is a large body of research that has found a relation between CSA and later sexual risk behavior. Researchers can now begin investigating more sophisticated research questions, including developing an empirically-based definition of CSA, determining whether the association between CSA and sexual risk behavior is causal, understanding more about the nature of this association, including what variables mediate or moderate the association, and conducting intervention research, to determine how best to reduce sexual risk behavior for individuals who were sexually abused as children.

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Table 1

Overview of studies investigating the association between CSA and subsequent sexual risk behaviors

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
Bartholow et al. (1994)	homosexual and bisexual men attending an STD clinic *N* = 1001	1. any sexual contact up to age 18 involving force 2. any anal penetration before age 12 3. graded age discrepancy (age 0-5 with someone at least 3 yrs older; age 6-11 with someone at least 4 years older; age 12-15 with someone at least 6 years older; age 16-18 with someone at least 10 years older)	face-to-face interview	34% (*n* = 343)	--at least one instance of unprotected anal intercourse in previous 4 months --receptive anal intercourse with steady partners --sex trading --positive syphilis test --greater likelihood infected with HIV
Bartoi & Kinder (1998)	female undergraduate psychology students *N* = 175	before age 16: 1. intercourse or genital contact with someone 5 or more years older 2. touched in a way that made the participant feel violated 3.coerced into unwanted sexual activity	questionnaire completed in groups	38% (*n* = 66)	--no association with sexual behavior outcomes
Bensley, Van Eenwyk, & Simmons (2000)	men and women participating in a population-based survey (Washington State Behavioral Risk Factor Surveillance System) *N* = 3473 (*n* = 1969 women; *n* = 1504 men)	before age 18, touched in a sexual place or make to touch someone when the respondent did not want to	telephone interview	15% overall (*n* = 532) 22% women (*n* = 427) 7% men (*n* = 105)	women: --yes to at least one of the following items: injected drugs, past year; treated for STD, past year; HIV positive; anal sex without a condom, past year men: --yes to at least one of the following items: injected drugs, past year; treated for STD, past year; HIV positive; anal sex without a condom, past year
Boyer & Fine (1992)	pregnant adolescent females (≤ age 19 at first pregnancy) *N* = 535	molestation (contact or noncontact), attempted rape, or rape	questionnaire administered in groups	66% (*n* = 427)	--sex trading
Brown, Lourie, Zlotnick, & Cohn (2000)	male and female adolescents in psychiatric treatment *N* = 116	not provided	not provided	53% (*n* = 61)	--less frequent condom use -- previous STD diagnosis
Browning & Laumann (1997)*	women participating in a national health survey (National Health and Social Life Survey) *N* = 1749	touched sexually before puberty by someone at least 4 years older and no younger than 14	interview	12%	-- earlier age of first sexual activity --more sexual partners --previous STD diagnosis
Carballo-Dieguez & Dolezal (1995)*	men of Puerto Rican ancestry who have sex with men *N* = 182	contact sexual experience before the age of 13 with someone: 1) 4 or more years older; and/or 2) were unwilling or felt harmed by the experience	questionnaire	36% (*n* = 65)	--more likely to have engaged in unprotected receptive anal sex in the past 12 months
Cohen et al. (2000)	women at-risk for getting HIV or infected with HIV	pressured or forced sexual contact before age 18	not clear	27% to 31%	--having a male sex partner who is at risk for HIV --having more than 10 male sex

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
	N = 1645				partners (lifetime) --sex trading
Cunningham, Stiffman, Dore, & Earls (1994)*	male and female youth seen at public health clinic (now young adults) *N* = 602	ever pressured into having sex (other than when raped)	face-to-face structured interviews	not clear	--having a high-risk sex partner --having 6 or more sex partners in 1 year --sex trading
DiIorio, Hartwell, Hansen, et al. (2002)	men attending STD clinics who engaged in risky sexual behavior in past 3 months *N* = 2676	before age 13, having unwanted sexual activity with someone 5 or more years older	interview	25%	--sex trading --more partners, past 90 days --more episodes of unprotected sex, past 90 days
Earls & David (1990)	male and female sexworkers, compared to non-sexworkers *N* = 200 (*n* = 100 females; *n* = 100 males)	sexual interaction with a family member	not clear	12-30% of men 6-26% of women	men --sex trading women --sex trading
El-Bassel, Simoni, Cooper, Gilbert, & Schilling (2001)	women attending methadone maintenance clinics *N* = 280	unwanted sexual activity before age 13 with someone 5 or more years older	face-to-face, structured interviews	26-42%	--sex trading
Erickson & Rapkin (1991)	male and female middle and high school students *N* = 1170	unwanted sexual experience or sexual intercourse	anonymous questionnaire	15% (*n* = 179)	--more likely to be sexually active --more likely to think they had a problem with STDs --less likely to use contraception at first sex --more likely to continue to have unprotected sex
Fiscella, Kitzman, Cole, Sidora, & Olds (1998)	African-American women *N* = 1026	nonconsensual sexual contact before age 13	not clear	12% (*n* = 126)	--younger age of first consensual intercourse
Futterman, Hein, Reuben, Dell, & Shaffer (1993)	male and female adolescents (age 13-21) who were infected with or at risk for HIV *N* = 93	not reported	interview	not reported	males --greater likelihood infected with HIV females --no association with sexual behavior outcomes
Gidycz, Hanson, & Layman (1995)	college women *N* = 178	child sexual abuse: before age 14 adolescent sexual abuse: after age 14, up to study enrollment; further details not provided	survey	59% (child sexual abuse) 59% (adolescent sexual abuse)	child sexual abuse --more sexual partners (lifetime) adolescent sexual abuse --more sexual partners (lifetime)
Goodman & Fallot (1998)	low-income urban women with a severe mental illness *N* = 99	unwanted contact sexual experiences (implied before age 18)	interview	65%	--sex trading
Greenberg et al. (1999)	women who had engaged in sexual risk behavior *N* = 825	pressured or forced sexual contact before age 18	interview	50% (*n* = 410)	--not using a condom at most recent intercourse with main partner --more partners (lifetime) --more STD diagnoses (lifetime) --having a risky sexual partner --less likelihood of always using a condom with partners --less likelihood of protected sex

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
					with main partner
Harlow et al. (1998)*	women who had engaged in sexual risk behavior *N* = 815 (*n* = 169 women of minority race)	frequency of unwanted sexual experiences (noncontact and contact) by an adult	mailed survey	not reported	women of minority race --cluster E (characterized by extremely high risk on HIV risk variables–unprotected vaginal sex, perceived partner risk, number of sexual partners, and unprotected anal sex) more likely to be sexually abused than those in cluster A (characterized by low/moderate HIV risk behaviors)
Hein, Dell, Futterman, Rotheram-Borus, & Shaffer (1995)*	male and female, sexually active adolescents (age 13-21) seeking services at a medical center *N* = 787	not reported	interview in a private setting	22% (*n* = 172)	--greater likelihood infected with HIV
Hillis, Anda, Felitti, & Marchbanks (2001)	women (age 25 or older) who were part of a managed care organization *N* = 5060	contact sexual experience before age 18 with an adult or someone 5 or more years older	mailed questionnaire	not reported	--more likelihood of having first sex before age 15 --30 or more sex partners
Hillis, Anda, Felitti, Nordenberg, & Marchbanks (2000)	men and women who were part of a managed care organization *N* = 9379	contact sexual experience before age 18 with an adult or someone 5 or more years older	mailed questionnaire	25% of women (*n* = 1233) 15% of men (*n* = 643)	women --greater likelihood of previous STD diagnosis men --greater likelihood of previous STD diagnosis
Hobfoll et al. (2002)	Native American women *N* = 160	Childhood Trauma Questionnaire (Bernstein et al., 1994)	questionnaires, administered in small groups and read aloud by a Research Assistant	42%	--greater partner risk --more previous STD diagnoses
Holmes, Foa, & Sammel (2005)	men aged 18-49 living in areas with high incidence of HIV *N* = 197	any sexual experience before age 12 involving penetration, or any sexual experience before age 18 with: (a) an age differential (before age 13 with someone 5 or more years older, between ages 13 and 17 with someone 10 or more years older); (b) an authority figure; or (c) coercion	telephone interview	22% (*n* = 43)	--more sexual partners (lifetime)
Howard & Wang, 2005	male and female high school students (Youth Risk Behavior Survey) *N* = 13,601	ever physically forced to have unwanted sexual intercourse	questionnaire completed in the classroom	8% overall 10% of females 5% of males	--multiple sex partners (past 3 months) --using alcohol or drugs at the most recent sexual experience --not using a condom at the most recent sexual experience (results for entire sample were the same as when males and females were analyzed separately)
Jinich et al. (1998)	gay and bisexual men recruited from gay bars and from household telephone surveys	sexual behavior: (a) before age 13 with someone 5 or more years older; (b) between ages 13 and 15 with someone 10 or more years older; or (c) between ages	mail survey (bar sample) and telephone interview (household	28%	--greater likelihood of unprotected anal intercourse with a nonprimary partner (12 months) --more sexual events (30 days) --more male partners (30 days)

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
	N = 1941	13 and 15 with someone 5 or more years older when the experience involved force or coercion	telephone sample)		--more sexual events with a nonprimary partner (30 days) --more sexual events while using drugs (30 days) --greater likelihood infected with HIV
Johnson, Aschkenasy, Herbers, & Gillenwater (1996)	homeless male and female youth (age 13-23) recruited from shelters and street locations *N* = 196	not reported	structured interview	16% (*n* = 32)	--greater likelihood of reporting irregular condom use --greater likelihood of ever having anal sex --greater likelihood of sex trading --greater likelihood ever diagnosed with an STD
Johnsen & Harlow (1996)	college women *N* = 491	not reported	survey	9%	--younger age at first intercourse --more sexual partners
Kalichman et al. (2001)	men who have sex with men attending a gay pride event *N* = 595	self-defined (asked whether had been sexually abused as a child)	anonymous survey	22% (*n* = 129)	--greater likelihood of sex trading
Kalichman, Gore-Felton, Benotsch, Cage, & Rompa (2004)	men who have sex with men attending a gay pride event *N* = 608	coerced sex at age 16 or younger with a man 5 or more years older	anonymous survey	15% (*n* = 93)	--greater likelihood infected with HIV --unprotected anal receptive intercourse with more partners --greater likelihood of sex trading
Kenney, Reinholtz, & Angelini (1998)	convenience sample of women (ages 18-22) *N* = 1994	forced or coerced sexual contact before age 18	questionnaire (alone or in groups)	35% (*n* = 705)	--greater likelihood of a previous STD diagnosis
Klein & Chao (1995)	female sex partners of men who inject drugs *N* = 2794	ranged from noncontact to contact sexual abuse during childhood and adolescence	not clear	36% reported CSA 24% reported adolescent sexual abuse 18% reported both child and adolescent sexual abuse	child sexual abuse --more sex partners who inject drugs --greater number of times had sex while high --higher overall sex risk composite score adolescent sexual abuse --more sex partners who inject drugs --higher overall sex risk composite score
Kolko, Moser, & Weldy (1990)	male and female children (ages 6 to 13) in outpatient and inpatient psychiatric care *N* = 210	"exploitative involvement of the child in a given act committed for the purpose of arousing or gratifying sexual desire," as determined by intake interviewer	intake interviews with children and parents	10% (*n* = 21)	--greater likelihood of having engaged in sexual activity
Lechner, Vogel, Garcia-Shelton, Leichter, & Steibel (1993)	females attending a primary care center *N* = 523	before age 16, "a victim in any kind of sexually related acts" with someone 2 or more years older	questionnaire	26% (*n* = 134)	--more sex partners (lifetime) --earlier age of first intercourse
Lenderking et al. (1997)	homosexual and bisexual men in an ongoing study at a community health center *N* = 327	a sexual experience (noncontact to contact) before age 13 with someone 5 or more years older, or between ages 13 and 16 with someone 10 or more years older	questionnaire	35% (*n* = 116)	--greater likelihood of having unprotected receptive anal intercourse (6 months) --greater likelihood of having more than 50 lifetime male partners
Lodico & DiClemente (1994)	male and female Caucasian students in grades 9 and 12	forced or unwanted sexual contact with any adult or older person	anonymous questionnaire; completed in	9% (*n* = 471) 15% of	entire sample --greater likelihood of being sexually active

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
	N = 5290		classrooms with school personnel present	females 3% of males	--greater likelihood of onset of sexual activity before age 12 --greater likelihood of never or rarely using a condom males --greater likelihood of usually or always drinking before sex --greater likelihood of being sexually active --greater likelihood of onset of sexual activity before age 12 females --greater likelihood of being sexually active --greater likelihood of onset of sexual activity before age 12
Luster & Small (1997)	female adolescents, grades 7-12 *N* = 10,868	unwanted sexual experiences with an adult or someone older	self-report, anonymous questionnaire administered in classrooms	10% (*n* = 1109)	--more sex partners
Mason, Zimmerman, & Evans (1998)	incarcerated male and female adolescents *N* = 396	forced sexual experiences	self-report survey	19% (*n* = 76) 10% of males 68% of females	entire sample --less likelihood of contraceptive use at last intercourse males --less likelihood of contraceptive use at last intercourse females --less likelihood of contraceptive use at last intercourse --earlier age of first sexual experience
Mayall & Gold (1995)	college females *N* = 654	contact sexual activity before age 15 with someone 5 or more years older	questionnaire administered in groups	19% (*n* = 127)	--more adult sexual experience (a composite of the number of partners and type of sexual activity engaged in with each partner)
McClanahan, McClelland, Abram, & Teplin (1999)	incarcerated women *N* = 1139	unwanted sexual experience before age 16	interview	36% (*n* = 411)	--greater likelihood of sex trading [including trading sex; engaging in routine sex trading (> 1/week); and engaging in sex trading at younger ages]
Medrano, Desmond, Zule, & Hatch (1999)	women who inject drugs *N* = 181	Childhood Trauma Questionnaire	interview	60% (*n* = 109)	--no association with sexual risk behavior
Miller, Monson, & Norton (1995)	white females ages 18-22 (from the National Survey of Children) *N* = 441	forced to have sex against your will or raped	telephone interview	9% (*n* = 41)	--earlier age of first voluntary intercourse
Miner, Flitter, & Robinson (2006)	low-income, African-American women *N* = 230	self-defined (sexually abused as a child), or had a sexual experience with a sibling or parent	face-to-face, structured interview	19% (*n* = 44)	--greater likelihood of sex trading
Mullings, Marquart, & Brewer (2000)	incarcerated women *N* = 500	sexually mistreated, abused, or raped while growing up	face-to-face interviews	26% (*n* = 130)	--unprotected anal sex (30 days) --unprotected sex with someone who injects drugs (30 days) --unprotected sex with multiple

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
					partners (30 days) --unprotected sex while sex trading (30 days) --ever traded sex --higher score on a sexual risk composite measure
Nagy, DiClemente, & Adcock (1995)	8th and 10th grade female students *N* = 3124	forced to have sexual intercourse	anonymous self-report survey	13%	--younger age of first intercourse
Nelson, Higginson, & Grant-Worley (1994)	8th – 12th grade male and female students (Oregon Youth Risk Behavior Survey) *N* = 2332	unwanted sexual touch or forced to watch sexual things	survey	21% (*n* = 162) 33% of females 8% of males	females --greater likelihood of ever having sex --greater likelihood of having 3 or more sexual partners males --greater likelihood of ever having sex --greater likelihood of having 3 or more sexual partners
NIMH Multisite HIV Prevention Trial Group (2001)	women attending STD clinics and health service organizations *N* = 3346	unwanted/uninvited sexual activity before age 13 with someone 5 or more years older	interview	38% of women	--greater likelihood of trading sex --more episodes of unprotected sex (90 days) --more partners (90 days) --greater proportion of episodes of sex while using alcohol or drugs (90 days)
Noell, Rohde, Seeley, & Ochs (2001)	homeless female adolescents *N* = 216	any sexual contact with an older person, occurring before puberty	semi-structured interview	38%	--no association with sexual risk behavior
Noll, Trickett, & Putnam (2003)	women sexually abused in childhood and nonabused comparison sample (recruited in childhood and followed longitudinally) *N* = 147	genital contact by a family member, disclosed during childhood (ages 6-16), and confirmed by Child Protective Services	abuse disclosed and substantiated	not applicable	--younger age of first voluntary intercourse
O'Leary, Purcell, Remien, & Gomez (2003)	HIV positive men who have sex with men *N* = 456	before age 16, ever pressured or forced into sexual fondling or sex	paper-and-pencil questionnaire	15% (*n* = 68)	--greater likelihood of any unprotected anal sex (both receptive and insertive) in past 90 days
Parillo, Freeman, Collier, & Young (2001)	women who had not injected drugs in the past year and who had sex in the past 5 years with a male who injected drugs *N* = 1490	during childhood (age <12) or adolescence (age 12-18) experienced oral, anal, or vaginal penetration	not reported	34%	--greater likelihood of sex trading --more sex partners (30 days)
Paul, Catania, Pollack, & Stall (2001)	men who have sex with men *N* = 2881	forced or frightened into doing something sexually that you did not want to do by age 17	telephone survey or computer-assisted telephone survey	21%	--greater likelihood had unprotected anal sex with a non-primary partner (year) --greater likelihood had unprotected anal sex with a male partner of unknown or serodiscordant HIV status (year) --more likely to report frequent anal

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
					sex under the influence of drugs --greater likelihood infected with HIV
Polit, White, & Morton (1990)	teenage girls who were in the public child welfare system *N* = 177	not reported	interview	43%	--greater likelihood of ever engaging in consensual sex --younger age at first intercourse --more frequent sex (3 months)
Raj, Silverman, & Amaro (2000)*	sexually experienced male and female 9th – 12th graders (Massachusetts Youth Risk Behavior Survey) *N* = 1610	unwanted sexual contact	self-report questionnaire	30% of girls 9% of boys	<u>females</u> --greater likelihood of intercourse before age 15 --greater likelihood 3 or more sex partners (lifetime) --greater likelihood of 2 or more sex partners (3 months) --greater likelihood of substance use at last intercourse <u>males</u> --greater likelihood of intercourse before age 15 --greater likelihood 3 or more sex partners (lifetime) --greater likelihood of 2 or more sex partners (3 months) --greater likelihood of substance use at last intercourse --less likelihood a condom was used at last intercourse
Riggs, Alario, & McHorney (1990)*	male and female high school students (grades 9-12) *N* = 600	ever been sexually abused by someone close to you	self-administered, anonymous questionnaire	8%	--greater likelihood of being sexually active
Rotheram-Borus, Mahler, Koopman, & Langabeer (1996)	male and female adolescent runaways *N* = 190	sexual experience before age 13 with someone 5 or more years older (sex, fondling, or exposure) OR unwanted sex at or after age 13 with adult or peer	semistructured interview	37% of runaways	--greater likelihood of ever being sexually active --more sex partners (lifetime) --greater likelihood of engaging in sex trading --more episodes of unprotected sex (3 months) --more partners (3 months) gender x CSA interaction: CSA males had more episodes of unprotected sex and more sex partners (3 months) than non-CSA males and all females
Senn, Carey, Vanable, Coury-Doniger, & Urban (2006)	male and female patients attending an STD clinic *N* = 827	any contact sexual activity (a) before the age of 13 with someone 5 or more years older; (b) between ages 13 and 16 with someone 10 or more years older; (c) before age 17 when force or coercion were used	audio computer-assisted self-interview	51% (*n* = 419) 49% of males 53% of females	--more sex partners (lifetime) --more sex partners (3 months) --more episodes of unprotected sex (3 months) --greater likelihood of sex trading --greater likelihood of ever diagnosed with an STD
Shrier, Pierce, Emans, & DuRant (1998)	8th – 12th grade, sexually active male and female students (Vermont Youth Risk Behavior	forced or pressured to have sexual intercourse	self-administered, anonymous questionnaire	20% (*n* = 1584) 30% of females 10% of males	<u>females</u> --more years of sexual activity --less likelihood of condom use at last intercourse --younger age at first intercourse

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
	Survey) *N* = 7884				--more male sex partners (3 months) --greater likelihood of substance use before last sex males --more years of sexual activity --less likelihood of condom use at last intercourse --more male sex partners (3 months) --more female sex partners (3 months) --younger age at first intercourse --greater likelihood of substance use before last sex
Simons & Whitbeck (1991)	female adolescent runaways and homeless women *N* = 135 (*n* = 40 runaways; *n* = 95 homeless women)	for runaways: parent or adult relative ever made a request for sexual activity, attempted to make sexual contact, or touched for homeless: before age 18 parent or adult relative made a request for sexual activity or forced them to engage in sexual activities against their will	interview	over 40% of adolescent runaways about 25% of homeless women	adolescent runaways --greater likelihood of sex trading homeless women --greater likelihood of sex trading
Springs & Friedrich (1992)	women attending a family practice clinic *N* = 511	sexual experiences before age 18 with someone 5 or more years older (with a few exceptions)	mailed questionnaire	22% (*n* = 113)	--earlier age of first intercourse --more sexual partners (by age 18) --more sexual partners (lifetime)
Stevens et al. (1995)	incarcerated women *N* = 88	forced sex before age 18	health care provider interview	42% (*n* = 37)	--greater likelihood of sex trading --greater likelihood of being infected with HIV --greater likelihood of having recent unprotected sex --more HIV risks (IDU, sex trading, and unprotected sex)
Stock, Bell, Boyer, & Connell (1997)*	girls in 8th, 10th, and 12th grades (Washington State Survey of Adolescent Health Behaviors) *N* = 3128	unwanted sexual touch by a family member	anonymous survey completed in class	23%	--greater likelihood of ever having intercourse --greater likelihood of first intercourse by age 15 --less likelihood of birth control at last intercourse --greater likelihood more than 1 sexual partner (lifetime)
Thompson, Potter, Sanderson, & Maibach (1997)*	female STD clinic patients d(x) with an STD *N* = 83	forced to have sex before age 18	interview	17% (*n* = 14)	--greater likelihood of having more than 1 sex partner (90 days)
Vermund, Alexander-Rodriquez, & Macleod (1990)	male and female adolescents in juvenile detention; those with gonorrhea or syphilis matched to those without an STD *N* = 272	rape, incest, or molestation (from medical chart)	standardize interview by Physician's Assistant or Nurse Practitioner	12% (*n* = 32) 4% of males 23% of females	entire sample --greater likelihood of testing positive for gonorrhea or syphilis males --greater likelihood of testing positive for gonorrhea or syphilis females --greater likelihood of testing positive for gonorrhea or syphilis
Vlahov et al. (1998)	women who were infected with or at risk for HIV	sexual abuse or rape as a child	interview	41% to 46%	not associated with sexual risk

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
	N = 1132				
Upchurch & Kusunoki (2004) *	sexually active adolescent girls grades 7-12 (National Longitudinal Study of Adolescent Health) *N* = 3579	physically forced to have sexual intercourse	audio computer-assisted self-interview	20%	--more sexual partners (lifetime) --greater likelihood of first sex before age 14 --greater likelihood of use of alcohol or drugs at last sexual encounter --greater likelihood of ever having an STD
Walser & Kern (1996)	adult females in therapy (with practitioners who specialized in CSA cases) *N* = 116	unwanted sexual touching by a much older person, a more powerful person, or a person in a position of authority; before age 13 with someone 5 or more years older, or between 13 and 17 with someone 10 or more years older	questionnaire	not applicable	--greater rates of non-accepted sexual behavior (rated by a judge, including number of partners/year; sex on first date or with someone just met; number of extramarital partners; age at first intercourse; and frequency of STD)
Widom & Ames (1994)	men and women with court-substantiated cases of abuse, matched to those who were not abused *N* = 1575	age 11 or less at time of abuse; court-substantiated abuse	record review	not applicable	--greater likelihood of being arrested for sex trading
Wilsnack, Vogeltanz, Klassen, & Harris (1997) *	women (participating in a national survey) *N* = 969	intrafamilial sexual activity (ranging from exposure to contact abuse) before age 18 that was unwanted or with someone 5 or more years older OR extrafamilial sexual activity before age 18 that was unwanted OR extrafamilial sexual activity before age 13 with someone 5 or more years older	face-to-face interview	29% (*n* = 278)	--greater likelihood of consensual intercourse before age 15
Wind & Silvern (1994)	community sample of women employed at a university *N* = 259	parental incest, ranging from sexualized hug to intercourse	anonymous questionnaire	7% (*n* = 17)	--promiscuity (not further defined)
Wingood & DiClemente (1997)	sexually active African-American women from a low-income community, ages 18-29 *N* = 140	forced sex before age 16	face-to-face interview	15% (*n* = 21)	--greater likelihood of ever being diagnosed with an STD --greater likelihood of having 2 or more sex partners in the past 3 months --greater likelihood of ever having anal sex --greater likelihood of being diagnosed with 2 or more STDs (lifetime)
Yates, MacKenzie, Pennbridge, & Swofford (1991)	male and female homeless youth attending an outpatient clinic *N* = 620	not reported	interviews conducted by physicians in training	17%-56%	--greater likelihood of sex trading
Zierler et al. (1991)	men and women at some risk of HIV	rape or forced sex during childhood or as a teenager	behavioral questionnaire	22% (*n* = 41)	--greater likelihood of sex trading --greater likelihood of having had

Authors	Population	CSA Definition	Assessment Method	CSA Prevalence	Results CSA was associated with:
	infection (N = 186)		administered by HIV counselor or nurse clinician	29% of females 14% of males	sex with a stranger --greater likelihood of having an average of more than 2 sexual partners in a year

**Note*: Univariate analyses were not reported.

Table 2

Summary of results from studies investigating the association between CSA and subsequent sexual risk behaviors

Authors	Sex trading	More sexual partners	More unprotected sex	Earlier age at first sex	Co-occurrence of sex and substance use	Sexual risk composite score	STD diagnosis	Infected with HIV
Bartholow et al. (1994)	+	−	+				+	+
Bartoi & Kinder (1998)		−						
Bensley, Van Eenwyk, & Simmons (2000)						+		
Boyer & Fine (1992)	+							
Brown, Lourie, Zlotnick, & Cohn (2000)			+				+	
Browning & Laumann (1997)		+		+			+	
Carballo-Dieguez & Dolezal (1995)			+					
Cohen et al. (2000)	+	+						−
Cunningham, Stiffman, Dore, & Earls (1994)	+	+	−			−		
DiIorio, Hartwell, Hansen, et al. (2002)	+	+	+					
Earls & David (1990)	+							
El-Bassel, Simoni, Cooper, Gilbert, & Schilling (2001)	+							
Erickson & Rapkin (1991)			+					
Fiscella, Kitzman, Cole, Sidora, & Olds (1998)				+				
Futterman, Hein, Reuben, Dell, & Shaffer (1993)								+
Gidycz, Hanson, & Layman (1995)		+						
Goodman & Fallot (1998)	+							
Greenberg et al. (1999)	−	+	+	−			+	
Harlow et al. (1998)						+		
Hein, Dell, Futterman, Rotheram-Borus, & Shaffer (1995)								+
Hillis, Anda, Felitti, & Marchbanks (2001)		+		+				
Hillis, Anda, Felitti, Nordenberg, & Marchbanks (2000)							+	
Hobfoll et al. (2002)							+	
Holmes, Foa, & Sammel (2005)		+						
Howard & Wang, 2005		+	+		+			
Jinich et al. (1998)		+			+			+
Johnson, Aschkenasy, Herbers, & Gillenwater (1996)	+	−	+			−	+	
Johnsen & Harlow (1996)		+		+				
Kalichman et al. (2001)	+	−					−	
Kalichman, Gore-Felton, Benotsch, Cage, & Rompa (2004)	+	+	−				−	+
Kenney, Reinholtz, & Angelini (1998)							+	
Klein & Chao (1995)	−	−	−		+	+		
Kolko, Moser, & Weldy (1990)								
Lechner, Vogel, Garcia-Shelton, Leichter, & Steibel (1993)		+		+				
Lenderking et al. (1997)		+	+					−
Lodico & DiClemente (1994)			+	+	+			
Luster & Small (1997)		+						
Mason, Zimmerman, & Evans (1998)		−		+				
Mayall & Gold (1995)								
McClanahan, McClelland, Abram, & Teplin (1999)	+							
Medrano, Desmond, Zule, & Hatch (1999)	−	−	−		−			

Authors	Sex trading	More sexual partners	More unprotected sex	Earlier age at first sex	Co-occurrence of sex and substance use	Sexual risk composite score	STD diagnosis	Infected with HIV
Miller, Monson, & Norton (1995)		−		+				
Miner, Flitter, & Robinson (2006)	+	−	−	−			−	
Mullings, Marquart, & Brewer (2000)	+	+	+			+		
Nagy, DiClemente, & Adcock (1995)				+				
Nelson, Higginson, & Grant-Worley (1994)		+						
NIMH Multisite HIV Prevention Trial Group (2001)	+	+	+		+			
Noell, Rohde, Seeley, & Ochs (2001)		−	−				−	
Noll, Trickett, & Putnam (2003)		−		+		−	−	
O'Leary, Purcell, Remien, & Gomez (2003)			+					
Parillo, Freeman, Collier, & Young (2001)	+	+	−					
Paul, Catania, Pollack, & Stall (2001)			+		+			+
Polit, White, & Morton (1990)				+				
Raj, Silverman, & Amaro (2000)		+	+	+	+			
Riggs, Alario, & McHorney (1990)								
Rotheram-Borus, Mahler, Koopman, & Langabeer (1996)	+	+	+					
Senn, Carey, Vanable, Coury-Doniger, & Urban (2006)	+	+	+				+	
Shrier, Pierce, Emans, & DuRant (1998)		+	+	+	+			
Simons & Whitbeck (1991)	+							
Springs & Friedrich (1992)		+		+				
Stevens et al. (1995)	+		+			+		+
Stock, Bell, Boyer, & Connell (1997)		+		+				
Thompson, Potter, Sanderson, & Maibach (1997)		+						
Vermund, Alexander-Rodriquez, & Macleod (1990)							+	
Vlahov et al. (1998)								−
Upchurch & Kusunoki (2004)		+	−	+	+		+	
Walser & Kern (1996)						+		
Widom & Ames (1994)	+							
Wilsnack, Vogeltanz, Klassen, & Harris (1997)				+				
Wind & Silvern (1994)								
Wingood & DiClemente (1997)		+	−				+	
Yates, MacKenzie, Pennbridge, & Swofford (1991)	+							
Zierler et al. (1991)	+	+	−				−	−

Note: In studies which operationalized sexual behavior constructs in multiple ways, if one operationalization of the construct was significant, and another operationalization of the construct was not significant, the association was marked as significant in the table.

+ = significant

− = nonsignificant