

Krahé, B., & Berger, A. (2017). Gendered pathways from child sexual abuse to sexual aggression victimization and perpetration in adolescence and young adulthood. *Child Abuse & Neglect*, 63, 261-272. doi: 10.1016/j.chiabu.2016.10.004

Gendered Pathways from Child Sexual Abuse to Sexual Aggression Victimization and Perpetration in Adolescence and Young Adulthood<sup>1</sup>

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### **Abstract**

This study aimed to examine the pathways from child sexual abuse to sexual assault victimization and perpetration in adolescence and early adulthood, considering risky sexual behavior and lowered sexual self-esteem as mediator variables. In a two-wave longitudinal study with 2,251 college students in Germany, male and female participants provided reports of sexual aggression victimization and perpetration since age 14 (T1) and again a year later (T2), covering the last 12 months. In addition, child sexual abuse (CSA; before the age of 14), risky sexual behavior, and sexual self-esteem were assessed at T1, and risky sexual behavior and sexual self-esteem were assessed again at T2. Experience of CSA was significantly associated with greater likelihood of sexual aggression victimization and perpetration, lower sexual self-esteem, and more risky sexual behavior in both gender groups at T1 and was directly related to victimization at T2 among male participants. In both gender groups, CSA indirectly contributed to a higher probability of sexual victimization at T2 via its impact on victimization T1. In males, the indirect path from CSA to T2 perpetration via T1 perpetration was also significant. Through its negative impact on sexual self-esteem, CSA indirectly increased the probability of sexual victimization among women and the probability of sexual aggression perpetration among men. Risky sexual behavior mediated the pathway from CSA to sexual victimization at T2 for men and women and the pathway from CSA to sexual aggression perpetration for women. The findings contribute to the understanding of gendered effects of CSA on revictimization and the victim-to-perpetrator cycle.

*Key words:* Child sexual abuse (CSA), revictimization, sexual aggression perpetration, sexual self-esteem, risky sexual behavior, college students

## Gendered Pathways from Child Sexual Abuse to Sexual Aggression Victimization and Perpetration in Adolescence and Young Adulthood

Child sexual abuse (CSA) is a risk factor for a wide range of physical, mental, and sexual health problems. One of the consistently established sequelae of child sexual abuse is an increased vulnerability to revictimization in adolescence and adulthood, documented for both female and male survivors of CSA (Classen, Palesh, & Aggarwal, 2005; Desai, Arias, Thompson, & Basile, 2002). Moreover, there is ample evidence to demonstrate that the experience of CSA is a risk for sexual aggression perpetration, especially from studies with men (e.g., Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Casey, Beadnell, & Lindhorst, 2009), but increasingly also from studies including women (e.g., Aebi, Landolt, Mueller-Pfeiffer, Schnyder, Maier, & Mohler-Kuo, 2015; Brousseau, Hébert, & Bergeron, 2012).

Several theoretical explanations have been offered to account for the impact of CSA on sexual assault victimization and perpetration in later developmental stages (see Pittenger, Huit, & Hansen, 2016, for a review). A particularly influential account is Finkelhor's (1987) "traumagenic dynamics" model, which highlights the impact of CSA on survivors' sexual self-esteem and sexual behavior in adolescence and early adulthood. Building on this theorizing, the current study focused on the role of sexual self-esteem and risky sexual behavior as process variables underlying the path from CSA to victimization by, and perpetration of, sexual aggression in adolescence and young adulthood. By including both male and female survivors of CSA and obtaining reports of both perpetration and victimization of sexual assault in adolescence and early adulthood, the study sought to examine differential consequences of CSA in the two gender groups. A large sample of male and female college students participated in a two-wave longitudinal study in which CSA, sexual self-esteem, risky sexual behavior, and sexual

aggression victimization and perpetration in adolescence were assessed at T1 and used as prospective predictors of sexual victimization and perpetration in the following 12-month period.

### **Child Sexual Abuse, Revictimization, and the Victim-to-Perpetrator Cycle**

Sexual abuse in childhood has been established as a risk factor for both sexual aggression victimization and perpetration in later life. Several reviews concluded that survivors of CSA have a substantially higher risk of experiencing sexual victimization in adolescence and early adulthood compared to individuals not sexually abused in childhood (Classen et al., 2005; Lalor & McElvany, 2010; Messman-Moore & Long, 2003). A meta-analysis including 19 studies yielded an effect size of  $d = .59$ , indicating a substantially increased risk of sexual victimization by survivors of CSA (Roodman & Clum, 2001). All studies included in the meta-analysis examined revictimization in female CSA survivors, but recent evidence confirmed a parallel association for males (Aosved, Long, & Voller, 2011; D'Abreu & Krahe, 2016).

Regarding the victim-to-perpetrator cycle, the traumagenic dynamics model proposes that traumatic sexualization, identified as a unique effect of CSA compared to other forms of childhood abuse, involves the use of sexual behavior to manipulate others (Finkelhor, 1987). Many studies confirming a link between CSA and subsequent sexual aggression perpetration are based on samples of (primarily male) sex offenders (Thomas & Fremouw, 2009). A smaller number of studies with community or student samples also showed that survivors of CSA have higher odds of sexual aggression perpetration in adolescence and young adulthood (Tharp, DeGue, Valle, Brookmeyer, Massetti, & Matjasko, 2013). In a longitudinal study of a nationally representative sample of men, experience of CSA was a significant prospective predictor of later sexually coercive behavior toward an intimate partner (Casey, Beadnell, & Lindhorst, 2009). A longitudinal study with male college students found that CSA predicted adolescent sexual coercion, which in turn predicted sexually coercive behaviors in college (White & Smith, 2004).

In a large sample of Swiss adolescents, a significant association between CSA and coercive sexual behaviors was found in both males and females. Among males, victims of contact CSA were almost four times more likely to report coercive sexual behavior than nonvictimized participants. Among females, CSA victims were almost six times more likely to report sexually coercive behavior (Aebi et al., 2015).

### **Child Sexual Abuse and Sexual Self-Esteem**

Low self-esteem has been established as a risk factor for both victimization by, and perpetration of, sexual assault. Self-esteem is typically measured as a global construct (e.g., French, Bi, Latimore, Klemp, & Butler, 2014), but a few studies employed more specific measures of sexual self-esteem (e.g., Van Bruggen, Runtz, & Kadlec, 2006). Sexual self-esteem (sometimes also referred to as sexual esteem) is conceptualized as an individual's self-evaluation of worth as a sexual being (Buzwell & Rosenthal, 1996) and forms a critical part of the overall sexual self-concept (Deutsch, Hoffman, & Wilcox, 2014). In the traumagenic dynamics associated with CSA, stigmatization is a consequence of CSA that affects victims' self-esteem (Finkelhor, 1987). Two further dynamics are feelings of betrayal and powerlessness, which are linked to depression and lowered self-efficacy. Consistent with the traumagenic dynamics model, the association between sexual assault victimization and lowered global and sexual self-esteem has been established by several studies, both assessed within a short time after the victimization experience (e.g., Feiring, Taska, & Lewis, 1998; Turner, Finkelhor, & Ormrod, 2010) and retrospectively reported in adulthood (e.g., Van Bruggen et al., 2006).

Although many studies linking CSA to lowered self-esteem included both male and female CSA survivors, research associating low sexual self-esteem with revictimization has largely focused on women (e.g., Kelley & Gidycz, 2015; Van Bruggen et al., 2006). In fact, one of the first measures for assessing sexual self-esteem was explicitly directed at women (Zeanah &

Schwarz, 1996). However, the conceptual model of sexual self-esteem presented by Deutsch et al. (2014) applies to women and men. Studies including both gender groups suggest that self-esteem may yield different relationships with aspects of sexual behavior in males and females. For example, although there were no gender differences in sexual self-esteem in their study, Maas and Lefkowitz (2014) found that for males, sexual self-esteem was higher among those who had never used contraceptives during recent sexual intercourse than among those who had done so, whereas the difference was reversed for females. Therefore, the present study analyzed the potential differences in the role of sexual self-esteem as a mediator in the pathways from CSA to sexual aggression victimization and perpetration among both women and men.

### **Child Sexual Abuse and Risky Sexual Behavior**

As noted above, a unique dynamic identified by Finkelhor (1987) as resulting from CSA is traumatic sexualization, which is manifested at the behavioral level in precocious sexual activity, promiscuity, preoccupation with sex and compulsive sexual behavior, and sexual aggression perpetration. Operational definitions of risky sexual behavior include the number lifetime sexual partners, number of sexual partners in the past year, number of hookups, or drinking alcohol in the context of having sex (Fargo, 2009; French et al., 2014; Testa, Hoffman, & Livingston, 2010). A review of the literature by Senn, Carey, and Venable (2008) found consistent evidence for an association of CSA with sexual risk behavior in women in community, college student, and adolescent samples. The evidence for males is more limited but also shows greater sexual risk behavior among CSA survivors. Of the different criteria of risky sexual behavior, earlier age at first intercourse and having a higher number of sexual partners showed the most consistent relationships with CSA. Senn et al. (2008) concluded that future research on the link between CSA and risky sexual behavior should include both women and men and examine the role of gender as a moderator of the association.

## **Sexual Self-esteem and Risky Sexual Behavior as Predictors of Sexual Aggression**

### **Victimization and Perpetration**

A study by Testa et al. (2010) found that risky sexual behavior in the first semester of college predicted sexual victimization at the end of the first year. Using a person-centered approach to identify groups of adult victims of sexual assault, French et al. (2014) found that membership in the “poly-victimized” group, reporting multiple forms of sexual aggression victimization, was not only predicted by CSA, but participants in this group also had lower self-esteem and were more likely to engage in sexual risk-taking than the non-victim group and two groups experiencing only one form of sexual assault.

Regarding perpetration, the review by Tharp et al. (2013) found consistent evidence that having multiple partners, engaging in impersonal sex, and early initiation of sex are risk factors for sexual violence perpetration. Abbey et al. (2006) found a significant cross-sectional association between engaging in casual sexual relationships and the number of sexual assaults committed in their male sample.

### **The Role of Gender**

Prevalence rates of CSA are higher for girls than for boys (see worldwide review by Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002), but the evidence is inconclusive regarding gender differences in the psychological impact of CSA. In some studies, abused girls reported having experienced greater distress and engaged in more self-blame compared to boys (Ullman & Filipas, 2005), but other studies found the consequences of CSA to be similar for male and female survivors (Banyard, Williams, & Siegel, 2004).

Because studies examining revictimization have mostly studied women (e.g., Messman-Moore & Long, 2003) and studies examining the risk of perpetration by CSA survivors have mostly focused on men, evidence is limited on whether revictimization and victim-to-abuser

patterns hold similarly for both men and women. For the impact of CSA on revictimization, the few studies that included both female and male survivors suggest that the pathways show both parallels and differences. Although both male and female survivors were found to have an increased risk of revictimization in some studies (Werner et al., 2016), there is also evidence that the effects may differ by gender. For example, Desai et al. (2012) found that the overall odds of sexual revictimization were higher for male than for female survivors of CSA, but only women had an increased risk of sexual revictimization by an intimate partner. In a recent longitudinal study, childhood sexual trauma predicted sexual risk-taking behavior in women, but not in men (Braje, Eddy, & Hall, 2016). Regarding the path from CSA to sexual aggression perpetration, the evidence is inconsistent so far. Aebi et al. (2015) and Glasser, Kolvin, Campbell, Glasser, Leitch, and Farrelly (2001) found significant associations in both gender groups, whereas another study found that sexual abuse predicted sexually coercive behavior in women, but not in men (Schatzel-Murphy, Harris, Knight, & Milburn, 2009).

Because victimization and perpetration are rarely studied in the same individuals and in samples comprising both males and females, little is known about the possibility of differential pathways from CSA to subsequent victimization and perpetration in the two gender groups. An exception is the study by Brousseau et al. (2012), which included data from 209 couples. They found that in women, CSA was unrelated to sexual aggression victimization by the current or a former relationship partner but predicted a higher likelihood of sexual aggression perpetration. In men, CSA was unrelated to either victimization or perpetration.

From a theoretical perspective, differences in gender role socialization with regard to sexual behavior suggest that male and female CSA survivors might respond differently to the undermining effect of the abuse experience on their sexual self-esteem. According to the predominant sexual script, men are socialized into taking the role of initiator of sexual



interactions (Morrison, Masters, Wells, Casey, Beadnell, & Hoppe, 2015). Lowered sexual self-esteem may lead them to pursue their sexual interest through the use of aggressive tactics in order to achieve sexual gratification, suggesting a significant path from lowered sexual self-esteem to sexual aggression perpetration. By contrast, women are socialized to be gatekeepers of male sexual initiatives (Jozkowski & Peterson, 2013), and lowered sexual self-esteem may weaken their ability to reject unwanted sexual advances, suggesting a path from lowered sexual self-esteem to sexual assault victimization.

### **The Current Study**

Past research has generated substantial evidence for CSA as a predictor of later sexual revictimization and sexual aggression perpetration, for CSA as a predictor of reduced self-esteem and more risky sexual behavior, and for reduced self-esteem and risky sexual behavior as predictors of victimization and perpetration. However, studies testing the direct and indirect paths from CSA to later victimization and perpetration in combination are notably limited. A study by Fargo (2009) found a significant indirect path from CSA to adult sexual victimization via risky sexual behavior in a sample of 147 women. Casey et al. (2009) showed that CSA prospectively predicted risky sexual behavior, as indicated by early sexual debut and higher number of sexual partners, which in turn predicted sexually coercive behavior toward an intimate partner. The indirect path from CSA victimization to sexual aggression perpetration via risky sexual behavior was also confirmed in a sample of Brazilian men (D'Abreu & Krahe, 2014). To our knowledge, no previous study on the effects of CSA has considered both perpetration and victimization in the same individuals.

Therefore, the purpose of this two-wave longitudinal study was to examine differential pathways from child sexual abuse to sexual aggression victimization and perpetration among males and females, considering sexual self-esteem and risky sexual behavior as two variables

underlying the increased risk of revictimization and transition from victim to perpetrator, as established in previous studies. We related a measure of CSA (i.e., any sexual contact before the age of consent) to two measures of sexual aggression victimization and perpetration, referring to nonconsensual sexual contacts in adolescence and early adulthood. The first of these two measures was assessed at T1, covering the time period since the age of 14, the second measure was assessed at T2, covering the preceding 12 months. Revictimization was defined as (a) CSA and victimization since the age of 14 until the T1 assessment, (b) victimization since age 14 up to T1 and victimization in the 12 months between T1 and T2, and/or (c) CSA and victimization in the last 12 months (T2). Reperpetration is defined as sexual assault perpetration reported at both T1 and T2.

As noted by Sullivan, Ousey, and Wilcox (2016), past research has largely neglected the issue of similarities or differences in longitudinal patterns of victimization and perpetration. The current research addressed this issue and extended the scope of previous studies in several ways: (1) Both men and women were included in the sample. (2) Both victimization and perpetration were assessed in each gender group. In combination, these aspects enabled us to examine potential differences in the impact of CSA as a risk factor for subsequent victimization and perpetration at the intraindividual level, unlike most previous studies that focused on one of these outcomes and addressed revictimization in women and the victim-to-perpetrator cycle in men. (3) The two-wave longitudinal design allowed us to study CSA as a prospective predictor of victimization and perpetration in a large sample of young adults. This design enabled us to examine the following hypotheses:

(1) Male and female survivors of CSA are more likely to experience sexual assault victimization and engage in sexual assault perpetration in adolescence and early adulthood than individuals who did not experience CSA (Aebi et al., 2015; D'Abreu & Krahe, 2016). Moreover,

victimization in adolescence increases the risk of revictimization in early adulthood, and perpetration in adolescence increases the risk of perpetration in early adulthood (White & Smith, 2004).

(2) CSA predicts lowered self-esteem and more risky sexual behavior in adolescence (Senn et al., 2008; Turner et al., 2010).

(3) More risky sexual behavior prospectively predicts higher probabilities of sexual aggression victimization and perpetration; moreover risky sexual behavior mediates the pathways from CSA to both victimization and perpetration in early adulthood (Testa et al., 2010; Tharp et al., 2013).

(4) The indirect pathways from CSA to revictimization and perpetration through sexual self-esteem vary between men and women. Via its negative impact of sexual self-esteem, CSA indirectly predicts an increased probability of sexual victimization in female CSA survivors and an increased probability of sexual aggression perpetration in male CSA survivors. This hypothesis is conceptually based in the literature on gender differences in initiating and refusing sexual advances (e.g., Jozkowski & Peterson, 2013), but has not been examined so far.

### **Method**

#### **Participants and Procedure**

The initial sample consisted of  $N = 2,425$  college students at different universities in the Federal States of Berlin and Brandenburg, Germany, who were in their first year at university at T1. Because sexual behavior was conceptualized as a critical variable linking CSA to later sexual aggression victimization and perpetration, participants without coital experience at T1 ( $n = 153$ ) were excluded from the sample. A further 21 participants were excluded because they had missing data on the CSA variable, which as an exogenous variable in our model could not be included in the estimation of missing data. The final sample consisted of 2,251 participants (1,331 women and 920 men) with a mean age of 21.3 years ( $SD = 2.33$ ; range: 18-30 years) at

T1. Of these, 1,612 (993 women and 619 men) took part in the second data wave at T2 12 months later, corresponding to a retention rate of 71.6%. Participants who dropped out after T1 had significantly higher scores on the measure of CSA and showed more risky sexual behavior than those who remained in the study. Rather than excluding the dropouts from the analyses, all 2,251 T1 participants were included, and missing data were handled using full information likelihood estimation, as explained below. The percentage of missing data at T1 was  $\leq 1\%$  across all study variables.

Participants were enrolled in a wide range of academic degree courses. In terms of sexual experience and relationship background at T1, 85.0% of men and 78.0% of women reported exclusively heterosexual contacts, 10.3% of men and 20.7% of women reported both heterosexual and same-sex contacts, and 4.7% of men and 1.3% of women reported exclusively same-sex contacts. Fifty-three percent of men and 63.9% of women reported currently being in a steady relationship, and 80.3% of men and 82.2% of women reported having ever been in a relationship. The mean age at first heterosexual intercourse was 16.47 years ( $SD = 1.83$ ) among women and 17.01 years ( $SD = 1.86$ ) among men. The mean age of first same-sex intercourse was 17.54 years ( $SD = 2.84$ ) among women and at 17.38 years ( $SD = 3.07$ ) among men. At T1, women reported a mean number of 4.22 sexual partners ( $SD = 3.97$ ), men reported a mean number of 5.78 partners ( $SD = 8.79$ ). After removing outliers ( $+ 3 SD$  above the mean), the mean number of partners was 3.61 ( $SD = 2.58$ ) for women and 4.57 ( $SD = 4.52$ ) for men.

## **Instruments**

**Child sexual abuse (CSA).** CSA was measured by three items referring to the experience of sexual contact abuse before the age of 14, which is the legal age of consent in Germany: “As a child, have you experienced a situation in which (1) an older person/an adult sexually touched you even though you did not want to or made you touch him or her?; (2) tried to penetrate your

body (mouth, vagina, or anus), although it did not happen in the end; (3) penetrated your body?” Response options were 0 (*never*), 1 (*very rarely*), 2 (*sometimes*) 3 (*often*), 4 (*almost all the time*). Because the three items were additive and independent of one another, calculating their internal consistency was not meaningful. A four-level ordinal score of CSA was created on the basis of the responses to the three items: (0) = no CSA, if participants responded “never” to all three items, (1) = sexual touch, if participants responded > 0 to the first item but 0 to the second and third items; (2) = attempted penetration, if participants responded > 0 to the second item and 0 to the third item; (3) completed penetration, if participants responded > 0 to the third item. This graded severity score follows the approach used in other studies (e.g., Abbey et al., 2006).

**Sexual aggression victimization and perpetration.** To collect reports of sexual aggression victimization and perpetration, we used the Sexual Aggression and Victimization Scale (SAV-S) developed in Germany by Krahe and Berger (2013). Following the general format of the revised Sexual Experiences Survey by Koss et al. (2007), the SAV-S additionally breaks down reports of victimization and perpetration by relationship between the perpetrator and the victim. Moreover, the SAV-S addresses sexual aggression in different gender constellations by presenting participants with items referring to heterosexual contacts, same-sex-contacts, or both depending on their sexual experience. The SAV-S prompts participants to report sexual experiences that happened to them “against their will” (victimization) or behaviors inflicted on another person “against his/her will” (perpetration), differentiating between three coercive strategies: the threat or use of physical force, the exploitation of the inability of the victim to resist (e.g., due to alcohol or drug consumption), and the use of verbal pressure (e.g., calling the victim a failure). For each coercive strategy, three different victim-perpetrator relationships are presented (current or former partner, acquaintance, and stranger). Within each relationship constellation, four sexual activities are specified: sexual touch, attempted sexual intercourse,

completed sexual intercourse, and other sexual acts (e.g., oral sex). A demo version of the SAV-S is available at <http://www.w-lab.de/sav-s.html>. Altogether, participants received 36 items (three coercive strategies x three victim perpetrator constellations x four sexual acts) asking about experiences of sexual aggression victimization and 36 parallel items asking about instances of sexual aggression perpetration. At T1, a four-point scale of 0 (*never*), 1 (*once*), 2 (*twice*) and 3 (*three or more times*) was used for each item. Because the number of responses in the categories > 1 was very low, the format was changed to a dichotomous response scale of 1 (*once*) and 2 (*more than once*) at T2, with a summary response option (*I did not experience any of these actions*) replacing the 0 category for each item to reduce the time needed to complete the survey. At T1, participants were asked to complete the items for the time period since their 14<sup>th</sup> birthday, the legal age of consent in Germany. At T2, they were asked to complete the items for the last 12 months.

In addition to yielding the percentage of participants who endorsed at least one item of the victimization and perpetration measure at each data wave, responses were converted into a six-level severity score based on Koss et al. (2007). For victimization, participants who did not endorse any of the victimization items were assigned to the *nonvictim* (1) category. Participants who reported at least one experience of unwanted sexual contact without penetration of the body through the use of verbal pressure, exploitation of victim's intoxicated state, threat or use of physical force, but no attempted sexual coercion, sexual coercion, attempted rape, and rape were classified as victims of unwanted *sexual contact* (2). Participants who reported at least one experience of attempted oral, vaginal, or anal penetration using verbal pressure, but no attempted and completed rape were classified as victims of *attempted sexual coercion* (3). Those who endorsed at least one item of completed oral, vaginal, or anal penetration using verbal pressure, but no attempted or completed rape were categorized as victims of *sexual coercion* (4.) Those

who reported attempted, but not completed, oral, vaginal, or anal penetration through exploitation of their intoxicated state or threat or use of physical force were classified as victims of *attempted rape* (5), and those who endorsed at least one item of completed oral, vaginal, or anal penetration through exploitation of their intoxicated state or threat or use of physical force were categorized as victims of *completed rape* (6). Perpetrator status was defined in a parallel way. The resulting six-level victimization and perpetration scores were used in the path analyses reported below.

Administering the SAV-S online enabled us to assign each participant to the appropriate version of the questionnaire depending on his or her sex and sexual experience with members of the opposite and/or the same sex. For example, a female participant who reported sexual interactions with a member of the opposite sex but no sexual interactions with a member of the same sex received the heterosexual version of the questionnaire from the perspective of a female victim/male perpetrator (victimization part) and female perpetrator/male victim (perpetration part). By contrast, a woman who reported both heterosexual and same-sex sexual interactions received a version that elicited reports of sexual aggression and victimization separately for same-sex and heterosexual encounters. The SAV-S has been validated in several countries (Krahé et al., 2016). On each page, participants could press a „help button“ in case the questions elicited painful memories and they felt the need for professional support. Pressing the button triggered an e - mail to the research team, and arrangements had been put in place with local counseling agencies for immediate crisis intervention. Only one person pressed the help button, and this turned out to be accidental.

**Sexual self-esteem.** To measure sexual self-esteem, we used 12 items from the short form of the Sexual Self-Esteem Scale by Zeanah and Schwarz (1996). Although the scale was originally developed for women, it has been used in research with both males and females

(Swenson, Houck, Barker, Zeanah, & Brown, 2012). Four items each from the Skill and Experience scale (ability to please, or be pleased by, a sexual partner and the availability of opportunities to engage in sexual activity; e.g., “I feel I am pretty good at sex”), Control scale (ability to direct or manage one’s own sexual thoughts, feelings, and interactions; e.g., “I feel physically vulnerable in a sexual encounter”; reverse coding), and Adaptiveness scale (congruence of one’s sexual experience or behavior with other personal goals or aspirations; e.g., “in general, I feel my sexual experiences have given me a more positive view of myself”) were used. Responses were made on a five-point scale ranging from 1 (*do not agree at all*) to 5 (*totally agree*). The internal consistency was good, with Cronbach’s alphas of .82 at T1 and .84 at T2.

**Risky sexual behavior.** To measure behaviors reflecting established risk factors of both sexual aggression and sexual victimization, a seven-item measure was employed based on previous research by Krahe, Bieneck, and Scheinberger-Olwig (2007). Four items referred to alcohol use (e.g., “How often did you/did the other person drink alcohol in situations in which you had sexual intercourse”; “How drunk were you/was the other person in these situations?”), two items referred to ambiguous communication strategies (saying ‘no’ when meaning ‘yes’ and saying ‘yes’ when meaning ‘no’), and one item referred to having sexual intercourse with a partner they did not know well (“When you had sex: how often was it with someone you knew hardly or not at all”). Responses were made on five-point scales ranging from 1 (*never/not at all drunk*) to 5 (*almost every time/totally drunk*). At T1, participants were asked to think about the situations in which they had sex “in the past”, at T2 they were instructed to think about the situations in which they had sex “in the past 12 months”. The internal consistency of the scale was  $\alpha = .73$  at T1 and  $\alpha = .72$  at T2.

**Sexual experience background and demographics.** At the beginning of the questionnaire, participants were asked to indicate their sex, age, nationality, home university, and



subject of study, whether they were currently in a steady relationship and whether they had been in a steady relationship in the past. In terms of sexual experience background, they were asked whether or not they had ever engaged in sexual contact with a member of the same sex and a member of the opposite sex (response options: no, yes without sexual intercourse; yes with sexual intercourse). Those who reported coital experience were asked to indicate their age at first intercourse and number of coital partners.

### **Procedure**

Approval for the study and all materials was obtained from the Ethics Committee of the authors' university. Invitations to participate in the study were sent out to first year students of the participating higher education institutions through the respective student offices or student associations. Students interested in participating registered in a data bank created for the purposes of this study and were sent the link to the online survey upon registration. Participants were required to give active consent on the first page of the survey before being able to proceed to the items. At each data wave, all participants received a 10-Euro Amazon voucher for their participation.

### **Results**

The percentages of male and female participants who reported CSA, victimization and perpetration since age 14 (at T1), as well as victimization and perpetration in the last 12 months (at T2) is presented in Table 1. These rates are based on dichotomized scores assigning participants to the categories of victims/perpetrators and nonvictim/nonperpetrators, respectively. For all further analyses, the continuous 6-level scores were used, as shown in Table 2.

Insert Table 1 about here

The means for all study variables are displayed in Table 2, separately for men and women.

Insert Table 2 about here

Women had significantly higher sexual victimization scores at T1, but not at T2, men had higher perpetration scores at both T1 and T2. No gender differences emerged on the remaining variables. The majority of bivariate correlations between the model variables were significant. CSA was significantly correlated with all variables except sexual aggression perpetration at T2 among both men and women and except sexual aggression victimization and risky sexual behavior at T2 among women. Sexual self-esteem at T1 was significantly correlated with sexual aggression victimization and perpetration at both T1 and T2 among men and with sexual aggression victimization among women. Sexual self-esteem and risky sexual behavior were uncorrelated in both gender groups, supporting their role as distinct mediators in the association between CSA and victimization and perpetration in adolescence and young adulthood. Five correlation coefficients differed significantly between men and women, based on Fisher's  $z$  and adopting a significant level of  $p < .001$  to adjust for multiple comparisons: CSA was more strongly correlated in men ( $n = 920$ ) than in women ( $n = 1,331$ ) with victimization at T2 ( $r_{\text{men}} = .22$ ;  $r_{\text{women}} = .04$ ;  $z = 4.04$ ), perpetration at T1 ( $r_{\text{men}} = .25$ ;  $r_{\text{women}} = .09$ ;  $z = 3.85$ ), and risky sexual behavior at T2 ( $r_{\text{men}} = .17$ ;  $r_{\text{women}} = -.02$ ;  $z = 4.46$ ). Perpetration at T1 was more strongly correlated with victimization at T1 among men than among women ( $r_{\text{men}} = .45$ ,  $r_{\text{women}} = .24$ ;  $z = 5.59$ ), and also more strongly correlated with risky sexual behavior at T1 ( $r_{\text{men}} = .24$ ,  $r_{\text{women}} = .10$ ;  $z = 3.36$ ).

### **Path Analyses**

To examine the paths from child sexual abuse to victimization and perpetration in adolescence and early adulthood, we estimated the path model shown in Figure 1. In addition to the paths shown in Figure 1, sexual self-esteem and risky sexual behavior at T2 were included as covariates to account for the stability of these predictors from T1 to T2. Missing data as well as

the non-normality of the variables were handled by using a robust Full-Information-Maximum Likelihood (FIML) estimator implemented in Mplus (MLR; Enders, 2010; Muthen & Muthen, 1998-2012). FIML assumes that the data are missing at random (MAR). That is, data are considered MAR if dropout status is unrelated to unobserved values controlling for the two T1 variables (CSA and risky sexual behavior) for which dropouts were found to have higher scores. There are not statistical tests for ascertaining MAR data patterns. As discussed in detail in Enders (2010, p. 15), an unmeasured cause of missingness (which would violate the MAR assumption) is problematic only if it has a strong relationship with the missing outcome after partialling out other measured variables, which "is unlikely in most situations". Moreover, a portion of the dropouts is likely to be missing completely at random (MCAR) because their email addresses were no longer valid at T2. Therefore, we considered the use of FIML appropriate for our analyses. Individual coefficients were compared using the 'DIFF test' option in Mplus. The significance of all direct and indirect paths was tested through examining confidence intervals based on 10,000 bootstraps. Because bootstrapping is not possible using the MLR estimator, the ML estimator was used for these analyses.

In the first step, we tested a multigroup model by gender in which all paths were constrained to be equal for males and females. This model showed a good fit with the data,  $\chi^2 (df = 40) = 118.613, p < .001$ ; RMSEA = 0.042 (C.I. .033; .051); CFI = 0.959; TLI = 0.927; SRMR = 0.049. Next, we estimated a model in which the paths were allowed to vary between males and females to establish whether the more restrictive model in which the paths were constrained to equality would not fit worse than the unconstrained model. Model fit for the unconstrained model was also good,  $\chi^2 (df = 20) = 34.305, p = .024$ ; RMSEA = .025 (C.I. .009; .039); CFI = .993; TLI = .973; SRMR = .022, and was significantly better than the fit of the constrained model,  $\chi^2 \text{ diff } (df=20) = 84.308, p < .0001$ . Therefore, the unconstrained model

was adopted as the final model, and the individual coefficients were tested for significant gender differences with the DIFF test option.<sup>2</sup>

As predicted in Hypothesis 1, the experience of CSA was significantly associated with revictimization in adolescence and with sexual assault perpetration among both female and male participants, as assessed retrospectively at T1. For victimization, the strength of the association did not vary by gender, but for perpetration, it was stronger for males than for females. Controlling for sexual victimization in adolescence, CSA was directly and prospectively associated with revictimization at T2 for men, but not for women, and the direct path from CSA to T2 perpetration was nonsignificant in both gender groups. For both men and women, there was evidence of revictimization and re-perpetration from T1 to T2.

Consistent with Hypothesis 2, CSA was a significant predictor of lower sexual self-esteem and more risky sexual behavior in both gender groups, with the association between CSA and risky sexual behavior being stronger among men than among women. In line with Hypothesis 3, risky sexual behavior at T1 was a significant prospective predictor of sexual aggression victimization at T2 in both men and women, controlling for the stability of risky sexual behavior from T1 to T2. The link between risky behavior at T1 and sexual aggression perpetration at T2 was significant in women, but not in men, although the path coefficients were of similar magnitude and the difference in significance may be attributed to the smaller size of the male subsample.

As predicted in Hypothesis 4, differential patterns were found in the two gender groups regarding the role of sexual self-esteem. CSA predicted lower self-esteem in both gender groups,

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<sup>2</sup> We also ran the model including only participants who completed both T1 and T2. The path coefficients changed very slightly, but all significant paths remain significant, and the model fit was almost identical; Model fit:  $\chi^2 (df = 20) = 34.215, p = .025$ ; RMSEA = .030 (C.I. .011; .046); CFI = .992; TLI = .971; SRMR = .019.

but the paths from sexual self-esteem to subsequent sexual aggression victimization and perpetration varied by gender. Lower sexual self-esteem predicted sexual victimization in women, but not in men, whereas it predicted sexual aggression perpetration among men, but not among women. This finding indicates that the adverse impact of CSA on sexual self-esteem leads to different outcomes in terms of sexual aggression victimization and perpetration in men and women.

The indirect paths from CSA to victimization and perpetration tested through the examination of bootstrapped confidence intervals are presented in Table 3.

Insert Table 3 about here

CSA indirectly predicted sexual aggression victimization at T2 via risky sexual behavior and victimization at T1 in both male and female participants. Significant indirect paths were also found from CSA to sexual aggression perpetration at T2 via perpetration at T1 in men and via risky sexual behavior in women only. Sexual self-esteem was a significant mediator in the indirect path from CSA to victimization at T2 for women and in the indirect path from CSA to perpetration at T2 for men.

### **Discussion**

This study examined the association between child sexual abuse and sexual assault victimization and perpetration in adolescence and young adulthood in a two-wave longitudinal study. CSA was assessed retrospectively at T1, after participants had started university, together with sexual aggression victimization and perpetration since age 14, sexual self-esteem, and risky sexual behavior. Sexual self-esteem, risky sexual behavior, and sexual aggression victimization and perpetration were assessed again 12 months later when participants were in their second year at university. Regarding the prevalence of CSA and sexual victimization, 11.4% of women and 8.5% of men reported some form of child sexual abuse. These rates are similar a representative

sample of 2.504 participants above the age of 14 (53% female), in which the overall prevalence rate of CSA was 12.6%, with significantly higher rates for female than for male participants (Häuser, Schmutzer, Brähler, & Glaesmer, 2011). The present rates are higher than those found in a representative population sample in 2011, where 5.1% of women and 1.1% of men reported experiences of contact CSA before the age of 14 (Stadler, Bieneck, & Pfeiffer, 2012), but that study only included incidents in which the abuser was at least five years older than the victim.

Sexual victimization since the age of 14, as assessed at T1, was reported by 29.7% of women and 15% of men, and 26.4% of women and 24.7% of men reported sexual victimization in the 12-month period between T1 and T2. The latter period covered their first year at university, and the high rates during this period are in line with previous research marking the first year at university as a “red zone” for the risk of sexual victimization (Flack et al., 2008; Krebs, Lindquist, Merzofsky, Shook-Sa, & Peterson, 2016). On the six-level score of sexual victimization, which takes the severity of the sexual assault into account, women scored significantly higher than did men at T1, but not at T2. Evidence of gender similarity in the prevalence of sexual victimization in Germany also comes from a study by Chan, Straus, Brownridge, Tiwari, and Leung (2008), who assessed sexual assault victimization with the revised “Conflict Tactics Scales”. Their prevalence rates, however, were higher than in the present study, with 44.3% of men and 39.6% of women reporting sexual assault victimization by a dating partner in the last 12 months. The same study also found high rates of male sexual victimization in most of the other 20 countries in their study, including the United States (34.0% of males; 30.6% of females) and Canada ( 27.9% of males; 28.6% of females), indicating that males experience sexual victimization at a substantial rate. Regarding the high prevalence rates obtained by the CTS2, it is worth noting that this measure adopts a broad definition of sexual

coercion, including behavior such as “made my partner have sex without a condom” or “insisted on sex when my partner did not want to (but did not use physical force)”.

A clear gender difference emerged regarding the prevalence of sexual aggression perpetration in the present sample, with 10.4% of men and 6.2% of women reporting at least one act of sexual aggression perpetration at T1 and 12.3% of men and 6.5% of women reporting at least one act of sexually aggressive behavior in the 12 months between T1 and T2. The gender difference is consistent with past research including ten European countries (Krahé et al., 2015) as well as a study conducted in 21 countries worldwide by Chan et al. (2008).

Consistent with past research, our study based on a large sample of college students in Germany found that CSA survivors were more likely to experience sexual revictimization in adolescence and young adulthood (after the legal age of consent). They were also more likely to engage in sexual aggression perpetration, have lower self-esteem, and show more risky sexual behavior, defined in terms of casual sex and association of sexual activity with alcohol consumption. These relationships held equally for men and women, and the possibility of directly comparing the two groups added substantially to the body of previous research including only one gender group (Humphrey & White, 2000; White & Smith, 2004).

Although CSA and sexual aggression victimization and perpetration were assessed concurrently at T1, the two-wave longitudinal design of our study enabled us to examine CSA as a prospective predictor of sexual aggression victimization and perpetration in the following 12 months, covering the first year at university. This analysis showed that CSA was a significant predictor of victimization at T2 for men, but not for women, and that the direct path from CSA to sexual aggression perpetration was nonsignificant in both gender groups. The absence of a direct path from CSA to T2 perpetration is in line with longitudinal research by Loh and Gidycz (2006), who failed to find a link between CSA and sexual aggression perpetration in the following three-

month period. While their interim period may have been too short to detect sufficiently high levels of perpetration, the present study covered an interval of 12 months and included prior perpetration at T1 as a more proximate outcome variable.

In interpreting the nonsignificant direct effects of CSA on the T2 outcomes, it should be noted that CSA indirectly predicted victimization at T2 through a higher probability of victimization at T1 in both gender groups. These findings suggest that CSA survivors are more likely to be victimized in their first year at university due to an increased probability of victimization in adolescence. Similar indirect pathways from CSA to later victimization were found in previous research (e.g., Humphrey & White, 2000). A parallel indirect path from CSA to sexual aggression perpetration at T2 through perpetration at T1 was only found for the male participants, partly confirming past research by White and Smith (2004).

The present findings are also consistent with past research in showing that risky sexual behavior mediated the path from CSA to sexual aggression revictimization. Complementing past research that demonstrated the mediational role of risky sexual behavior for women (Fargo, 2009; Orcutt, Cooper, & Garcia, 2005), the present study found a parallel effect for men. One explanation offered for this indirect pathway is that CSA survivors engage in risky sexual behavior as a way of coping with the negative affect generated by the abuse experience (Orcutt et al., 2005). Evidence that CSA predicted sexual aggression perpetration in the first year at university indirectly via risky sexual behavior was only found for women. A parallel link for men, which had been demonstrated in an all-male sample by Casey et al., (2009), was not found in the present data. The direct path from risky sexual behavior to perpetration at T2 was almost the same for male and female participants, and the path coefficient for the indirect path from CSA to T2 perpetration via risky sexual behavior was higher in the male than in the female sample. Both coefficients may have failed to reach significance due to the smaller size of the male subgroup. It



is worth noting in this context that the only other study of sexual aggression perpetration that included both male and female CSA survivors found substantially higher odds ratios for the risk of sexual aggression perpetration in female as compared to male survivors of contact sexual abuse. Moreover, being a victim of multiple episodes of CSA was a significant predictor of perpetration among female survivors only (Aebi et al., 2015). Given the paucity of evidence on the victim-to-abuser cycle in female CSA survivors, especially from college and community samples, further research is needed to replicate and extend the current findings. Such replications should consider additional aspects of sexual behavior and lifestyle, such as the number of sexual partners.

The most interesting gender-related results were found for the mediating role of sexual self-esteem. In line with past research (Maas & Lefkowitz, 2014), men and women did not differ in their level of sexual self-esteem, and CSA negatively affected the sexual self-esteem of both male and female survivors. However, the undermining effect of CSA on sexual self-esteem operated differently in the two gender groups with respect to the pathways to victimization and perpetration. In female CSA survivors, lowered sexual self-esteem led to an increased risk of victimization, whereas in male survivors, it predicted an increased risk of perpetration. To our knowledge, our study is the first to demonstrate these differential pathways in a longitudinal analysis that assessed sexual aggression victimization and perpetration in the same participants.

To explain the gendered pathways from sexual self-esteem to sexual aggression victimization and perpetration, the construct of “sexual scripts” may be useful. Sexual scripts are cognitive representations of the typical sequence of events in a sexual encounter that include both descriptive and normative elements (Krahé et al., 2007). Although the traditional sexual script that assigns men to the role of initiators and women to the role of gatekeepers of sexual interactions is no longer universally accepted, (Morrison, et al., 2015), it still presents a

normative framework for male and female behavior in sexual situations (Hipp, Bellis, Goodnight, Brennan, Swartout, & Cook, 2015; Kreager, Staff, Gauthier, Lefkowitz, & Feinberg, 2016). As CSA undermines survivors' self-esteem as sexual beings, the two gender groups may fall back on traditional sexual scripts as frameworks providing orientation for their sexual self-concept and behavior. For men, enacting the traditional male script that prescribes overcoming what is seen as a woman's seeming reluctance may enhance their sense of masculinity (Wiederman, 2005). For women, enacting the traditional female script of providing sexual pleasure for men and responding to men's initiation of sexual contact may make them more vulnerable to giving in to unwanted sexual advances. This might explain why lowered sexual self-esteem experienced by survivors of CSA leads to differential risks of revictimization and victim-to-perpetrator patterns in men and women. However, as endorsement of traditional sexual scripts was not assessed in the present study, these theoretical considerations need to be tested in subsequent research.

### **Strengths, Limitations, and Implications**

We believe that our study has several strengths: It employed a longitudinal design with two data waves 12 months apart that enabled us to examine CSA as a prospective predictor of sexual aggression victimization and perpetration in the first year at college, controlling for perpetration and victimization in adolescence. It included a large sample of more than 2,200 college students in Germany, contributing to the international data base on the association between CSA and subsequent sexual aggression victimization and perpetration. Both men and women were included in the study, and victimization and perpetration were assessed in each gender group.

As a limitation, CSA was measured retrospectively, which means that memories of CSA may have been affected by sexual assault experiences as a victim or perpetrator since the age of 14. However, the retrospective assessment of CSA is widely used in this field of research (e.g.,

Loh & Gidycz, 2006; Swartout, Swartout, & White, 2011), and according to the analysis by Hardt and Rutter (2004), retrospective reports of sexual abuse as an adverse childhood experience can be considered to yield valid information. Moreover, our findings are consistent with evidence from studies including survivors with a documented history of CSA (e.g., Fargo, 2009).

Our study has several implications for future research in the field of CSA and adult sexual aggression as well as for the prevention of revictimization and sexual aggression perpetration as a consequence of CSA. First, our findings join a small body of research showing that male survivors of CSA have a similarly increased risk of later revictimization as female victims, for whom this risk has been widely demonstrated in past research. Second, we demonstrated that the victim-to-perpetrator cycle shown for male survivors also held for female survivors of CSA and was mediated by risky sexual behavior in our analysis. Furthermore, the present findings demonstrate that lowered sexual self-esteem found in both female and male CSA survivors has a differential impact on subsequent pathways to victimization and perpetration in the two gender groups. Low sexual self-esteem in CSA survivors led to sexual aggression victimization in women and to sexual aggression perpetration in men, suggesting that interventions should be tailored to address these differential risks. In combination, these findings point to the need to go beyond the traditional focus on the risk of re-victimization in female and risk of perpetration in male survivors in interventions for victims of CSA and to acknowledge that similar psychological responses to CSA may lead to different threats to survivors' future sexual behavior and well-being.

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Table 1

*Percentages of Participants Who Reported CSA and Sexual Victimization and Perpetration Since Age 14 (T1) and in the Last Twelve Months (T2)*

	Women	Men
Child sexual abuse: Total	11.4	8.5
Child sexual abuse: Sexual touch	7.1	3.9
Child sexual abuse: Attempted penetration	2.3	1.1
Child sexual abuse: Completed penetration	2.0	3.5
Sexual victimization since age 14 (T1)	29.7	15.0
Sexual victimization in the last 12 months (T2)	26.4	24.7
Sexual aggression perpetration since age 14 (T1)	6.2	10.4
Sexual aggression perpetration in the last 12 months (T2)	6.5	12.3

Table 2

*Means and Bivariate Correlations*

Construct (Range)	<i>M</i>	<i>M</i>	1	2	3	4	5	6	7	8	9
	( <i>SD</i> ) Men	( <i>SD</i> ) Women									
1. Child sex. abuse (0-3)	0.17 0.61	0.18 0.56	-	.24***	<b>.22***</b>	<b>.25***</b>	.03	-.20***	-.21***	.22***	<b>.18***</b>
2. Victimization T1 (1-6)	1.52 <sup>a</sup> 1.39	2.04 <sup>b</sup> 1.80	.18***	-	.21***	<b>.45***</b>	.14***	-.11***	-.13***	.27***	.18***
3. Victimization T2 (1-6)	1.88 1.76	1.72 01.49	<b>.04</b>	.21***	-	.13***	.35***	-.05	-.09***	.16***	.24***
4. Perpetration T1 1-6)	1.36 <sup>a</sup> 1.16	1.20 <sup>b</sup> 0.86	<b>.09***</b>	<b>.24***</b>	.09***	-	.18***	-.08**	-.09**	<b>.24***</b>	.21***
5. Perpetration T2 (1-6)	1.40 <sup>a</sup> 1.22	1.16 <sup>b</sup> 0.74	.02	.09***	.24***	.10***	-	-.11***	-.03	.09**	.17***
6. Sexual self-esteem T1 (1-5)	3.79 0.61	3.77 0.66	-.13***	-.17***	-.12***	-.05	.00	-	.69***	-.04	-.09
7. Sexual self-esteem T2 (1-5)	3.75 0.60	3.73 0.68	-.09***	-.18***	-.15***	-.02	-.02	.73***	-	-.03	-.06
8. Risky sexual behavior T1 (1-5)	2.13 0.57	2.16 0.57	.12***	.30***	.13***	<b>.10**</b>	.09**	-.02	.01	-	.53***
9. Risky sexual behavior T2 (1-5)	2.04 0.57	1.99 0.54	<b>-.01</b>	.18***	.21***	.10***	.11***	.02	-.00	.52***	-

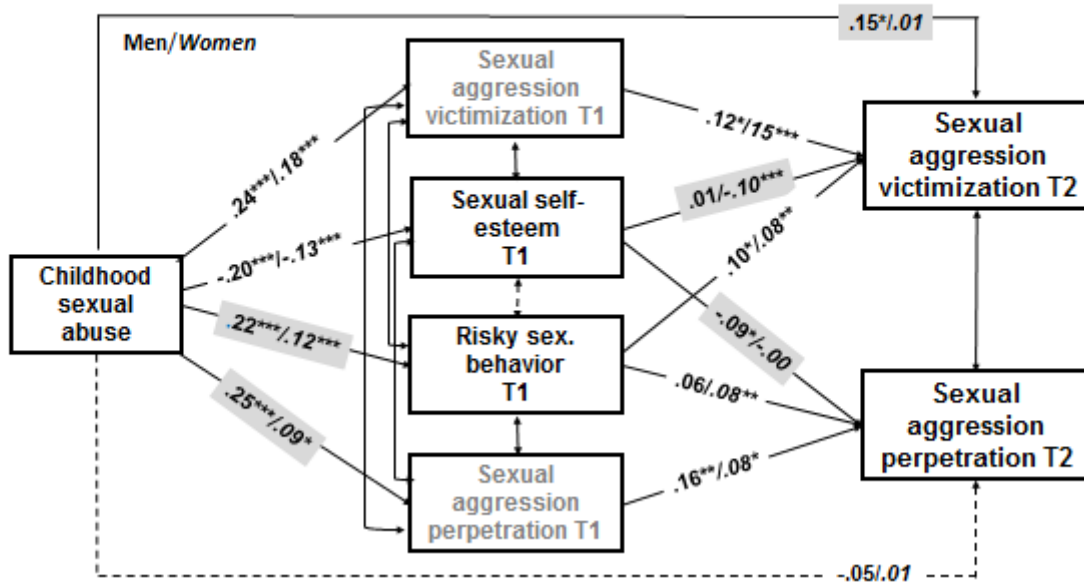
<sup>a,b</sup> Means differ significantly. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ . Correlation coefficients for men ( $n = 920$ ) above the diagonal, coefficients for women ( $n = 1,331$ ) below the diagonal. Coefficients in bold are significantly different between men and women at  $p < .001$ .

Table 3

*Indirect Paths from CSA to Sexual Aggression Victimization and Perpetration at T2*

<i>Indirect Paths</i>	<i>Men</i>	<i>Women</i>
CSA -> Victimization T1 -> Victimization T2	.030* (.003;.070)	.028** (.010;.054)
CSA -> Sexual self-esteem T1 -> Victimization T2	-.002 (-.020;.017)	.014** (.002;.029)
CSA -> Risky sexual behavior -> Victimization T2	.021* (.002;.045)	.010* (.002;.024)
CSA -> Perpetration T1 -> Perpetration T2	.040** (.001;.085)	.007 (-.001;.025)
CSA -> Sexual self-esteem T1 -> Perpetration T2	.018* (.002;.040)	.000 (-.012;.011)
CSA -> Risky sexual behavior -> Perpetration T2	.013 (-.010;.036)	.009** (.001;.021)

\*  $p < .05$  (95% C.I. excludes zero, 10,000 bootstraps); \*\*  $p < .01$  (99% C.I. excludes zero).  
C.I. in parentheses. CSA = Childhood sexual abuse.



\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Controlled for sexual self-esteem and risky sexual behavior at T2. Correlations between all T1 variables were included in the model (see Table 1 for bivariate correlations). Model fit:  $\chi^2 (df = 20) = 33.284, p = .031$ ; RMSEA = .024 (C.I. .007; .038); CFI = .993; TLI = .976; SRMR = .022. The first coefficients refer to men, the second coefficients refer to women. Shaded coefficients differ significantly between men and women. Indirect paths are shown in Table 2.

Figure 1. Longitudinal paths from child sexual abuse to sexual aggression victimization and perpetration in early adulthood.