



Pathways from childhood sexual abuse to sexual aggression victimization and perpetration in adolescence and young adulthood: a three-wave longitudinal study

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ABSTRACT

Background: Childhood sexual abuse (CSA) has been identified as a risk factor for later sexual aggression perpetration and vulnerability factor for sexual victimization. However, the use of cross-sectional designs, the focus on female victimization and male perpetration, and the lack of evidence from outside North America limit the existing knowledge base.

Objective: The study was designed to examine pathways from CSA to sexual revictimization and sexual aggression perpetration after the age of consent.

Method: A total of 588 university students in Germany (308 female) took part in a three-wave longitudinal study covering 23 months. At each wave (T1–T3), all participants completed measures of sexual aggression victimization and perpetration. Experiences of CSA were measured at T1.

Results: The rate of CSA was significantly higher for women (20.8%) than for men (12.4%). Rates of sexual victimization for women were 60.9% at Time 1 (since age 14), 22.3% at Time 2 (since T1), and 17.4% at Time 3 (since T2). For men, the rates were 39.2% at Time 1, 15.9% at Time 2, and 14.1% at Time 3. Rates of sexual aggression perpetration for women were 10.6% at Time 1 (since age 14), 3.5% at Time 2 (since T1), and 3.6% at Time 3 (since T2). For men, the rates were 18.0% at Time 1, 6.2% at Time 2, and 3.8% at Time 3. The gender differences in victimization and perpetration were significant only at T1. CSA predicted higher odds of sexual aggression victimization and perpetration cross-sectionally at T1 and indirectly at T2 and T3 via T1. Gender did not moderate the associations.

Conclusion: The results confirm previous findings of elevated rates of sexual aggression victimization and perpetration in adolescence and young adulthood in victims of CSA. The implications for understanding and preventing adverse sexuality-related outcomes of CSA are discussed.

Vías desde el abuso sexual infantil hasta la victimización y perpetración de agresión sexual en la adolescencia y la adultez joven: un estudio longitudinal de tres fases

Antecedentes: El abuso sexual infantil (ASI) ha sido identificado como un factor de riesgo para la perpetración posterior de agresiones sexuales y un factor de vulnerabilidad para la victimización sexual. Sin embargo, el uso de diseños transversales, el enfoque en la victimización femenina y la perpetración masculina, y la falta de evidencia fuera de América del Norte limitan la base de conocimiento existente.

Objetivo: El estudio fue diseñado para examinar las vías desde el ASI hasta la revictimización sexual y la perpetración de agresión sexual después de la edad de consentimiento.

Método: Un total de 588 estudiantes universitarios en Alemania (308 mujeres) participaron en un estudio longitudinal de tres fases que abarcó 23 meses. En cada momento (T1–T3), todos los participantes completaron medidas de victimización y perpetración de agresión sexual. Las experiencias de ASI se midieron en T1.

Resultados: La tasa de ASI fue significativamente mayor para las mujeres (20,8%) que para los hombres (12,4%). Las tasas de victimización sexual para las mujeres fueron del 60,9% en el Momento 1 (desde los 14 años), del 22,3% en el Momento 2 (desde M1) y del 17,4% en el Momento 3 (desde M2). Para los hombres, las tasas fueron del 39,2% en el Momento 1, del 15,9% en el Momento 2 y del 14,1% en el Momento 3. Las tasas de agresión sexual para las mujeres fueron del 10,3% en el Momento 1 (desde los 14 años), del 3,6% en el Momento 2 (desde M1), y 3,5% en el momento 3 (desde M2). Para los hombres, las tasas fueron del 18,0% en el Momento 1, del 6,2% en el Momento 2 y del 3,8% en el Momento 3. Las diferencias de género en victimización y perpetración fueron significativas sólo en M1. El ASI predijo mayores

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HIGHLIGHTS

- Childhood sexual abuse has been linked to an increased vulnerability to sexual revictimization and risk of later sexual aggression perpetration.
- This longitudinal study based on a large sample of university students in Germany with three data waves covering 23 months shows that sexual abuse in childhood increases the odds of experiencing and engaging in sexual aggression in adolescence and young adulthood.
- The associations with later sexual aggression victimization and perpetration held for both female and male victims of childhood sexual abuse.

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probabilidades de victimización y perpetración de agresión sexual de forma transversal en M1 e indirectamente en M2 y M3 a través de M1. El género no moderó las asociaciones.

Conclusión: Los resultados confirman hallazgos previos sobre tasas elevadas de victimización y perpetración de agresiones sexuales en la adolescencia y la adultez joven en víctimas de ASI. Se discuten las implicaciones para comprender y prevenir los resultados adversos del ASI relacionados con la sexualidad.

从童年性虐待到青春期和青年期性侵犯受害和实施的途径：三波纵向研究

背景: 童年性虐待 (CSA) 已被确定为日后实施性侵犯的风险因素和性受害的易感因素。然而，横断面设计的使用、对女性受害和男性犯罪的关注以及缺乏来自北美以外的证据限制了现有的知识库。

目的: 本研究旨在探讨从 CSA 到性行为再受害和性侵犯行为的途径。

方法: 共有 588 名德国大学生 (308 名女性) 参加了为期 23 个月的三波纵向研究：在每一波 (T1-T3) 中，所有参与者都完成了性侵犯受害和实施的测量。CSA 的体验是在 T1 时测量的。

结果: 女性 CSA 发生率 (20.8%) 显著高于男性 (12.4%)。女性性受害率在时间 1 (自 14 岁起) 为 60.9%，在时间 2 (自 T1 起) 为 22.3%，在时间 3 (自 T2 起) 为 17.4%。对于男性，第 1 时间的发生率为 39.2%，第 2 时间为 15.9%，第 3 时间为 14.1%。女性第 1 时间的性侵犯发生率为 10.3% (自 14 岁起)，第 2 时间为 3.6% (自 T1 起)，时间 3 时 (自 T2 起) 为 3.5%。对于男性来说，时间 1 的比率为 18.0%，时间 2 的比率为 6.2%，时间 3 的比率为 3.8%。受害和犯罪的性别差异仅在 T1 时才显著。CSA 在 T1 上横向预测性侵犯受害和实施的几率较高，并通过 T1 在 T2 和 T3 间接预测性侵犯受害和实施的几率较高。性别并没有调节这种关联。

结论: 结果证实了之前的研究结果，即 CSA 受害者在青春期和成年早期的性侵犯受害率和实施率升高。讨论了 CSA 对理解和预防不良性相关后果的影响。

Childhood sexual abuse (CSA) is estimated to affect one in five girls and one in 13 boys worldwide, with lasting negative consequences for their future development (World Health Organization, 2020). CSA is defined as any completed or attempted sexual act perpetrated against, any sexual contact with, or sexual exploitation of a child (Duckworth et al., 2020). Prevalence rates of CSA vary widely between countries, not least to differences in defining the age of consent, but also within countries due to differences in methodology and design. The review and meta-analysis by Barth et al. (2013), which included 55 studies from 24 countries, yielded prevalence rates ranging from 8% to 31% for girls and from 3% to 17% for boys. Data from the review of the worldwide evidence by Stoltenborgh et al. (2015), which included 305 samples for CSA, yielded prevalence rates between 11.3% (Asia) and 21.5% (Australia) for girls and between 4.1% (Asia) and 19.3% (Africa) for boys. In Germany, a representative survey covering experiences up to the age of 16 found prevalence rates of CSA of 9.9% for female and 2.3% for male respondents (Hellmann, 2014).

A large body of theorizing and empirical research has investigated the impact of CSA on victim's later sexual development. One of the consistent findings generated by this evidence is an increased vulnerability to sexual victimization in subsequent periods of development, referred to as *revictimization*. A second frequently observed consequence of CSA is an increased risk of engaging in sexual aggression

perpetration, captured in the construct of *victim-perpetrator cycle*. The current study used a longitudinal design to examine revictimization and the victim-perpetrator cycle in a sample of male and female university students in Germany.

1. Childhood sexual abuse and revictimization

Several recent reviews and meta-analyses have documented an increased vulnerability to sexual victimization in victims of CSA. Across 80 studies, the most recent meta-analysis found an average revictimization rate of 47%, indicating that almost every second victim of CSA experiences revictimization at a later time (Walker et al., 2019). The majority of studies addressed the vulnerability to revictimization in female victims of CSA (Pittenger et al., 2016). A more limited body of research suggests that male victims of CSA also have a higher vulnerability to sexual victimization as adolescents and adults (Aosved et al., 2011; Schuster & Tomaszewska, 2021). Other reviews have focused on mediators underlying the vulnerability of CSA victims to later victimization, such as post-traumatic stress, substance abuse, and risky sexual behaviour (Fereidooni et al., 2023; Scoglio et al., 2021; Walker & Wamser-Nanney, 2023).

An influential theoretical account explaining how CSA increases the vulnerability to further victimization is the 'traumagenic dynamics model' (Finkelhor, 1987). A traumagenic dynamic is an experience that

distorts the child's self-concept, view of the world, and affective functioning. The model proposes four complementary pathways that increase CSA victims' vulnerability to sexual victimization compared to individuals without the experience of CSA: (1) *traumatic sexualization* in the sense that CSA undermines the child's healthy sexual development, indicated by a higher number of sexual partners, lower sexual self-esteem, and lower sexual assertiveness, (2) *betrayal*, describing the experience of sexual abuse as undermining the child's trust in other people's good intentions when interacting with them as well as in the ability to rely on adults for protection and safety, (3) *stigmatization* in the form of negative messages about the self that are communicated to the child in relation to the abuse, and (4) *powerlessness*, which lowers victims' ability to effectively reject unwanted sexual advances later in life. The traumagenic dynamics model was supported in a substantial body of research (Hébert et al., 2021).

2. Childhood sexual abuse and later perpetration

Although only a minority of CSA victims go on to become perpetrators, the risk of perpetration is significantly increased compared to individuals without the experience of sexual victimization (Papalia et al., 2018). The comorbidity with other forms of child abuse and the presence of a hostile and violent family environment have been identified as risk factors, whereas a supportive family environment may reduce the odds of later perpetration (Papalia et al., 2020). CSA also features prominently in the 'confluence model of sexual aggression', where it is conceptualized as a risk factor for sexual coercion via its impact on delinquency and sexual promiscuity (Malamuth & Hald, 2017).

3. Repeated victimization and perpetration after the age of consent

Complementing the evidence on the detrimental effects of CSA, there is consistent evidence that the experience of sexual victimization in adolescence and early adulthood is a vulnerability factor for future sexual victimization (Walklate & Clay-Warner, 2017). In fact, sexual victimization in adolescence was found to be more strongly related to sexual victimization in early adulthood than childhood experiences of sexual abuse (Classen et al., 2005). Similarly, several studies have shown that sexual aggression perpetration predicts future perpetration (O'Connor et al., 2021). However, the specific role of CSA in explaining repeated victimization and perpetration after the age of consent requires further study.

4. The current study

Despite a large and consistent body of evidence, the current knowledge base on pathways from CSA to later sexual aggression victimization and perpetration shows several gaps. First, there is a shortage of longitudinal studies examining CSA as a prospective vulnerability factor of later victimization and risk factor of perpetration. Second, past research has mostly studied revictimization in relation to female victims of CSA and the victim-perpetrator cycle in relation to male CSA victims, precluding the study of gender as a moderator of revictimization and perpetration risks. Third, most of the studies come from North America, leaving the question of the generalizability of the findings to other parts of the world unanswered.

To address these limitations, the current study adopted a three-wave longitudinal design to examine the paths from CSA to sexual aggression victimization and perpetration after the age of consent in both men and women. It was based on a large sample of university students and used behaviourally specific items to measure CSA as well as sexual aggression victimization and perpetration, which is considered the gold standard in sexual aggression research (Cook et al., 2011). Based on the theoretical arguments and empirical findings outlined above, the study tested the following predictions:

Hypothesis 1: The experience of CSA is associated with an increased vulnerability to sexual victimization in adolescence and young adulthood (i.e. after the age of consent).

Hypothesis 2: The experience of CSA is associated with an increased risk of sexual aggression perpetration in adolescence and young adulthood.

Hypothesis 3: CSA is indirectly linked to sexual victimization and sexual aggression perpetration at the two later data waves through victimization/perpetration at the first data wave.

Although we expect women to report sexual aggression victimization at a higher and sexual aggression perpetration at a lower rate than men, we assume, based on previous evidence discussed above, that the proposed pathways from CSA to later victimization and perpetration will hold for both men and women. This assumption will be tested by comparing path models in which the proposed associations are constrained to equality vs. allowed to vary between men and women. In addition, the cross-lagged design of the study also allowed us to prospectively examine potential victim-perpetrator and perpetrator-victim cycles beyond childhood.

5. Method

5.1. Participants

The sample consisted of 588 university students (380 women, 208 men) from different state-funded, tuition-

free universities in the Federal States of Berlin and Brandenburg, Germany. One further person who indicated 'other' in response to the question on gender was not included in the sample. The mean age of the sample at T1, which started in January 2019, was 22.57 years ($SD = 3.44$). Participants were enrolled in a wide range of academic degree courses. The second and third data waves were conducted 11 and 23 months after T1. The sample size was reduced to 529 (346 women and 183 men) at T2 and 474 (316 women and 158 men) at T3. This corresponds to dropout rates of 10% from T1 to T2 and 10.4% from T2 to T3. Overall, 80.6% of the T1 sample completed all three data waves. All T1 participants were included in the analyses. At T1, 79.9% of women and 83.4% of men reported their sexual orientation as heterosexual, 3.6% of women and 9.5% of men as homosexual, and 16.5% of women and 7.0% of men as bisexual, 85.1% of men and 88.4% of women reported they were currently in a steady relationship or had been in a steady relationship in the past.

At T1, most participants reported exclusively heterosexual contacts (61.9% of women, 68.0% of men), 1.6% of women and 5.4% of men reported exclusively same-sex contacts, and 30.1% of women and 17.7% of men reported both heterosexual and same-sex contacts, 6.4% of women and 8.9% of men reported neither opposite-sex nor same-sex contact. The mean age at first sexual intercourse, as reported at T1, was 16.78 years for men ($SD = 2.47$), and 16.73 years ($SD = 2.19$) for women. The median number of coital partners was 5.00 for both women and men.

5.2. Measures

5.2.1. Childhood sexual abuse

Three items used in previous research (Krahé & Berger, 2017, 2020) measured contact experiences of childhood sexual abuse: 'The following items refer to experiences you made as a child (that is before you were 14 years old). (1) As a child, has an older or adult person touched you in a sexual way or made you touch him/her? (2) When you were a child, has an older or adult person tried to penetrate your body (mouth, vagina, anus), but it did not happen? (3) When you were a child, has an older or adult person penetrated your body?'. Responses were made on a four-point scale, 0 (*never*), 1 (*rarely*), 2 (*occasionally*), and 3 (*often*). The age limit of 14 years reflects the legal age of consent in Germany. Two scores were derived from the items: First, we created a dichotomous score whereby participants who responded 'never' to all three items were categorized as non-victims of CSA, and participants who responded at least 'rarely' to one of the items were categorized as victims. Second, we created an ordinal severity score, with non-victims assigned a score of '0', participants who reported sexual touch, but not

attempted or completed penetration assigned a score of '1', those who reported attempted, but not completed penetration assigned a score of '2', and those who reported completed penetration assigned a score of '3'. Because the ordinal severity score is a more fine-grained measure of CSA, it was used for the hypothesis-testing analyses.

5.2.2. Sexual aggression victimization and perpetration

Reports of sexual aggression victimization and perpetration were obtained with the Sexual Aggression and Victimization Scale (SAV-S) developed in Germany by Krahé and Berger (2013). The SAV-S uses behaviourally-specific items pioneered in the Sexual Experiences Survey by Koss et al. (1987) and Koss et al. (2007). It combines (a) three coercive strategies (threat or use of physical force; exploitation of the inability of the victim to resist, e.g. due to alcohol consumption; use of verbal pressure, e.g. calling the victim a failure) with (b) three victim-perpetrator relationships (current or former partner; acquaintance; stranger) and (c) four sexual activities (sexual touch; attempted sexual intercourse; completed sexual intercourse; other sexual acts, e.g. oral sex). Responses were made in a dichotomous format (no/yes). Based on filter questions about past sexual experiences (opposite-sex partners only, same-sex partners only; both), participants were assigned to tailored versions representing different gender constellations between victims and perpetrators. For example, women who reported exclusively opposite-sex contacts received the questions about a male perpetrator, as did men who reported exclusively same-sex contacts. At T1, participants were asked to complete the items for the time since their 14th birthday. At T2 and T3, they were asked to complete the items for the period since T1 (11 months) or since T2 (12 months). The reliability and validity of the SAV-S were shown in previous research (Krahé et al., 2016; Marchewka et al., 2022; Tomaszewska et al., 2022). A copy of the measure can be obtained from the first author.

First, a dichotomous score was created for victimization and perpetration. Participants who endorsed none of the victimization or perpetration items were assigned to the non-victim/non-perpetrator category (0), those who endorsed at least one of the respective items were assigned to the victim/perpetrator category (1). Moreover, a five-level ordinal score of sexual victimization was created to reflect differences in the severity of the reported experiences, based on previous research (Koss et al., 2007, 2008; Tomaszewska et al., 2022).

The five categories were defined as follows: (0) *non-victimization* ('no' responses to all victimization items); (1) *sexual contact* (at least one 'yes' response to sexual touch without penetration or the other sexual acts category and 'no' responses to coercion, and

attempted/completed rape); (2) *coercion* (at least one 'yes' response to attempted or completed vaginal or anal penetration through the use of verbal pressure, but 'no' responses to attempted or completed penetration through the threat or use of physical force or exploitation of the victim's inability to resist); (3) *attempted rape* (at least one 'yes' response to attempted vaginal or anal penetration through the threat or use of physical force or exploitation of the victim's inability to resist, but 'no' responses to completed vaginal or anal penetration through the threat or use of physical force or exploitation of the victim's inability to resist); and (4) *rape* (at least one 'yes' response to completed vaginal or anal penetration through the threat or use of physical force or exploitation of the victim's inability to resist).

The low prevalence rates precluded the creation of a parallel ordinal score of perpetration. Therefore, the dichotomous perpetrator/non-perpetrator categorization was used for this variable.

5.2.3. Demographics and sexual experience background

At the beginning of the questionnaire, participants were asked to indicate their gender, 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. Gender was measured with the following options: male, female, or other (with an open-text field for specification). In terms of sexual experience background, they were asked whether they had ever engaged in sexual contact with a man or a woman. Those who reported coital experience were asked to indicate their age at first intercourse and number of coital partners.

5.3. Procedure

Approval for the study and all materials was obtained from the Ethics Committee of the authors' university. The study was conducted as an online survey. Participants were recruited as part of an intervention study to implement and evaluate a programme to prevent sexual aggression among university students (Schuster et al., 2022; Tomaszewska et al., 2023). Participants in the current sample were randomly assigned to the control group and were unaware that they were part of an intervention study. Invitations to participate were sent out via e-mail to students of the participating higher education institutions through the respective student offices or student associations. Interested students registered in a data bank created for the purposes of this study and were sent the link to the online questionnaire upon registration. Participants were required to give active consent before being able to proceed to the items. At each data wave, all participants received a 20€ shopping voucher for their

participation. On each page of the SAV-S, a 'Help' button was placed that led to a list of support agencies for victims and perpetrators of sexual aggression. As part of the larger intervention study, participants took part in an additional measurement one week after the end of the intervention (seven weeks after T1). Neither CSA nor sexual aggression victimization and perpetration were measured at this wave, so it is not considered in the current analysis. All measures were presented in German.

5.4. Plan of analysis

All analyses, including the descriptive statistics, were calculated in Mplus, Version 8.9, and $p < .05$ as well as confidence intervals $> 95\%$ were adopted to establish statistical significance. χ^2 tables for gender differences in CSA were conducted in SPSS. The hypotheses were tested using a cross-lagged panel model (CLPM) approach. This approach examines the hypothesis that individual differences on the predictor variables can predict individual differences on the outcome variables, controlling for the stability of constructs over time, and was found to yield robust findings when applied to multiple data sets examining the same associations (Orth et al., 2021). In the path analyses, we used the four-level severity score of CSA, the five-level severity score of sexual victimization, and the dichotomous score of sexual aggression perpetration. The *wlsmv* estimator was used to deal with the perpetration scores as categorical variables.

To test our hypotheses, we first estimated a multi-group model in which all paths were constrained to be equal for men and women. Next, we compared this model to a model in which all paths were allowed to vary between men and women. Based on the finding that the unconstrained model did not fit the data significantly better than the constrained model, a single-group model was estimated and adopted as the final model. The single-group model included gender as a covariate to account for gender differences in means on some of the variables, as described below. Indirect paths were tested through examining bias-corrected confidence intervals based on 10,000 bootstraps. Access to the data on which the analyses are based can be obtained from the first author on request.

6. Results

6.1. Descriptive statistics and bivariate correlations

The rate of CSA in the total sample was 17.9%, with significantly more women (20.8%) than men (12.4%) endorsing at least one of the three items, $\chi^2 (df=1) = 6.35, p = .012$. Follow-up χ^2 tests of the four levels of the ordinal score indicated that women

Table 1. Means and gender differences of the model variables.

Construct (Range)	T1		T2		T3	
	Men	Women	Men	Women	Men	Women
CSA % (0,1)	12.4 ^a	20.8 ^b	–	–	–	–
CSA (0–3)	0.20	0.30	–	–	–	–
Victimization % (0,1)	39.2 ^a	60.9 ^b	15.9	22.3	14.1	17.4
Victimization (0–4)	0.88 ^a	1.28 ^b	0.29	0.43	0.22	0.28
Perpetration % (0,1)	18.0 ^a	10.3 ^b	6.2	3.6	3.8	3.5

^{a,b}Gender difference $p < .05$. $N = 588$. CSA = Childhood sexual abuse.

(79.2%) had a significantly lower frequency than men (87.6%) for the non-victim category, $\chi^2 (df = 1) = 6.25, p = .01$, and a significantly higher frequency for the sexual touch category, $\chi^2 (df = 1) = 5.76, p = .02$ (women: 14.9%; men: 7.9%), but not for attempted or completed penetration. The mean on the ordinal severity score of CSA ranging from 0 to 3 was 0.26 in the total sample, 0.30 among women and 0.20 among men. On this score, which was used for the path analysis to reflect differences in CSA severity, the gender difference was not significant.

Across all 36 victimization items of the SAV-S, the rates of victimization for women were 60.9% at T1, 22.3% at T2, and 17.4% at T3. The victimization rates for men were 39.2% at T1, 15.9% at T2, and 14.1% at T3. The gender difference was significant only at T1. Means on the five-level severity score of sexual victimization, created for the path analyses, shown in Table 1, differed only at T1, with women scoring higher than men. Across the 36 perpetration items, the prevalence rates for women were 10.3% at T1, 3.6% at T2, and 3.5% at T3, the rates for men were 18.0% at T1, 6.2% at T2, and 3.8% at T3. Again, the difference was significant only at T1.

The bivariate correlations between the model variables for the total sample are presented in Table 2. CSA was significantly and positively correlated with sexual victimization at T1 and with sexual aggression perpetration at T1 and T3. Except for a nonsignificant correlation between victimization at T2 and perpetration at T3, the correlations between victimization and perpetration were significant within and across data waves.

6.2. Pathways from childhood sexual abuse to revictimization and sexual aggression perpetration

To examine the proposed pathways from CSA to sexual aggression victimization and perpetration, we

began by estimating a multigroup model in which all paths were constrained to equality between men and women. This model fitted the data well, $\chi^2 (df = 28) = 27.82, p = .47$; CFI = 1.000, RMSEA = .000, 90% CI [.000; .045]; SRMR = .063. Next, a model was estimated in which all paths were allowed to vary between men and women. This model also fitted the data well, $\chi^2 (df = 16) = 13.24, p = .65$; CFI = 1.000, RMSEA = .000, 90% CI [.000; .045]; SRMR = .039. The χ^2 difference test showed that the two models did not differ significantly, $\text{Diff } \chi^2 = 14.58, \text{Diff } df = 12, p = .27$. To account for gender differences in sexual aggression victimization and perpetration at T1, we next estimated a single-group model including gender as a covariate for these variables. In addition, because the dichotomous score of CSA differed by gender, we included gender as a predictor of CSA. Based on its excellent fit, $\chi^2 (df = 12) = 6.84, p = .87$; CFI = 1.000, RMSEA = .000, 90% CI [.000; .022]; SRMR = .024, this model was adopted as the final model, shown in Figure 1. The indirect paths, examined via 10,000 bias-corrected bootstrapped confidence intervals, are displayed in Table 3.

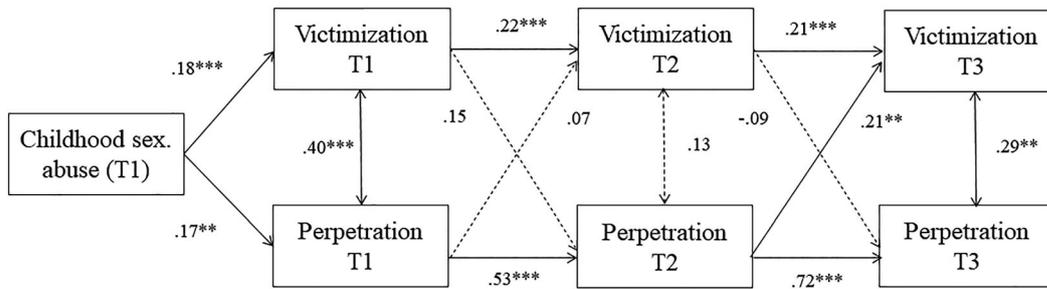
Consistent with Hypothesis 1, CSA predicted sexual victimization since the age of 14 as well as indirectly in the periods covered by T2 and T3. In addition, CSA indirectly predicted T3 sexual victimization via T1 and T2 perpetration. Consistent with Hypothesis 2, CSA also predicted an elevated risk of sexual aggression perpetration at T1 and indirectly via T1 at T2 and T3. In combination, the findings provide evidence of both revictimization and a victim-to-perpetrator cycle as adverse sequelae of CSA.

The cross-lagged paths from victimization to perpetration and from perpetration to victimization from T1 to T2 were nonsignificant, as was the path from victimization at T2 to perpetration at T3. Only the cross-lagged path from perpetration at T2 to victimization at T3 was significant.

Table 2. Bivariate correlations.

		2	3	4	5	6	7
1	CSA	.18***	.17***	.07	.06	.04	.11**
2	Victimization T1	–	.41***	.22***	.35***	.14***	.26***
3	Perpetration T1		–	.17***	.55***	.19***	.43***
4	Victimization T2			–	.23***	.25***	.06
5	Perpetration T2				–	.23***	.68***
6	Victimization T3					–	.35***
7	Perpetration T3						–

*** $p < .001$; ** $p < .01$. $N = 588$. CSA = Childhood sexual abuse.



N = 588. Standardized coefficients. Single-group model with gender as covariate. χ^2 ($df=12$) = 6.84, $p = .87$; CFI = 1.000, RMSEA = .000, 90% CI [.000; .022]; SRMR = .024. *** $p < .001$; ** $p < .01$.

Figure 1. Predicting sexual aggression victimization and perpetration from childhood sexual abuse.

6.3. Discussion

Among the many adverse effects of CSA, an increased vulnerability to later sexual victimization and risk of sexual aggression perpetration are among the most consistent findings. Corroborating the international knowledge base on revictimization and the victim-perpetrator cycle, the current study showed that victims of CSA have an elevated probability of being victimized again and to engage in sexual aggression themselves over extended periods of time from adolescence to young adulthood. Using a three-wave longitudinal design and examining both the direct and indirect paths from CSA to victimization and perpetration, CSA predicted higher odds of both victimization and perpetration in adolescence and young adulthood.

About 18% of participants reported at least one experience of contact sexual abuse in childhood, with higher rates for women (20%) than for men (12%). The gender difference disappeared when considering the severity of the abuse, ranging from sexual touch (more often reported by female participants) to attempted and completed penetration (no gender difference). Regarding sexual victimization, significantly more women (60%) than men (39%) reported at least one victimization experience since the age of consent (14 years) at the first wave of the present study. The figures are somewhat lower than those from previous studies conducted in Germany using

the same instrument (Schuster et al., 2021; Tomaszewska et al., 2022), but similar to recent studies from the United States (e.g. Howard et al., 2019; Sutton et al., 2021). No gender differences in victimization reports were found at T2 and T3. Perpetration rates reported at T1 were significantly higher for men (18%) than for women (10%), but did not differ at T2 and T3. The absence of gender differences at the two later waves may be due, at least in part, to the lower overall rates during the 11- and 12-month periods, respectively.

CSA was significantly associated with sexual aggression victimization and perpetration in adolescence, that is after the age of 14 years, the legal age of consent in Germany, consistent with Hypothesis 1. The bivariate associations between CSA and sexual victimization in early adulthood (T2 and T3) were not significant, nor was the association between CSA and perpetration at T2. The only significant association was found between CSA and sexual aggression perpetration at T3. In combination, these findings do not lend support to Hypothesis 2 of a direct path from CSA to sexual aggression victimization and perpetration in early adulthood. However, as predicted in Hypothesis 3, CSA had a significant indirect impact on both victimization and perpetration in young adulthood, as assessed in two further data waves 11 and 12 months apart via victimization/perpetration at T1. This finding is consistent with the study by Classen et al. (2005) that adolescent victimization was more closely related to young adult victimization than CSA.

Despite some evidence that the prevalence of CSA and sexual aggression victimization and perpetration differed between female and male participants, the associations between CSA and later sexual aggression victimization and perpetration did not vary by gender. Because previous studies predominantly examined revictimization in women and the victim-perpetrator cycle in men, this comparison adds new insights to the literature by showing the later victimization should be considered as a possible outcome for male

Table 3. Significant indirect paths: standardized coefficients.

Indirect paths	β	C.I.
CSA → Victimization T1 → Victimization T2	.040**	.010; .098
CSA → Victimization T1 → Victimization T2 → Victimization T3	.008**	.001; .027
CSA → Perpetration T1 → Perpetration T2 → Victimization T3	.019*	.004; .047
CSA → Perpetration T1 → Perpetration T2	.087**	.001; .023
CSA → Perpetration T1 → Perpetration T2 → Perpetration T3	.062**	.001; .165

Note. 10,000 bias-corrected bootstrapped confidence intervals. CSA = Childhood sexual abuse. * $p < .05$; ** $p < .01$.

and later perpetration should be considered a possible outcome for female victims of CSA (O'Connor et al., 2021; Walker et al., 2019).

We also found support for the risk of revictimization from adolescence into young adulthood, reflected in significant paths from victimization at T1 to victimization at T2 and from victimization at T2 to victimization at T3. Similarly, perpetration at T1 predicted perpetration at T2, and perpetration at T2 predicted perpetration at T3. In combination, these findings are consistent with previous evidence that identified a history of victimization and perpetration as a strong predictor of these variables at subsequent time points (Krahé & Berger, 2017; Walklate & Clay-Warner, 2017).

No strong support was found for a victim-perpetrator cycle or perpetrator victim-cycle, reflected in the cross-lagged paths in our model. Although the bivariate correlations across time were significant with one exception (the correlation between victimization at T2 and perpetration at T3), only one of the four cross-lagged paths (from perpetration at T2 to victimization at T3) was significant when controlling for the stability of victimization and perpetration, respectively. This means that neither victimization nor perpetration may explain variance of the respective other construct over and above the within-construct stability over time. The nonsignificant concurrent correlations in the path model between victimization and perpetration at T2 and T3 underline the findings that the two pathways are distinct. However, an unexpected indirect effect of CSA on T3 sexual victimization via T1 and T2 sexual aggression perpetration was found, together with a significant prospective path from perpetration at T2 to victimization at T3. Moving from perpetrator to victim while controlling for prior victimization has not been considered as a topic of systematic research, as far as we are aware. A perpetrator-victim cycle cannot be explained conclusively by reference to existing theoretical models of CSA and must await replication in future studies.

6.3.1. Limitations

Several limitations must be noted about the current study. First, although the sample was large for a longitudinal study and the dropout rate was low, it was a convenience sample of university students, with women making up about two-thirds of the participants. Second, T2 and T3 fell within the Covid pandemic, which reduced the opportunities for sexual interactions and, thereby, the odds of experiencing or engaging in sexual aggression. In combination with the shorter intervals covered by T2 and T3, this may explain the low prevalence rates for these periods. Third, the current analysis did not include theory-based mediators of the association between CSA and later victimization and perpetration, as proposed, for

example, by the traumagenic dynamics model or the read-react-respond model (Finkelhor, 1987; Noll & Grych, 2011). Fourth, other forms of childhood abuse, such as physical and emotional abuse, were not included in the study. Nonsexual forms of abuse were also found in past research to be associated with a higher vulnerability to sexual victimization (e.g. Ports et al., 2016). Moreover, experiencing multiple types of abuse was found to be associated with an even greater risk of revictimization than the experience of a single type of abuse (Duckworth et al., 2020). Finally, as a general problem of all studies obtaining self-reports of sexual aggression perpetration, prevalence rates are likely to be underestimated due to a reluctance to report engaging in these negative forms of behaviour, some of which might be sanctionable by law. Despite these limitations, the current findings join the existing literature in conveying a clear message: CSA is a traumatic experience which may put victims on a track toward future violence, both as victims and perpetrators.

6.3.2. Implications for prevention

Systematic evaluations of sexual assault prevention programmes directed at young adults have found that many primary prevention programmes directed at unselected target groups are ineffective in participants with a history of prior victimization (Decker & Littleton, 2018). Therefore, prevention efforts need to take participants' victimization history into account to protect them from repeat victimization and stop them from engaging in sexual aggression. The first step towards prevention is the recognition that a person's sexual victimization history is a critical factor for later revictimization and the victim-perpetrator cycle. This knowledge means that interventions with victims of sexual aggression at any age need to include strategies for reducing the odds of subsequent victimization and perpetration. These strategies need to focus on modifiable risk and vulnerability factors identified in past research, such as sexuality-related cognitions and patterns of behaviour (Fereidooni et al., 2023). They must be based on sound theoretical foundations to offer hope to break the cycle of violence for victims of sexual aggression from childhood onward.

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Ethics approval and consent to participate

Ethics approval was obtained for the study from the authors' university. All participants had to provide active consent before being able to proceed to the survey items.

Author contributions

The authors jointly designed the study and selected the instruments and analyzed and interpreted the data. BK acquired the funding and drafted the manuscript. IS and PT programmed the online survey, collected the data, and revised the manuscript critically for important intellectual content. All authors approved the submitted version.

Availability of data and materials

Access to the data as well as copies of all materials may be obtained by reasonable request from the first author.

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