

Examining Adverse Childhood Experiences, Sexual Behaviors, and Condom Use among Undergraduate College Students

Kruti S. Chaliawala¹, Keith A. King², Rebecca A. Vidourek²

¹ School of Public and Population Health, Boise State University, ² Health Promotion and Education, University of Cincinnati

Keywords: Adverse Childhood Experiences, undergraduate college students, sexual behavior, condom use

<https://doi.org/10.54111/001c.138068>

Boston Congress of Public Health Review (BCPHR, Formerly HPHR)

Vol. February 2026, Issue 94, 2026

Background

Understanding sexual behavior and its determinants among college students is crucial for promoting sexual health and well-being. Adverse Childhood Experiences (ACEs) may play a role in shaping sexual behaviors. The current study investigates the association between ACEs, condom use frequency, demographics, and consensual sexual intercourse among undergraduate college students.

Methods

Upon IRB approval, a paper survey was administered among undergraduate college students enrolled in the Health Promotion and Education classes at a midwestern urban campus. A total of 152 participants were recruited through convenient sampling.

Results

A univariate regression analysis was conducted to examine the association between sexual intercourse and categories of ACEs, age, condom use frequency, racial/ethnic identity, sexual orientation and sex assigned at birth. Age, condom use frequency, racial/ethnic identity as Asian and Caucasian were significant at $p < 0.05$. Furthermore, a final logistic regression model was significant ($\chi^2 = 127.740$, $df = 4$, $p < .001$). Participant age and racial/ethnic identity as Caucasian emerged as significant in the model.

Discussion

The findings of this study encourage universities to expand their focus beyond traditional socio-demographic and educational factors when addressing risky sexual behaviors among college students. It highlights that ACEs may be a lingering influence driving sexual activity, suggesting that trauma-informed, tailored approaches can more effectively promote safe practices and address diverse student needs.

INTRODUCTION

Adverse Childhood Experiences (ACEs) are categorized as traumatic events that occur during childhood (0–17 years) and include abuse, neglect, and various forms of household dysfunction, such as substance abuse or parental separation.^{1,2} Research consistently shows that ACEs have a profound impact on health outcomes throughout the lifespan, contributing to both physical and mental health challenges.³ Connections between ACEs and risky sexual behaviors, including inconsistent use of contraception, having multiple sexual partners, and experiencing non-consensual sexual encounters have been documented.^{4–6} Among these, risky sexual behaviors and inconsistent condom use have emerged as significant concerns among college-aged populations exposed to ACEs.⁷ Studies suggest that ACEs disrupt critical developmental processes, affecting emotional regu-

lation, decision-making, and relationship dynamics, which may carry into adolescence and young adulthood, influencing sexual health behaviors.⁸ Research demonstrates how ACEs correlate with teen sexual behaviors, focusing on self-regulation and school-related factors as mediators.⁹ Sexual risk-taking is a common behavior observed among young adults, as demonstrated by baseline findings from the large, nationally representative Project SEXUS cohort study conducted in Denmark, yet echoes the worldwide trend including the US.¹⁰ Over half (51%) of 15–24-year-old participants reported having engaged in sexual activity with a non-regular partner without using barrier protection in the past year.¹⁰ These sexual risk-taking and non-consensual sexual experiences are linked to numerous negative health outcomes, including those affecting physical, mental, and reproductive health.^{11,12} Moreover, such behaviors are associated with psychosocial challenges, including academic difficulties and involvement in delinquent acts.¹³ A deeper

understanding of how childhood adversities interact with sexual behavior in adolescents and young adults is essential for creating effective preventive strategies aimed at reducing sexual risk-taking and non-consensual experiences, along with their associated health consequences. Moreover, research has indicated that individuals who experienced multiple ACEs are more likely to exhibit decreased self-regulation, which in turn led to earlier sexual debut and less frequent condom use.⁹ This pattern highlights the long-term influence of ACEs on sexual decision-making, particularly among adolescents transitioning into adulthood.¹⁴ Poor self-regulation, exacerbated by negative school environments, creates a vulnerability that may persist in college settings, increasing the likelihood of engaging in risky sexual behaviors without adequate protection.⁹ Furthermore, a study of Ugandan university students found a similar relationship between ACEs and risky sexual behaviors.¹⁵ The study revealed that students with a history of ACEs were more likely to engage in inconsistent condom use, have multiple sexual partners, and report substance abuse behaviors that heighten their risk of sexually transmitted infections (STIs).¹⁵ Moreover, the study emphasized the role of the family environment, suggesting that students who experienced household dysfunction during childhood are more susceptible to engaging in unsafe sexual practices as a coping mechanism or due to maladaptive behaviors formed early in life.¹⁵ In Namibia, a study focused on the complex interplay between ACEs and sexual health behaviors on both adverse and positive childhood experiences.¹⁶ Their findings underscored the protective role of father-child solid relationships, which were associated with reduced engagement in high-risk sexual behaviors. However, students with higher ACE scores were significantly more likely to report inconsistent condom use, placing them at an increased risk for HIV and other STIs.¹⁷ This research highlights the dual influence of both negative and positive childhood experiences on sexual health outcomes in young adulthood.^{16,17} A recent meta-analysis reinforces these findings, indicating that, on average, females and individuals from non-White racial or ethnic backgrounds tend to report a higher number of adverse childhood experiences (ACEs). Additionally, while research on sexual orientation remains limited, existing studies consistently show that sexual minorities, particularly bisexual individuals, experience a greater prevalence of ACEs.¹⁸⁻²⁰ These studies collectively underscore the importance of understanding the long-lasting effects of childhood trauma on sexual health, particularly in university settings where young adults may lack the support systems needed to mitigate these risks. The Behavioral Risk Factor Surveillance System (BRFSS) has long been utilized as a standard measure to assess adverse childhood experiences (ACEs) across diverse populations.⁸ Although the BRFSS provides valuable large-scale data, the telephone interview method limits their reach to explore ACEs within younger populations, such as college students. Research has indicated that young adults, particularly those in university settings, may face unique psychosocial challenges contributing to different health outcomes.^{21,22} Yet, the intersection of ACEs and sexual behaviors in this group

remains underexplored. This gap is significant given the dynamic academic and social environments of college life, which may influence how ACEs manifest and affect sexual health. The current study aims to fill the existing gap by focusing on undergraduate students at a Midwestern university, utilizing paper surveys administered in classroom settings. By examining this specific demographic, the research seeks to uncover how ACEs may serve as an underlying factor influencing risky sexual behaviors, potentially exacerbated by factors such as sexual orientation, biological sex, and racial or ethnic identity. This approach prompts the following research questions: 1) What is the prevalence of ACEs among college students? 2) Does likelihood of engaging in consensual sexual intercourse differ based on a number of ACEs categories, condom use frequency, age, sexual orientation, race/ethnicity, and sex assigned at birth?

METHODS

PARTICIPANTS

Upon IRB approval, 152 undergraduate students were recruited through convenience sampling from Health Promotion and Education classes at a midwestern urban university. Participants were enrolled in courses during the spring semester and were invited to complete a paper-based survey in the classroom setting. Participation was voluntary, and students were assured of confidentiality. Eligibility criteria include being over 18 years old and currently enrolled in the selected courses. No incentives were offered for participation.

INSTRUMENTS

The survey consisted of several sections, including demographic information, adverse childhood experiences (ACEs), sexual behavior, and condom use frequency. ACEs were assessed using a modified version of the BRFSS ACEs questionnaire, which includes categories such as abuse, neglect, and household dysfunction. Participants were asked to indicate if they had experienced these categories during childhood (ages 0–17). Sexual behavior was assessed through questions related to consensual sexual intercourse, including whether participants had engaged in sexual intercourse (defined as insertion of penis into the vagina) and the frequency of condom use. Condom use frequency was measured on a 4-point scale, ranging from “never (0% of the time)” to “always (100% of the time)” for participants who reported being sexually active. Demographic information collected included age, sex assigned at birth, gender, sexual orientation, ethnicity, and relationship status.

DATA ANALYSIS

Certain continuous variables were dichotomized in the data analysis to facilitate logistic regression analysis. Specifically, variables such as age and condom use frequency were divided into two groups based on median splits. For ACEs more than 2 categories of ACEs and less than 2 categories of ACEs were used for dichotomization. For age, the me-

dian was used to create a binary classification with younger participants (age ≤ 20 years) and older participants (age > 20 years). Similarly, condom use was dichotomized into those who reported more frequent use (≥ 2) and less frequent use (< 2). Although dichotomization of continuous variables has been critiqued for potential loss of information,²³ this approach offers practical benefits in contexts where interpretability and clinical application are priorities. Dichotomized variables simplify communication of results to non-specialist audiences, including policymakers, practitioners, and educators, making findings more actionable. Furthermore, by grouping participants into meaningful categories (e.g., younger vs. older age groups or frequent vs. infrequent condom use), the analysis provides clear insights into the likelihood of consensual sexual intercourse across these groups. Research has also shown that dichotomization can enhance model robustness by creating balanced group sizes when using median splits.²³ For logistic regression, which requires distinct groups to estimate odds ratios effectively, this approach reduces potential multicollinearity and simplifies interpretation of interactions among variables. . Contrary to concerns about information loss, research shows that the median split is statistically robust, especially in studies like this one that aim to explore associations rather than precise predictions. Research demonstrates that median splits allow for simplification without significant distortion of results, particularly when the variable distributions are symmetrical and when the split is based on a theoretically relevant or empirically derived threshold.²⁴ Data were analyzed using univariate and multivariate logistic regression to examine the relationships between ACEs, condom use frequency, age, sex assigned at birth, and engagement in consensual sexual intercourse in IBM SPSS statistical software. A frequency analysis was conducted to understand the socio-demographics of the participants. A univariate regression analysis was initially conducted to assess individual predictors, followed by a final multivariate logistic regression model to identify significant predictors of sexual intercourse. The primary outcome variable was consensual sexual intercourse (yes/no), and the independent variables included categories of ACEs, age, condom use frequency, and sex assigned at birth. Statistical significance was set at $p < .05$. The results were reported with adjusted odds ratios (AOR) and 95% confidence intervals (CI).

RESULTS

PARTICIPANTS

The socio-demographic characteristics of the participants are summarized in [Table 1](#).

The sample consisted of 152 undergraduate students, with a near-even distribution between sexes assigned at birth: 38.2% male and 61.2% female. Gender identity showed a slight shift, with 38.4% identifying as male, 60.9% as female, and 0.7% as other. In terms of sexual orientation, the majority identified as exclusively heterosexual (67.8%), with smaller proportions identifying as predominantly ho-

mosexual or having a bisexual orientation. Age distribution ranged from 18 to 23 years ($MD = 20$), with the most common ages being 20 (31.8%) and 19 (27.8%). Ethnically, the sample was predominantly White or Caucasian (61.8%), with smaller groups identifying as African American or Black (22.4%), Asian (7.2%), and other ethnicities. Relationship status was primarily single (68.4%), with 29.6% in steady relationships and 0.7% married.

PREVALENCE OF ACEs

The prevalence of Adverse Childhood Experiences (ACEs) among the participants varied, with 47 (30.9%) reporting no ACEs and 30 (19.7%) reporting one ACE. Two ACEs were reported by 22 participants (14.5%), while 12 (7.9%) reported three. A total of 19 participants (12.5%) reported four ACEs, and 10 (6.6%) reported five ACEs. Only a small number of participants reported six or more ACEs: 1 participant (0.7%) reported six ACEs, 2 (1.3%) reported seven ACEs, and 2 (1.3%) reported eight ACEs. [Table 2](#) summarizes the distribution of ACEs among the participants and [Table 3](#) provides a breakdown of ACEs categories and socio-demographic variables.

CONDOM USE AND CONSENSUAL SEXUAL INTERCOURSE

Regarding consensual sexual intercourse (defined as insertion of penis into the vagina), 106 participants (69.7%) reported engaging in this behavior, and 71 (46.7%) had sexual intercourse with a partner not in a steady relationship. Condom use patterns reveal that 59 participants (38.8%) used a condom the last time they had sexual intercourse, whereas 46 participants (30.3%) did not. Frequency of condom use showed that 18 participants (11.8%) reported never using condoms, 30 (19.7%) used them sometimes, 28 (18.4%) used them most of the time, and 29 (19.1%) used condoms always.

SEXUAL INTERCOURSE AGAINST ACEs, CONDOM USE, AND VARIOUS DEMOGRAPHICAL VARIABLES

The univariate logistic regression analysis revealed several insights regarding sexual intercourse, condom use, and various demographic variables. In the analysis of sexual intercourse by age, it was found that a higher proportion of respondents below 20 (65.3%) had engaged in sexual intercourse compared to those above 20 (84.8%). A significant association was observed between sexual intercourse and age group ($p = 0.031$), with an odds ratio of 2.98 (95% CI = 1.071 – 8.304) for those under 20, indicating a higher likelihood of sexual intercourse in this age group compared to those over 20. Regarding condom use, the individuals reported lack of condom use during sexual intercourse with a highly significant association between lack of condom use and sexual intercourse ($p < 0.001$), and an odds ratio of 5.58 (95% CI = 3.712 – 8.384), suggesting that individuals who engaged in sexual intercourse did not report using condoms. In terms of ethnicity, individuals self-identifying as Asians reported a higher likelihood of engaging in sexual intercourse with an odds ratio of 10.370 (95% CI = 2.331 –

Table 1. Socio-Demographic Characteristics of Participants

	Category	Frequency	Percent (%)
Sex Assigned at Birth	Male	58	38.2
	Female	93	61.2
	Intersex	1	0.7
Gender	Male	58	38.4
	Female	92	60.9
	Other (specify)	1	0.7
Sexual Orientation	Exclusively heterosexual	103	75.2
	Predominantly heterosexual, only incidentally homosexual	5	3.6
	Predominantly heterosexual, but more than incidentally homosexual	10	7.3
	Equally heterosexual and homosexual	12	8.8
	Predominantly homosexual, only incidentally heterosexual	1	0.7
	Exclusively homosexual	6	4.4
Ethnicity/Race	American Indian	1	0.7
	African American or Black	34	22.4
	Asian	11	7.2
	Hispanic/Latino	6	3.9
	White or Caucasian	94	61.8
	Multi-Racial	5	3.3
	Other	1	0.7
Relationship Status	Single	104	69.3
	In a steady relationship	45	30.0
	Married	1	0.7

Notes:

- Missing data for "Gender" ($n=1$), "Sexual Orientation" ($n=15$), and "Relationship Status" ($n=2$) were not included in the table.
- Percentages are based on valid responses for each variable.

Table 2. Distribution of Adverse Childhood Experiences (ACEs)

Adverse Childhood Experiences	Frequency	Percent
Did you feel that you didn't have enough to eat, had to wear dirty clothes, or had no one to protect or take care of you?	8	5.3%
Did you lose a parent/guardian through divorce, abandonment, death, or other reason?	31	20.5%
Did you live with anyone who was depressed, mentally ill, or attempted suicide?	59	39.1%
Did you live with anyone who had a problem with using alcohol or drugs, including prescription drugs?	30	19.9%
Did your parents or adults in your home ever hit, punch, beat, or threaten to harm each other?	16	10.7%
Did you live with anyone who went to jail or prison?	12	8.0%
Did a parent or adult in your home ever swear at you, insult you, or put you down?	68	45.3%
Did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?	23	15.4%
Did you feel that no one in your family loved you or thought you were special?	18	12.1%
Did you experience unwanted sexual contact (such as fondling or oral/anal/vaginal intercourse/penetration)?	23	15.2%

46.130, $p < 0.001$). Although individuals identified as Caucasian were significant at $p = 0.002$, the odds of reporting sexual intercourse was minimal at 0.623 (95% $CI = 0.438 - 0.886$). Furthermore, sexual orientation, sex assigned at birth, ACEs, and other ethnicities were not significant at $p = 0.05$. The final logistic regression model only included sig-

nificant variables, which were condom useage, Asians and Caucasians. This model was significant overall, with a chi-square value of 127.740 ($p < 0.001$, $df = 4$), indicating that the variables included in the model significantly contribute to predicting sexual intercourse. The model's Nagelkerke R^2 value of 0.807 suggests a firm fit, accounting for approxi-

Table 3. Demographic distribution of the participants who reported experiencing some form of ACE.

	Adverse Childhood Experiences % (n)		Total (N)
	0 to 2 categories	More than 2 categories	
Race/Ethnicity			
Native American	100 (1)	-	1
African American	61.8 (21)	38.2 (13)	34
Asian	72.7 (8)	27.3 (3)	11
Hawaiian/Pacific Islander	-	-	-
Hispanic	83.3 (5)	16.7 (1)	6
Multiracial	80.0 (4)	20.0 (2)	5
Other	100 (1)	-	
Gender			
Male	84.5 (49)	15.5 (9)	58
Female	60.2 (56)	39.8 (37)	93
Age (years)			
18	64.3 (18)	35.7 (10)	28
19	69 (29)	31.0 (13)	42
20	70.8 (34)	29.2 (14)	48
21	76.2 (16)	23.8 (5)	21
22	100 (5)	-	5
23	42.9 (3)	57.1 (4)	7
Sexual Orientation			
Exclusively Heterosexual	85.7 (78)	24.3 (25)	103
Predominantly Heterosexual, only incidentally homosexual	60.0 (3)	40.0 (2)	5
Predominantly heterosexual, but more than incidentally homosexual	50.0 (5)	50.0 (5)	10
Equally heterosexual and homosexual	50.0 (6)	50.0 (6)	12
Predominantly homosexual, only incidentally heterosexual	0	100 (1)	1
Exclusively homosexual	66.7 (4)	33.3 (2)	6

• Note: The total N represents the sample size within the specified category. This approach was used to provide insights into the ACEs reported within each category.

mately 80.7% of the variance in the dependent variable. Age was a significant predictor of sexual intercourse ($\beta = 2.199$, $p = 0.007$), with an adjusted odds ratio of 9.016. This indicates that individuals above the age of 20 are nearly nine times more likely to engage in sexual intercourse compared to those under 20. Moreover, Caucasian racial/ethnic identity was also a significant predictor of sexual intercourse at $p = 0.041$ with $AOR = 5.006$ which suggests that an individual reported higher sexual intercourse if self-identified as Caucasian. On the contrary, condom use frequency and being Asian were not significant in the final model ($p = 0.994$, $p = .996$ respectively).

DISCUSSION

The present study examined the relationships between Adverse Childhood Experiences (ACEs), condom use, age, and sexual behavior among undergraduate students. The current study utilized a convenience sample of undergraduate

students from a Midwestern university enrolled in a Health Promotion and Education (HPE) class. This sampling approach was chosen to facilitate access to a population that is likely to have baseline awareness of sexual health topics, allowing for a more nuanced exploration of factors influencing risky sexual behaviors. Although the findings are not generalizable to all college students, they provide valuable insights into a demographic that is often underrepresented in sexual health research, particularly in the context of ACEs, condom use, and demographic influences. Furthermore, the Midwestern setting contributes to addressing gaps in literature predominantly focused on Western and urban populations, offering perspectives from a geographically and culturally distinct population.²⁵ Although univariate analysis did not reveal a significant association between ACEs and engagement in sexual intercourse, age, condom use and race (Caucasian, Asian) emerged as significant factors. Specifically, participants aged 20 or older three times more likely to engage in sexual intercourse compared to those under 20, aligning with existing research

that identifies age as a key determinant of sexual behaviors and related practices.^{9,15} Research has consistently highlighted age as a proxy for increased sexual autonomy, exposure to opportunities for sexual activity, and maturity in navigating relationships. This finding emphasizes the importance of tailoring sexual health education to address the evolving needs of students at different stages of their academic and developmental journeys.²⁶ The study also identified a strong association between condom use and sexual intercourse, with an odds ratio demonstrating lack of condom usage among sexually active participants. This finding corroborates prior studies that emphasize condom use as a common preventive measure among individuals engaging in sexual activity.^{17,27} However, variability in condom use patterns suggests gaps in consistent protective practices, underscoring the need for targeted interventions. Although lack of condom use showed a strong univariate association with sexual intercourse ($OR = 5.579$), it did not emerge as a significant predictor in the final logistic regression model. Similarly, being Asian was not associated with being sexually active in the final logistic regression model. This may reflect limitations in capturing nuanced patterns of condom use or the influence of other unmeasured demographic factors. Interestingly, while race emerged as a significant factor in the univariate analysis, being Asian was not associated with sexual activity in the final logistic regression model. This finding suggests the need to explore more nuanced cultural or contextual influences that may affect sexual behaviors among different racial or ethnic groups. For example, cultural norms, family expectations, and perceived stigma may play critical roles in shaping sexual attitudes and practices but were not explicitly captured in this study. These considerations highlight the importance of culturally tailored interventions that address the diverse experiences of undergraduate students. Additionally, the analysis found no significant association between biological sex and sexual intercourse, supporting growing evidence that sexual behavior patterns are influenced more by factors such as age and condom use than by biological sex.²⁸ This finding aligns with broader societal shifts challenging traditional gender-based norms in sexual behavior and decision-making, suggesting that sexual health interventions should focus on behaviors and risk patterns rather than demographic assumptions. The final logistic regression model demonstrated a robust fit, with a Nagelkerke R^2 value of 0.807, indicating that the included variables accounted for a substantial portion of the variance in sexual intercourse behavior. This strong model fit underscores the importance of focusing on key predictors such as age and condom use to develop effective sexual health strategies. Additionally, the lack of significant associations for other variables, such as ACEs and race, points to potential gaps in the current model, which future research could address by incorporating broader psychosocial and cultural dimensions.¹ These findings provide important insights into the complex interplay of ACEs, condom use, age, and sexual behavior, offering valuable direction for future sexual health interventions targeting undergraduate populations.

LIMITATIONS AND IMPLICATIONS

This study has several limitations that should be considered when interpreting the findings. First, cross-sectional design restricts the ability to establish causality between ACEs, condom use, age, sexual orientation, racial/ethnic identity and sexual behavior. The reliance on self-reported data may also introduce bias, as participants might underreport sensitive behaviors or experiences. Additionally, the sample was drawn from a single university, which may limit the generalizability of the results to other populations. The classroom-based survey methodology, while convenient, introduces certain limitations that must be acknowledged. Although participation was voluntary, the context of data collection within an HPE class may have influenced participants' willingness to disclose sensitive information, potentially leading to underreporting of sexual behaviors or inaccuracies in reporting condom use due to social desirability bias. Future studies could address this limitation by employing anonymous online surveys or alternative data collection methods that minimize perceived judgment or pressure from the classroom environment. The disproportionate representation of certain ethnicities and the majority identification as heterosexual might not reflect the diversity of larger student populations, potentially skewing the findings. Despite these limitations, the study underscores the importance of addressing ACEs in sexual health education. Although ACEs did not emerge as significant predictors in this study, the broader literature suggests their potential influence on sexual behavior through pathways such as emotional regulation, relationship dynamics, and risk perception. Future interventions should incorporate mental health and trauma-informed approaches, providing comprehensive support that acknowledges the interconnectedness of sexual health and psychosocial well-being.^{9, 153, 4} The high association between lack of condom use and sexual intercourse highlights the need for continued education and resources to promote consistent condom use among students. This study underscores the importance of continuing to explore the multidimensional factors influencing sexual behavior among undergraduate students. Future research should examine additional variables, such as relationship status, peer influence, and access to sexual health resources, to build a more comprehensive understanding of sexual behavior determinants.

CONCLUSION

The present study highlights the complex interplay between ACEs, condom use, age, racial/ethnic identity, sexual orientation and sexual behavior among undergraduate students, underscoring the critical need for targeted sexual health education and support tailored to students' lived experiences and needs. These findings align with the principles of health equity and social justice, emphasizing the importance of addressing disparities rooted in adverse childhood experiences and ensuring that all students, particularly those from vulnerable backgrounds, have equitable access to resources promoting safe sexual practices.

Future research should focus on exploring these relationships in more diverse populations to uncover intersectional factors that contribute to disparities in sexual health outcomes. Longitudinal studies are essential to capture ACEs' long-term impacts and design interventions that address structural and systemic inequities. Policies informed by such research must prioritize culturally relevant and trauma-informed approaches to education, ensuring that students from all backgrounds have the tools and support to make informed decisions about their sexual health. By centering health equity and social justice, public health initiatives can play a pivotal role in mitigating risks and fostering resilience, ultimately contributing to improved sex-

ual health outcomes for all individuals, regardless of their circumstances.

.....

DISCLOSURE STATEMENT

The author(s) have no relevant financial disclosures or conflicts of interest.

Submitted: January 01, 2025 EDT. Accepted: February 13, 2025 EDT. Published: May 16, 2025 EDT.



This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CCBY-4.0). View this license's legal deed at <http://creativecommons.org/licenses/by/4.0> and legal code at <http://creativecommons.org/licenses/by/4.0/legalcode> for more information.

REFERENCES

1. Merrick MT et al. Vital Signs: Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention — 25 States, 2015–2017. *MMWR Morb Mortal Wkly Rep*. 2019;68:999–1005. doi:[10.15585/mmwr.mm6844e1](https://doi.org/10.15585/mmwr.mm6844e1)
2. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245–258. doi:[10.1016/s0749-3797\(98\)00017-8](https://doi.org/10.1016/s0749-3797(98)00017-8)
3. Webster EM. The Impact of Adverse Childhood Experiences on Health and Development in Young Children. *Glob Pediatr Health*. 2022;9:2333794X221078708. doi:[10.1177/2333794X221078708](https://doi.org/10.1177/2333794X221078708)
4. Hillis SD, Anda RF, Felitti VJ, Nordenberg D, Marchbanks PA. Adverse childhood experiences and sexually transmitted diseases in men and women: A retrospective study. *Pediatrics*. 2000;106(1):e11. doi:[10.1542/peds.106.1.e11](https://doi.org/10.1542/peds.106.1.e11)
5. Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *Lancet Public Health*. 2017;2(8):e356–e366. doi:[10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4)
6. Ports KA, Ford DC, Merrick MT. Adverse childhood experiences and sexual victimization in adulthood. *Child Abuse Negl*. 2016;51:313–322. doi:[10.1016/j.chiabu.2015.08.017](https://doi.org/10.1016/j.chiabu.2015.08.017)
7. Thomas JL, Colich NL, McLaughlin KA, Sumner JA. Dimensions of Early Adversity and Sexual Behavior in a US Population-Based Adolescent Sample. *J Adolesc Health*. 2023;72(4):560–567. doi:[10.1016/j.jadohealth.2022.10.028](https://doi.org/10.1016/j.jadohealth.2022.10.028)
8. Centers for Disease Control and Prevention. BRFSS Questionnaires. Centers for Disease Control and Prevention. Accessed June 30, 2023. <https://www.cdc.gov/brfss/questionnaires/index.htm>
9. Song W, Qian X. Adverse Childhood Experiences and Teen Sexual Behaviors: The Role of Self-Regulation and School-Related Factors. *J School Health*. 2020;90(10):830–841. doi:[10.1111/josh.12947](https://doi.org/10.1111/josh.12947)
10. Frisch M, Moseholm E, Andersson M, Andresen JB, Graugaard C. *Sex i Danmark: Nøgletal fra Projekt SEXUS 2017–2018*. Statens Serum Institut & Aalborg Universitet; 2019. Accessed January 20, 2025. https://files.projektsexus.dk/2019-10-26_SEXUS-rapport_2017-2018.pdf
11. Edgardh K. Sexual behaviour and early coitarche in a national sample of 17-year-old Swedish girls. *Sex Transm Infect*. 2000;76(2):98–102. doi:[10.1136/sti.76.2.98](https://doi.org/10.1136/sti.76.2.98)
12. Kaestle CE, Halpern CT, Miller WC, Ford CA. Young age at first sexual intercourse and sexually transmitted infections in adolescents and young adults. *Am J Epidemiol*. 2005;161(8):774–780. doi:[10.1093/aje/kwi095](https://doi.org/10.1093/aje/kwi095)
13. Orr DP, Beiter M, Ingersoll G. Premature sexual activity as an indicator of psychosocial risk. *Pediatrics*. 1991;87(2):141–147. doi:[10.1542/peds.87.2.141](https://doi.org/10.1542/peds.87.2.141)
14. Silva C, Moreira P, Moreira DS, et al. Impact of Adverse Childhood Experiences in Young Adults and Adults: A Systematic Literature Review. *Pediatr Rep*. 2024;16(2):461–481. doi:[10.3390/pediatric16020040](https://doi.org/10.3390/pediatric16020040)
15. Kaggwa MM et al. Risky Sexual Behaviours among Ugandan University Students: A Pilot Study Exploring the Role of Adverse Childhood Experiences, Substance Use History, and Family Environment. *PLoS ONE*. 2022;17(11):e0277129. doi:[10.1371/journal.pone.0277129](https://doi.org/10.1371/journal.pone.0277129)
16. Agathis NT et al. Strong Father–Child Relationships and Other Positive Childhood Experiences, Adverse Childhood Experiences, and Sexual Risk Factors for HIV among Young Adults Aged 19–24 Years, Namibia, 2019: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*. 2023;20(14):6376. doi:[10.3390/ijerph20146376](https://doi.org/10.3390/ijerph20146376)
17. Kidman R, Breton E, Behrman J, Kohler HP. A prospective study on adverse childhood experiences and HIV-related risk among adolescents in Malawi. *AIDS*. 2022;36(15):2181–2189. doi:[10.1097/QAD.0000000000003377](https://doi.org/10.1097/QAD.0000000000003377)
18. Andersen JP, Blosnich J. Disparities in Adverse Childhood Experiences among Sexual Minority and Heterosexual Adults: Results from a Multi-State Probability-Based Sample. *PLoS ONE*. 2013;8(1):e54691. doi:[10.1371/journal.pone.0054691](https://doi.org/10.1371/journal.pone.0054691)

19. Blosnich JR, Andersen JP. Thursday's child: the role of adverse childhood experiences in explaining mental health disparities among lesbian, gay, and bisexual US adults. *Soc Psychiatry and Psychiatr Epidemiol*. 2015;50(2):335-338. doi:[10.1007/s00127-014-0955-4](https://doi.org/10.1007/s00127-014-0955-4)
20. Zou C, Andersen JP. Comparing the Rates of Early Childhood Victimization across Sexual Orientations: Heterosexual, Lesbian, Gay, Bisexual, and Mostly Heterosexual. *PLOS ONE*. 2015;10(10):e0139198. doi:[10.1371/journal.pone.0139198](https://doi.org/10.1371/journal.pone.0139198)
21. Assini-Meytin LC, Fix RL, Green KM, Nair R, Letourneau EJ. Adverse Childhood Experiences, Mental Health, and Risk Behaviors in Adulthood: Exploring Sex, Racial, and Ethnic Group Differences in a Nationally Representative Sample. *J Child Adolesc Trauma*. 2021;15(3):833-845. doi:[10.1007/s40653-021-00424-3](https://doi.org/10.1007/s40653-021-00424-3)
22. Swedo EA, Pampati S, Anderson KN, et al. Adverse Childhood Experiences and Health Conditions and Risk Behaviors Among High School Students — Youth Risk Behavior Survey, United States, 2023. *MMWR Suppl*. 2024;73(Suppl-4):39-49. doi:[10.15585/mmwr.su7304a5](https://doi.org/10.15585/mmwr.su7304a5)
23. MacCallum RC, Zhang S, Preacher KJ, Rucker DD. On the practice of dichotomization of quantitative variables. *Psychol Methods*. 2002;7(1):19-40. doi:[10.1037/1082-989x.7.1.19](https://doi.org/10.1037/1082-989x.7.1.19)
24. Iacobucci D, Posavac SS, Kardes FR, Schneider MJ, Popovich DL. The median split: Robust, refined, and revived. *J Consum Psychol*. 2015;25(4):690-704. doi:[10.1016/j.jcps.2015.06.014](https://doi.org/10.1016/j.jcps.2015.06.014)
25. Wood SK, Ford K, Madden HCE, Sharp CA, Hughes KE, Bellis MA. Adverse Childhood Experiences and Their Relationship with Poor Sexual Health Outcomes: Results from Four Cross-Sectional Surveys. *Int J Environ Res Public Health*. 2022;19(14):8869. doi:[10.3390/ijerph19148869](https://doi.org/10.3390/ijerph19148869)
26. Moreira MT, Rocha E, Lima A, Pereira L, Rodrigues S, Fernandes CS. Knowledge about Sex Education in Adolescence: A Cross-Sectional Study. *Adolescents*. 2023;3(3):431-445. doi:[10.3390/adolescents3030030](https://doi.org/10.3390/adolescents3030030)
27. Bellis MA et al. Life Course Health Consequences and Associated Annual Costs of Adverse Childhood Experiences Across Europe and North America: A Systematic Review and Meta-Analysis. *Lancet Public Health*. 2019;4(10):e517-e528. doi:[10.1016/S2468-2667\(19\)30132-3](https://doi.org/10.1016/S2468-2667(19)30132-3)
28. Smith-Grant J et al. Risk Behaviors and Experiences Among Youth Experiencing Homelessness—Youth Risk Behavior Survey, 23 U.S. States and 11 Local School Districts. *Journal of Community Health*. 2022;47(2):324-333. doi:[10.1007/s10900-021-01091-7](https://doi.org/10.1007/s10900-021-01091-7)

SUPPLEMENTARY MATERIALS

Author Biographies

Download: <https://www.bcpheview.org/article/138068-examining-adverse-childhood-experiences-sexual-behaviors-and-condom-use-among-undergraduate-college-students/attachment/283022.docx>
