

FROM CHILDHOOD WOUNDS TO HEALERS: UNDERSTANDING CHILDHOOD ADVERSITY AND PARENTAL ALCOHOLISM IN INDIA, A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Traumatic incidents that happen before the age of eighteen, such as domestic abuse, violence, and child abuse, are known as adverse childhood experiences (ACEs). Unfortunately, the trend is on the increase globally. Long-term health problems like alcoholism, depression, and chronic illnesses can be brought on by these experiences. Girls are impacted differently by gender norms and conceptions, and adolescents affected by ACEs are more likely to experience health disparities. **Purpose:** The current study is undertaken to estimate the prevalence and frequency of various types of ACEs among medical students in Jabalpur, Madhya Pradesh. **Methods:** A cross-sectional study, 211 NSCB Medical College students' data were gathered with the use of the "Adverse Childhood Experiences" (ACEs) scale. Chi square test was employed to determine the association. **Results:** As many as 211 medical students from NSCB Medical College in Jabalpur participated in the study; 19.4% of people were found to have an ACE with 10.5% of pupils saying they had only one ACE while 5.5% of pupils indicated that they had ≥ 3 ACEs. Verbal abuse (6.2%) and family members who were problem drinkers or alcoholics (6.6%) were the most common ACEs reported. **Conclusion:** In spite of the low prevalence, a sizable portion stressed the significance of helping those who have experienced hardship. In order to lessen the negative effects of traumatic childhood experiences on mental health, the study emphasizes the necessity for additional investigation, education, and intervention. Determining the prevalence of adverse childhood experiences (in medical students is essential for developing focused interventions and support networks.

Keywords: childhood, trauma, household, abuse

INTRODUCTION

Adverse childhood experiences (ACEs) are stressful and traumatic events that happen to a person before the age of eighteen and that they remember as an adult. Various forms of child abuse and neglect, witnessing violence between parents or household members, peer conflict and community violence, and dysfunctional households with an alcoholic or drug addict in the family, being parentless or single, growing up with a mentally ill household member, or having incarcerated family members are examples of such events.

Stress during childhood can have long-term negative effects on health, impairing the immune and nervous systems and affecting brain development. Serious issues like alcoholism, depression, eating disorders, risky sexual behavior, HIV/AIDS, cancer, heart disease, and other chronic diseases can be brought on by adverse events, or ACEs. Adverse event-affected adolescents are more likely to engage in health-risky behavior, which can result in health disparities. Girls are more vulnerable to domestic violence as a result of gender norms and conceptions that impact them differently. Nearly 62% of American adults reported having at least one type of ACE before the age of 18, and roughly one in six said they had experienced more than three types of ACEs, according to a Centres for Disease Control and Prevention (CDC) report. According to research (Walsh *et al.*, 2019), in Brazil, 85% of teenagers have experienced at least one type of ACE in their lifetime. In Eastern Europe, 53%, (Hughes *et al.*, 2017), and Vietnam 76% of young adults have experienced at least one type of ACEs (Tran *et al.*, 2017). According to a study by Fernandes *et al.* (2021) in India, one in two young people have experienced both family level and child abuse ACEs) According to data compiled by Damodaran and Paul on ACEs in youth based in Kerala (South India), 91% of the 600 young people in the sample reported having experienced at least one ACE, and more than half of them reported having experienced three or more ACEs (Damodaran & Paul, 2019). According to a study, young adults in Kashmir had an ACE prevalence of 88.2%, with a mean of 4.72 events (Dar *et al.*, 2022).

India is home to about 19% of the world's children, or 42% of the country's total population. Of these, nearly half are vulnerable

and in need of care and protection. Furthermore, in the context of India, where numerous risky health behavior issues frequently arise, less is known about the relationship between ACEs and HRBs in adolescence and early adulthood due to a lack of data. There is no national study on the incidence of ACEs in India. Although statewide analysis has been done in Jammu and Kashmir and Kerala, since India is a country with so much of diversity we cannot generalize the findings from these states. There has not been a study about medical students per se. The medical field requires a great deal of empathy, compassion, and consideration. Since this has never been done in India before, it is crucial that we are aware of the status of childhood trauma among our healthcare providers. Likewise, there has never been a study in Madhya Pradesh about the same topic. In addition, seek to figure out whether there is a connection between parental alcoholism and adverse childhood experience since alcoholism remains a huge problem in Indian households. In order to intervene with vulnerable populations, such as adolescents and young adults who have experienced adverse childhood experiences, it is essential to identify and treat the risk factors that are central to the development of health risk behaviors. As such, our goal is to bridge the gaps in the Indian context literature and lay the groundwork for future research. The study aims to determine the prevalence of adverse childhood experience among medical students and to find out the association of parental alcoholism with adverse childhood experiences.

METHOD

Study Design

A cross-sectional study design was followed for collecting data from medical students at NSCB Medical College from the first year to the final year. The study was conducted from August to November 2023.

Sample Size

As per the study conducted by Dar *et al.* (2022) in Kashmir, the prevalence of adverse childhood experiences was found to be 88.2%. As per the formula,

$$n = \frac{4pq}{l^2}$$

Where n is the desired sample,

p = Prevalence of adverse childhood experiences = 88.2% = 0.882,

$q = 1 - p = 1 - 0.882 = 0.118$,

$l = 5\%$ absolute error = 0.05,

The sample size is calculated as follows: $n = (4 * 0.882 * (1 - 0.882)) / 0.0025 = 167$.

The highest required sample size with 10% non-response was 184. For our convenience, we took a sample of 211.

Sample Population

The study includes medical students who are willing to participate and provide informed consent. A simple random sampling method was employed for the study to choose participants from 720 students.

Study Tool

- The 10-item ACE Study Questionnaire, which has been extensively utilized and verified in multiple languages, was a part of the survey.
- The variables included experiencing the following before the age of 18 years:
- Witnessing physical violence toward mother or stepmother (witnessing mother/stepmother being pushed/slapped/kicked/bitten/hit/threatened with knife or gun)
- Lack of basic needs and parental responsibility (didn't have enough to eat, had to wear dirty clothes and had no one to protect /parents too drunk or high to take care of the child or to take the child to hospital when there was need)
- Lack of family support (children treat unimportant or not loved enough by parents or other adults in the household /family not close or unsupportive to each other)
- Mentally ill family member in the household (depressed/ mentally ill/ suicide attempted family member)
- Physical abuse (parent or other adult in the household often push/grab/slap/throw something at the child or ever hit so hard that the child was injured or had marks)
- Household member going to prison
- Living with substance abuse (household member who is problem drinker/ alcoholic/uses street drugs)
- Swearing, insults, or physical threats (parent or other adult in the household

swearing/insulting/ humiliating or acted in a way that the child might be physically hurt)

- Separated/divorced parents
- Sexual abuse (adult/ person at least 5 years older touch/fondle/make their body touch in a sexual way or try to or have oral/anal/vaginal sex)
- The forced choice yes/no answers on the items evaluate the respondents' experiences prior to turning 18 (Dar et al., 2022) Six items have two or more questions connected by the conjunction "or" while four items only have one question (for example, "Did a household member go to prison?"). The ACE score runs from 0 to 10, with 1 point awarded for each "yes."

Data Analysis

The main 10 components of ACE score were violence toward mother or stepmother, basic needs and parental responsibility, lack of family support, mentally ill family member, physical abuse, household member going to prison, alcoholic family member, living with substance abuse, swearing insults or physical threats, separated/divorced parents and sexual abuse. We conducted quantitative analyses to obtain basic descriptive statistics. Chi-square test was employed to determine the association between parental alcoholism and adverse childhood experience. Data were entered in an MS Excel spreadsheet and analyzed by IBM SPSS version 23.0.

Ethical Clearance

The study objectives were explained to the participants. We took great care in terms of ethics and confidentiality, and we followed the protocol approved by the Institutional Ethics Committee. We gained approval from Institutional Ethics Committee Netaji Subhash Chandra Bose Medical College Jabalpur (M.P) No.IEC/2023/7335-87. We obtained verbal agreement from each participant prior to data collection after explaining the study's goals and method and assuring them of confidentiality and anonymity. Before beginning the survey, each participant was made aware that participation was entirely voluntary. We have taken care to follow the ethics process that the ethics committee has approved.

RESULT

Our study consisted of 128 male and 83 female participants. The prevalence of adverse

childhood experiences was 19.4% (41 students out of 211), whereas the rest (170 students) reported no previous exposure, as shown below.

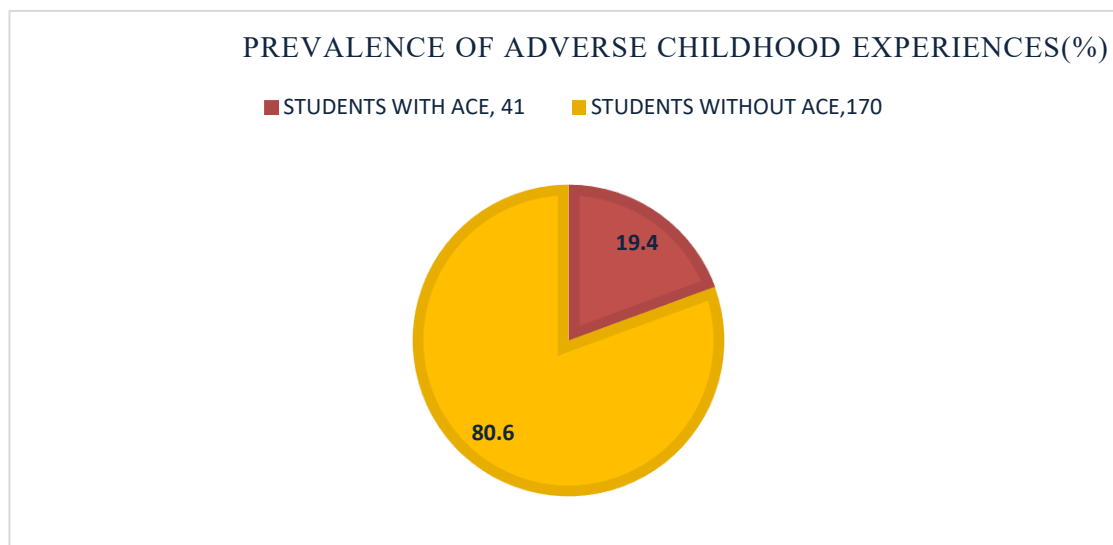


Figure 1. Prevalence of adverse childhood experience

The most prevalent ACEs reported were problem drinker/alcoholic family members (6.6% of the study group) and verbal

abuse (6.1% of the study group). Table 1 shows the prevalence of individual ACEs.

Table 1. Prevalence of individual ACEs

Type of ACE	Frequency of positive response	Percentage of students with ACE (%)	Frequency of negative response	Percentage of students without ACE (%)
Violence toward mother or stepmother	6	2.8	205	97.2
Basic needs and parental responsibility	5	2.4	206	97.6
Lack of family support	11	5.2	199	94.8
Mentally ill family member	11	5.2	199	94.8
Physical abuse	9	4.3	202	95.7
Household member going to prison	4	1.9	207	98.1
Living with substance abuse	14	6.6	197	93.4
Swearing, insults, or physical threats	13	6.2	198	93.8
Separated/divorced parents	1	0.5	210	99.5
Sexual abuse	9	4.3	202	95.7

Approximately 5.3% of the students reported three or more adverse childhood experiences whereas 10% had only one ACE positive and 80.4% have never experienced any

adversity in their childhood. Figure 2 shows the percentage of adverse childhood experience by frequency of events.

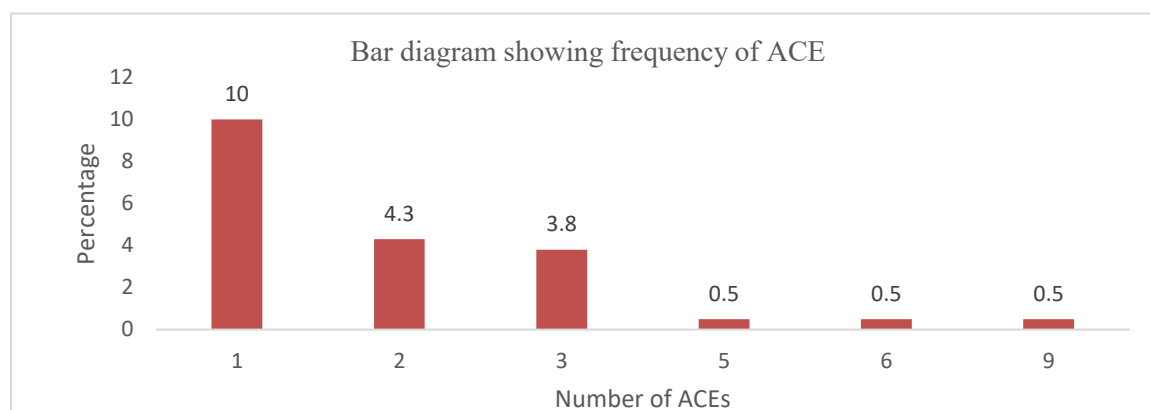


Figure 2. Percentage of adverse childhood experience by frequency of events

Female students reported a higher number of ACEs compared to males. Parental alcoholism was a major concern for male students whereas mentally ill family member

was a major adversity for female students. Table 2 shows the frequency of adverse childhood experiences with gender.

Table 2. Frequency of adverse childhood experiences with gender

Type of ACE	Male (%)		Female (%)	
	YES	NO	YES	NO
Violence towards mother or stepmother	4(3.2)	123(96.8)	2(2.4)	81(97.6)
Basic needs and parental responsibility	4(3.2)	123(96.8)	1(1.2)	82(98.8)
Lack of family support	7(5.6)	119(94.4)	4(4.8)	79(95.2)
Mentally ill family member	4(3.2)	123(96.8)	7(8.4)	76(91.57)
Physical abuse	3(2.4)	124(97.6)	6(7.2)	77(92.8)
Household member going to prison	2(1.6)	125(98.4)	2(2.4)	81(97.6)
Living with substance abuse	10(7.9)	117(92.1)	4(4.8)	76(95.2)
Swearing, insults, or physical threats	7(5.5)	120(94.5)	6(7.2)	77(92.8)
Separated/divorced parents	0(0)	127(100)	1(1.2)	82(98.8)
Sexual abuse	3(2.4)	124(97.6)	6(7.2)	77(92.8)

With the exception of a household member being incarcerated and separated or

divorced parents, parental alcoholism was significantly associated with all forms of ACE.

Table 3. Association of ACE with parental alcoholism

Types of ACE		Parental Alcoholism (%)		P-Value
		Frequency of positive response (%)	Frequency of negative response (%)	
Violence towards mother or stepmother	Frequency of positive response (%)	3(50)	3(50)	<0.001
	Frequency of negative response (%)	11(5.4)	194(94.6)	
Basic needs and parental responsibility	Frequency of positive response (%)	4(80)	1(20)	<0.001
	Frequency of negative response (%)	10(4.9)	196(95.1)	

Continuation of Table 3. Association of ACE with parental alcoholism

Types of ACE		Parental Alcoholism (%)		P-Value
		Frequency of positive response (%)	Frequency of negative response (%)	
Lack of family support	Frequency of positive response (%)	5(45.5)	6(54.5)	<0.001
	Frequency of negative response (%)	9(4.5)	190(95.5)	
Mentally ill family member	Frequency of positive response (%)	4(36.4)	7(63.6)	<0.001
	Frequency of negative response (%)	10(5)	190(95)	
Physical abuse	Frequency of positive response (%)	4(44.4)	5(55.6)	<0.001
	Frequency of negative response (%)	10(5)	192(95)	
Household member going to prison	Frequency of positive response (%)	1(25)	3(75)	0.136
	Frequency of negative response (%)	13(6.3)	194(93.7)	
Swearing, insults, or physical threats	Frequency of positive response (%)	5(38.5)	8(61.5)	<0.001
	Frequency of negative response (%)	9(4.5)	189(95.5)	
Separated/divorced parents	Frequency of positive response (%)	0(0)	1(100)	0.789
	Frequency of negative response (%)	14(6.7)	196(93.3)	
Sexual abuse	Frequency of positive response (%)	2(22.2)	7(77.8)	0.054
	Frequency of negative response (%)	12(5.9)	190(94.1)	

DISCUSSION

ACEs may have an impact on the immune system, neuroendocrine system, and brain development. They may also have an impact on opportunities for work, education, and income. Early interventions may be shaped by the identification of predictive factors associated with the types and categories of ACE exposure, potentially reducing the long-term effects of ACEs. This is the first local study looking into ACEs among a health campus's undergraduate student body.

The study participants had a 19.4% prevalence of ACEs, which was lower than that of studies conducted on comparable subjects in the USA (Sciolla *et al.*, 2019) and Malaysia (Majid *et al.*, 2023). Conversely, research on the same age group in the general population in

India showed a higher prevalence (Dar *et al.*, 2022). This is related to the idea that having a good environment is essential to achieving high academic standards.

While it was nearly twice as high in all the studies we reviewed, at least 10% of respondents said they had experienced one type of ACE during their first 18 years of life, and 3.8% said they had experienced three or more categories. Along with household members living with substance abuse, verbal abuse was also commonly reported as a form of adverse childhood experience (ACE). Parental alcoholism sharply increases the likelihood of ACE.

The gender disparities found in our sample were in line with findings from the literature, which showed that women typically

had higher overall ACE scores than men (Campbell *et al.*, 2016). Further, this disparity got to the point where all of the students with more than three ACEs were female. According to research on college students, seeing one's father mistreated has a substantial negative correlation with intimate partner violence victimization for female students but not for male students (Hernandez *et al.*, 2016). Intimate partner violence is twice as common among female physicians as it is among male physicians. Future research ought to look into whether female students who experienced violent treatment from their mothers as children are more likely to become victims of intimate partner violence.

The study focuses on adverse childhood experiences (ACE) among medical students, a topic with limited data available globally. The results show that ACE prevalence is lower in these students compared to the general population. The study subjects were medical college students in the cream layer of education, and their family environment might be better than the general population. The findings of this study may help medical students recognize their own ACEs, provide mental health support, identify resilience factors, and inform career choices in future. Colleges of medicine may need to develop curricula, provide mental health resources, and train faculty members to better understand and respond to the needs of medical students with childhood adversities. Addressing diversity, equity, and inclusion issues, particularly for students from marginalized backgrounds, is also crucial. Implementing wellness initiatives, such as mindfulness programs and peer support groups, can help create a supportive learning environment for medical students.

Our strength is this is the first study in Madhya Pradesh on ACE and the first study on medical students in India to be published so far. This could deliver an idea of the status of ACE and educational profile of an individual. The study provides valuable data and is a roadway for future research.

There are certain limitations to our study. Sensitive topics, like sexual abuse, for instance, are less likely to be discussed than common ones. Recalling childhood events can be difficult, which can cause misclassification (designating those who were exposed to ACE as

unexposed), which could skew our results to zero. These restrictions could cause the true correlation between alcoholism and ACE to be underestimated. Furthermore, there are some non-family social factors that could also have an impact on childhood in the younger population.

CONCLUSION

Even with the low prevalence, a sizable portion did stress the significance of helping those who have experienced adversity. Determining the prevalence of adverse childhood experiences (ACEs) in medical students is essential for developing focused interventions and support networks. It's also advised that parents, teachers, and other caregivers receive the appropriate training in order to recognize and prevent unpleasant experiences early on.

SUGGESTION

In order to lessen the negative effects of adverse childhood experiences on mental health, the study emphasizes the necessity for additional investigation, education, and intervention. To guarantee that national child protection laws and policies are successfully applied locally, close observation and evaluation are required. We also recommend parental counselling periodically.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest to disclose. There are no pertinent competing interests to disclose, either non-financial or financial.

DECLARATION OF ARTIFICIAL INTELLIGENCE (AI)

The authors acknowledge the use of ChatGPT for language refinement, in preparing this manuscript. All AI-generated content was rigorously reviewed, edited, and validated to ensure accuracy and originality. Full responsibility for the manuscript's final content rests with the authors.

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AUTHOR CONTRIBUTION

Author Anusree Jayamohan data collection and manuscript preparation. Author Shashi Prabha Tomar and Prashant Verma concept, design, supervision and review.

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