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## Prevalence and Correlates of Perpetration of Violence Among Young People: A Population-Based Survey From Goa, India

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### Abstract

The aim of this study was to describe the prevalence and factors associated with perpetration of violence in young people in India. It was a cross-sectional survey of 3663 individuals (16-24 years old). Data on sociodemographics, sexual/physical violence, common mental disorders, and substance abuse were collected by face-to-face structured interviews. Logistic regression was used to estimate odds ratios for association of violence with various factors. Prevalence of physical violence in the past year was 10.2%. In both genders, younger age, urbanicity, being a victim of sexual abuse, common mental disorders, and tobacco use were associated with increased risk of physical violence. Being a victim of forced sexual intercourse and alcohol use was associated with violence in males; and not living with parents was associated with violence in females. Future research should be designed to tease out the pathways that underlie the associations, identified in the study, to derive potential preventive strategies.

### Keywords

young people; physical violence; victimization; common mental disorder; substance abuse; India

### Introduction

The first global report on violence and health by the World Health Organization highlighted the large global impact of violence on overall mortality and disability.<sup>1,2</sup> Apart from the adverse health impacts, the consequences of violence on societies can be enormous in economic terms, as well as in terms of family and community functioning. Young people are at particular risk of being both perpetrators and victims of violence. Violence is the leading cause of death for those aged 15 to 44 years worldwide; for every death due to violence,

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many more survive but go on to suffer from a range of physical and mental health problems.<sup>1</sup>

In recent times, in many developed world settings, violence has been reported to be increasing among young people, particularly in relation to increased rates of substance misuse.<sup>3</sup> The burden of violence is, however, largest in low- and middle-income countries (LMICs) where more than 90% of violence-related deaths occur and where the mortality rate due to violence is more than 2 times greater than in high-income countries.<sup>4,5</sup> Intentional injuries and behavioral problems in young people have already been recognized as current challenges in health and health care.<sup>6</sup> Although the evidence base on the experience and impact of violence is growing in LMICs, there is as yet very limited research on the factors associated with the perpetration of violence by young people in LMIC. An example of such a study in young people from South Africa revealed that 35.3% men and 43.5% women reported perpetration of physical violence in the past 12 months.<sup>5</sup> Other authors too have highlighted the high prevalence of violence in the youth in Africa and Latin America.<sup>7,8</sup>

Risk factors for youth violence can operate at the individual level (eg, male gender, poor academic ability, substance misuse), familial level (eg, poor parental supervision, low socioeconomic status of family), and societal level (eg, urbanization, poor social capital).<sup>1,9</sup> The limited evidence from LMICs has shown that low socioeconomic status, low education, and alcohol use<sup>10-12</sup> are correlates of violence in adult populations, but little is known about risk factors for younger age groups.

In the context of the limited evidence from LMICs and the likelihood that evidence from developed countries may not be generalizable because of the strong influence of contextual factors, we describe the findings of a population-based survey aimed at strengthening the evidence base on the prevalence and correlates of the perpetration of physical violence among young people (16-24 years old) living in rural and urban communities in a state in India.

## Methods

### Study Design

This study involved a cross-sectional survey of young people aged 16 to 24 years old.

### Setting

Two rural and 2 urban communities in the southern district of the state of Goa, western India, were selected. The rural communities (total population 14 794) were engaged primarily in farming whereas the urban communities were located in the main commercial city and comprised 10 wards (administrative unit of the city; total population 34 565). In these populations, the proportion of young adults matching the age profile of our study participants was 14.9% in rural communities and 8% in urban communities.

### Participants

All young persons aged 16 to 24 years residing in the selected communities enumerated through a door-to-door survey. Eligible youth who had significant visual impairment,

hearing disability, intellectual disability, those who did not consent, or who could not communicate in 1 of the 3 study languages were excluded (n = 5).

## Data Collection

Study awareness programs were conducted in both rural and urban areas before recruitment and these included meetings in the community organized through *panchayats* (self-government units at village/small town level) and other key groups such as religious groups and sports clubs. This also included conducting games and teaching hobbies in different pockets of the community and requested the cooperation of young people for the study.

Each participant received verbal introduction to the study by the researcher, was provided with an information sheet, and then approached for consent to participate in the study. Recruitment and data collection was done by trained researchers through face-to-face structured interviews. A structured interview was developed specifically for the survey and was based on previous research studies, including a study on the health needs of adolescents in schools,<sup>13</sup> a population-based study of mental health in young adolescents,<sup>14</sup> and a population-based cohort study of women's reproductive and mental health.<sup>15</sup> The instrument, initially developed in English, was translated into the other 2 languages used in the study via a standard translation and back-translation process. The instrument was then piloted among 87 young people from a comparable but different community to assess its acceptability and feasibility.

The interview was structured in the following domains:

1. *Sociodemographic profile*: gender, age, household socioeconomic status based on ownership of assets, area of residence (urban/rural), housing arrangements (living with parents or not), and whether currently in education. Socioeconomic status based on ownership of household assets is consistent with prior work on both international and Indian survey data.<sup>16,17</sup>
2. *Physical violence*: The primary outcome, perpetration of interpersonal violence, which was determined on the basis of self report ("In the past 1 year did you push, grab, slap, hit, kick, punch anyone or do something else that hurt that person physically?"). Participants were also asked about their experiences of being a victim of physical abuse.
3. *Sexual violence*: Participants were asked about their experiences of sexual violence (whether any person had ever involved the participant in talking about sex in a way that made the participant feel uncomfortable, touching or fondling the participant's private parts against their wishes, or showing their sex organs to the participant against their wishes) at home or school. Participants were also asked about whether they had ever been subjected to forced sexual intercourse.
4. *Mental health*: The 12-item General Health Questionnaire (GHQ-12)<sup>18</sup> was used to assess symptoms of common mental disorders (CMDs). A cutoff score of 5/6 was previously reported to have optimal specificity and sensitivity for detecting common mental disorder in the primary care population in Goa<sup>19</sup> and was used to define "probable" case level morbidity of CMD.

5. *Substance abuse*: Participants were asked about their recent (past 3 months) history of use of tobacco and alcohol.

Complete data were available on 3663 individuals (1803 rural and 1860 urban) with relatively low refusal rates (5.2% in rural areas and 2.4% in urban areas).

## Analyses

The primary outcome of interest, perpetration of physical violence in the past year, was a binary variable, as were all exposure variables. Socioeconomic status was derived from an asset index based on household ownership of specific assets. The continuous score was dichotomized using the median score for the whole sample as a cutoff. All analyses were stratified by gender. Variables were grouped into 2 broad domains: sociodemographic and other factors. Logistic regression with general estimating equations were used to estimate odds ratios (ORs) and 95% confidence intervals (CIs), adjusting for potential clustering of participants within households. The Wald test was used to estimate  $P$  values. All sociodemographic variables that were associated with the outcome at  $P < .1$  on univariate analyses were fitted in a multivariate model; variables were fitted in descending order of the strength of univariate association with the outcome, until all remaining variables showed an association ( $P < .1$ ). Then, each factor from the remaining domains was fitted into models individually, adjusted for the sociodemographic factors. All variables with  $P < .1$  after adjustment were included in a multivariate model together with the sociodemographic variables. Variables were then excluded one by one until all remaining variables were independently associated with the outcome. Analyses were performed using STATA 10.0 for Windows.

## Ethical Considerations

The project was approved by the Institutional Review Board of Sangath, the community-based nongovernmental organization in Goa that implemented this study. Informed consent was sought before participation in the study. Participants were free to withdraw from the interview at any point or not to answer questions that they did not feel comfortable with. All researchers underwent specific training on ethics and in handling sensitive issues. The training was provided by the co-principal investigator who is a national resource person on ethics in research on adolescents. Protocols were developed and manualized on specific sensitive issues that could come up. A youth-friendly center was set up as part of the project. It was staffed by professionals trained to provide counseling and guidance on a range of psychosocial problems in young people. If a participant reported any form of violence or risky behavior, information was given to the participant about services available. The participant could then directly contact the youth center to avail the required services. Young people with health problems, for example, poor mental health, were offered advice and referred to appropriate health providers.

## Results

Sociodemographic characteristics of the sample, as a whole and following stratification by gender, are presented in Table 1. The sample was evenly split by gender, with 48.6% males and 51.4% females. The sample was evenly divided into those from rural (49.2%) and urban

(50.8%) locations; this was also true for males and females when examined separately. The mean age of participants was 19.5 years ( $SD = 2.5$  years). When divided into 3 age groups, more individuals were from the youngest group (16-18 years; 40.7%) than in the middle (19-21 years; 34.3%) or older groups (22-24 years; 25.0%). There were no differences between males and females with regard to age group distribution. A higher proportion of the sample was from a lower household economic status (54.4%). At the time of the survey, just more than half the sample (56.5%) was not in education. A very small group ( $n = 42$ , 1.2%) had never been in education. These proportions appeared similar for males and females. A large proportion of participants were living with their parents at the time of the survey (91%).

### Prevalence of Violence

The prevalence of violence in the past year was 10.6% (95% CI = 9.6-11.7). The prevalence was lower in women (7.9%, 95% CI = 6.7-9.2) than men (13.5%, 95% CI = 11.9-15.2). This gender difference was statistically significant at  $P < .001$ . Of those who admitted to violence in the past year ( $n = 389$ ), 13.1% (95% CI = 9.9-16.9) reported frequent violence (at least 4 days per week), 12.9% (95% CI = 9.7-16.6) reported occasional violence (at least once per week), and the remainder (74.0%; 95% CI = 69.4-78.3) admitted to violence less frequently.

### Correlates of Violence

Table 2 presents the associations of sociodemographic and other factors with self-reported physical violence.

In men, being younger than 18 years, urban residence and high socioeconomic position were associated with violence. After adjusting for these sociodemographic factors, being a victim of forced sexual intercourse or other sexual abuse, current CMD, current tobacco use, and current alcohol use were associated with physical violence in men.

In the final multivariable model for men, age 18 years or less, urban residence, lifetime history of forced sexual intercourse or other sexual abuse, current CMD, current tobacco use, and current alcohol use were independently associated with physical violence.

In women, being younger than 18 years, urban residence and not living with parents were associated with violence. After adjusting for these sociodemographic factors, being a victim of sexual abuse, current CMD, current tobacco use, and current alcohol use were associated with physical violence in women. In the final multivariable model for women, age 18 years or less, urban residence, not living with parents, lifetime history of sexual abuse, current CMD, and current tobacco use were independently associated with physical violence.

### Discussion

We observed that just more than 1 in 10 young people in our sample in urban and rural communities in Goa, India, reported perpetrating physical violence in the year prior to the interview. The prevalence of physical violence in men was almost twice that in women. In both genders, younger age, urban residence, being a victim of sexual abuse, experiencing symptoms of CMDs, and current tobacco use were independently associated with physical

violence. In addition, being a victim of forced sexual intercourse and alcohol use in males; and not living with parents in females were independently associated with physical violence.

The overall prevalence of violence in our study sample was relatively low compared with findings from high-income countries. In the United States, for example, more than one third of school students were found to have been involved in at least one physical fight during the previous year,<sup>20</sup> whereas a UK study reported that more than half of the male and female students admitted to fighting during the year prior to the study.<sup>3</sup> Although it is possible that some of these variations may be due to methodological differences between studies, such as the samples and the measurement of violence, it is also possible that these are true differences. Furthermore, the gender differences in the prevalence of violence we observed is one of the most consistent findings in the literature,<sup>21</sup> as are most of our other findings.

Thus, in both men and women, we found a strong association between younger age and violence. Many studies have shown that rates of violence begin to rise in preadolescence or early adolescence, peak in late adolescence, and decline in young adulthood.<sup>3,22</sup> Among young people, depression has previously been linked to antisocial behavior, including violence,<sup>23</sup> which is consistent with our finding of association of violence with CMD. We also found a strong association between victimization, in the form of sexual abuse or forced sexual intercourse, and violence, another well-established association in high-income countries.<sup>24</sup> Similarly, we observed an association with substance misuse, in particular alcohol and tobacco use.<sup>9,25</sup> Among women, those not living with their parents were found to be at increased risk of physical violence. This could reflect the reduced strength of parental bonds and controls over behavior, which have been shown to increase risk of violence in children.<sup>26</sup> Living in urban areas was associated with violence in both men and women. This is consistent with evidence showing that violence is more common in urban environments, a trend frequently explained by theories hypothesizing greater alienation and fewer social bonds among urban dwellers.<sup>27</sup> Furthermore, environmental features common to urban areas, such as crowding, have been linked to violence.<sup>28,29</sup> Given the context of rapid social change characterized by urbanization, rates of youth violence may be expected to increase in India. We did not find an independent association of socioeconomic status with violence. This is not consistent with findings from developed countries where a number of studies have highlighted that a higher socioeconomic status is inversely related to violence.<sup>30,31</sup> This discrepancy could be because most of the studies from developed countries use individual income or occupation to determine socioeconomic status, unlike our study, which used household income. We have used median household economic status to dichotomize the variable and this could also account for our finding being different from developed countries.

The main limitations of our study relate to the cross-sectional design, which does not allow us to determine the direction of causality of the detected associations. Thus, the precise pathways between various factors and violence are not clear; for example, some longitudinal studies have failed to find a causal association between alcohol use and violence.<sup>32</sup> It is plausible that shared determinants that predict both variables, for example, personality traits or social factors, may confound the association observed in descriptive studies. Reverse causality is also a plausible explanation for some associations. Furthermore, as the survey



instrument was not developed to provide a comprehensive examination of violence and its correlates, it was not possible to examine other relevant factors, such as family cohesion, discipline, and social capital, which have been shown to be related to violence by other investigators. The reliability of responses given in interview to sensitive questions about one's violent behavior is uncertain. Purposeful underreporting or overreporting of certain behaviors/experiences by adolescents because they are socially undesirable or desirable, respectively, cannot be completely ruled out. However, there is evidence that self-report information about adolescent antisocial behavior is more likely to be valid and reliable than information obtained from other sources such as collateral informants.<sup>20,33</sup> Furthermore, alternative methods for independent verification of self-reports of such sensitive behaviors might not be cost-effective, feasible, or ethical. An alternative for this study would have been to use a self-administered questionnaire, but this would not be very feasible in a low literacy environment and also comes with the attendant disadvantage of poor response rates. Finally, there is the possibility of recall bias, but this is minimized in our study by limiting the recall of physical violence to a relatively short period of 1 year.

In conclusion, the results of our study have demonstrated a moderate prevalence of physical violence in rural and urban community samples in India and independent associations between violence and a number of factors, notably male gender, younger age, urban residence, tobacco use, and being a victim of violence, which are consistent with the literature from developed countries. These findings contribute to the scarce evidence base to inform public health researchers and policy makers to promote further research on the causal pathways that lead to violence and to develop and evaluate preventative strategies designed to reduce violence by young people.

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**Table 1**

## Sociodemographic Description of Sample

	Male		Female		Total	
	n	Percentage	n	Percentage	n	Percentage
Age group (years)						
16-18	725	40.7	765	40.6	1490	40.7
19-21	607	34.1	650	34.5	1257	34.3
22-24	448	25.17	468	24.9	7916	25.0
Household socioeconomic status						
High	785	44.1	885	47.0	1670	45.6
Low	995	55.9	998	53.0	1993	54.5
Currently in education						
Yes	795	44.7	799	42.43	1594	43.5
No	985	55.4	1084	57.6	2069	56.5
Living with parents						
Yes	1690	94.9	1642	87.2	3332	91.0
No	90	5.1	241	12.8	331	9.0
Residence						
Rural	915	51.4	888	47.2	1803	49.2
Urban	865	48.6	995	52.8	1860	50.8

Table 2

## Association of Physical Violence With Sociodemographic and Other Factors

	Males					Females				
	Violent; n (%)	OR <sup>a</sup> (95% CI)	P	Adjusted OR (95% CI)	P	Violent; n (%)	OR <sup>a</sup> (95% CI)	P	Adjusted OR (95% CI)	P
Total	240 (13.5)					149 (7.9)				
<i>Sociodemographic factors</i>										
Age group (years)			<.001		<.001			.001		<.001
19	109 (10.3)	1		1		70 (6.3)	1		1	
<18	131 (18.1)	1.87 (1.42-2.45)		2.25 (1.64-3.07)		79 (10.3)	1.7 (1.21-2.38)		2.02 (1.4-2.91)	
Household SES			<.001					.13		
High	133 (16.9)	1				78 (8.8)	1			
Low	107 (10.8)	0.6 (0.45-0.79)				71 (7.1)	0.77 (0.55-1.08)			
Currently in education			.57					.11		
Yes	112 (14.1)	1				72 (9.01)	1			
No	128 (13.0)	0.92 (0.7-1.21)				77 (7.1)	0.75 (0.53-1.06)			
Living with parents			0.79					0.01		<0.001
Yes	227 (13.4)	1				120 (7.3)	1		1	
No	13 (14.4)	1.08 (0.59-1.98)				29 (12.0)	1.74 (1.12-2.69)		2.36 (1.5-3.73)	
Residence			<.001		<.001			<.001		<.001
Rural	54 (5.9)	1		1		43 (4.8)	1		1	
Urban	186 (21.5)	4.32 (3.11-5.98)		3.51 (2.46-4.99)		106 (10.7)	2.36 (1.62-3.46)		1.98 (1.34-2.92)	
<i>Other factors</i>										
Sexual abuse			<.001		<.001			<.001		<.001
No	149 (10.5)	1		1		100 (6.3)	1		1	
Yes	91 (25.6)	2.58 (1.89-3.51)		1.83 (1.3-2.57)		49 (17.0)	2.73 (1.85-4.03)		2.34 (1.57-3.48)	
Forced sexual intercourse			<.001		.003			.15		
No	219 (12.6)	1		1		144 (7.8)	1			
Yes	21 (45.7)	6.49 (3.42-12.31)		3.01 (1.46-6.2)		5 (16.1)	2.03 (0.77-5.32)			
Current CMD			<.001		.001			<.001		<.001
No	202 (12.3)	1		1		118 (6.8)	1		1	
Yes	38 (28.6)	2.79 (1.82-4.26)		2.14 (1.35-3.38)		31 (20.0)	3.31 (2.08-5.27)		2.68 (1.66-4.34)	
Current tobacco use			<.001		.03			.002		.03
No	133 (11.2)	1		1		132 (7.4)	1		1	
Yes	107 (18.2)	2.38 (1.76-3.22)		1.45 (1.03-2.05)		17 (17.7)	2.69 (1.44-5.03)		2.06 (1.05-4.04)	
Current alcohol use			<.001		<.001			.005		
No	108 (8.9)	1		1		117 (7.0)	1			
Yes	132 (23.2)	2.99 (2.2-4.06)		2.37 (1.69-3.31)		32 (14.5)	1.89 (1.21-2.96)			

Abbreviations: OR, odds ratio; CI, confidence interval; SES, socioeconomic status; CMD, common mental disorders.

<sup>a</sup>The univariate OR is shown for sociodemographic factors. OR for other factors are adjusted for age and area of residence in males and age, area of residence, and living circumstances in females.