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Research Article

Unintentional Injury, and Safety Related Issues among the Adolescent Students of English Medium Private Schools in Tripura, India

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Abstract

Background: The objective of this study is to measure the prevalence of unintentional injury, and safety related issues among students studying in classes' 9th to 11th standard of the English medium private schools of Udaipur and Bishramganj, Tripura. **Materials and Methods:** A cross-sectional descriptive study was carried out during November- December 2021 in English medium private schools of Udaipur and Bishramganj subdivision of Tripura, India. **Results:** A total of 565 students participated in this study. It was observed that 52.1% of students encountered serious injury in the past year on the streets due to neglect in wearing a helmet and seat belt. Among adolescents who do not use helmets and seatbelts, the numbers were 33% (95% CI 29-37.2%) and 39.8% (95% CI 35.7-44%) respectively. 11.3% (95% CI 8.9-14.3%) of adolescents did not attend school regularly because they felt unsafe during the commute. A small number of students amounting to 3.9% (95% CI 2.6-6%) experienced street harassment in the last year. Among the respondents, 28.6% [95% CI 25-32.6%] of adolescents were sexually abused or molested by someone in their life. **Conclusion:** More than half of adolescent students had encountered serious injuries in the past year due to vehicular accidents. Around one-third of the adolescents did not use a helmet while riding a motorbike and did not use a seat belt while riding a motorcar. More than one-fourth of adolescents were sexually abused or molested by someone in their life.

Keywords: Unintentional injury; Risk behavior; Safety of adolescents; Sexual abuse among adolescents

Introduction

According to the World Health Organization, unintentional injuries were responsible for over 3.9 million deaths and over 138 million disability-adjusted life-years in 2004, with over 90% of those occurring in low and middle-income countries (LMIC). The worldwide rate of unintentional injuries is 61 per 100,000 population per year. Overall, road traffic injuries make up the largest proportion of unintentional injury deaths (33%). The death rate is nearly double in LMIC versus high-income countries (65 vs. 35 per 100,000), and the disability-adjusted life-year rate is more than triple in LMIC (2,398 vs. 774 per 100,000) when the rate was standardized per 100,000 population [1]. The worldwide rate of unintentional injuries is causing 10% of the total annual deaths [2]. In India non-fatal unintentional injury rates are 342 per 1000 children [3]. Unintentional injuries are a public health challenge around the world and have physical, psychological, and economic implications on their families and society [4].

Road accidents are the main cause of death of young men worldwide. Of the estimated 195,000 adolescents killed each year in traffic accidents, more than 60% are boys [5]. For every young person killed in a traffic accident, another 10 are seriously injured or disabled for life [6]. Family violence against adolescents constitutes a public health challenge that threatens the safety of adolescents. Adolescents often experience family violence in the form of maltreatment victimization (including violent punishment)

by authority figures in the family, especially their carers at home [7]. According to WHO, child maltreatment "includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial, or other exploitation, which results in actual or potential harm to the child's health, survival, development, or dignity in the context of a relationship of responsibility, trust or power". Exposing children to Intimate Partner Violence (IPV) is also recognized as a form of child maltreatment [8]. At the family level, adolescents can experience violence in the forms of physical (use of physical force with intent to harm others), psychological (verbal or gestural with the intention of humiliating, threatening, or causing damage to self-esteem), and sexual violence (the imposition of sexual practice against the wishes of an individual or which results in their victimization), exploitation (use of the child in work or other activities for the benefit of others, which harms, for example, the child's physical and mental health and education), neglect (lack or denial of care to those in need) and exposure to intimate partner violence (experiencing violence between intimate partners) [9].

It was observed that an unsafe feeling at school may be an important determinant of mental health problems. It is very relevant, because adolescents spend a large proportion of their daytime in school and a substantial number of adolescents feel unsafe. Perceived school safety is frequently investigated, mostly in relation to witnessing violence at school, and projects to increase safety in school [10].

A systematic review and meta-analysis of the current prevalence of child sexual abuse worldwide is 8% to 31% for girls and 3% to 17 % for boys [11]. The WHO in 2002 estimated that 73 million boys and 150 million girls under the age of 18 years had experienced various forms of sexual violence [12]. Information regarding the prevalence of safety, unintentional injury, and sexual abuse among students of Tripura, India was very limited. Therefore, the objective of this study is to measure the prevalence of unintentional injury, and safety related issues among students in class 9th to 11th standard English medium private schools in Tripura.

Materials and Methods

The cross-sectional descriptive study was carried out during November- December 2021 in four faith-based English medium private schools of Udaipur and Bishramganj subdivision of Tripura, India. Three of the schools are located in rural areas and only one is situated in urban area. All students studying in Class 9th, 10th, and 11th standard were included in this study. The selection of these schools and classes was done based on the convenience of the investigator. Permission from the school authorities was obtained to conduct this study. Consent was obtained from individual students before administering the questionnaire. All students present in a particular class on the day of the investigation in a particular school were included in this study. Students were informed about this study and further, it was also informed that they have the right, not to patriciate in this study. Then the questionnaire was distributed among all the students. It was observed that two students from one class of one school refused to participate in this study.

This study is a part of the original investigation where the investigator studied the prevalence of smoking among the students of English medium private schools in Tripura, India. The sample size was calculated based on the study conducted by Ganguly S et al on school students (The prevalence of smoking was 29%) [13]. The sample size calculation [It was calculated as $N= 4pq/r^2 = 4p(1-p)/d^2 = (4 X 29 X 71) / 4X 4 = 515$. Where, p is the prevalence of smoking (29%), q is the 1- p, and, d is precision (corresponding to effect size). The level of confidence usually aimed for is 95%, with most researchers presenting their results with a 95% Confidence Interval (CI)] and other details of methodology were used in this study [14].

A structured questionnaire developed by Long KNG et al was used as study instrument to measure unintentional injury, violence, searing seatbelt, wearing helmet and safety among adolescents [15]. Operational definition of Child Sexual Abuse (CSA) / molestation is defined as the misuse of power and authority, combined with force or coercion, which leads to the exploitation of children in situations where adults or children sufficiently older than the victim to have greater strength and power, seek sexual gratification through those who are developmentally immature, and where, as a result, consent from the victim is a non-concept. Such gratification can involve explicit sexual acts or may involve invasive and inappropriate actions not directly involving contact [16]. Questionnaires were given in the English language. Permission from the school authorities was obtained to conduct this study. Informed consent was obtained from individual students before administering the questionnaire.

The demographic profile, like, gender, place of residence, education, occupation, and other study variables, etc. were described in percentage (frequency). The age of the students was described in mean age. The number of students in different groups was compared with the Chi-square test. A p-value is less than 0.05 were taken as a significant difference between different groups of students. Analysis of the data was carried out in the Epi Info (7.2.5 version).

Results

A total of 565 students participated in this study from four schools. The number of students participating from class 9th, 10th, and 11th standard were 375 (66.4%), 85 (15%), and 105 (18.6%)

respectively. There are 308 (54.5%) boys and 257 (45.5%) girl students. Most of the students belonged to rural areas (92%) and only 8% of students belonged to urban areas. Most of the students were staying in hostels (38.8%) and around one-third of the students were staying in rented houses (30.7%) and their own houses (28.6%) (Table 1).

Variables	Number	Percentage	95% CI
Gender			
Boys	308	54.5%	50.4 – 58.6
Girls	257	45.5%	41.4 – 49.6
Residence			
Rural	520	92%	89.5 - 94
Urban	45	8%	6 – 10.5
Class			
Class 9th	375	66.4 %	62.4 – 70.1
Class 10th	85	15%	12.3 – 18.2
Class 11th	105	18.6%	15.6 - 22
Age			
13 years	6	1.1%	0.5 – 2.3
14 years	119	21.2%	18 – 24.8
15 years	187	33.3%	29.6 – 37.3
16 years	125	22.3%	19 – 25.9
17 years	82	14.6%	11.9 – 17.8
18 years	42	7.5%	5.4 – 10.7
Currently Staying			
Hostel	216	38.8%	34.9 – 42.9
With relative	10	1.8%	0.9 – 3.3
Rented house	171	30.7%	27.1 – 34.7
Own house	159	28.6%	25 – 32.5

Table 1: Demographic Profile of the Students.

It was observed that 52.1% of students were seriously injured in the past year. Out of which 43.4% (95% CI 39.1-47.5%), 4.7% (95% CI 3.2-6.8%) and 4.1% (95% CI 2.7-6.1%) adolescents were 1 to 2 times, 5 to 6 times and 7 times or more seriously injured in the past year respectively. Falling (14.4%) was the major single cause of serious injury for adolescents, followed by serious injury occurred by a motor vehicle accident or hit by a motor vehicle (5.4%).

Only 28.3% (95% CI 20.3-27.7%) of adolescents wear a helmet when they ride on a motor bike or a scooter. Further, 33% (95% CI 29-37.2%) of adolescents never wear a helmet when they ride on a motor bike or a scooter (Table 2).

Variables	Number	Percentage	95% CI
During the past year, how many times were **you seriously injured**? (n= 536)			
0	257	47.9%	43.7 – 52.2%
1 to 2 times	232	43.4%	39.1 – 47.5%
5 to 6 times	25	4.7%	3.2 – 6.8%
7 or more times	22	4.1%	2.7 – 6.1%
During the past year, what was the major **cause of the most serious injury** that happened to you? (n= 499)			
I fell	72	14.4%	11.6 – 17.8%
I inhaled/swallowed **something** bad for me	5	1%	0.4 – 2.3%
I was attacked or abused or I was fighting with someone	24	4.8%	3.2 – 7.1%
I got injured by fire or burnt by something hot	10	2%	1.1 – 3.6%
I **was involved** a motor vehicle accident or hit by a motor vehicle	27	5.4%	3.7 – 7.8%
I was not seriously injured during the past 12 **months**	311	62.3%	58 – 66.5%
Something else caused my injury	50	10%	7.7 - 13%
Do you **wear a Helmet** when you ride on a motor bike or scooter? (n= 512)			
Never	169	33%	29 – 37.2%
Rarely	18	3.5%	2.2 – 5.5%
Sometimes	150	29.3%	25.5 – 33.4%
Most of the time	53	10.3%	8 – 13.3%
Always	122	28.3%	20.3 – 27.7%
Do you **wear a seatbelt** when you ride in a car? (n= 523)			
Never	208	39.8%	35.7 – 44%
Rarely	33	6.3%	4.5 – 8.7%
Sometimes	157	30%	26.2 – 34.1%
Most of the time	39	7.5%	5.5 – 10%
Always	86	16.4%	13.5 – 19.9%
During the past year, were **you were injured** in a motor vehicle accident, either as a passenger in the vehicle or as a pedestrian on the street? (n= 515)			
No	450	87.4%	84.2 – 90%
Yes	65	12.6%	10 – 15.8%
Have you ever not gone to school because you felt you would be **unsafe either at school or on your way to school**? (n= 521)			
No	462	88.7%	85.7 – 91.1%
Yes	59	11.3%	8.9 – 14.3%
During the past year, how frequently have you experienced someone saying something **intentionally rude or insulting** to you? (n= 507)			
Never	123	24.3%	20.7 – 28.2%
Rarely	46	9.1%	6.9 – 11.9%
Sometimes	268	52.9%	48.5 – 57.2%
Most of the time	50	9.9%	7.6 – 12. %8
Always	20	3.9%	2.6 – 6%
Have you ever seen a **violent act** take place at home, school or in your neighbourhood? (n = 484)			

No	178	36.8%	32.6 – 41.2%
Yes	306	63.2%	58.8 – 67.4%
Do you ever **feel safe** when at Home? (n= 538)			
Never	10	1.9%	1 – 3.4%
Rarely	8	1.5%	0.8 – 2.9%
Sometimes	42	7.8%	5.8 – 10.4%
Most of the time	52	9.7%	7.4 – 12.5%
Always	426	79.2%	75.5 – 82.4%
Do you ever **feel safe** when at School? (n= 541)			
Never	22	4.1%	2.7 – 6.1%
Rarely	5	0.9%	0.4 – 2.1%
Sometimes	123	22.7%	19.4 – 26.4%
Most of the time	120	22.2%	18.9 – 25.9%
Always	271	50.1%	45.9 – 54.3%
Do you **feel safe** when hanging out with friends? (n= 529)			
Never	55	10.4%	8.1 – 13.3%
Rarely	14	2.6%	1.6 – 4.4%
Sometimes	214	40.4%	36.3 – 44.7%
Most of the time	102	19.3%	16.1 – 22.9%
Always	144	27.2%	23.6 – 31.2%
Do you have ever been **sexually abuse** or **molested** by anyone? (n= 541)			
Never	386	71.3%	67.4 – 75%
Rarely	47	8.7%	6.6 – 11.4%
Sometimes	98	18.1%	15.1 – 21.6%
Most of the **times**	7	1.3%	0.63 – 2.65%
Always	3	0.5%	0.19 – 1.6 %

Table 2: Distribution of unintentional injury, and violence among adolescents.

Only 16.4% (95% CI 13.5 – 19.9%) of adolescents wear a seatbelt when they ride in a car. But 39.8% (95% CI 35.7-44%) of adolescents never wear a seatbelt when they ride in a car. 12.6% (95% CI 10-15.8%) of adolescents were injured in a motor vehicle accident, either as a passenger in the vehicle or as a pedestrian on the street during the past year. 11.3% (95% CI 8.9 – 14.3%) of adolescents did not attend school regularly because they felt that it would be unsafe. The overarching fear was that schools and the transport to such schools are highly unsafe. 24.3% (95% CI 20.7 – 28.2%) adolescents had never experienced someone saying something intentionally rude or insulting to them within the last year. However, 3.9% (95% CI 2.6 – 6%) of adolescents have always experienced someone saying something intentionally rude or insulting to them within the last year. 63.2% (95% CI 58.8 – 67.4%) of adolescents had seen a violent act take place at home, school or in your neighborhood. 79.2% (95% CI 75.5 – 82.4%) of adolescents always feel safe when at home. However, 1.9% (95% CI 1 – 3.4%) of adolescents never feel safe when at home. 50.1% (95% CI 45.9 – 54.3%) of adolescents felt safe when at school but 4.1% (95% CI 2.7 – 6.1%) of them never felt safe when at school. 27.2% (95% CI 23.6 – 31.2%) of adolescents felt safe when hanging out with friends, but 10.4% (955 CI 8.1 – 13.3%) of them never felt safe when hanging out with friends. Among the respondents 28.6% [95% CI 25. – 32.6%] of adolescents were sexually abused or molested by someone in their life.

Discussion

The current study has observed that falling down is the most commonly occurring serious injury (14.4%) among adolescents. Santosh K. Verma et al stated that twelve percent of community-dwelling U.S. adults reported falling in the previous year for a total estimate of 80 million falls at a rate of 37.2 falls per 100 person-years. On average, 9.9 million fall-related injuries occurred each year with a rate of 4.38 fall-related injuries per 100 person-years [17]. The major unintentional injury-related causes of disability-adjusted life-years lost annually include road traffic injuries (17.5%) and falls (12.2%) [18]. Mirkazemi et al reported that the annual incidence rate of unintentional injuries in a population of an urban city (Pune) in India was 174 (95% CI 164-184) per 1000 individuals [19]. Parmeswaran GG et al found that the prevalence of unintentional injuries in urban Delhi among 1,639 children aged less than 18 years were 7.1% (95% CI: 5.9-8.4). Prevalence was more in boys (8.4%) than girls (5.1%). Accidental falls (37.1%), dog bites (25%), and road traffic injuries (18.9%) were the three most common modes of injury [20].

It was observed that male students (56.4%) encountered more injuries in the past year than female students (46.6%) and the difference among these two groups was significant (p value=0.02). Further, it was observed that students from rural areas (52.4%) encountered with more injuries in the past year than urban areas (47.7%), however the difference was not significant (p) value=0.5). Highest rates of injury were observed among students who lived in hostels (59.1%) compared to the students who lived at rented houses (53.2%), with relatives (50%) and at their own house (42.5%). The differences among the groups were statistically significant (p value=0.01).

Prevalence of never wearing a helmet among the girl students (33.9%) was more compared to the boys (32.3%). However, the difference among these two groups was statistically not significant (p value= 0.69). Further it was also observed that prevalence of never wearing a helmet among students from urban areas (37.5%) were more than students from rural areas (32.6%), but the difference was not statistically significant (p value= 0.52). Prevalence of never wearing a helmet among the students of class 9th, 10th and 11th were 34.2%, 38% and 25% respectively (p value=0.11). Subhashisa Swain et al observed that nearly 75% of adolescents (15–19 years) studying in different schools and colleges of Udupi, India did not use a helmet or seatbelt while driving [21]. Sreedharan J, et al. conducted a cross-sectional study conducted in Kerala, India, over a period of six months and observed that 31.4% used a helmet [22]. Wadhwaniya et al reported that the overall observed helmet use in Hyderabad city was 34.5% and 44.5% of respondents reported that they 'always wear a helmet' [23]. In the population-based study, 22.6% (n = 15,426) of motorcyclists and 1.1% (n = 240) of pillion riders (co-passengers) were observed wearing helmets in Hyderabad city, India [24].

Prevalence of never wearing a seatbelt while riding in a car among the boys students (43.2%) was more than girl students (35.7%). However the difference was not significant (p value=0.08). Prevalence of never wearing a seatbelt while riding in a car among students from rural areas (41.1%) was more than students from urban areas (24.4%) and the difference was statistically significant (p value = 0.03). Prevalence of never wearing a seatbelt while riding in a car among the students of class 9th, 10th and 11th were 37.5%, 51.3% and 39% respectively (p value = 0.08). Mahajan et al observed that use of seat-belt was found to be alarmingly low (14.3%) amongst the population comprising of 401 consecutive cases of non- fatal injuries involved in road traffic crashes (four-wheeler users) and reported at Indira Gandhi Medical College hospital, Shimla and its non-use was found to be significantly associated with the major injuries [25].

Around 10.1% of the girls students and 10.7% of the boy students never feel safe while hanging out with friends (p value = 0.82). More percentage of girl students (5.2%) never feel safe at school as compared to the boy's students (4.8%) (P value = 0.83). However, more boys students (3%) never feel safe at home than girls students (0.4%) (p value = 0.02). 12.1% of girls students

and 10.6% of boys students did not go to school because they felt unsafe either at school or on the way to school (p value = 0.59).

Prevalence of sexually abuse or molestation among the girls students (37%) was more than the boy students (21.1%) and the difference among these two groups were statistically significant (p value < 0.001). Prevalence of sexual abuse or molestation among the students from urban areas (30.9%) were more than students from rural areas (28.5%) (p value = 0.73). The rate of prevalence of sexual abuse or molestation among the students of class 9th, 10th and 11th were 31.3%, 11.8% and 33.3% respectively (p-value = 0.001). Prevalence of sexual abuse or molestation among the students staying in hostel, rented houses and own houses were 30.6%, 15.8% and 39.6% respectively (p value = 0.001). Similarly, Deb and Walsh conducted a study among the students randomly selected from eight English and Bengali medium schools in Agartala city, Tripura and observed that 18% of the children had experienced sexual abuse in the home environment [26]. Researchers in India estimate that between 18% and 50% of their country's population may have experienced some type of sexual abuse in their life time. These statistics may not account for the number of children (1 in 5) who are sexually solicited while using the internet, and the high number of victims who never disclose their sexual abuse from in and outside the family. Children who fail to disclose may be between 30% and 87% [27]. The limitation of this finding was that the question to find out the prevalence of sexually abuse or molestation among adolescents was pre-tested but not validated.

Conclusion

More than half of adolescent students had encountered serious injury in the past years and falling down was the single main reasons for unintentional injury. Around one third of the adolescents did not use helmet while riding a motor bike and did not use seat belt while riding a motor car. One tenth of adolescents did not attend school regularly because they felt it would be unsafe either at school or on the way to school. Number of the adolescents who did not feel safe at home or school should not be ignored. More than one fourth of adolescents were sexually abused or molested by someone in their life. An integrated action plan involving all stakeholders should be undertaken for prevention and control of health risk behaviors among adolescents.

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