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# **Awareness and adherence to safety measures to prevent unintentional injury in parents and children in Bangladesh**

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## Abstract

### Keywords

Unintentional  
Childhood injury,  
Road traffic injury,  
fall injury,  
Burn injury,  
awareness, and  
safety.

**Background:** In Bangladesh, unintentional child injuries are a concerning rising public health issue. The prevention of unintended injuries in young children is mostly dependent on parental safety behaviors. The purpose of this study is to evaluate the awareness and safety precautions that parents and children have for unintentional childhood injuries.

**Methods:** For the study, 822 children between the ages of 10 and 17 who were hospitalized to the pediatric emergency wards of a government and non-government hospital in Rajshahi, Bangladesh, were chosen. Convenience sampling was used to choose the injured children as well as the mother and father. The outcomes included awareness and adherence to safety measures to prevent unintentional injury. For the study, multivariate logistic regression analysis and descriptive statistics were employed.

**Results:** When it came to preventing unintended injury, 32.5% of children and 54.4% of parents were aware of the same information. In comparison, 3.9% of parents followed safety precautions to avoid injury, compared to 12.3% of children. The odds ratios for parents' and children' knowledge of injuries are substantially lower for injuries from falls, burns, and other sources (70.50% & 73.70% and 84.40% & 79.00%, respectively). Safety precautions help prevent burns and other injuries, and they protect children as well as parents.

**Conclusion:** Among parents and injured children, there was a lower proportion of awareness and dedication to safety behavior. As a result, this important topic deserves attention.

## Introduction

Worldwide, childhood injuries represent a major public health risk. In low- and middle-income countries (LMICs), where at least 90% of childhood fatalities and disabilities take place, they are the main causes of these outcomes (Harvey, Towner, Peden, Soori, & Bartolomeos, 2009; Khan et al., 2015). Most childhood injuries, such as burns, fractures from falls, and injuries from traffic accidents, occur in Sub-Saharan Africa (Bartlett, 2002). The top five injury-related causes of death for children were identified as road traffic injuries (RTIs), poisoning, burns, falls, and burns (Linnan et al. 2007). Unintentional injuries (UI) were predicted to be responsible for 18% of the 3.5 million deaths among individuals aged 1-19 in 2010 according to the Global Burden of Disease (GBD) study (Kassebaum et al. 2017). According to estimates from the World Health Organization (WHO), there were 73 injury-specific deaths for every 100,000 people under the age of five (WHO 2015).

In Bangladesh, the incidence of traffic accidents has alarmingly increased in recent years. From 2020 to 2021, the number of collisions and fatalities increased. In comparison to 5,431 fatalities and 7,379 injuries from traffic crashes in 2020, at least 6,284 people died and 7,468 more were injured in traffic accidents between January and December 2021, according to the annual report from the Bangladesh Road Safety Foundation (RSF). In 2021, 3,793 road incidents claimed the lives of 4,289 individuals, according to Nirapad Sarak Chai (NSC-We Demand Safe Roads). Two-wheelers account for most traffic incidents, with motorcycles typically being the riskiest mode of transportation in the nation (Seema, 2022). According to a recent study, there is a significant correlation between respondents' age, gender, place of residence, education, occupation, and awareness of RTA with respect to traffic rules. There is also a significant correlation between respondents' knowledge and awareness of these rules and RTI (Rafique et al., 2020).

In Bangladesh, among all child age groups (less than 18 years), injury mortality is lowest in infants (3.2%). As children get older, injury mortality rises, reaching 52.6% for those aged 1-4, 42.1% for those aged 5-9, 56.9% for those aged 10-14, and 60.7% for those aged 15-17 (BIHS, 2016). The two most common causes of fatal injuries and morbidity in children across all age groups are drowning (25.7/100,000) and suicide (16.8/100,000). Children in the 5-9 age group had the second-highest rate of morbidity (13,442.5/100,000), with falls constituting the most common pattern [BHIS, 2016]. 72% of people in Bangladesh reside in rural regions, where most children are exposed to most of the dangers listed above as well as a lack of preventative services, general first aid education, and access to emergency medical treatment [BHIS, 2005]. According to the study's findings, nursing students' attitudes about falls were on average valued at 3.86 on a 1-5 scale, and their overall knowledge of falls was valued at 12.86 out of 15 points (Myoung-Hee Kim et.al., 2015).

An epidemiological study conducted in Bangladesh found that falls rank fourth among causes of illness beyond infancy, with rural children being more vulnerable (Chowdhury et al., 2008). According to a study on how people in Bangladesh seek medical attention, traumatized children are most often admitted to hospitals as a result of falls from trees (Rahman et al., 1998). While few assessments provided any evidence of their efficacy, a number of publications have indicated that well-executed community-based interventional programs may lower the likelihood that a child may be hurt at home (Turner et al., 2004, Kendrick et al., 2008). According to research, young children with low socioeconomic level are more likely to get burns or scalds at home (Laflamme et al., 2010). Additionally, because parents with lower levels of education took fewer precautions, there was a higher chance of child injuries occurring at home (Carlsson et al., 2006). An emphasis on the needs of each particular family is required in order to alter the mothers' perceptions toward accident prevention (Kreute et al., 2003).

The number of unintentional children's injuries in low- and middle-income countries (LMICs) is still extremely rare, and there is little information available about primary caregivers' perceptions of and understanding of these injuries (Mathur et al. 2018). To prevent similar injuries, it is essential to understand and recognize them, while also taking into consideration the parenting styles and ideologies that shape how children are supervised (Petross et al. 2009). Parental perceptions play a crucial role in injury prevention as they influence whether a scenario is viewed as unsafe or not. Parents perceive safety precautions and child injuries at home moderately and have insufficient information about them; occupation and education are linked to greater awareness, but the number of children is linked to a higher degree of perception (Mustafa et al., 2022).

Road traffic injuries (RTIs), drowning, animal bites, poisonous substances, falls, burns, electrocutions, and other incidents involving children under the age of 18 are major causes of morbidity and mortality in Bangladesh, particularly in rural regions. A plausible reason for inadvertent harm that contributes significantly to morbidity and death might include the absence of parental safety practices and insufficient awareness regarding unintentional child injury. Still, there is a dearth of study in Bangladesh on this subject. Thus, this study aims to explore parental adherence to these safety precautions as well as the awareness of parents and injured children regarding preventive measures against unintentional childhood injury.

## **Methods**

### ***Design, study area and the sample***

This research focuses on unintentional childhood injuries that happen often all over Bangladesh. The children were identified from registered medical hospitals for children who were admitted within a certain period for the treatment of injuries. We collected data from these children to meet the research's objectives. Located in the western region of Bangladesh, Rajshahi functions

as both an administrative district and the divisional headquarters of Rajshahi Division. It is one of the seven major cities in Bangladesh and is home to many government and private hospitals, including the tertiary-level public Rajshahi Medical College Hospital (RMCH), as well as private hospitals like the government-run Sadar Hospital, the private Islami Bank Hospital, the private Barind Medical College Hospital, the private Child Hospital, and the private Chest-disease Hospital.

Through direct interviews with the children themselves or through interviews with their parents and other family members, this research project gathered information regarding injured children. These interviews took place in the hospital wards where children with injuries were brought in for care run by Christian missionary hospital (NGO) and government.

**Data collection**

The data gathered for this study included: 1) a variety of categories pertaining to childhood injuries, such as details about the kinds and types of injuries that the children had; 2) parental and

children’s awareness regrading preventing unintentional injuries; and 3) parental adherence to safety precautions to avoid unintentional injury. The questionnaires used to collect such information were first translated into Bangla, the official language of Bangladesh, from its English outline. Experts and volunteers judged the translation. A pilot test was used to assess the original questionnaire's content validity. The pre-testing of the questionnaire was initially conducted on 10% of the total sample. Following the resolution of any ambiguities found in the questionnaires, the survey was conducted in February and March of 2018–19.

**Sample Selection**

We employed a purposive sampling method to select individuals for this study. Data were collected from randomly selected four (04) hospitals (two public and two private hospitals) located in the Rajshahi City areas of Bangladesh. A total of 822 children were interviewed as part of this research, representing a diverse cross-section of the population seeking treatment in the selected hospitals.

**Measurement of Variables with Coding**

<b>Explanatory variables</b>	<b>Measurement</b>
Area of Residence (1=Urban, 2=Rural)	Permanent living place of children parents were selected.
Type of Unintentional Childhood Injury [1=Road traffic injury (RTI), 2= Fall injury, 3= Burn and others like animal bites, biting by others children/persons, drowning, poisoning etc.]	Asking parents/children of which type of injury they were involved at the time of survey.
Age of parents and children	Current age of mother were considered but in case of children it was <18 years during survey period.
Wealth Index (1=Poor, 2=Middle, 3= wealthy)	
Parents education (1=Illiterate, 2=Literate)	Based on some questions like sanitation facility, electricity, TV, Frieze etc. of children households were considered to build up a wealth scores and lastly classify on the median value.

Child's Education (1=No schooling, 2=Primary schooling, 3=Secondary schooling)	Measuring by years of schooling of parents and classify it zero schooling-illiterate and more than one years schooling indicate literate in this survey. Children current schooling status was asked.
<b>Outcome variables</b>	<b>Measurement</b>
Parents awareness about unintentional injury (0=No, 1=Yes)	Asking to parents awareness level about RTI, fall, burn, drown, animal bites, biting by other children/persons etc. type of injuries at the time of survey.
Children awareness about injury (0=No, 1=Yes)	Children aged between 10-17 years were considered to ask awareness about injury.
Additional caregiver by parents for their children (0=No, 1=Yes)	Any additional member except parents, grand mother/fathers or relatives those were not considered, only paid members by parents were selected as additional caregivers.
Any safety used of Children (0=No, 1= Yes)	Any safety devices like helmet, sit belt, pad used when play etc. of children were asked and minimum one device used indicating to affirmative.

**Statistical analyses**

Regarding sociodemographic data, awareness level, and adherence to safety precautions, we offered descriptive statistics. The findings were presented as mean ± standard deviation (SD) values or, if applicable, as n (%). Cross-tabulation was used to investigate variations in safety measure awareness and adherence by sociodemographic group. Multivariate logistic regression analysis was used to evaluate the relationship between sociodemographic information and the injured children's and their parents awareness and adherence to safety precautions. The multiple regression models were set up concurrently with all the covariates. All analyses were conducted with a significance level of P < 0.05. SPSS version 21.0 for Windows was used to analyze the data (SPSS Inc., Chicago, IL).

**Ethical considerations**

The Institute of Biological Sciences ethics committee of the University of Rajshahi, Bangladesh, examined and approved this study protocol (approval number 74/320/IAMEBBC/BSc, dated February 22,

2017). Potential participants were notified about the study, extended an invitation to participate, and made aware of their right to withdraw from the study prior to the survey.

**Results**

**Descriptive statistics**

The respondents' sociodemographic profile is displayed in **Table 1**. Mothers within the sample had an average age of 33.01 years, and 78.95 % of the respondents lived in urban areas. Of all the injury types, falls accounted for the largest percentage of injuries (37.7%), followed by RTI (35.5%). Approximately 89% of the sample mothers were housewives, and more than half of them were illiterate. In terms of fathers' educational attainment, 42.58% were illiterate. About 39.17 of mothers fell into the poor wealth bands according to the wealth index, with 62% having monthly incomes of less than 1000 BDT. The children who suffered injury were 13.69 years old on average. Additionally, only 47.2% of children have a primary school education.



**Table1. Percentage Distribution of Socio-demographic Characteristics of Parents’ and Children using Hospital Data at Rajshahi City Corporation in Bangladesh**

Socio-demographic characteristics	Number (N)	Percentage (%)	95% CI
<b>Area of Residence</b>			
Urban	173	21.05	(18.30-23.09)
Rural	649	78.95	(76.00-81.60)
<b>Type of Injury</b>			
Road traffic injury (RTI)	292	35.50	(32.20-38.90)
Fall injury	310	7.70	(34.30-41.10)
Burn and others injury	220	26.80	(17.80-29.80)
<b>Sex of children</b>			
Male	647	78.71	(75.70-81.50)
Female	175	21.29	(18.50-24.20)
<b>Age of mothers</b>	Mean= 33.01 years		
<b>Mothers’ education</b>			
Illiterate	414	50.36	(46.80-53.80)
Primary	212	25.79	(22.80-28.90)
Secondary	161	19.59	(16.90-22.40)
Higher	35	4.26	(2.90-5.80)
<b>Mothers’ occupation</b>			
Housewife	730	88.80	(86.60-91.00)
Service	51	6.20	(4.70-7.80)
Others	41	5.00	(3.40-7.40)
<b>Fathers’ education</b>			
Illiterate	350	42.58	(39.10-46.00)
Primary	141	17.15	(14.606-19.90)
Secondary	174	21.17	(18.40-24.10)
Higher	157	19.10	(16.40-21.90)
<b>Fathers’ occupation</b>			
Service and Business	362	44.00	(40.50-47.40)
Agriculture and labor	460	56.00	(52.60-59.50)
<b>Family member</b>			
4persons	395	48.05	(44.50-51.50)
5-8 persons	230	27.98	(24.90-31.10)
9 and above persons	197	23.97	(21.00-27.00)
<b>Wealth index</b>			
Poor	322	39.17	(35.80-42.60)
Middle	166	20.19	(17.50-23.10)
Wealthy	334	40.63	(37.20-44.00)
<b>Monthly family income</b>			
<10000 TK	510	62.00	(58.50-65.30)
10000-15000 TK	201	24.50	(21.50-27.50)
15000 TK and above	111	13.50	(11.20-15.90)
<b>Type of family</b>			
Nuclear	669	81.40	(78.80-84.10)
Joint/Extended	153	18.60	(15.10-22.00)
<b>Age of injured children</b>	Mean= 13.69 years		
<b>Child’s education</b>			
No schooling	195	23.72	(20.80-26.70)
Primary schooling	388	47.20	(43.70-50.60)
Secondary schooling	239	29.08	(25.90-32.30)

*Note:* ‘CI, Confidence interval’

**Table 2** shows the distribution of awareness among children and their parents and parental adherence to safety measure According to the findings, parents' and injured children's awareness of their injuries was 54.40% with a confidence interval of (51.20, 57.90) and 32.50% with a confidence interval of (27.80, 37.10), respectively. Regarding safety precautions, the percentage of parents who provided a grandparent, aunt, uncle, hired caregiver, etc. for their injured child was only 3.90% (CI 2.60, 5.30), and the percentage of injured children who used any kind of safety device (such as a helmet, sit belt, play pad, etc.) was 12.30% (CI 9.30, 15.60).

These findings also suggest that parental awareness of injuries sustained by their children and the presence of additional caregivers was evidently lower than necessary to minimize and safeguard child injury. The ability of children to safely operate vehicles is also highlighted in this study. The children's driving outcomes for bicycles, motorcycles, easy bikes, nosimon/rikshapollar, workshop machinery, and minibuses/trucks were 45.70% with CI (42.10, 49.10), 10.70% with CI (8.50, 12.50), 0.70% with CI (0.20, 1.30), 2.40% with CI (1.30, 3.50), 0.50% with CI (0.10, 1.00), and 0.60 with CI (0.10, 1.20), respectively (**Table 2**).

**Table 2 Percentage distributions of awareness and safety measures from injury of parents' and injured children with 95% confidence interval (CI).**

Variables	Frequency	Percentage (%)	95% CI
<b>Awareness about injury</b>			
Parents' (n=822)	447	54.40	(51.20, 57.90)
Children (n=422)	137	32.50	(27.80, 37.10)
<b>Safety measures from injury</b>			
Any safety used (Helmet, sit belt, pad used when play etc.) of injured child (n=422)	52	12.30	(9.30, 15.60)
Additional caregiver (Grand-mother/father, aunty/uncle, paid person, etc.) by parents for injured child (n=822)	32	3.90	(2.60, 5.30)
<b>Capacity of Vehicle driving (n=822)</b>			
Bicycle	376	45.70	(42.10, 49.10)
Motorcycle	88	10.70	(8.50, 12.50)
Easy bike	6	0.70	(0.20, 1.30)
Nosimon/rikshapollar	20	2.40	(1.30, 3.50)
Workshop machinery	4	0.50	(0.10, 1.00)
Minibus/truck	5	0.60	(0.10, 1.20)

**Multivariate analyses**

**Factors influencing safety precautions and awareness adjacent to childhood injuries**

The coefficient of variation  $R^2$  suggests that the complete model with our predictors reflects an

increase in fit over the null model of 38.20% in model-1, 39.70% in model-2, 23.70% in model-3, and 26.70% in model-4. All the models fit well according to the Hosmer and Lemeshow (H-L) test method ( <0.05 indicates poor model fit, near to be 1 means the best model fit).

**Table 3 Adjusted odds ratio (AOR) for the association between awareness about injury with type of injury among parents', and injured children (aged 10-17 years old) with 95% confidence interval**

Variables	Parents' awareness of child injury (n=822) <sup>1</sup>			Child awareness about injury (n=422) <sup>2</sup>		
		AOR	95% CI		AOR	95% CI
<b>Type of child injury</b>						
Road trafficking (ref)	.....	1.000		.....	1.000	
Fallen	-1.22*	0.295	(0.20, 0.44)	-2.00*	0.136	(0.07, 0.26)
Burn and others	-1.34*	0.263	(0.17, 0.41)	-1.56*	0.210	(0.11, 0.41)
<b>Control variables</b>						
<b>Age of mother (Mean= 33.01 years)</b>	-0.06*	0.939	(0.92, 0.96)	-	-	-
<b>Mothers' education</b>						
Illiterate (ref)	.....	1.000		.....	1.000	
Literate	1.12*	3.074	(2.13, 4.44)	0.08	1.087	(0.55, 2.15)
<b>Mothers' occupation</b>						
Housewife (ref)	.....	1.000		-	-	-
Others (Service and labor)	-0.69**	0.503	(0.27, 0.93)			
<b>Fathers' occupation</b>						
Agriculture and labor (ref)	.....	1.000	.....	-	-	-
Service and business	0.57**	1.770	(1.20, 2.62)			
<b>Type of Family</b>						
Nuclear (ref)	.....	1.000		-	-	-
Joint	0.69**	1.985	(1.28, 3.08)			
<b>Monthly family income</b>						
<10000 Tk (ref).	.....	1.000		-	-	-
10000-15000 Tk.	1.07*	2.925	(1.91, 4.47)			
15000 Tk.+	2.73*	15.361	(6.70, 35.23)			
<b>Wealth Index</b>						
Poor (ref)				.....	1.000	
Middle				0.94**	2.569	(1.34, 4.92)
Wealthy				0.93**	2.522	(1.10, 5.79)
<b>Sex of Child</b>						
Male (ref)	.....	1.000		.....	1.000	
Female	0.79**	2.205	(1.45, 3.36)	0.41	1.509	(0.73, 3.14)
<b>Place of residence</b>						
Urban (ref)				.....	1.000	
Rural				-1.55*	0.211	(0.11, 4.22)
<b>Fathers' education</b>						
Illiterate (ref)				.....	1.000	
Literate				1.06**	2.880	(1.43, 5.82)
<b>Family member</b>						
<5 persons (ref)				.....	1.000	
5+ persons				0.64**	1.903	(1.10, 3.29)
<b>Age of injured child (mean= 13.69 years)</b>				0.173**	1.189	(1.05, 1.35)
<b>Education of child</b>						
No schooling (ref)				.....	1.000	
Primary schooling				0.45	1.561	(0.62, 3.91)
Secondary schooling				0.75**	2.114	(1.02, 4.40)
<b>Model summary:</b> Model $\chi^2 = 275.973$ , -2 Log likelihood = 856.027*, Nagelkerke $R^2=0.382$ , Hosmer and Lemeshow (H-L), =0.414				Model summary: Model $\chi^2 = 141.439$ , -2 Log likelihood = 390.552*, Nagelkerke $R^2=0.397$ , H-L, =0.888		

**Note:** \* $p < 0.001$ ; \*\* $p < 0.05$ ; <sup>1</sup> $p > 0.05$ ; CI, represents the confidence interval; ref., the reference category  
<sup>1</sup> adjusted for age, education, occupation of mothers', occupation of fathers', type of family, sex of child and monthly family income; <sup>2</sup> adjusted for age of children, sex of child, education of children, place of residence, family member, fathers' education and wealth index



**Table 3** shows the adjusted odds ratio for the association between awareness about injury with type of injury among parents', and injured children with 95% confidence interval. The study's findings show that parental awareness of injuries and injured children has regression coefficients ( ) of -1.22 and -2.00 for falls-related injuries, and -1.34 and -1.56 for burns and other types of injuries (such as drowning, animal bites, and other trauma). Parental awareness of fall injuries and burn and other types of injuries has adjusted odds ratios with 95% confidence intervals of 0.295, CI (0.20, 0.44) and 0.263, CI (0.17, 0.41), and child awareness of injuries has 95% confidence intervals of 0.136, CI (0.07, 0.26) and 0.210, CI (0.11, 0.41) for fall injuries and burn and other types, respectively (**Table 3**).

According to these findings, the type of unintentional childhood injury has a negatively significant ( <0.001) association with the awareness. Regarding injuries from trafficking, falls, burns, and other causes, parents' awareness of their children's injuries is 70.50% and 73.70% lower, respectively. Children's awareness of burn, fall, and other injury types is 86.40% and 79.00% lower, respectively, than that of the reference category (**Table 3**).

In addition, there is a positive significant ( <0.001) association between parents' awareness of their children's injuries and control variables such as the mothers' educational status, family type, income, and child sex; however, there is a negative significant ( <0.05) association between parents' awareness of injuries and their age and occupation. Children's awareness of injury is significantly ( <0.05) associated with the age and education of the injured child, the father's education, the wealth index, and family members; residency has a negative significant ( <0.001) association with injury awareness (**Table 3**).

**Table 4** shows the Adjusted odds ratio or the association between safety measures from injury with type of injury among parents and children with 95% confidence interval. The findings indicate that additional caregivers

(grandmother/father, aunty/uncle, paid person, etc.) and safety measures (helmet, sit belt, play pad, etc.) used by parents to protect their injured children (10–17 years old) have regression coefficients ( ) of -0.07 and 0.11 for injuries caused by falls, and 0.28 and 0.40 for burns and other types of injuries (drowning, animal bites, etc.) respectively. These findings show that while additional caregivers provided by parents for their children's safety have a positive insignificant association with injuries from burns and other injuries and a negative insignificant association with injuries from falls, any safety precautions taken by injured children have a positive insignificant association with the type of injury. When it comes to reducing road trafficking, injuries from falls, burns, and other incidents, parents' propensity to shield their children from harm through caregivers is 32.80% greater and 7.10% lower, respectively.

**Table 4** also shows that, any safety measure that is utilized to prevent childhood injuries in children—such as falls, burns, and other incidents—has an 11.50% and 48.50% higher chance of saving childhood injuries than does road traffic injury (RTI). This finding implies that all caregivers, excluding parents, should take extra precautions to prevent unintended childhood injuries. Examples of these precautions include wearing a helmet when riding a motorcycle or bicycle and using a pad when playing on school property.

Additionally, the age of fathers has a negative significant ( <0.05) association with additional caregivers for protection from injury, whereas the control variables—mothers' occupation and wealth index—have a positive significant ( <0.05) association with additional caregivers for the safety of their children. The utilization of safety measures to prevent injuries is positively impacted by children's age and education, with a substantial ( <0.05) positive effect; nevertheless, there is a significant ( <0.001) adverse association with driving ability (**Table 4**).

**Table 4 Adjusted odds ratio (AOR) for the association between safety measures from injury with type of injury among parents and children (aged 10-17 years old) with 95% confidence interval**

Variables	Additional caregiver by parents for injured child (n=822) <sup>1</sup>			Any safety used (Helmet, sit belt, pad used when play etc.) of injured child (n=422) <sup>2</sup>		
		AOR	95% CI		AOR	95% CI
<b>Type of child injury</b>						
Road trafficking (ref)	.....	1.000		.....	1.000	
Fallen	-0.07	0.929	(0.37, 2.37)	0.11	1.115	(0.51, 2.44)
Burn and others	0.28	1.328	(0.52, 3.42)	0.40	1.485	(0.61, 3.66)
<b>Control variables</b>						
<b>Age of children ( mean= 13.69 years)</b>	-	-	-	0.22**	1.239	(1.04, 1.48)
<b>Age of fathers (mean=39.33 years)</b>	-0.11**	0.900	(0.84, 0.97)	-	-	-
<b>Sex of Child</b>						
Male (ref)	.....	1.000		.....	1.000	
Female	0.34	1.409	(0.62, 3.19)	0.73	2.069	(0.88, 4.873)
<b>Mothers' occupation</b>						
Housewives (ref)	.....	1.000		-	-	-
Others (service and labors)	1.29**	3.623	(1.49, 8.84)			
<b>Fathers' occupation</b>						
Agriculture and labor (ref)	.....	1.000		-	-	-
Service and business	0.47	1.561	(0.60, 4.07)			
<b>Family member</b>						
<5 persons (ref)	.....	1.000		-	-	-
5+ persons	-0.27	0.768	(0.33, 1.82)			
<b>Education of child</b>						
No schooling (ref)	.....	1.000		.....	1.000	
Primary schooling	0.49	1.632	(0.69, 3.87)	2.25**	9.452	(1.86, 48.03)
Secondary schooling	-0.15	0.865	(0.19, 3.91)	1.42	4.125	(0.87, 19.53)
<b>Wealth index</b>						
Poor (ref)	.....	1.000		.....	1.000	
Middle	1.64**	5.164	(1.51, 17.64)	0.23	1.257	(0.56, 2.84)
Wealthy	1.92**	6.843	(1.90, 24.72)	0.19	1.212	(0.52, 2.87)
<b>Capacity of vehicle driving</b>						
No (ref)	-	-	-	.....	1.000	
Yes				-2.17*	0.114	(0.05, 0.26)
<b>Working status of child</b>						
Not working (ref)	-	-	-	.....	1.000	
Working				-1.06	0.347	(0.11, 1.12)
<b>Model summary:</b> Model $\chi^2 = 56.455-2$ Log likelihood = 214.027*, Nagelkerke $R^2=0.237$ , Hosmer and Lemeshow (H-L), =0.382				<b>Model summary:</b> Model $\chi^2 = 63.897^a-2$ Log likelihood = 251.166*, Nagelkerke $R^2=0.267$ , H-L, =0.920		

**Note:** \* $p < 0.001$ ; \*\* $p < 0.05$ ; <sup>a</sup> $p > 0.05$ ; CI, represents the confidence interval; ref., the reference category  
<sup>1</sup> adjusted for age of fathers', parents' occupation, sex and education of children, and wealth index; <sup>2</sup> adjusted for Age of children, sex and education of children, wealth index, capacity of vehicle driving by children and working status of child.

## Discussion

This study outlines the environment in which children and their parents are aware of safety precautions and injuries to shield them from unintentional childhood injuries of any kind. According to the findings, there is a clearly smaller number of children (10–17 years old) who are aware of injuries, who use any safety equipment (such as a helmet, sit belt, or play pad), and who have supplementary caretakers who are parents. Research revealed that one significant factor influencing parents' inability to adopt safe measures was their ignorance of unintentional child injuries (McKenzie et al. 2019). It was discovered that in children aged 0–14 years, drowning deaths, pedestrian injuries, and falls were linked to a lack of parental monitoring (Morrongiello 2005). According to the results of our study, most children who can drive belong to the bicycle and motor vehicle categories. However, motorcycles, along with buses and trucks, were deemed the most vulnerable vehicles, and the primary victims of road traffic accidents (RTIs) were pedestrians and passengers (Rodriguez et al., 2012, Stewart et al., 2016).

Both parents' and children knowledge level regarding injury in which have negatively significant connections with type of unintentional childhood injury. Regarding RTIs, parents' knowledge of their children's injuries is comparatively lower in this study when it comes to injuries from falls, burns, and other sorts of injuries. According to Vladutin et al. [2006], mothers who were expecting their first child were more likely to be aware of the need to prevent child injuries than mothers who were expecting many children.

Compared to mothers in the comparison group, mothers who participated in the intervention considerably raised their knowledge of the fact that child injuries occur at home (Carlsson et al., 2016). In the case of children, their awareness of child injuries such as burns, falls, and other injuries is lower than that of RTIs. According to findings from another study, 15.6% of participants knew enough about falls, 57.2% had a

positive attitude about falls, and 38.3% knew enough about fall risk factors (Kavin et al., 2022). These results indicate that there is a minimal level of knowledge of injuries among parents and children; hence, attention should be paid to this important matter.

Parents who provide additional caregivers for their children's safety have a positive insignificant association with injuries from burns and other injuries and a negative insignificant association with injuries from falls; however, any safety precautions taken by injured children have a positive insignificant association with the type of injury. Regarding RTIs, parents' inclination to shield their children from harm through caretakers is 32.80% higher and 7.10% lower, respectively, when it comes to burn, fall, and other forms of injuries. If a safety measure is employed to prevent childhood injuries, such as falls, burns, and other incidents, there is a higher chance of preventing juvenile injuries than with RTIs.

The problem is made worse by the fact that Bangladesh does not have best practice laws for any of the five road safety risk factors—speeding, wearing a helmet, driving while intoxicated, using a seatbelt, and using kid restraints—according to the Road Safety Global Report (2015). Participants noted that when kids are left alone, they are more likely to incur fall injuries. Preventive interventions included public awareness campaigns, supervision, and the installation of barriers (such as door barriers, pillows, and bed nets, among other things) (Chowdhury et al, 2013). This finding implies that all caregivers, excluding parents, should take extra precautions to ensure children don't sustain unintended injuries. Examples of these precautions include wearing a helmet when riding a motorcycle or bicycle and using a pad when playing on school property.

## Conclusion

The results indicate that parents' and children' awareness of unintentional childhood injuries is lower, particularly when it comes to injuries from falls, burns, and other causes other than repetitive

trauma injuries (RTIs), and that any safety measure taken to shield children (ages 10 to 17) from unintentionally injuries has a positive association with it. Overall, the findings indicate that parents who have more caregivers for their children have a lower percentage of children who are protected against unintentional injuries. In addition to the dangers associated with operating a vehicle, particularly a motorbike, parents' understanding of the need to establish and assess child-safety efforts that protect children from harm both inside and outside the home. Since most unintentional injuries are thought to be caused by factors both within and outside of homes, children and their parents alike need to be educated on safety precautions and related knowledge.

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