Original Research Article

Knowledge and Practice of Motorbike Riders on the Prevention of Road Traffic Accidents

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ABSTRACT

Introduction: Road traffic accidents (RTAs) are considered one of the important public health problems worldwide. Amongst the various types of accidents, motorbike accidents have been increasing day by day.
Objective: To assess the level of knowledge and practice of motorbike riders in the prevention of road traffic accidents.
Place & period of study: The study had been performed in the *Bangladesh Road Transport Authority* (BRTA) and different motorbike workshops in Dhaka city from January 2018 to December 2018.
Materials & Method: The cross-sectional study had been conducted among 193 motorbike riders to assess the level of knowledge and practice regarding the prevention of road traffic accidents. A purposive sampling technique was adopted and a semi-structured interviewer-administered questionnaire collected data through face-to-face interviews.
Results: The mean age of the respondents was 34.56±7.69 (SD) years where half of the respondents (50.8%) were graduates and above. The majority of the respondents (65.3%) were service holders. The mean years of driving were 7.15±6.9 years (SD). The majority of the respondents (63.7%) had no RTA within one year and the rest (36.3%) had RTA within one year. Most of the respondents (82.4%) had average knowledge of traffic signs and signals and on the other hand, most of the respondents (82.4%) had poor practice in traffic signs and signals. A highly significant statistical difference was found between knowledge of signs and signals and practice on signs and signals ($p<0.001$).
Conclusion: Prevention of road traffic accidents is crucial to creating awareness and taking proper measures toward road safety.

Keywords: Road traffic accident, Motorbikes, Knowledge, Practice, Roads Signs

1. INTRODUCTION

Road traffic accident and injuries have become a burden worldwide. The world health organization global report on road traffic safety, 2015 shows that 1.25 million deaths occur while 20-50 million people sustain non-fatal injury with some permanent disability. Road traffic crashes are the leading cause of death amongst people in the age group 15-29 years. In a period of three years (2011-2013), the number of deaths has remained constant with an increase in population by four percent and a sixteen percent increase in motorization [1].

Every hour, 40 people under the age of 25 die in road accidents around the globe. According to the WHO, this is the second most important cause of death for 5 to 29 year olds [2]. Each year, more than 20 million people were injured or crippled and 1.17 million killed because of RTAs [3]. Ninety percent of world's road traffic fatalities occur in developing countries [4]. This represents an average of 3,242 persons dying each day worldwide. In addition to these deaths, between 20 and 50 million people globally are estimated to be injured or disabled every year [5]. Low- and middle-income countries account for 85% of all road traffic deaths and 90% of DALY"S lost annually [6].

Motorcycle injuries are among the leading causes of disability and deaths and the main victims are the motorcyclists, passengers and pedestrians in their young reproductive age group [7]. Motorbike crashes are predicted to rise to become the 7th leading cause of death by 2030 [8].

Motorcycle use for personal and public transport is increasingly becoming a global phenomenon. According to global road safety partnership (2015) in many low-income and middle-income countries, motorcycles are an increasingly common mean of transport, and the users make up a large proportion of those injured or killed on the roads [9].

In Bangladesh the number of deaths in road crashes was 4,144 in 2016, 5,645 in 2017, and 7,221 in 2018. Among the deaths in 2017, 27 percent were motorcycle riders. Among the 15 deaths caused by road accidents in Dhaka city in the last two months, seven were motorcycle riders [10]. Road traffic accidents deaths are15.56 per 100,000 people in Bangladesh [11].

There is a wide gap in knowledge and information available about road safety efforts and its practice in Bangladesh. Changing people's attitudes towards traffic regulations has been considered to be a key element in the prevention of traffic crashes [12].
Therefore, this study had been undertaken to find out the level of knowledge and practice of motorbike riders on prevention of road traffic accidents (RTAs).

2. METHODOLOGY

Variables	Characteristics	Frequency	Percentage

A cross sectional study was undertaken among 193 motorbike riders to assess knowledge and practice of motorbike riders on prevention of road traffic accidents. To conduct the study, different places of Dhaka city were selected where there was available of motorbike riders. The study was conducted from over a period of 1 year starting from 1st January 2018 to 31st December, 2018. Motorbike riders (Male & Female) having a driving experience of at least 6 months were the study population. Purposive sampling technique was adopted and a semi-structured interviewer-administered questionnaire was used to collect data. Data from 'the respondents were collected through face-to-face interview until the desire sample size was attained. The statistical analysis was conducted using SPSS (statistical package for social science) version 21. The findings of the study were presented by frequency, percentage and x^2-test in tables. Means and standard deviations for continuous variables and frequency distributions for categorical variables were used to describe the characteristics of the total sample.

3. RESULTS

Age	Up to 29	55	28.5
	30 to39	75	38.9
	Above 39	63	32.6
Gender	Male	191	99.0
	Female	2	1.0
Religion	Muslim	187	94.8
	Non-Muslim	10	5.2
Marital Status	Married	161	83.4
	Unmarried	32	16.6
Educational Qualification	Primary	4	2.1
	Secondary	50	25.9
	Higher secondary	41	21.2
	Graduation & above	98	50.8
Occupation	Unemployed	11	5.7
	Service holder	126	65.3
	Business man	41	21.2
	Students	15	7.8
Monthly Family Income	Up to 25000	54	28.0
	26000 to 35000	44	22.8
	36000 to 45000	24	12.4
	Above 45000	71	36.8

Table: 1. Socio-demographic characteristics of the study participants

Among the (193) respondents mean age were 34.56±7.69 (SD) years. Almost all of the respondents (99.0%) were male and rests (1.0%) were female. Most of the respondents (94.8%) were Muslims and rest (16.6%) of the respondents were non- Muslims. Majority of the respondents (83.4%) were married and rests (16.6%) were unmarried. Among the respondents, (2.1%) had educational status up to primary and half of the respondents (50.8%) were graduate and above. Majority of the respondents (65.3%) were service holder, Businessmen were 21.2% respondents and students were 7.8% respondents. The mean monthly family income was 44792.75±28129.88 (SD) taka [Table: 1].

Table: 2. Information related to bike riding of the respondents

Variables	Characteristics	Frequency	Percentage
Years of driving (in years)	1 to 5	107	55.4
	6 to 10	47	24.4
	Above 10	39	20.2
Having RTA within one year	No	123	63.7
	Yes	70	36.3
Cause of RTA	High speed	18	25.7
	While overtaking other car	15	21.4
	Ignorance of the pedestrian	11	15.7
	Attack by another car	10	14.3
	Bad weather and damaged road	10	14.3
	Taking with the mobile phone while driving	6	8.6
Type of injury	Major	12	17.1
	Minor	58	82.9

The mean years of driving was 7.15±6.9 years (SD). Majority of the respondents (63.7%) had no RTA within one year and rests (36.3%) had RTA within one year. One fourth of the respondents (25.7%) had RTA due to high speed. Others had RTA due to while overtaking other car (21.4%), ignorance of the pedestrian (15.7%), attack by another car (14.3%), bad weather and damaged road (14.3%) and taking with the mobile phone while driving (8.6%). Most of the respondents (82.9%) had minor injury and rests (17.1%) had major injury [Table: 2.].

Table: 3 Knowledge & practice regarding traffic signs and signals

Variables	Knowledge regarding Traffic Signs and Signals	Practice Regarding Traffic Signs and Signals
	n (%)	n (%)
Drive minimum speed limit with 40km/hour	171 (88.6)	130 (67.4)
Road Hump	150 (77.7)	149 (77.2)
No Parking	150 (77.7)	45 (23.3)
To stop vehicles coming from front	110 (57.0)	61(31.6)
Avoid Overtaking	75 (38.9)	28 (14.5)
Be cautious and stop if needed	64 (33.2)	30 (15.5)
To stop vehicles approaching from behind	46 (23.8)	22 (11.4)
No through road	32 (16.6)	10 (5.2)
Not stopping	22 (11.4)	21 (10.9)

To stop vehicles approaching simultaneously from front and behind	9 (4.7)	2 (1.0)

Most of the respondents (88.6%) recognized the sign of 'Drive minimum speed limit with 40km/hour'. Majority of the respondents (77.7%) recognized the sign of 'Road Hump' and 'No Parking'. Others recognized the sign 'To stop vehicles coming from front' (57.0%), 'Avoid Overtaking' (38.9%), 'Be cautious and stop if needed' (33.2%,), 'To stop vehicles approaching from behind' (23.8%), 'No through road' (16.6%), 'Not stopping' (11.4%), 'To stop vehicles approaching simultaneously from front and behind' (4.7%). Majority of the respondents (77.2%) reduced speed seeing the sign. Majority of the respondents (67.4%) maintain speed limit within 40km/hour seeing the sign. One-fourth of the respondents (23.3%) did not park the bike there seeing the sign [Table: 3].

Table: 4 Level of knowledge & practice regarding traffic signs and signals

Characteristics		**n (%)**
Level of knowledge on traffic sign and signals	Poor	159 (82.4)
	Average	34 (17.6)
Level of practice on traffic sign and signals	Poor	34 (17.6)
	Average	159 (82.4)

Most of the respondents (82.4%) had average knowledge on traffic signs and signals and 17.6% had poor knowledge on traffic signs and signals. Most of the respondents (82.4%) had poor practice on traffic sign and signals and 17.6% of the respondents had average practice on traffic sign and signals. None of the respondents had good practice on traffic sign and signals [Table: 4].

Table: 5 Distribution of respondents by knowledge on sign and signals and practice on sign and signals

Knowledge on sign and signals	**Practice on sign and signals**		**Test statistics**
	Average f(%)	**Poor f(%)**	
Average	0(0.0)	34(100.0)	χ^2=193.000 df=1 **p<0.001**
Poor	159(100.0)	0(0.0)	

Highly significant statistical difference was found between knowledge on sign and signals and practice on sign and signals (p<0.001) (obtained by Fisher Exact test) [Table: 5].

4. DISCUSSION

The mean age of the respondents was 34.56±7.69 (SD) years. Among the respondents, 38.9% were from 30 to 39 years age group, 32.6% respondents were from above 39 years age group. Rests (28.5%) were from up to 29 years age group. The study of Johnson and Adebayo (2011) was conducted to implement health education intervention and assess its impact on the knowledge of and compliance with road safety signs among commercial

motorcyclists in Uyo, Southern Nigeria where it was shown that the mean age of the respondents was 33.3 years.
Out of 193 respondents, almost all of the respondents (99.0%) were male and rests (1.0%) were female. As female usually do not ride motor cycle, the proportion of male was high here. The major religion in Bangladesh is Islam (90.0%), but a significant percentage of the population adheres to Hinduism (9.0%) [13]. This study also found that most of the respondents were Muslims and others were Hindus. According to UNESCO, the literacy rate of Bangladesh is 72.89% [14]. But the present study found that all respondents were literate where 2.1% had educational status up to primary, 25.9% respondents had educational status up to secondary. Half of the respondents (50.8%) were graduate and above. A survey was conducted among 202 Dhaka city drivers to assess driver's understanding of some selected regulatory, warning, and informatory signs where they also found that all drivers were literate [15]. Other study also found that all motorbike was literate [16].

The mean years of driving of the motorbike riders was 7.15±6.9 years (SD). Among the respondents 55.4% had driving experience from 1 to 5 years. A study was conducted among the commercial motorcyclists in Sokoto Metropolis, Northwestern Nigeria where researchers also found that the majority of the respondents (68.7%) had driving experience from 1 to 5 years [17].Among the study respondents, 36.3% had RTA within one year. Among the respondents who had RTA, one fourth of them (25.7%) had RTA due to high speed. Others had RTA due to overtaking other car (21.4%), ignorance of the pedestrian (15.7%), attack by another car (14.3%), bad weather and damaged road (14.3%) and taking with the mobile phone while driving (8.6%). This result was consistent with the study conducted in Saudi Arabia where it was reported that 33.3% study patricians had RTA within one year. That study also showed that main cause of RTA was high speed while other causes were while overtaking other car and bad weather and damaged road [18].

Most of the respondents (88.6%) recognized the sign of 'Drive minimum speed limit with 40km/hour', majority of the respondents (77.7%) recognized the sign of 'No Parking', more than one third (38.9%) recognized the sign of 'Avoid Overtaking' and only 11.4% recognized the sign of 'Not stopping'. A study was performed in Dhaka city to assess the driver understanding of certain traffic signs in Dhaka, the capital city of Bangladesh where it was shown that 35.0% recognized the sign of 'Drive minimum speed limit with 40km/hour', 45.0% recognized the sign of 'No Parking', 82.0% recognized the sign of 'Avoid Overtaking' and only 19.0% recognized the sign of 'Not stopping' [15].

The present study found that most of the respondents (82.4%) had average knowledge on traffic signs and signals and 17.6% had poor knowledge on traffic signs and signals. This result match with the result of Razzak and Hasan (2010) where they reported 52.0% had good knowledge on traffic signs and signals [15]. Most of the respondents (82.4%) had poor practice on traffic sign and signals and 17.6% of the respondents had average practice on traffic sign and signals. None of the respondents had good practice on traffic sign and signals. Highly significant statistical difference was found between knowledge on sign and signals and practice on sign and signals ($p<0.001$).

5. CONCLUSION

Most of the respondents had average knowledge on traffic signs and signals while most of the respondents had poor practice on traffic sign and signals. Ensuring formal training by the relevant key authorities will greatly help improve the knowledge and practices of the motorbike riders on prevention of road traffic accidents.

ETHICAL APPROVAL

Ethical clearance was taken from the IRB of NIPSOM.

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