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Injury prevention; Motorcyclists' Responses and Practices on the Use of Helmets in Mwanza, Tanzania

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Background: ***Regarding risk factors for motorcycle injuries, the non-use of helmet has been identified as a specific factor leading to head injuries and fatalities resulting from motorcycle crashes. Helmets as a protective measure have been identified to be effective towards head injury prevention.***
Objectives: This study aimed to determine the knowledge, attitude and practice among motorcyclists on helmet use in Mwanza region, Tanzania.
Methods: ***This was a descriptive cross-section study conducted in Mwanza region at different motorcyclist parking points, using a standardized tool, collected data were cleaned, analyzed and processed by using SPSS 16.***
Results: ***A total of 200 motorcyclists were involved in the study. Knowledge on helmets use was high in most of them (91.5%) with slightly low positive attitudes (87.5%) on helmets use although possession of helmet was good of which 97.5% of them had helmet. Most of those motorcyclists 156(85.2%) with high knowledge had positive attitude on helmets use (P-value =0.000 indicating strong association between knowledge and attitude. Practice on helmet use every day at every trip was also influenced by knowledge. This relationship is further supported by p-value (0.00), indicates that there is strong association. (The chi-square is 0.00)***
Conclusion: ***The study shows that majority of motorcyclists in Mwanza region are young adults with formal education, with most of them having high knowledge and positive attitudes on helmet use .T*****he consistency*** ***of helmet use in our study subjects seems to be influenced positively by level of education.***

Key words: Knowledge, attitude, practice, motorcyclists, helmet

Introduction

Road traffic injuries (RTIs) are a leading cause of disability and fatality globally. Motorcycle-related injuries, mainly head injuries, and related deaths and disabilities are a significant contributor to the burden of disease in low- and middle-income countries (LMICs).Motorcycle accidents as among other types of road accidents form a fatal category of motor traffic accidents. This is because motorcyclists are more at risk of sustaining injury than motor vehicle drivers; per mile travelled, motorcycle riders have a 34 times risk of death than the drivers of other types of vehicles. They are also 8 times more likely to be injured[1-4].

Road traffic injuries form a significant amount of injury related mortality and morbidity around the world with an estimated 1.2 million people killed and about 20–50 million injured on the roads annually, motorcyclist deaths and injuries are an important public health of concern. Motorcycle users are vulnerable on the road and represent an important group to target from reducing road traffic injuries[5-6].

In middle and low-income countries, motorcycles form a common means of transport. Motorcyclists form significant road traffic accidents, due to the rapidly increasing number of motorcycles from 6,700 in 2007 to 85,000 in 2009, and13 fold increase in the period of 2 years[7-8].

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Commercial motorcycles are sold at relatively cheaper prices than other vehicles and good earnings from the motorcycle taxi business which encourages more people especially youths to join this business and increases the number of motorcycles. Motorcycles in low- and middle-income countries account for the majority of these injuries. Nearly 85% of the global burden of road traffic injuries is accounted for by these countries. The road traffic injury mortality rate is highest in Africa, 28.3 per 100,000 populations when corrected for underreporting, compared with 11.0 in Europe .The rate of road traffic deaths in Sub-Saharan Africa is 40% higher than that in all other low- and middle-income countries (28.3 compared to 20.2 per 100,000) and 50% higher than the world level (28.3 compared to 19.0 deaths per 100,000 population) making traffic injuries the 10th leading cause of death in the region. The majority of the motorcyclists don't wear any protective gear, hence aggravating the risks of getting severe head injuries[5, 8-9].

Regarding risk factors for motorcycle injuries, the non-use of helmet has been identified as a specific factor leading to head injuries and fatalities resulting from motorcycle crashes. Helmets as a protective measure have been identified to be effective towards head injury prevention and reduce the fatality of motorcycle riders.[8]To protect themselves from head injury, motorcyclists need to consistently and properly wear helmets according to the prescribed standards. Despite their effectiveness, helmets are not as widely used as they should be and when used, they are not used properly.[10]Some reasons for non-adherence and non-use of helmet include feelings of discomfort due to heat during the hot weather, and lateral vision and hearing ability impairment.[11]According to studies done in Vietnam, Nigeria and USA, low rates of helmet use have been evident despite the enactment of helmet law. 23.8% had a helmet on at the time the study was conducted. The majority (67.3%) favoured the enforcement of crash helmet while others would reject the idea.

In East Africa, The motorcycle, commonly called ***"boda boda***" in Uganda and Kenya[11]**.** Tanzania and Kenya accounts for more road traffic deaths with 34.3 and 34.4 deaths per 100,000 populations respectively. Burundi, Uganda and Rwanda accounts for 23.4, 24.7 and 31.6 deaths per 100,000 populations respectively[12]**.**

Motorcycle accidents have drawn great attention from the Tanzanian government authorities. For example, 2010 Road Safety Week had a theme of "Discourage High Speed; Cyclists Wear Helmets; Accidents Kill, Injure"[13]**.** Motorcycles has recently become increasingly popular in Tanzania as a means of commercial transport but their operation is characterized by non-helmet use by riders and their passengers, passenger overload, lack of certified driver training and valid licensing, over speed and reckless driving, poor regulation and law enforcement and possible use of alcohol and drugs a ten year epidemiological appraisal survey done in Tanzania[14]

Between 1990 and 2000 road accidents rose by 44% for a cumulative total of 10,107. However due to the rapid importation of motorcycles, the contribution of motorcycles to road accidents cannot be ignored; in the first three months of the year 2010, 181 people died in motorcycle accidents.[7] Reported that by the end of 2007 will be that persons killed in accidents will increase by 30%, the number of reported injuries will increase by 35%, and the cost of reported accidents and causalities will as well increase by 30 % (Tanzania Annual Road convection Report, 2005). This study aimed to assess the knowledge, attitude towards, and the practice of helmet use among motorcyclists in Mwanza, Tanzania.

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Methods

This was a descriptive community based cross sectional study which was conducted in randomly selected commercial parking points by interviewing commercial motorcyclists in Mwanza using a standardized data collecting tool. Included in the study were all commercial motorcyclists with a motorcycle at the parking points with and /or without a customer to be ridden. Excluded from the study were commercial motorcyclists whom did not consent to be part of study. Permission to conduct the study was sought from Muhimbili University of Health and Allied Science (MUHAS), region administration and the motorcyclists at parking points. Consent was sought from the motorcyclists.

Data cleaning was done before feeding it into the computer for analysis, data was analyzed using SPSS 16.0 program. Cross-tabulations were generated, and where comparisons were made, significance was considered at p-value of less than 0.05.

Study Limitation

Sample drawn may not be representatives of the study population, reluctance of some motorcyclists to be part of study. Limited resources for the study and short study period.

Results

A total of 200 motorcyclists were involved. Majority were at age group 21-25 (62.5%) years. Most of those motorcyclist 156(85.2%) with high knowledge had positive attitude on helmets use while 6 (75%) of motorcyclists with low knowledge had negative attitudes on helmet use with (P-value =0.000 indicating strong association between knowledge and attitude. Majority 71.6% of the motorcyclists who had high knowledge were using helmet every day at every trip while 75% of those who had low knowledge never used helmets. This relationship is . further supported by p-value (0.00), indicates that there is strong association. (The chi- square is 0.00) (Table 1).

Table 1. Distribution of Study Population by Age

Age	Frequency	
	Number	**Percentage**
15 – 20	39	19.5%
21 – 25	125	62.5%
26 – 30	22	11.0%
31 – 35	9	4.5%
36 – 40	4	2%
>41	1	0.5%
TOTAL	**200**	**100%**

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Table 2. Distribution of Study Population by Level of Knowledge

Level of Knowledge	Frequency	
	Number	Percentage
Low	8	4%
Moderate	9	4.5%
High	183	91.5%
T0TAL	**200**	**100%**

Table 3. Attitudes on Helmets Use among Motorcyclists in Mwanza

Attitude	Frequency	
	Number	Percentage
Positive	175	87.5%
Negative	25	12.5%
Total	**200**	**100%**

Table 4. Cross Tabulation Between Knowledge and Attitude

Attitude	Knowledge			
	Low	Moderate	High	Total
Positive	2 (25%)	8 (89%)	156 (85.2%)	166 (83%)
Negative	6 (75%)	1 (11.1%)	27 (14.8%)	34 (17%)
Total	**8 (100%)**	**9 (100%)**	**183 (100%)**	**200 (100%)**

Among 200 motorcyclists in Mwanza, majority had completed primary school 82 (41%) while only 0.5% of our study population never went for formal education. Majority of them had high knowledge on helmet use 183 (91.5%) (Table 2). Majority had the helmet; they use by (95.5%). Most of them used helmet every day at every trip 136 (68%).Small majority of passengers use helmets every day at every trip 63 (31.5%) and when they anticipate meeting policeman 52 (26%). Most (85.2%) of those motorcyclists with high knowledge had positive attitude on helmets use while 6 (75%) of motorcyclists with low knowledge had negative attitudes on

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helmet use. The p –value indicates strong association between knowledge and attitude (P-value =0.00) (Table 4).

Table 5. Cross tabulation of Knowledge and Practice of Helmet Use among Motorcyclists

Do you Wear Helmet?	Knowledge			
	Low	**Moderate**	**High**	**Total**
Yes	2 (25%)	9 (100%)	180 (98.4%)	191 (95.5%)
No	6 (75%)	0 (0%)	3 (1.6%)	9 (4.5%)
Total	**8 (100%)**	**9 (100%)**	**183 (100%)**	**200 (100%)**

Table 6. Knowledge and Consistency on Use of Helmets

How Often Do you Wear Helmet?	Knowledge			
	Low	**Moderate**	**High**	**Total**
Every day at every trip	1 (12.5%)	4 (44.4%)	131 (71.6%)	136 (68%)
Every day but not every trip	0 (0%)	2 (22.2%)	26 (14.2%)	28 (14%)
Every long trip not short trip	1 (12.5%)	0 (0%)	6 (3.3%)	7 (3.5%)
When anticipate meeting policemen	0 (0%)	3 (33.3%)	17 (9.3%)	20 (10%)
Never	6 (75%)	0 (0%)	3 (1.6%)	9 (4.5%)
Total	**8 (100%)**	**9 (100%)**	**183 (100%)**	**200 (100%)**

The majority (87.5%)of our participants had positive attitude on helmets use. A total of 195 (97.5%) of motorcyclists had helmet (Table3). Most (98.4%) of motorcyclists with high knowledge used helmets while 75% of motorcyclists with low knowledge were not using helmets. This relationship is more supported by p-value, which indicates strong association between knowledge and practice of wearing helmets (p –value=0.00) (Table 5).

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Majority (71.6%) of the motorcyclists who had high knowledge used helmet every day at every trip while 75% of those who had low knowledge never used helmets. This relationship is further supported by p-value (0.00), indicates that there is strong association. (The chi- square is 0.00) (Table 6).

Discussion

Our study aimed to determine the knowledge, attitude and practice among motorcyclists on helmet use in Mwanza region, Tanzania. Our results shows majority (62.5%) of motorcyclists were at the age group between 20 to 25 years which is similar to 66.5% the study done by Mwakalasa in Tanzania[15]. Forty one percent of our participants had primary school education this is slightly low compared to what was found in other studies. Majority of motorcyclists had low level of education that partly attributed to the fact that they had limited chances of getting other jobs and thus engage into motorcycling business as a last option following unemployment regardless of being a risky job[15-16].

This study demonstrated that 87.5% of our clients had positive attitudes on helmet use, Also 97.5% of those with positive attitude had helmet, with 95.5% of them using helmet and most of them 68% using helmet consistently at every trip. This was high compared to what was observed in one local study. [15]This was also reflected by 85.2% of motorcyclists with high knowledge having positive attitude on helmet use. In our study, 98.4% of motorcyclists who had high knowledge owned helmets and 71.6% of them were using helmets every day at every trip. Most 75% of motorcyclists with low knowledge didn't possess helmet and never used this is similar to what was reported in other study[2].

The majority of our participants 95% perceived wearing helmet as necessary even without law reinforcement, Most of clients 98.5% perceived helmet use as important for both driver and passenger safety although they mentioned a number of limitations such as hot weather, wearing helmet reduces peripheral vision[17-18].

Conclusion

The study shows that majority of motorcyclists in Mwanza region are young and young adults with formal education which influenced positively their knowledge, attitudes and practice on helmet use. The consistency of helmet use was found to be associated with level of education, knowledge and positive attitudes towards helmet use. We recommend to provide education on proper and consistency use of helmet all over the country.

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