

Determinants of safety helmet use among motorcyclists in Pakistan

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Abstract:

Motorcycle is an important and most common means of transportation in Pakistan. Rapid growth in the use of motorcycle has been accompanied by increases in injuries and fatalities among their users. In Pakistan motorcycle riders contribute more than 35% of road death toll annually. Wearing a standard, good quality motorcycle helmet can reduce the risk of death by 40% and the risk of serious injury by over 70%. A very low safety helmet use rate is reported among Pakistani motorcyclists. The objective of the present study was to explore the determinants of helmet use among motorcyclists and establish a link b/w different variables and use of helmet.

The study was conducted on a section of National Highway (N-5) b/w Gujranwala and Lahore at kamoki toll plaza. Four hundred, all male motorcyclists were interviewed for this study and data was collected through a pretested close ended questionnaire. Age, education, driving license, police penalty, marital status, external

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motivation and profession were socio-demographic characteristics included in this questionnaire.

Twenty two% participants were found using safety helmets. Participants b/w 41 to 50 years age group were using safety helmet with higher percentage. Respondents with higher educational attainments were using helmet in higher percentage. Law enforcement emerged as major determinant of safety helmet use and 65.22% previously penalized riders were found respecting helmet law. 38.53% private employees were found using safety helmet. This study recommends interventions through continuous road safety educations programs and intensive law enforcement to enhance the rates of safety helmet use among motorcycle riders in Pakistan.

Key words: road safety, motor cycle, helmet use, accidents, Pakistan,

Introduction:

Road traffic crashes are escalating worldwide (Klair and Arfan 2014) and Approximately 1.24 million people die every year on the roads across the globe and up to 50 million sustain nonfatal injuries as a result of these traffic crashes (WHO 2013). These deaths and injuries are leaving irreparable financial and social effects on the communities to which victims belong to. The low and middle income countries are drastically suffered by these road accidents which are estimated to cost 1- 2% of their gross national product annually (Jacobs et al. 2000).

Presently road traffic injuries are estimated to be the eighth leading cause of death globally and if this trend continues it will become the fifth leading cause of death by 2030 (Murray et al. 2012). The situation further deteriorates when it is learnt that these injuries are leading cause of death in young people aged 15-29 years (WHO 2011). The dark side this picture is that traffic injuries in many countries are still considered "the neglected area of public health" (Nantulya et al. 2003).

Twenty three % of the world's road traffic deaths occur among motorcyclists, however in low and middle income countries, like Pakistan, two wheeler motorized riders contribute more than 35% of road death toll annually (WHO 2013).

In Pakistan, motorcycle is an important and most common means of transportation. In 2010, motorcycles made up about 50% of the country's registered vehicles. (R.T.I.R.P. C. 2010.). Rapid growth in the use of motorcycle in many countries including Pakistan, has been accompanied by increases in injuries and fatalities among their users (*WHO 2006*) Motorcyclists are more prone to crash injuries than car drivers because motorcycles are always at the receiving end and leaving riders vulnerable to contact hard road surfaces (Ambak et al. 2010).

Motorcycle accidents are associated with a high ratio of head injuries which are the main cause of severe injury, disability and death among motorcycle users. In low and middle income countries including Pakistan, head injuries contribute to approximately 88% of deaths among motorcycle riders (WHO 2013). Wearing a standard, good quality motorcycle helmet can reduce the risk of death by 40% and the risk of serious injury by over 70% (Liu et al. 2008).

A very low rate of use of safety helmet is reported among Pakistani motorcyclists (R.T.I.R.P. C. 2010.). In most countries, including Pakistan, the safety helmet laws require motorcyclists to use a helmet at all times while riding a motorcycle (Falope, I. 1991). Although this law was enacted in Pakistan in 1965 (MVO, 1965) but its serious enforcement is still a big challenge for law enforcement agencies. A number of social, demographic and legal factors can be identified that determine the use of safety helmet in Pakistan. The purpose of the present study was to explore the determinants to the use of helmet among motorcyclists and establish a link b/w different variables and use of helmet.

Methodology

The study was conducted on National Highway (N-5) at kamoki toll plaza, ten kilometers away from Gujranwala city towards Lahore, the capital of province Punjab, Pakistan. This patch of road b/w Gujranwala and Lahore falls among busiest roads of the country and traffic on this road is managed by federally administrated National Highways and Motorways Police. Diverse kinds of industries are dotted along this six lanes road throughout its length. Thousands of workers use this highway to approach their workstations on motorcycles, every day. That is why this area was selected as sampling point in this study. The study was conducted over a period of two week i.e. 6th to 17th July 2014 from 9 am to 2 pm. 400, all male motorcyclists (culturally females are not encouraged to drive motorcycle) were interviewed for this study and data was collected through a pretested, close ended questionnaire. Only front riders were included in study. Age, education, driving license, police penalty, marital status, external motivation and profession were socio-demographic characteristics included in this questionnaire. To maintain a complete random design every 70th motorcyclist was stopped on both sides of road with the help of patrol officers of national highways and motorways police and were requested to participate in the study. The purpose of this exercise was explained to the riders before start of interview. The data so collected was organized through excel spread sheets and analyzed thereafter.

Results:

The present study involved a total of 400 randomly selected motorcyclists and all were male. 22% (n=88) participants were found using safety helmets while 72% (n=312) were without helmet. Maximum number of respondents was in age b/w 21 to 30 years (n=124) while participants b/w 41 to 50 years age

group were using safety helmets with highest percentage i.e. 33.33% (Figure 1). Results reveals that mostly motorcyclists came under study were having low educational attainments, n=172 below high school and n=88 illiterate respectively (Table.1). Respondents with graduation and above educational grades were minimum in number i.e. 56 but with highest ratio of safety helmet use i.e. 39.29% (Figure 2). Among 237 unmarried riders 80.59% were without helmet. Likewise 25.77% married riders were found adherent to law (Table 1). Law enforcement emerged as major determinant of safety helmet use and 65.22% previously penalized riders were respecting helmet law (Figure 4). 234 (83.69%) respondents were without driving license and safety helmet as well, while 65.6% of licensed participants were found ignoring safety helmet (Figure 5). It was observed that n= 56(30.77%) respondents were using safety helmet under the influence of some external motivation (Figure 6) while n=186(85.32%) respondents were never motivated nor using safety helmet. Thirteen percent students while 38.53% private employees were found using safety helmet while 83.23% unemployed riders were ignoring it (Table 1, Figure 7).

Discussion:

Only 22% of respondents wearing safety helmet on the selected part of National Highway in this study are depicting low rates of use of safety helmet amongst motorcycle riders. These results are parallel to earlier findings of Road Traffic Injury Research and Prevention Centre, 2010 regarding use of safety helmet in Pakistan. Generally young motorcyclists are less likely to wear a safety helmet than older (Toroyan and Peden 2007); the affinity is being imitated in present study (Fig 1). This trend seems to be linked with social apprehensions i.e. what adolescents know and what their believes are about the necessity of helmet (Gielen et al. 1996).

The more educated riders use safety helmet in higher ratios probably because of higher levels of road safety awareness. Positive correlation b/w education attainments of motorcycle users and use of safety helmet was also found in this study. In the year 2014 Michael Grimm and Carole Treibich found that illiterate motorcyclists are by around 10% less likely to wear a helmet than literate bike riders (Grimm and Carole 2014).

Marital status used in this study as variable to gauge helmet use rates seemed to be non significant in contrary to early findings of Sreedharan et.al. 2010 who found a significant association between the helmet use and marital status.

Police penalty against the violation of non compliance of safety helmet wearing law emerged as one of the strongest determinants of helmet use in this research work. More than 65% riders using helmet were those who had been previously penalized by police over non compliance. Visible and strengthened law enforcement is effective in increasing the use of helmet among motorcyclists (Papadakaki et al. 2013) and wearing rates can be further augmented up to 90 percent by vigorous and continual enforcement (Kraus et.al. 1995) and (Liu et al. 2005).

Riding without license (70% motorcyclists) was found an alarming sign in this study which was also reflecting the grave weakness of traffic management system. The results show a positive association of driving license with use of safety helmet. This could be due to the respectful attitude towards law of the land and road safety awareness of licensed riders.

External motivation to use a safety helmet while riding was another important variable in this study. There was visible difference b/w the behavior of motivated and non motivated riders towards the use of safety helmet. The parents and peers can play a significant role towards the use of helmet among motorcyclists by motivating them to wear helmet in every ride (Dhyan Singh, 2014).

Profession of the participants came to be known as another determinant. In this study it was observed that the students were most hesitant group to wear safety helmet than all other faction of participants. In Pakistan, law enforcers generally and traffic police specifically often show lenient attitude towards students which can be a primary reason of non compliance of law regarding use of safety helmet while riding. Safe custody of helmets at schools/colleges' parking area is another concern of students; they find no proper place to keep their helmets while in class rooms. The percentage of private employees to use helmet is encouraging. Road safety training sessions which are being conducted regularly by most of the private organizations and their commitment towards observance of traffic regulations is playing pivotal role in this regard. On the other hand, Govt. officials generally take advantage of their job/position and do not abide by safety helmet laws. Likewise, a huge number of unemployed riders plying without helmets reflect their low road safety awareness and economic conditions in some cases.

Use of safety helmet can decrease the risk of death and fatal injuries from a motorcycle crash (Hefny et al., 2012).It's a dire need to increase the use of helmet among riders in Pakistan to improve the existing state of road safety.This study recommends interventions through continuous road safety educations programs and intensive law enforcement to enhance the rate of use of safety helmet among motorcycle riders in Pakistan.

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Table: 1 Variables and their relation with use of safety helmet among motorcyclists

Variable	Group	With Helmet (n=88)	Without Helmet (n=312)	Total
		Number (%)	Number (%)	Number
Age	<=20	10(12.5%)	70(87.5%)	80
Years	21 to 30	27(21.77%)	97(78.23%)	124
	31 to 40	20(27.78%)	52(72.22%)	72
	41 to 50	24(33.33%)	48(66.67%)	72
	> 50	7(13.46%)	45(86.54%)	52
	Educational	Illiterate	12(13.64 %)	76(86.36%)
Grades	Below High School	27(15.7%)	145(84.3)	172
	High School to HSS	27(32.14%)	57(67.86%)	84
	Graduate & Above	22(39.29%)	34(60.71%)	56
Marital Status	Married	42(25.77%)	121(74.23%)	163
	Unmarried	46(19.41%)	191(80.59%)	237
Police Penalty	Penalized	60(65.22%)	32(34.78%)	92
	Non Penalized	28(9.1%)	280(90.9%)	308
Driving License	With License	42(35%)	78(65%)	120
	Without License	46(16.31%)	234(83.69%)	280
External Motivation	Yes	56(30.77%)	126(69.23%)	182
	No	32(14.68%)	186(85.32%)	218
Profession	Student	13(13%)	87(87%)	100
	Govt. Employee	7(19.44%)	29(80.56%)	36
	Pvt. Employee	42(38.53%)	67(61.47%)	109
	Unemployed	26(16.77%)	129(83.23%)	155

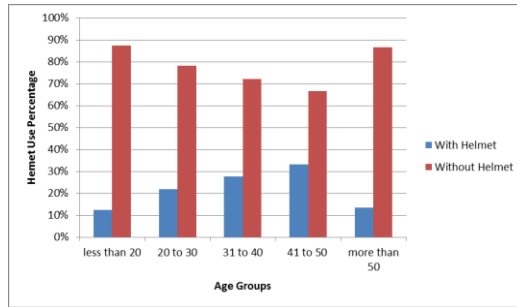


Fig: 1 Use of safety helmet among different age groups of riders

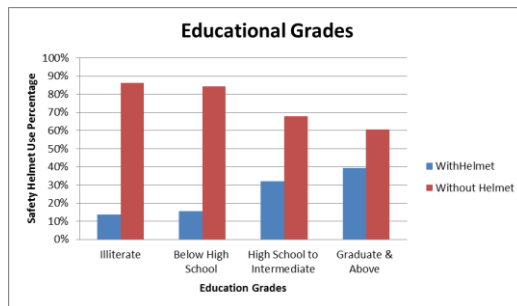


Fig: 2 Relation of safety helmet use with educational attainments of motorcyclists

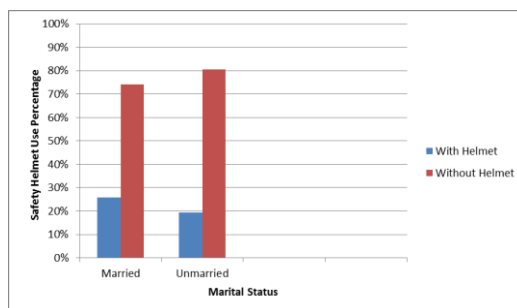


Fig: 3 Relation of safety helmet use with marital status of motorcyclists

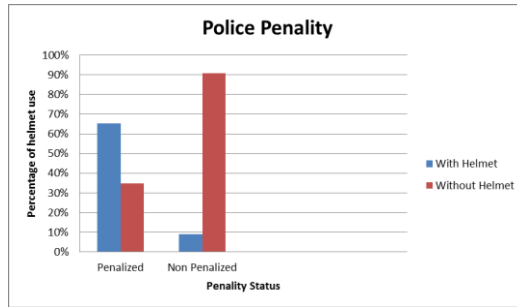


Fig: 4 Police penalty as determinant of safety helmet use among motorcyclists

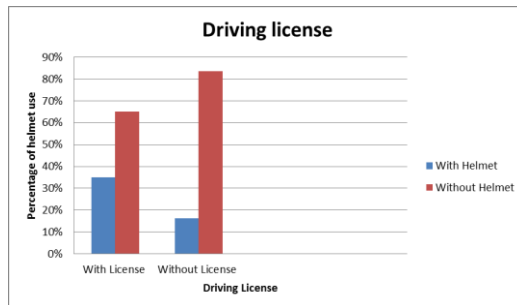


Fig: 5 Relation of safety helmet use with driving license of motorcyclists



Fig: 6 Relation of safety helmet use with external motivation of motorcyclists

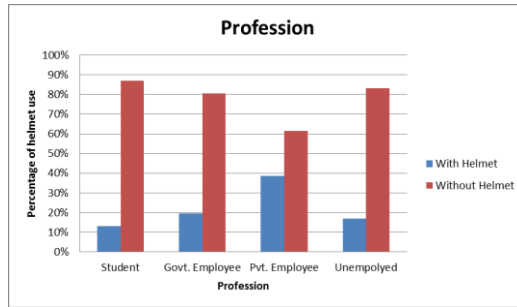


Fig: 7 Relation of safety helmet use with profession of motorcyclists