

Helmet Use among Two Wheeler Female Riders

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Indian J Neurosurg 2019;8:34–38

Abstract

Introduction The frequency of traffic collisions in India is among the highest in the world with more than 135,000 traffic collision-related deaths occurring every year. The “Global Status Report on Road Safety” listed by the World Health Organization identified the major causes of injury as driving over the speed limit, driving under the influence, and not using helmets and seat belts. Women face unique challenges after traumatic brain injury, due to differential laws and their enforcement.

Objectives To assess the use of helmet among female hospital workers (nurses, hospital attendants, sanitary attendants, and security guards) and their attitude toward helmet wearing.

Methods Purposive sampling was done among female two-wheeler-riding hospital workers. A questionnaire was developed to study the use of helmet and an attitude Likert scale for assessing attitude toward wearing helmet. Data were collected, coded, and analyzed using SPSS software version 21.

Results Of the total 89 women enrolled, 46.4% were mostly pillion riders, and 33% were mostly drivers. Only 19% were using helmet consistently, despite 93% owning it. Eighty-eight percent of the regular users were younger than 25 years, while 80% of the non-users were above 25 years. Even among regular drivers, 40% never wore helmet. Eighty-two percent of the non-users were merely casual despite knowing about its advantages.

Conclusion Helmet use is very poor among women (both drivers and pillion riders), despite working in hospital environment and owning helmet. Stricter enforcement of helmet law is needed, as education and knowledge per-se may not instil helmet use.

Keywords

- ▶ traumatic brain injury
- ▶ helmet
- ▶ pillion rider

Introduction and Need of the Study

Each year road traffic accidents (RTAs) claim some 600,000 lives, and 30 times this number, that is over 15 million, are injured according to the World Health Organization (WHO). This represents more than one life lost every minute and an injury every two seconds. Two third of these victims are from the third world countries.¹ The frequency of traffic collisions in India is among the highest in the world. A National Crime Records Bureau (NCRB) report revealed that every year, more than 135,000 traffic collision-related deaths occur in India.² The “Global Status Report on Road Safety” published by the WHO identified the major causes of traffic collisions as driving over

the speed limit, driving under the influence of alcohol, and not using helmets and seat belts.²

A study on injury pattern among RTA cases from south India shows head injuries were common among motorized two wheelers (22.6%), and none used helmet.³ A prevalence study on helmet use among motorcycle riders in Vietnam showed that the overall weighted average of helmet use for motorcyclists was 29.94%, with male drivers more likely to wear helmets than female drivers.⁴ Present study was undertaken with the objectives to assess the use of helmet among the selected female two-wheeler-riding hospital workers (nurses, hospital attendants, sanitary attendants, and security guard) and to study the attitude of selected hospital workers toward helmet wearing.

received

June 24, 2018

accepted

July 20, 2018

published online

April 22, 2019

DOI <https://doi.org/>

10.1055/s-0039-1686963

ISSN 2277-954X.

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Material and Methods

Quantitative non-experimental research design was adopted to conduct a study in Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. Using purposive sampling technique, 90 hospital female workers who ride two wheelers were enrolled. Permission was taken from the Head of Neurosurgery Department, and ethical clearance was obtained from the ethical committee, PGIMER, Chandigarh. A self-prepared questionnaire was developed to collect the data from two-wheeler female riders, where a proportion of subjects as driver and pillion riders was assessed for use of helmet, opinion on need of wearing helmet, and reason for not wearing helmet. It also included the quality of helmet, procurement of helmet, and owner of helmet. Three-point Likert scale was also used for assessing their attitude toward wearing helmet. Analysis of data was done in accordance with the objectives laid down for the study using descriptive and inferential statistics in SPSS software version 21 (SPSS Inc.).

Results

Maximum 36% participants were in the age group (in years) of 21 to 25, followed by 25% in 36 to 40, 17% in 15 to 20, 13% in 26 to 30, and least in 31 to 35, that is, 9%. Among the subjects, 71.9% were Hindu, and 25% were Sikh. A total of 20.2% were staff nurses, and the rest 25.8% were from other categories (►Table 1).

►Fig. 1 shows that 33% (18.4 + 14.5%) subjects were mostly drivers, and 42% were driving sometimes.

►Fig. 2 shows that 46.4% (38.4 + 8%) subjects were pillion riders mostly, and 36% were pillion riders sometimes.

►Fig. 3 shows that 51% of female hospital staff never used helmet, and only 19% were using helmet every time. This is despite the fact that 93% of subjects owned a helmet. Eighty-eight percent of the regular users were younger than 25 years, while 80% of the non-users were above 25 years. Even among regular drivers, 40% never wore helmet.

Table 1 Demographic profile of subjects

Variables	Frequency (%)
Age (years)	
15–20	15 (17)
21–25	32 (36)
26–30	12 (13)
31–35	8 (9)
36–40	22 (25)
Religion	
Hindu	64 (71.09)
Sikh	22 (25)
Christian	2 (2)
Others	1 (1)
Designation	
Students	48 (53.9)
Staff nurse	18 (20.2)
Others	23 (25.8)

►Fig. 4 shows that 82% subjects wore helmet as it prevents head injury and only 6% due to the fear of challan/police.

►Fig. 5 shows that out of 72 subjects who never or sometimes wear helmet, 53% gave ignorance as their reason for not using helmet, 16% found it uncomfortable, 10% were not using it because of lack of strict rule, and the rest were not using because of irritation, poor visibility, and use of spectacle. Eighty-two percent of the non-users were merely casual despite knowing about its advantages.

►Fig. 6 shows that 89% subjects agree that helmet decreases injury chance, 87% say that it is necessary to wear helmet, 86% believes that it is their responsibility to wear helmet, and 85% say helmet should be used by experienced as well as pillion drivers.

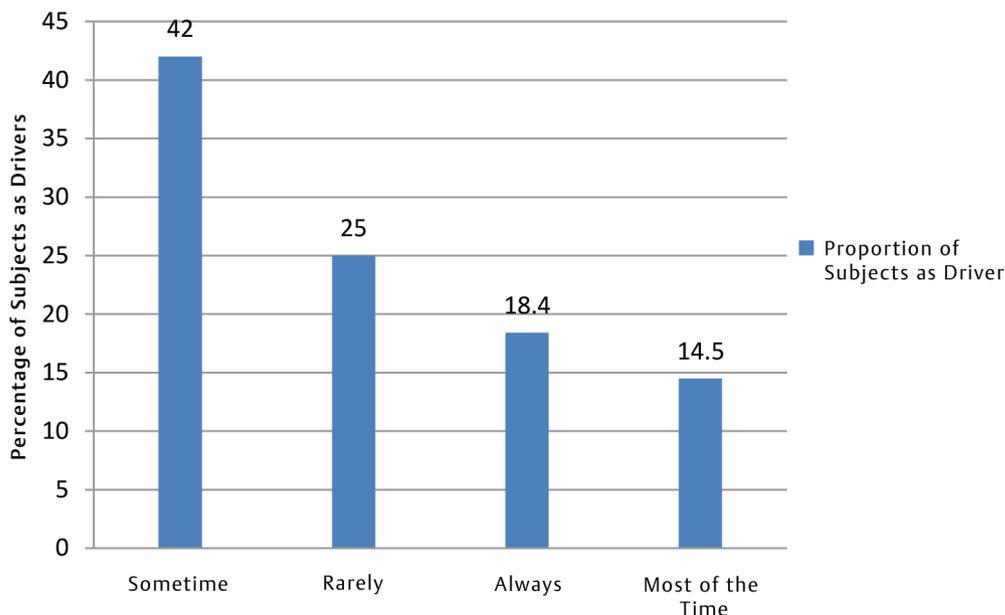


Fig. 1 Proportion of subjects as driver.

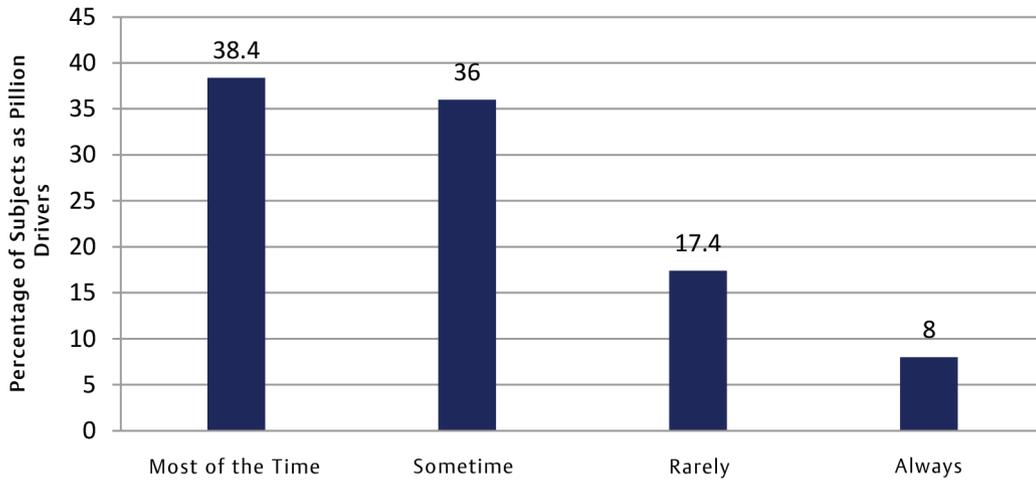


Fig. 2 Proportion of pillion drivers.

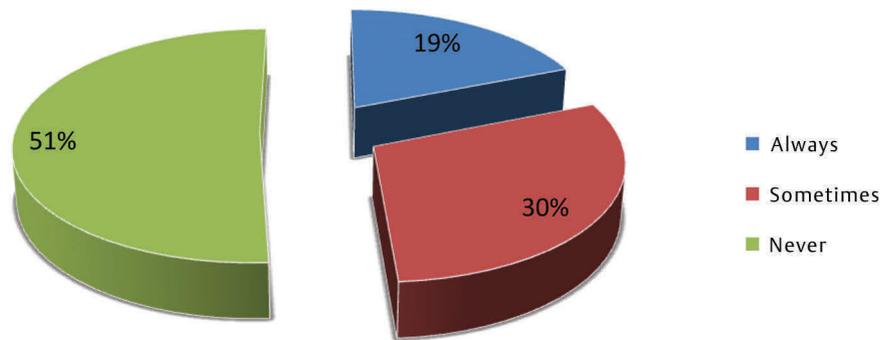


Fig. 3 Use of helmet by female hospital staff.

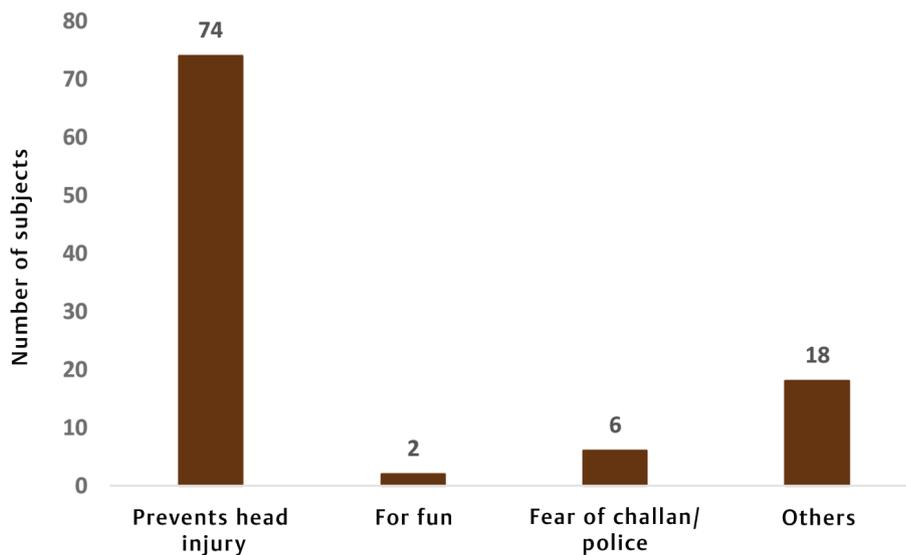


Fig. 4 Opinion of subjects regarding need of wearing helmet.

Discussion

Head injury is a major cause of disability and death among the productive years of life.⁵⁻⁷ The WHO recognized that

the major causes of traffic collisions are driving over the speed limit, driving under the influence, and not using helmets and seat belts. Helmets are known to protect from

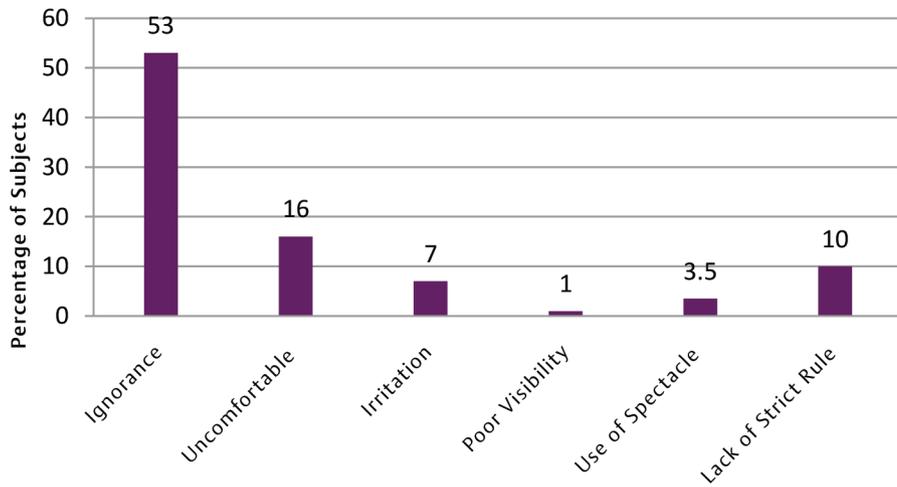


Fig. 5 Reasons of not wearing helmet by the drivers.

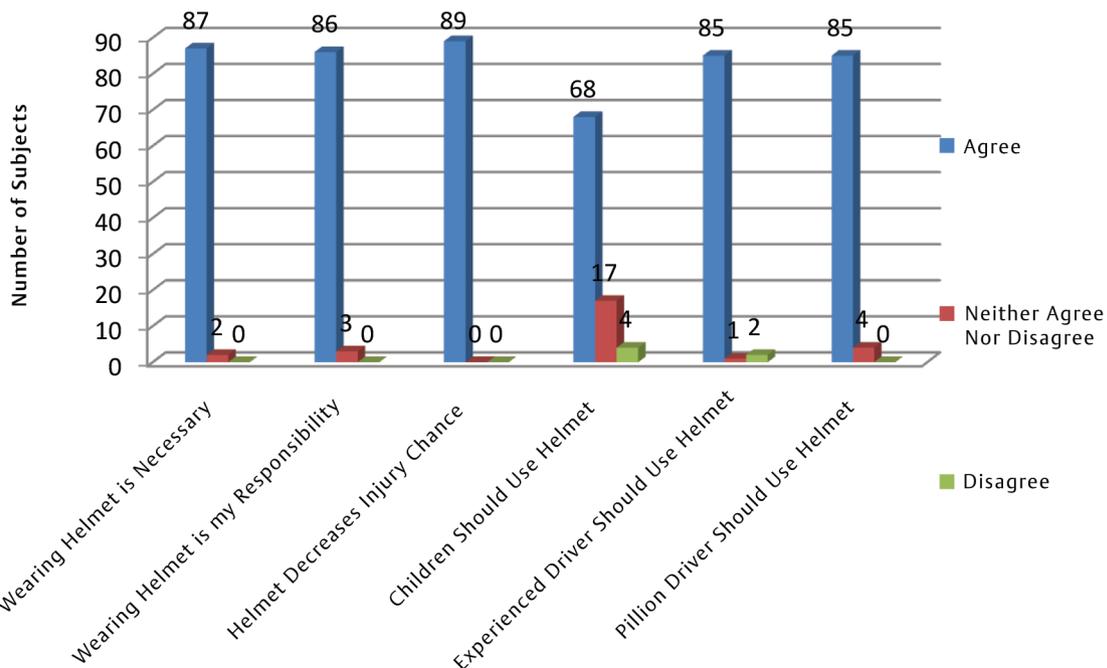


Fig. 6 Attitude of subjects toward wearing helmet.

traumatic brain injury (TBI) in case of roadside accidents. Because of which present study was conducted where only 19% of the subjects were using helmet while riding two-wheeler which was similar to the study of Kalan-tharakath and Iyer⁸ with 30% use and 16.2% in Fong et al⁹ and was contradictory to the study of Bao et al where 64% respondents were using helmet while riding.¹⁰ Overwhelming majority of the subjects were having helmet but were not using it. Although majority of the subjects knew that helmet protects from TBI and had a positive attitude toward it, the actual practice of wearing one was very low. Ignorance, irritation, discomfort, and lack of strict rules were some of the quoted reasons for not wearing helmet.

Maximum 36% participants were in the age group of 21 to 25 and least in 31 to 35 years, i.e., 9%. More than half of the subjects (54%) were from nursing department. Only 18.4% subjects were driving always, and 38.4% subjects were pillion rider for most of the time. Fifty-one percent of female hospital staff never used helmet during driving, and only 19% were using helmet every time. Eighty-two percent subjects wear helmet as it prevents head injury, similar to the study results of Kalan-tharakath et al⁸ and only 6% for the fear of challan/police, which was contradictory to the study results of Bao et al (40%).¹⁰ Out of 72 subjects who never or sometimes wear helmet, only 10% were not using it because of lack of strict rule, and the rest were not using

because of irritation, poor visibility, and use of spectacle, whereas other reasons for not using helmets were different, such as the way they look with helmet.⁹ Eighty-nine percent subjects agree that helmet decreases injury chance, 87% say that it is necessary to wear helmet, 86% believe that it is their responsibility to wear helmet, and 85% say helmet should be used by experienced as well as pillion drivers.

The importance of helmet use is not merely because of protection from primary impact injury, but also from the cascading effect of secondary micro-ischemic sequelae.^{11,12}

Conclusion

Helmet use is very poor among women (both drivers and pillion riders) despite working in hospital environment and owning helmet. Stricter enforcement of helmet law is needed, as education and knowledge may not instil helmet use.

Conflicts of Interest

None.

Acknowledgments

The authors would like to express their great appreciation to the National Institute of Nursing Education for the permissions to conduct this research and sincerely thank all the participants for their co-operation and support for the smooth conduct of the study. The authors are also grateful to authors of all those articles, journals, and books from where the literature for this article has been reviewed and discussed.

References

- 1 Downing A, et al. International overview of road safety. International Workshop on Prevention and Control of Traffic Accidents and Injuries (24 November–3 December, 1992), New Delhi, India: 4–12

- 2 Krishnan M. India has the highest number of road accidents in the world. *Deutsche Welle*. April 29, 2010:1
- 3 Jha N, Srinivasa DK, Roy G, Jagdish S. Injury pattern among road traffic accident cases: A study from South India. *Ind J Comm Med* 2003;28(2):85–90
- 4 Hung DV, Stevenson MR, Ivers RQ. Prevalence of helmet use among motorcycle riders in Vietnam. *Inj Prev* 2006;12(6):409–413
- 5 Dhandapani S, Bajaj A, Gendle C, et al. Independent impact of plasma homocysteine levels on neurological outcome following head injury. *Neurosurg Rev* 2018;41(2):513–517
- 6 Dhandapani S, Sarda AC, Kapoor A, Salunke P, Mathuriya SN, Mukherjee KK. Validation of a new clinico-radiological grading for compound head injury: implications on the prognosis and the need for surgical intervention. *World Neurosurg* 2015;84(5):1244–1250
- 7 Dhandapani SS, Manju D, Vivekanandhan S, Agarwal M, Mahapatra AK. Prospective longitudinal study of biochemical changes in critically ill patients with severe traumatic brain injury: factors associated and outcome at 6 months. *Indian J Neurotrauma*. 2010;7(01):23–27
- 8 Kalantharakath T, Iyer R. Helmet attitudes and practices among university students of dental and medical professional courses in Vadodara, India. *J Interdiscipl Med Dent Sci* 2015;3:180
- 9 Fong MC, Measelle JR, Dwyer JL, et al. Rates of motorcycle helmet use and reasons for non-use among adults and children in Luang Prabang, Lao People's Democratic Republic. *BMC Public Health* 2015;15:970
- 10 Bao J, Bachani AM, Viet CP, Quang N, Nguyen N, Hyder AA. Trends in motorcycle helmet use in Vietnam: results from a four-year study. *Public Health* 2017;144S:S39–S44
- 11 Dhandapani S, Aggarwal A, Srinivasan A, et al. Serum lipid profile spectrum and delayed cerebral ischemia following subarachnoid hemorrhage: Is there a relation? *Surg Neurol Int* 2015;6(Suppl 21):S543–S548
- 12 Mukherjee KK, Dhandapani S, Sarda AC, et al. Prospective comparison of simple suturing and elevation debridement in compound depressed fractures with no significant mass effect. *Acta Neurochir (Wien)* 2015;157(2):305–309