

Hospital Based Injury Surveillance – A Study on the Severity of Motorcycle Crashes in Myanmar

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Abstract

In a collaborative effort by the WHO and the Ministry of Health, a hospital surveillance system was implemented at five hospitals throughout Myanmar. Through this system, data on injury causes and severity with a focus on road traffic crashes is collected and stored digitally. Since the majority of motorized vehicles in Myanmar are motorcycles, a special survey was conducted at two sentinel hospitals on patients involved in motorcycle crashes. Data on crash severity and helmet use was collected through questionnaires. Results show a helmet use rate among riders of 47%, and a clear link between helmet use and injury severity.

Background

A main goal of the Decade of Action for Road Safety is to improve the quality of data collection on road safety crashes at a regional and national level (Sminkey, 2011; World Health Organization, 2015). To achieve this goal, the WHO together with the Ministry of Health have established a hospital based injury surveillance system, that monitors injury causes in five sentinel hospitals in Myanmar. Information on patients is collected on forms that list injury causes, severity and health outcomes of patients. Since more than 80% of motorized vehicles in Myanmar are motorcycles (World Health Organization, 2015), a hospital based questionnaire study with a special focus on motorcycle crash victims was conducted at two sentinel hospitals in NayPyiDaw, Myanmar.

Method

The study was conducted over the course of three months in two hospitals in NayPyiDaw. The study sample consisted of all motorcycle crash victims that arrived at the hospitals during the observation period. This included inpatients, i.e. patients that stayed one or more nights at the hospitals, outpatients, i.e. patients that were treated at the hospital but left without spending at least one night, as well as crash victims that died in the hospital or were declared dead on arrival. Questionnaire data was collected through face-to-face interviews with the patients or, in cases in which patients were deceased or could not be interviewed due to injury severity, with their relatives. A proposal for this study was submitted to the Ethical Committee on Medical Research Involving Human Subjects, Department of Medical Research (Central Myanmar) in NayPyiDaw for approval. Subjects were free to give informed consent.

Results

171 motorcycle crash victims (mean age $M = 32.13$ years, $SD = 13.8$) were interviewed for this study. 98 patients were motorcycle riders, 51 were passengers, and 22 patients were pedestrians involved in a motorcycle crash. Among other factors, drivers and passengers were asked if they wore a motorcycle helmet at the time of the crash and if they had fastened it correctly. Injuries of patients were rated as severe if a patient needed an operation or died as a result of the crash. Data on helmet use, injury severity, and the frequency of head injuries is presented in *Table 1*. Patients that arrived with heavy injuries and whose main injuries were head injuries more often reported that they did not wear a helmet at the time of the crash. A binary logistic regression reveals that patients are three time more likely to sustain heavy injuries (Odds ratio = 3.45, 95% CI 1.71-7.17, $p < .01$)

and are four times more likely to sustain a head injury in a crash (Odds ratio = 4.68, 95% CI 2.15-10.18, $p < .01$) when they do not wear a helmet.

Table 1. Frequencies of injuries of different severity and location, and helmet wearing of motorcycle drivers and passengers.

			Helmet wearing		
			No helmet (or not fastened)	Helmet	Total
Injury severity	heavy	<i>N</i>	43	15	58
		<i>% within class</i>	74.1%	25.9%	100%
	light	<i>N</i>	41	50	91
		<i>% within class</i>	45.1%	54.9%	100%
	<i>Total</i>	<i>N</i>	84	65	149
	Injury location	head	<i>N</i>	41	11
<i>% within class</i>			78.8%	21.2%	100%
other		<i>N</i>	43	54	97
		<i>%</i>	44.3%	55.7%	100%
<i>Total</i>		<i>N</i>	84	65	149

Conclusions

Hospital based questionnaire surveys present a practical way to investigate road traffic crashes. Our results add to the body of evidence that helmets are an effective way to prevent heavy injury and decrease the probability of head injury in motorcycle riders.

References

- Sminkey, M. L. (2011). Global Plan for the Decade of Action for Road Safety 2011-2020. World Health Organization www.who.int/roadsafety/decade_of_action.
- World Health Organization. (2015). Global status report on road safety. Geneva: World Health Organization.