

Do children on motorcycles need special crash helmets?

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Abstract

The motorcycle is the most common mode of transport in Malaysia. It is also used to transport children to and from school, and as a general mode of transport. Most fatalities among motorcyclists in Malaysia are due to head injuries, and the use of crash helmets has reduced this outcome. This is a preliminary report on the need for special crash helmets for children in Malaysia. Data show that the use of non-specialised helmets for children (who frequently use play helmets or adult type helmets) has no significant difference in injury outcome when compared to adults, in whom the wearing of helmets influence outcome. This suggests that there is a need for special crash helmets for children.

Key words: Child, head injury, crash helmet

Introduction

The motorcycle is the commonest mode of motorised transport in Malaysia (PDRM, 1997). It is also used to transport children to and from school. Motorcyclists form the largest group of fatalities on Malaysian roads (Pang *et al.*, 1999) and the most common cause of death is due to head injury (Pang *et al.*, 1999; Kulanthayan *et al.*, 2000). While the introduction of crash helmets has reduced adult fatalities (Supramamiam *et al.*, 1984) very little information is available on the use of crash helmets in children. Indeed, there are very few specialised child crash helmets available, and very little research is conducted in this area. This is a preliminary report on the need of a specialised child crash helmet

Materials and Methods

The Accident Data Base at the Road Safety Research Centre, Faculty of Engineering, Universiti Putra Malaysia was studied to specifically look at the outcome of injuries in helmeted and non-helmeted children and adults to identify any difference in outcome. Outcome was classified

into fatal, injured and hospitalised and injured and not hospitalised. Data for 114 children and 12,851 adults were available. Data was analysed using chi square test and significant outcome was set at $p < 0.05$.

Results

Adults were involved in 99.12% of all motorcycle injuries. The outcome for children and adult injuries are as shown in Tables 1 and 2. In children fatal outcome was not significantly different whether a helmet was worn or not (18.18% and 27.14% respectively; $\chi^2 = 3.647$, $p = 0.2$). In adults fatal outcome was significantly less with the wearing of crash helmets (48.48% in helmeted and 65.72% in non-helmeted; $\chi^2 = 209.580$, $p = 0.001$).

Discussion

Although adults contribute to the vast majority of deaths due to motorcycle accidents, a significant number of children have also died. Data on the children did not include the type of crash helmet being worn at the time of

Table 1. Fatal and non-fatal outcomes in helmeted and non-helmeted children involved in motorcycle accidents

	Fatal	Hospitalised	Injured but not hospitalised	Total
Helmeted	8	11	25	44
Non-helmeted	19	24	27	70

$\chi^2 = 3.647$, $df = 2$, $p = 0.2$

Table 2. Fatal and non-fatal outcomes in helmeted and non-helmeted adults involved in motorcycle accidents

	Fatal	Hospitalised not hospitalised	Injured but	Total
Helmeted	5,291	2,913	2,710	10,914
Non-helmeted	1,273	403	261	1,937

$\chi^2 = 209.580, df = 2, p = 0.001$

accident, but it can be assumed that the helmet was of an adult type or a child play helmet. This is because specialised child crash helmets are not freely available in Malaysia, or even if they are available, are not accessible to a vast majority of the population. Our data suggest that the current type of helmets worn by children do not adequately protect the child on a motorcycle. Further work on child crash helmets is required.

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