

## ARTICLE

# THE FACTORS RELATED TO THE SEVERITY OF TRAFFIC ACCIDENT VICTIMS OF MOTOR BIKERS AT EMERGENCY DEPARTMENT (IGD) OF GENERAL HOSPITAL

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## ABSTRACT

**Background:** Traffic accidents are road traffic incident in which at least caused by a vehicle which caused injury, damage or loss to the owner or the victim. The purpose of this study was to determine the correlation between identifying factors with the severity of traffic accident victims of motor bikers at emergency Unit (IGD) of General Hospital in Kendari. Research method was analytical research with cross sectional approach. This research was conducted in the district general hospitals kendari and sample size was 443 people. Univariate and bivariate analysis used to determine the frequency and the relationship between the variables were analyzed through statistical test. Bivariate analysis using chi-square test *Chi square (Test of Independence)* with a significant level ( $\alpha = 0,05$ ). The results showed that there was no correlation between the use of helmets with the severity of traffic accident victims motorcycles ( $pValue=0.054$ ), there was no correlation between the use of mobile phones with the severity of traffic accident victims motorcycles ( $pValue=1.000$ ). There was a relationship between vehicle speed with the severity of victims of traffic accidents of motorcyclists ( $pValue=0.003$ ). Overall conclusion, the use of helmets and cell phones are not related, meanwhile the vehicle speed related to the severity of traffic accident victims in patients.

## INTRODUCTION

One of the main causes of death is injuries. WHO projections, in 2005 the injury was ranked as the fourth leading cause of death in all ages around the world, and the third on the global burden. But population growth and prosperity have become one cause of the increase in road traffic accidents. Sometimes traffic accidents (kalimat ini dihapus saja: on these roads) can lead to injuries or material losses even to eliminate human lives [1].

In 2013 the number of traffic accident occurrences in Indonesia was 101 037 and the number of victims was 159 677 people. the victim died as many as 25 157 people with CFR 15.75%, seriously injured 29 544 people with the proportion 18:50%, and minor injuries 104.978 people with the proportion of 65.74%. In Southeast Sulawesi in 2015 there were 821 occurrences of traffic accidents, the number of victims of accidents was 1,295 people, victim died as many as 166 people with 20 CFR, 21%, 277 seriously injured people to the proportion of 24.53% and slightly injured 852 people with the proportion of 75.46%. In the city of Kendari in 2014 there were 316 occurrences of traffic accidents. The number of victims of accidents was as many as 425 people. The victim died 54 at 17:08 CFR%, 122 seriously injured people to the proportion of 32.88% and slightly injured 249 people with the proportion of 67.11%. Then in 2015 decreased, there were 296 occurrences of traffic accidents. The number of victims of accidents was 362 people. The victim died as many as 33% of people with CFR 11:14, 97 seriously injured people to the proportion of 29.48% and slightly injured 232 people with the proportion of 70.51% [2].

In 2013 the number of traffic accident victims was 679 people. The victim died with CFR 1:42 10%, 77 seriously injured people to the proportion of 11:50% and 592 lightly injured people to the proportion of 88.49%. In 2014 the number of traffic accident victims increased by 757 people. The victim died was 13 people with CFR 1.71%, serious injuries increased by 61 people with the proportion of 8.19% and slightly injured 683 people with the proportion of 91.80%. Then there was an increase in 2015 with 895 occurrences of traffic accidents. The victim died as many as 10% of people with CFR 1:11, 85 seriously injured people to the proportion of 9.60% and slightly injured 800 people with the proportion of 89.38% [3].

## MATERIALS AND METHODS

### Research design

A quantitative research with cross sectional survey design. This study aimed to explain the influence between variables. Research that had been carried out was designed to analyze the relationship between the use of helmets, use of cellular phone, and vehicle speed with the severity of the patient's traffic accident motorcycle users in the emergency department (IGD).

### KEY WORDS

Traffic Accidents, Helmet Use, Cell Phone Use, and Speed

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## Research sites

The experiment was conducted on patients of traffic accident victim of motorcyclists in intensive care units darudat (IGD) General Hospital of Kendari city 2016.

## Population and sample

The population was all motor bikers accident patients who were in the emergency unit of Regional General Hospital of Kendari amounted to 4.405 people. A simple random sampling method was used to obtain a sample of 443 people.

## Data Collection

The primary data obtained directly from respondents using a questionnaire (questionnaire), which has been tested for the validity and reliability. Secondary data were obtained from the General Hospital of Kendari city and previous researches related to the incidence of traffic accidents (hapus saja: **in patients**).

## Processing and analysis of data

Processing and analysis of data using a computer. data processing begun with editing, coding, entry and tabulation. After that, the data were analyzed with SPSS 16. Data analysis was divided into two, namely univariate and bivariate analysis. Univariate analysis was used to determine the frequency distribution and independent variables associated. The bivariate analysis using Chi-square test statistic (hapus aja: **is**) (Test of Independence) with a significant level ( $\alpha = 0.05$ ) was developed to analyze the relationship between independent variables and the dependent variable.

## RESULTS

The results of the **univariate** analysis of factors causes of traffic accidents and the severity of traffic casualties motorcyclists can be seen in [Table I].

**Table I:** Results of univariate analysis and factors contributing to the severity of traffic accidents motorcycle users

Variable	Dimension	Frequency (n)	Percentage (%)
The severity of the accident victim	Minor injuries	211	47.8
	Serious wound	232	53.5
The use of helmets	Standardized	119	26.7
	Non standardized	324	73.3
Use of Cell Phones	Use	266	60.0
	Don't Use	177	40.0
Vehicle speed	Moderate	152	34.4
	Fast	290	65.6

The results of the analysis of [Table I] show that the motorcycle rider as much as 53.5% suffered serious injuries. The use of unstandardized helmet was accounted for 73.3%, using a mobile phone while driving was 60% and the very fast driving speed was accounted for 65.5%.

The results of the bivariate analysis of factors causes of traffic accidents (helmet usage, mobile phone usage and vehicle speed) with the severity of the victim's user traffic of motorcycles can be seen in the following Table II, III and IV.

## Relationship between helmet usage and severity of victims of motorcycle rider traffic accidents in general hospital

**Table 2:** Analysis of the relationship between helmet usage and the severity of motorbike accident patients

The use of helmets	The severity of the accident victim				Amount		P Value	phi Ø
	Minor Injuries		Serious Wound		n	%		
	n	%	n	%				
Standardized	99	66,7	49	33,3	148	100	0,054	0,228
Non standardized	121	40,9	175	59,1	296	100		
<b>Total</b>	212	47,8	231	52,2	443	100		

The results in [Table 2] study show that there was no association between the use of helmets with the severity of traffic accident victims of motorcycle users in the emergency room (ER) Regional General Hospital of Kendari city. This is indicated by  $p_{value}$  of 0.054 is greater than  $\alpha = 0.005$ . Therefore, the use of helmets does not affect the severity of victims of motorcycle riders traffic accidents, and their relationship with  $\phi = 0.228$ .

### Relationship between cell phone usage and severity of victims of motorcycle rider traffic accidents in general hospital

The use of mobile phones is described as the cell phone usage while driving. test results show no association between mobile phone use and the severity of traffic accident victims of motorcycle users in the emergency unit of Regional General Hospital of Kendari.

**Table 3:** Analysis of the relationship between cell phone use and severity of traffic accident victims of motorcycle users

Use of Cell Phones	The severity of the accident victim				Amount		P Value	phi Ø
	Minor Injuries		Serious Wound		n	%		
	n	%	n	%				
Use	112	48,1	110	51,9	222	100	1,000	0,009
Do not Use	100	47,2	121	52,8	221	100		
<b>Total</b>	<b>212</b>	<b>47,8</b>	<b>231</b>	<b>52,2</b>	<b>443</b>	<b>100</b>		

The results in [Table 3] study show there was no association between mobile phone use with the severity of traffic accident victims of motorcycle users in the emergency room (ER) Regional General Hospital of Kendari city. This is indicated by p value of 1,000 is greater than  $\alpha = 0.005$ . Means the use of cell phones does not affect the severity of victims of traffic accidents motorcycle riders, and the absence of a very weak relationship with phi Ø of 0.009.

### Relationship between riding speed and severity of victims of motorcycle rider traffic accidents in general hospital

Riding speed is depicted as how much the speed of vehicles driven by motorcyclists in driving. the results showed there is no relationship between the speed and the severity of traffic accident victims of motorcycle users in the emergency unit of Regional General Hospital of Kendari.

**Table 4:** The analysis of relationship between vehicle speed and severity of traffic accident victims of motorcycle users

Speed	The severity of the accident victim				Amount		P Value	phi Ø
	minor injuries		serious wound		n	%		
	n	%	n	%				
Moderate	129	71,0	53	29,0	182	100	0,003	0,337
Fast	93	35,6	168	64,4	261	100		
<b>Total</b>	<b>212</b>	<b>47,8</b>	<b>231</b>	<b>52,2</b>	<b>443</b>	<b>100</b>		

The results in [Table 4] study show that there is a relationship between vehicle speed and the severity of traffic accident victims of motorcycle users in the emergency room (ER) Regional General Hospital of Kendari city. This is indicated by pvalue 0.003 is greater than  $\alpha=0.005$ . means the vehicle speed influences the severity of victims of traffic accidents motorcycle riders, and the strength of the relationship with phi Ø of 0.228.

## DISCUSSION

### Relationships between helmet use and severity of traffic accident victims of motorcycle riders in the emergency unit of general hospital

The results showed that there was no association between the use of helmets with the severity of the accident victim in patients IGD Regional General Hospital. other studies show that helmet use was not statistically sufficient evidence of an effect on the severity, but the effect on the level of awareness of the driver involved in the accident [4].

Severity is influenced by the level of consciousness, thus indirectly affects the use of helmet . compliance with the level of traffic trauma in a traffic accident motorcycle driver has been studied [5]. Accidents involving motorcycle riders or passengers can lead to serious injuries, even death. This is due to the lack of protection of motor bikers. When compared to cars, motorcycles do not have the instruments absorbers, seat belt in order to withstand the impact. The wound in the head is the biggest part of the severe and fatal accidents suffered by motorcyclists. Type of head damage such as cracking on the cranium. The location of the wound on the forehead, back or side of the head, especially in the right position to deal with traffic from the front. Excellence Motorcycles have a smaller size makes it easy to oncoming motorists move in traffic. however, this can make the motorcycle riders involved in accidents that can easily cause serious injury to the rider.

Further impact of head injury is that it can cause disturbances in the brain, central nervous system and spinal cord top. Motorcyclists also could have a concussion, injury to the foot even death. To protect motorists from the prevalent traffic accidents, the government also requires the use of SNI helmets (Indonesian National Standard) to anticipate worse possibility.

The results showed that most respondents did not use a helmet because of the close distance factor. With regard that the higher underestimation of the severity of the motorbike accident victims.

In the implementation of helmet standards program in Kendari, Kendari City Traffic Polrestabes has prioritized the application of proper coordination with the total police force of Kendari which Polrestabes and the entire police station in the city of Kendari. Police force can optimize the lowest part of the implementation of helmet standards program throughout the city of Kendari. Coordination between Satlantas Polrestabes the entire police station in the city of Kendari was done to achieve standardized policy implementation program in accordance with Regulation Legislation Number 22 Year 2009 regarding Traffic and Road Transportation, which requires all road users, especially users of two-wheelers to wear helmets in accordance with SNI standard.

Implementation of standard helmet program provides enormous benefits. The benefits are felt by the public, among others, can improve the security and safety when driving on the highway and can reduce the high risk of a fatal accident for the rider. Motorcyclists urged to always use a helmet in accordance with applicable regulations.

Achievement of the objectives of the implementation of standardized helmet program is not maximal yet, because in the reality, this experiences various obstacles, such as suburban communities still do not understand the purpose of the implementation of the policy. Many violations and traffic accidents happened in rural areas in Kendari.

Implementation process consists of the improvement of facilities and infrastructure provided by Polrestabes Kendari to support the process of socialization. Facilities and infrastructure are provided such as the installation of banners, distribution of brochures on how to use a helmet (directly to the motorcycle rider), as well as the delivery of information through the mass media. Implementation of the program's implementation standard helmet is necessary to support the activities that are more effective in the socialization process. So, that people can understand the purpose of the policy, and make the program sustainable.

Associated with the implementation of policies, actors implementing the policy play primary responsibility to implement policies to the target group which is a whole community of Kendari. An active policy implementers must provide and serve. Expected that people can understand clearly and have the benefit after following the policy.

Facilities and infrastructures are supporting tools in the implementation of the policy. About the completeness and the quality and quantity must be considered in accordance with the needs of the policy program. If it is provided well, at least make it easier for executive actors in achieving its policy objectives.

Implementation of standard helmet in Kendari by the Traffic Polrestabes Kendari city has been in communication with providing information to the public through the mass media and radio, distribution of free brochures or pamphlets to motorists, the socialization directly to a number of areas, and provide information on the rules and cross. Particularly regulations that require wearing a SNI standard helmet.

Indicators clarity of communication is also important to determine the success of public policy implementation. The effective implementation happens if the decision makers already know what they will do. Understanding of what should be done can be run smoothly when communication goes well in addition to policy communication must be precise, clear and consistent. Clarity of communication includes transmitting information between Polrestabes with Traffic, as well as between Satlantas with the community.

In practice, there are still many people who do not understand the intent of the government to implement the obligation to use helmets that comply with safety standard. Thus, the number of traffic violations will rise higher and higher. Compliance with the driver of the provisions for the use of a standard helmet, generally no more than an attempt to escape from the police. While the philosophical value of these provisions is not a driver of self-awareness to the ISO-standard helmet use.

The implementation of this standard helmet has not run smoothly because many people do not understand about the purpose of the program. Society as a target group in the implementation of standard helmet program, believes that this program only benefited a group of parties, namely helmet employers and of course the police will do a lot of speeding tickets.

Basically, people as the target groups need to support this policy. In the implementation, it is not running optimally, so there are still many people do not understand the purpose of this program implementation. In addition, the relatively high penalties for the perpetrators of the offense of not using helmets that comply with safety standards, making many people, especially the motorcycle feel too heavy financial penalties

are applied. Expected in the next execution, the police have to work harder, so that people can understand the purpose of the program is the implementation of ISO-standard helmet. Public awareness needs to be fostered and developed through development patterns more effectively and intensively.

### Relationships between cell phone use and severity of traffic accident victims of motorcycle riders in the emergency unit of general hospital

The results of analysis of this study showed that there was no correlation between the cellular phone usage and severity of traffic accident victim of motorcycle users. The results of this study are different from previous research that states that there is an association of cell phone use as a factor in motorcycle accidents and biological use of mobile phones as a risk factor for the incidence of motorcycle accidents [6]. Other studies have also suggested that there is a relationship of cell phone use with the incidents resulted in casualties on the severity of the rider [7].

Motorists using mobile phones while driving, are 4 times more likely to develop a risk of collision compared to riders who do not use cell phones. collisions are most common in riders due to cell phone use. Therefore, for motorists who use mobile phones have risk of traffic accidents by 4.3 times compared to riders who do not use cell phones. While the study finding suggests the use of mobile phones while driving causes fortunate consequences in the event of a collision on the highway. Driving while using a cell phone (talking, texting, use the facilities of the game) is an activity that endanger the safety of the riders themselves and other road users. Communicating using a mobile phone while driving will distract the driver in running his vehicle so that conditions like this opportunity for the RTA on the highway [8].

The majority of motorists who do not use cell phones while driving preferred not to use cell phones while driving because they fear the lack of focus, causing an accident while driving. they also said that should not use mobile phones while driving because it can endanger themselves and others.

Most motorists are aware of the dangers of cell phone use while driving. due in large cities congested road they do not pay attention to the dangers of cell phone use, while in the small town streets were deserted of vehicles as well as better awareness for not using a cell phone while driving.

### Relationships between Riding Speed and severity of traffic accident victims of motorcycle riders in the emergency unit of general hospital

Results of analysis showed an association of mobile phone usage with the severity of traffic accidents motorcycle users. This is consistent with previous studies which stated that the speed has a significant relationship with victim severity of traffic accidents [9]. IGD research results in Fatmawati, states that high speed has a relationship with the severity of motorcycle accident victims[10].

Incidence of traffic accidents in urban mainly is caused by a high rate of speed riders which was more than 50 km / h. riding at high speed increases opportunity to accidents by 2:54 times (OR = 2.54) compared with the low-speed riders, (95% CI = 1623.98) [11]. zone speed of 20 km / h is an effective measure in reducing injuries and deaths from traffic accidents [12].

Acceleration of the vehicle by the riders affected by a number of factors, factors related to the driver (age, gender), factors related to roads and vehicles (the state of roads, the quality, the road surface, vehicle power, and maximum speed), whereas environmental factors and the road is the composition and density of the road, speed prevailing weather conditions.

Motorists in running vehicles should pay attention to speed signs as well as to other conditions such as rainy weather, vehicle density and other factors that do not allow the vehicle to be driven at high speed. Riders sometimes forget to pay attention to signs of speed and other circumstances. In fact, at high speed, the rider will be difficult to control the vehicle if it is willing to stop the vehicle suddenly and therefore will lead to traffic accidents.

The risk for the occurrence of death and injury increases with increase in driving speed. Vehicle speed of 20 meters per hour has a 5% risk of causing death while the speed of 85 meters per hour increased the risk of death to 85%. Motorcycle accident due to high speed when driving the vehicle in general suffered a severe injury due to clash intense and powerful that allows the victim thrown away from the spot of the incident.

The physical condition of the road as well as a seamless reveal no significant difference in the proportion of injury severity. Smooth road conditions encourage motorcyclists to accelerate the speed while the condition of the road motorcyclists is usually less cautious in driving the vehicle though at a low speed.

## CONCLUSION

There was no association of helmet use and Cell Phones use with the severity of traffic accident victims patient in the emergency unit of general hospital Kendari. While the speed related to the severity of traffic accident victims in the emergency unit. enactment of the rules to wear international standard helmets, do

not use cell phones while driving, and keep the vehicle speed motorcycle.

#### CONFLICT OF INTEREST

The author states do NOT have competing interests The Subscription with Jobs

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