
Fishbone Analysis: An Alternative Methods For Implementation The Traffic Accidents Investigation

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Abstract: Traffic accidents are one of the public health problems that frequently occur in the level of global, regional, and national. It is expected to increase every year and become the fifth leading cause of death in 2030, including in Matakali District with 862 cases from 2016 to 2019. The aims of this study is to identify the basic causes of traffic accidents and develop strategies to prevent them in the future. This research was a qualitative study with explanatory research. The subject of this study was collected using reports on the results of road traffic accident investigations. Data were collected using in-depth interviews, documentation, and observations. Data analysis was applying the editing analysis model by human factors, environment, policies, and facilities and infrastructure. The results showed that the basic causes of traffic accidents for each aspect were the lack of awareness the driver safety requirements and procedures, no lighting for the drivers at nighttime, the lack of supervision from the police for violations of driver procedure, and the condition of the driver's vehicle. It is recommended to the government, in this case, the Polewali Mandar Police, to form a behavior based safety/safety culture for the community as an effort to prevent the risk of traffic accidents.

Keywords: Fishbone Analysis, Traffic Accidents Investigation

Introduction

WHO research results revealed in Road Traffic Injuries 2009 about 288,768 people died due to traffic accidents in ten countries of Southeast Asia in 2007. The highest mortality rate per 100,000 population due to traffic accidents occurred in Thailand with an estimated Road Traffic Injuries Death rate of 25,4%, followed by Myanmar with 23.4%, and Maldives with 18.3% (WHO, 2020). The United Nations in 2004 pointed out the traffic accidents as one of the public health problems, followed by the 2011-2020 Decade of Action for Road Safety program. The implementation of the Action Program is strengthened by Presidential Instruction of the Republic of Indonesia No. 4 of 2013 to 12 Ministers, National Police Chiefs and Regents/Mayors in order to establish good coordination among stakeholders in the field of road safety (KEMENKES RI, 2013).

Based on a report issued by the Indonesian National Police in 2010, the amount of death due to accidents reached 31,234 people. The results of the analysis of accident data for 2010 by the Police showed that traffic accidents on roads in Indonesia had resulted in about 86 people dying every day and 67% of the victims were of productive ages (22-50 years old) (Kepolisian RI, 2010). In the regions of South and West Sulawesi, during the period of 2004 to 2008, the traffic accidents in the South West Sulawesi region had reached 60,809 cases. The number of minor injuries reached 43,458 people, 24,355 people were seriously injured, and 15,963 people died. Regarding the age of the victims, most of them were still productive (Purwoko, 2010).

Based on data of the number of Polewali Mandar Police traffic accidents (Laka Lantas) for the period of January to December 2016, as much as 204 cases, 171 minor injuries, 155 serious injuries and 18 deaths then in 2017 there were 207 cases, minor injured victims 238

people, seriously injured 107 people and died 13 people and in 2018 January until now there are 397 cases, including 326 minor injuries, 11 seriously injured and 60 people died. On a yearly basis, there is always an increase in the number of victims of traffic accidents. Regarding the age of the victims, most of them are still classified as productive 16-30 years old (Polres Polewali Mandar, 2018)

Accident investigation is a structured activity to find the underlying causes of a problem to be identified. Polewali Mandar Police Station, in this case the Traffic Accident Unit, is then in the process of solving the traffic accident problem routinely after the accident occurred as a form of routine report and used as evaluation material. One of the methods used as an effort to prevent traffic accidents is the Fishbone Analysis in which every factor that causes the accident will be identified, analyzed and formulated as a conclusion of the basic cause of the accident.

Methods

This research was a qualitative study with explanatory research. The subject of this study was collected using reports on the results of road traffic accident investigations. Data were collected using in-depth interviews, documentation, and observations. Data analysis was applying the editing analysis model by human factors, environment, policies, and facilities and infrastructure.

Result

The results showed that the basic causes of traffic accidents for each aspect were the lack of awareness the driver safety requirements and procedures, no lighting for the drivers at nighttime, the lack of supervision from the police for violations of driver procedure, and the condition of the driver's vehicle. It is recommended to the government, in this case, the Polewali Mandar Police, to form a behavior based safety/safety culture for the community as an effort to prevent the risk of traffic accidents.

Discussion

Roads are the transportation infrastructure that have the greatest influence on the socio-economic development of the community. Those effects the increase of population growth, income, and economic activity whichever requires people to own their private vehicles and have an impact on vehicle density on the highway and even on the high number of traffic accidents itself.

According to the police data, in Indonesia, an average of three people die every hour due to traffic accidents. The data also showed that the number of accidents is 61% caused by human factors related to the ability and character of the driver, 9% due to vehicle factors, and 30% due to infrastructure and environmental factors (KEMENKES RI, 2017). There was also desire to create a "Zero Accident", which is the desire of all parties so that there will be no more addition to the traffic accidents. It encourages people to change a new paradigm, which is to focus on safety behavior.

Through the Fishbone Analysis, it can be concluded that the main factors of traffic accident in Km 10-11 of Tonro Lima village, Matakali subdistrict were dominated by factors as follows:

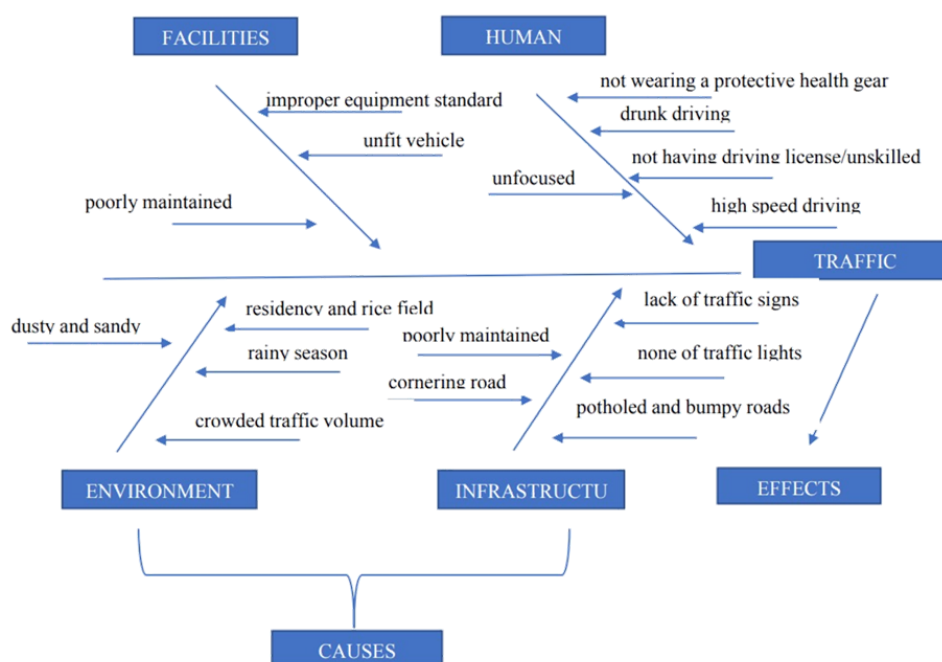


Figure 1. Fishbone Diagram of the Main Factors of Traffic Accidents

It is clear that in addition to the direct losses due to accidents, indirect losses should receive serious attention because they greatly affect all aspects as a whole. Henrich's theory (1952) states that 80% of accidents are caused by unsafe acts and 20% by unsafe conditions and other factors (Tarwaka, 2015). The trend of the researchs resulted that the cause of traffic accidents that occurred were inseparable from unsafe behavior, namely carelessness by the driver while driving. There was an increase in the number of traffic accidents in 2018 with the number of traffic accident cases with an amount of 397 cases with the average number of victims in the age range of 15-30 years old (Polres Polewali Mandar, 2018). The analysis using the Fishbone Diagram displayed the basic causes of traffic accidents that are the lack of awareness of drivers and participation from the government in efforts to prevent traffic accidents, including facilities and infrastructure and monitoring of traffic violations.

Meanwhile, the main causes are traffic safety requirements that are violated by drivers, along with the inability to drive normally due to drunk driving, unsafe driving attitudes and behaviors, decreased concentration, non-compliance with the driver's standard operating procedures caused by a lack of knowledge about regulations on driver safety standards, and the attitude of self-harm by skipping routine vehicle maintainance (Harm, 2013). WHO data demonstrated that more than 90% of road traffic deaths occurred in low and middle income countries and the highest is in the African region with an age range of 5-29 years old. Men were tended to be involved in traffic accidents than women, about 73% of all traffic accidents deaths chanced among young men under 25 years old of age who were almost entirely killed in traffic accidents (WHO, 2020).

The results of the investigation were carried out by the Traffic Accident Unit of the Polewali Mandar Police Station by looking at the dominant causes of traffic accidents that had occurred since 2017. They routinely assigned the police to *police goes to school* program, performed the School Security Patrol (PKS) and provided the traffic accident prevention education once in a year. In various places and certain situations, actions are not only

determined by our knowledge, but also by other experiences supported by awareness that comes from within us through the application of behavior-based safety.

According to Tarwaka (2015), Behavior-based Safety is a human safety behavior to identify hazards and assess potential risks that may arise to an acceptable level in carrying out an activity that aims to educate about safety behavior and to always remind one another.

Drivers who use cell phones are approximately 4 times more likely to have an accident than drivers who do not use cell phones while driving. Since using phone could slow down reaction times (especially braking time and makes it difficult to stay on the right track).

Conclusion

As a form of evaluation and report of the main causes of traffic accidents, one of the methods that can be used is the fishbone method. Based on the results of the study, it shows that the basic causes of traffic accidents are the lack of awareness of drivers on traffic safety procedures and the participation of the government in efforts to prevent traffic accidents including facilities and infrastructure and monitoring of traffic violations.

References

- Harm, Lars. 2013. *Guide to Safety Analysis for Accident Prevention*. IRS Riskhantering AB:Sweden.
- KEMENKES. 2013. *Instruksi Presiden Republik Indonesia Nomor 4 Tahun 2013 Tentang Program Dekade Aksi Keselamatan Jalan*. Kemenkes RI. Jakarta.
- KEMENKES RI. 2017. Rata-rata tiga orang meninggal setiap jam akibat kecelakaan jalan. tersedia di <https://www.kemkes.go.id/article/view/17082100002/rata-rata-3-tiga-orang-meninggal-setiap-jam-akibat-kecelakaan-jalan.html> (Accessed on 17th August 2020).
- Kepolisian Republik Indonesia. 2010. *Data Laka Lantas*. Lantas POLRI. Jakarta.
- Polres Polewali Mandar. 2018. *Laporan Kepala Pelayanan Lalu Lintas Polewali Mandar*. Polewali.
- Purwoko, Krisman. 2010. Lakalantas Indonesia Peringkat I di Asean. <https://republika.co.id/berita/breaking-news/nasional/10/02/25/104934-lakalantas-indonesia-peringkat-i-di-asean> (Accessed on 7th July 2019).
- Tarwaka. 2015. *Keselamatan, Kesehatan Kerja dan Ergonomi (K3E) dalam Perspektif Bisnis*. Harapan Press. Surakarta.
- WHO, 2020. Road Traffic Injuries. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries> (Accessed on 31st August 2020).