

PREVENTIVE MEASURES FOR ADOLESCENT TRAFFIC ACCIDENTS THROUGH SAFETY VEHICLE EXTENSION ACTIVITIES

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ABSTRACT

The increase in transportation needs has an impact on increasing the number of accidents, which are dominated by human error factors. Preventive measures are needed to prevent traffic violations. The purpose of this activity is to provide counseling to high school students about safe vehicles. The method used in the activity is direct counseling with discussion and question and answer methods. The target of this activity is the 54 students of SMA Negeri 1 Kediri, Tabanan-Bali. The material presented consists of 4 parts, namely: 1) driving preparation; 2) Driving Attitude; 3) Rules on the Highway; and 4) traffic violations. In addition to the presentation of the material using the question and answer method, quizzes were also given as material for further discussion. The results obtained by the students looked enthusiastic and able to learn well. This can be seen from the increase in the average value of the Pre-Test to the Post-Test value. Improved understanding of driving well, is expected to increase awareness and discipline of students in driving so as to reduce the number of traffic accidents by teenagers.

Keywords: accidents; counseling; preventive efforts; traffic; youth

INTRODUCTION

Population development results in an increase in the number of human needs. Human needs are met by travel or transportation. One of the transportation activities for adults is used for work. While at a young age, transportation is used to travel to school. The increasing need for transportation causes an increase in the number of traffic accidents. Based on the 4 factors that cause accidents, the human factor or human error is considered the main factor causing accidents (Rahmat et al., 2020). The problem of human error in traffic accidents is triggered by non-compliance or a person's lack of ability to drive. The disability referred to here occurs because there are many drivers who are not old enough and do not have a driving license (as a sign that someone has the ability to drive). Even though in Indonesia there are rules regarding the age of drivers, some people do not heed them. Many students or teenagers who should not be allowed to drive, commit a driving age violation by driving to school. They stated many reasons, such as limited time for parents or the location of the school which was quite far away, so that students drove their own vehicles to school. There is an age limit related to the ability to drive well. Based on several studies, it is known that many victims of traffic accidents are children and adolescents (Rahmat et al., 2020; Sukmandari & Subekti, 2020). This is due to curiosity and wanting to try very high in adolescents or productive age (Margaret Kadar Yanti et al., 2022). Limited driving skills, plus curiosity and trying new things, cause them to forget or ignore good and correct traffic rules.

Several types of traffic violations that are often committed by teenagers are related to self-recognition, so they tend to act recklessly. This is influenced by the young soul and the spirit within which is still excessive. Violation of the yellow light, calling, sending short messages (via the WhatsApp application, or others), smoking and driving more than 2 people are types of violations that teenagers often commit (Setyowati et al., 2019). Excessive self-confidence and lack of discipline as a motivating factor for them to violate traffic rules that are good and

right. Like when the traffic light was still yellow, they had driven the vehicle at high speed. Another carelessness they often do is send text messages or make phone calls while driving. This can interfere with their concentration when driving. Another violation that interferes with concentration is smoking while driving. So that their focus is divided between smoking and walking. Another example is when they drive more than 2 people, where in good traffic rules it is not allowed to ride more than 1 person. All of these violations lead to a high number of accidents at a young age.

In tackling these problems, it is deemed necessary to have an effort to reduce the occurrence of traffic accidents. Efforts made can be preemptive, preventive and repressive. To prevent traffic accidents at the age of teenagers, preventive efforts can be carried out. Socialization activities in schools are considered good enough to prevent teenagers from committing traffic violations. Prevention efforts are carried out by providing knowledge about traffic order to the community (Prih Raharjo et al., 2021). Furthermore, lack of knowledge and negative attitudes can increase the incidence of traffic accidents in adolescents (Pradika Purnama Putri et al., 2019). Armed with knowledge of good traffic procedures, it is hoped that it can reduce the occurrence of traffic violations that result in traffic accidents. The provision of knowledge is intended to provide awareness to teenagers on the importance of obeying every traffic regulation. Consciousness if done continuously will improve the discipline of road users, especially teenagers. Where indiscipline is always the main reason for urban transportation problems (Wulansari, 2021). Thus, if there is a violation by other road users, with our traffic discipline attitude, we can minimize the fatality of traffic accidents.

The implementation of traffic socialization for youth should be carried out in accordance with the objectives and characteristics of the participants. One material that is considered suitable is counseling due to the use of cellphones while driving, along with the sanctions that will be obtained (Novita, 2022). This is related to the age of teenagers, those who are old enough (aged 17 years) and have a driver's license (SIM) can be a driver. Thus, it is necessary to have provisions to be a good driver. In this socialization activity, it is also necessary to convey about driving safely and disciplinedly complying with traffic regulations (Puspoprodjo & Laila, 2021). An understanding of the types of traffic signs and their use should also be conveyed in socialization activities. Where the understanding of slogans and signs in crossing level crossings must be understood by road users to improve safety at level crossings (Faisal Rachman et al., 2021). In general, the provision of knowledge in socialization activities provides an overview of driving preparation activities, attitudes when driving, and attitudes when as other road users.

Based on the discussion above, it is necessary to carry out socialization activities for adolescents. This activity can be done by conducting direct counseling to schools. The target of this activity is teenage students, namely high school students (SMA) and teachers. The purpose of the activity is to provide supplies to high school students and teachers about good and correct traffic knowledge. It is hoped that this activity will be useful in reducing the number of traffic accidents, especially those caused by teenagers. This socialization activity is part of Community Service (PkM) carried out by Lecturers and Taruna of the D-III Department of Road Transportation Management at the Bali Land Transportation Polytechnic, which takes the title of Counseling on Safety Vehicles for Teenagers at SMA Negeri 1 Kediri.

METHOD

Traffic Safety Counseling PkM activities for teenagers were carried out at SMA Negeri 1 Kediri, Tabanan, Bali. The location of the PkM was chosen based on the consideration of the location of the school which is close to the National Road. The method used in this PkM activity is direct counseling in the form of discussions and questions and answers. The target participants are 54 students of SMA Negeri 1 Kediri, Tabanan, Bali.

There are several steps in this extension activity, namely: team formation, preparation, implementation of counseling, and evaluation. In this activity, socialization of the introduction of the D-III Road Transportation Management Study Program was also carried out. The team formation stage was carried out by the Head of the D-III Land Transportation Management Study Program in Bali. The team consists of 7 lecturers and 4 cadets. Furthermore, at the preparation stage, the preparation of traffic safety books, Power Points (PPT), traffic safety videos, discussion materials, safety stickers, good traffic posters, brochures for the introduction of study programs, and souvenirs. In preparation for the implementation of the extension activities, a division of tasks is carried out, where the presentation of the material is carried out by the cadets and supervised directly by the lecturer. Furthermore, evaluation activities are carried out by Lecturers who are assisted by cadets. The evaluation activity consisted of Pre-Test and Post-Test as many as 20 questions about traffic safety for teenagers. This test is carried out with the help of the Quiz application on Quizizz which is located at <https://quizizz.com/>. The test results were analyzed using the t test with the help of the SPSS application. Next, the t-count value will be compared with the t-table (with $df=n-1$ and $\alpha=0.05$), to find out if there are differences in the Pre-Test and Post-Test values of the Participants. This activity is said to be successful if the participants experience an increase from Pre-Test to Post-Test. Furthermore, to determine the understanding of the material per each sub-material, item analysis was carried out. Where the analysis of the Pre-Test and Post-Test items is compared, so that it is known that the participants' mastery of sub-materials is increasing.

RESULTS AND DISCUSSION

Participants of the traffic safety counseling activity according to the target, as many as 54 students of SMA Negeri 1 Kediri, Tabanan, Bali. The purpose of this activity is to provide participants with knowledge about good traffic procedures. Stages of activities according to the plan, namely preparation, implementation of counseling, and evaluation. Prior to the outreach activities, socialization of the introduction of the D-III Road Transportation Management Study Program was carried out. Introduction related to registration procedures, educational pathways, facilities, and curriculum for the D-III Road Transportation Management Study Program.

At the preparation stage, traffic safety books, PPT, Posters and Traffic Safety Stickers are prepared. The traffic safety book was prepared by a Lecturer of the D-III Road Transportation Management Study Program and also the Head of the Study Program, namely Mr. Putu Eka Suartawan, S.T., M.T. This book consists of several chapters, namely: 1) Vehicle Equipment; 2) Vehicle Inspector; 3) Healthy Body Condition; 4) Road Driving Ethics; 5) Driving Knowledge and Skills; 6) Driving Speed; 7) Order of Priority for Road Use; 8) Road Markings; 9) Traffic Signs; 10) Traffic Violations; and 11) Traffic Law Enforcement. Furthermore, PPT is also prepared as material for the presentation of the Material for Safe Vehicles. The PPT consists of several parts, namely: 1) Road Equipment; 2) Vehicle

Inspection; 3) Healthy Body Condition; 4) Road Driving Ethics; 5) Riding Speed; 6) Setting Speed Limits and Hazard Lights; 7) Order of Priority of Road Users; 8) Road Markings; 9) Traffic Signs; 10) Effects of Traffic Violations; 11) Traffic Law Enforcement; and 12) Countermeasures. The material provided in this counseling activity is adjusted to the needs and characteristics of high school students. There are high school students who are old enough to be drivers. Those who are old enough and have a driver's license really need good driving material.

Broadly speaking, the materials for Safety Vehicle Counseling can be grouped into 4 parts, namely: 1) Preparation for driving; 2) Driving Attitude; 3) Rules and Laws on Highways; 4) Traffic Violation Prevention Efforts. Sub description of the material from the four sections, as shown in Figure 1.



Figure 1 Youth Traffic Safety Material

In this activity a poster on traffic safety was also made by the Bali Police cadets. The poster is made as attractive as possible by using pictures as an explanation to remind us to always be careful and disciplined in driving. The following is presented in Figure 2 a poster by Taruna D-III Road Transportation Management.



Figure 2. Traffic Safety Poster

In Figure 2, you can see a poster intended for high school students as novice drivers who are reminded not to underestimate driving safety, and always obey the traffic rules regulated in Law Number 22 of 2009. Furthermore, students are also reminded to obey traffic signs, which has been regulated in Law Number 13 of 2014. In addition, as vehicle drivers, students are also advised not to take the pedestrian path, by driving on the sidewalk. One of the posters was also made to remind students in preparation for driving, namely: letters (such as driver's license, KTP, and STNK), checking vehicle components (such as electricity, radiator water, battery, rearview mirror, horn, air wiper, brakes, etc.) tires and lights). Posters were also made to remind drivers to always use seat belts. The last poster was made to remind drivers to stay focused on driving (because the family is waiting for them at home).

The method used in the Safe Vehicle Counseling PkM activity is direct learning to students at school. The method of discussion and question and answer combined with the lecture method, is intended to engage students in learning activities. Several topics of discussion material are made according to the daily lives of students. The topics chosen for discussion are the order of road users, road markings and traffic signs. The choice of this topic was adjusted to the condition of the road in front of the school where the PkM activities were located on the main route connecting Denpasar-Gilimanuk. The discussion of the priority order of road users needs to be discussed more deeply. This is due to provide new understanding to the students of SMA Negeri 1 Kediri about the priority of road users. So that they understand how to behave towards other road users who are more prioritized according to the provisions of the law. Furthermore, traffic markings and signs were presented as a material for discussion. Increased understanding of traffic markings and signs is expected to increase the discipline of SMA Negeri 1 Kediri students in driving on the highway. Furthermore, the discipline becomes the culture and character of high school students when driving (Desril et al., 2018). Figure 3 of the PPT quiz page or discussion material in PkM activities for counseling on safe vehicles.



Figure 3. Quiz Pages/Discussion Materials for Safety Vehicle Counseling PPT

Furthermore, in Figure 4, a photo of the implementation of the PkM Counseling for Safe Vehicles is presented.



Figure 4. Photos of the Implementation of the Safe Vehicle Counseling PkM Activities

In Figure 4, students look enthusiastic in participating in the Safety Vehicle Counseling PkM activity. The counseling materials were delivered by the cadets and lecturers in collaboration. The topic of discussion is related to the priority order of road users, road markings and road signs. This topic was chosen according to the needs of students, where the road in the Tabanan area besides winding roads also has incline roads.

Evaluation activities were carried out 2 times, namely Pre-Test and Post-Test. The Pre-Test activity was carried out at the beginning of the activity to determine the students' initial ability about traffic safety. At the end of the activity, a Post-Test was carried out to measure the success of the Safety Vehicle Extension PkM activity. The items in the Pre-Test and Post-Test are made cognate, so that a comparison of levels of understanding can be done. The results of the Pre-Test and Post-Test were analyzed using the SPSS application, to determine the difference in the values of the two. T-test analysis as shown in Table 1.

Table 1.
Results of t-test analysis Pre-Test and Post-Test values

Paired Samples Test									
		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PreTest - PostTest	-41.759	13.741	1.870	-45.510	-38.009	-22.331	53	.000

Based on the results of the analysis with SPSS in Table 1, it is known that the average Pre-Test value is 38.50 and the average Post-Test value is 80.25. Where 2 people get a score of 100 on the Post-Test. A very significant difference between the two test scores is 41.75, where the Post-Test value is greater than the Pre-Test value. While the results of the t test value are known to have a significance value of 0.000, which means that the results of the t test can be used. Furthermore, from the results of the analysis, it is known that the t-count value is -22.331. The negative sign here indicates that the Pre-Test value is smaller than the Post-Test value. The value of t count with the number of respondents as many as 54 ($df = 54 - 1 = 53$) and $= 0.05$, amounting to 2.00575. Thus the value of t count is greater than the value of t table. So it can be concluded that there is a significant difference between the Pre-Test and Post-Test values, where the Pre-Test value is smaller than the Post-Test value. Next, the item analysis is carried out as shown in Table 1.

Table 2.
Analysis of Pre-Test and Post-Test Items

No.	Question Indicator	Pre-Test	Post-Test	Selisih
1	Vehicle equipment	60	85	25
2	Equipment for 4 or more wheeled vehicles	75	95	20
3	Check the physical condition of the vehicle before traveling	15	80	65
4	Vehicle components that must be checked before driving	60	95	35
5	Classification of the correct driver's license	25	80	55
6	The speed limit is set nationally and is stated with the correct traffic signs	30	86	56
7	The right time to use the Hazard Lamp	35	70	35
8	Order of vehicles that must come first	35	95	60
9	Functions of road markings	15	70	55
10	Meaning of traffic sign colors	52	75	23
11	External factors that cause accidents in school-age children	15	70	55
12	Factors that cause traffic violations	60	78	18
13	Types of traffic safety activities in tackling traffic violations	47	70	23
14	General traffic violations that are often carried out by the people of Indonesia	50	75	25
15	Efforts to prevent traffic violations	22	70	48
16	Instructions for the location of educational facilities	15	75	60
17	Instructions for the location of educational facilities	50	86	36
18	Priority of road users at the fork in a plot	31	95	64
19	Road Transport Traffic Safety Pillar	15	70	55
20	Factors that cause traffic accidents	63	85	22
	Average	38,50	80,25	

Based on Table 1, it is known that the average Pre-Test score is 38.50 and Post-Test 80.25, as well as the increase in the value of each item. In the results of the Pre-Test items regarding the

equipment of 4-wheeled vehicles or more, students can answer with the highest achievement score of 75% (or 40 students). The items in the Pre-Test with the lowest achievement were checking the physical condition of the vehicle before traveling, the function of road markings, external factors causing accidents in school-age children, instructions for the location of educational facilities, and the pillars of road transport traffic safety. Where each item is only able to be answered correctly by as many as 15% of students (or 8 people). The post-test which was carried out after the counseling activity was completed was proven to be able to increase the understanding of the students of SMA Negeri 1 Kediri about safe driving. All questions can be answered by students of SMA Negeri 1 Kediri with the lowest achievement of 70% (38 people) for the right time to use Hazard Lights, the function of road markings, external factors that cause accidents in school-age children, types of traffic safety activities in tackling traffic violations, prevention efforts against traffic violations, and the pillars of Road Transport Traffic safety. Meanwhile, the highest score achieved is 95% (or 51 people) in the items for the equipment of 4 or more wheeled vehicles, vehicle components that must be checked before driving, the order of vehicles that must take precedence, and the priority of road users at the fork in a plot. Safety Vehicle Counseling with discussion and question and answer methods can improve students' understanding. This increase in understanding is expected to increase the awareness of SMA Negeri 1 Kediri students to be more responsible and disciplined when driving on the highway, so as to reduce the number of traffic violations by teenagers. Some of these violations occur as a result of education regarding traffic discipline which is rare among children both in the family and school environment (Margaret Kadar Yanti et al., 2022). Thus, the provision of counseling is expected to have a positive impact on increasing adolescent discipline when driving on the highway.

CONCLUSION

The PkM Activities for Counseling on Safe Vehicles at SMA Negeri 1 Kediri, Tabanan-Bali have been carried out well. Students seemed enthusiastic in delivering the material and were able to learn well. This is evident from the increase from the Pre-Test value to the Post-Test value. The method of discussion, question and answer and material selection as well as reinforcing quizzes (among the sub-materials) are the right strategies in the delivery of extension materials. Counseling material consists of 4 parts, namely: 1) Driving Preparation; 2) Driving Attitude; 3) Rules on the Highway; 4) Traffic Violations. While the quiz material is selected according to the needs of students, where the location of the school is on the edge of the Main Street, namely: 1) the priority order of road users; 2) Road markings; and 3) Traffic Signs. In the Post-Test item analysis, it is known that the items that are most mastered by students are material on 4 or more wheeled vehicle equipment, vehicle components that must be checked before driving, the order of vehicles that must take precedence, and the priority of road users at fork in a plot. The results of the outreach activities to provide knowledge about safe vehicles have been achieved. Furthermore, with this knowledge, students can use it to increase awareness and discipline in driving well. Thus, this activity is effective as a preventive activity to reduce the number of traffic accidents at a young age. Further efforts are needed in the form of monitoring student driving behavior by the school, so that the material presented can really be useful for students.

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