

# ANALYSIS OF INTERNAL FACTOR CHARACTERISTICS INFLUENCING THE SAFETY DRIVING BEHAVIOR AMONG INTER-CITY BUS DRIVERS IN EAST JAVA – INDONESIA

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## ANALYSIS OF INTERNAL FACTOR CHARACTERISTICS INFLUENCING THE SAFETY DRIVING BEHAVIOR AMONG INTER-CITY BUS DRIVERS IN EAST JAVA – INDONESIA

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### ABSTRACT

**Background and aims:** The objective of this present research is to evaluate internal characteristic factors coming from an individual consisting age, level of education, work period as bus driver, marital status, the number of the dependents, wife's job, ethnic group, how to get a driving license, how to get driving competence, experiences of accidents in last one year, condition of accidents in the last one year. They can be used to predict the safety driving behaviors of the inter-city bus research to take the buses entering into the terminal each here where the data on the drivers were determined as the sample. **Finding:** If the internal characteristics of the bus drivers interact with the factors of the engine and the road environment, it will contribute to the safety driving behavior that may cause accidents. **Results:** A systemic random sampling was employed in this present research to take the buses entering into the terminal each here where the data on the drivers were determined as the sample. The criteria of the drivers who had been taken as the sample would be substituted by the bus drivers with the order of the fifth interval for the next sample. **Conclusion:** From the results an analysis, it is known that the variables of age, ethnic group, and experiences of 3-4 accidents in the last one year contribute to the safety driving behavior.

**Keywords :** Internal characteristics, safety driving, inter-city bus, driver

### INTRODUCTION

The global mortality rate reaches 1.24 million per year. It is estimated that the mortality rate will increase three times, namely 3.6 millions per year in 2030. According to the data from *Global Status Report on Road Safety*<sup>[13]</sup>, at present, Indonesia occupies the first rank in the increase of road accidents with the death rate of 40,000 persons per year.

Such a high death rate in road accidents happens because of the automatic driving behavior caused by repetitive driving actions. It means that a single driving action such as changing the gear or navigation is decided unconsciously. Changing driving behavior, from disobedience to obedience to rules, needs a great effort since drivers should change their unconscious behavior into conscious and controlled behavior. For example, they usually do not use their safety belt when they drive their vehicles in the road, but they use it when they drive in the protocol road.<sup>[1]</sup> Besides external factors such as the condition of the vehicles and the environment of the road, individual characteristics play

important roles in causing road accidents. This present research would describe individual characteristics of inter-city bus drivers in East Java that may be used as the predictors of road accidents.

## MATERIAL AND METHODS

A systemic random sampling was employed in this present research to take the buses entering into the terminal each here where the data on the drivers were determined as the sample. The criteria of the drivers who had been taken as the sample would be substituted by the bus drivers with the order of the fifth interval for the next sample. The questionnaires returned and analyzed were 204 drivers from the total population of 516 drivers.

## RESULTS AND DISCUSSION

Cross tabulation of age showed that safety driving under good category existed at the adult age range namely 36-45 years (18,5%) and it decreased with the increasing age. It means that the older the drivers, the lower their safety driving would be. Dealing with relation between the level of education and safety driving, the drivers in a high category are those who did not finish their elementary school (23.9%), those in less category are those who passed their Senior High School (13,8%).

High safety driving action tended to be made by respondents with work period of 25-30 years (26,9%), because the longer the work period, the higher the experiences and competences the drivers posses to avoid road accidents than those with shorter work period where they usually do not know much about how to drive safely <sup>[3,7,11]</sup>. According to Mulen, one of the reasons why ones behave safely is that they should fulfill their families' needs and also they are afraid of losing their jobs <sup>[12]</sup>. The results of this present research is different with those made by Machado et all. That drivers with higher incomes did not pay attention to the speed limit, did not respect the safe distance and the prevailing regulations <sup>[6]</sup>.

In Indonesia there are 1,340 tribes that may be grouped into 31 ethnic groups. Respondents in this present research were divided into Java, Sumatera, Madura and other ethnic groups (Bali, Kalimantan, Sunda). The research results showed that respondents from Sumatera ethnic group had the high category (66.7%) in their safety driving behavior than those from Java and Madura, who dominated the Inter-City bus drivers in East Java. As a whole, no certain pattern was found between the ethnic group and the safety driving behavior.

The drivers who got their driving license for the first time through official processes tended to show good safety driving (15.94%) than those getting their driving licenses through unofficial process, namely through brokers. It happens because the drivers with driving licenses obtained through formal process felt that they should work very hard to get the licenses.

Inter-city bus drivers experiencing 3-4 accidents in the past one year tended to show their safety driving under good category and this category reduced in other

experiences. It may happen because the experiences may result in traumatic feelings. For complete information, see Table 1.

**Table 1. Cross Tabulation Respondent Characteristics with Safety Driving**

No	<i>Safety Driving</i>	Well		Enough		Less		Total	
		n	%	n	%	n	%	n	%
1.	<b>Age (Years)</b>								
	17-25	1	4,8	6	3,9	1	3,2	8	3,9
	26-35	2	9,5	35	23	6	19,4	43	21,1
	36-45	11	52,4	55	36,2	15	48,4	81	39,7
	46-55	7	33,3	46	30,3	7	22,6	60	29,4
	56-65	0	0	10	6,6	2	6,5	12	5,9
Total		21	10,3	152	74,5	31	15,2	204	100
2.	<b>Education</b>								
	Did not finish primary school	11	23,9	30	65,2	5	10,9	46	22,54
	Finish primary school	7	15,2	35	76,1	4	8,7	46	22,54
	Finished junior high school	10	12	65	78,3	8	9,6	83	40,68
	Finished senior high school	3	10,3	22	75,4	4	13,8	29	14,21
Total		31	15,2	152	74,5	21	10,3	204	100
3.	<b>Work period</b>								
	1-6	2	7,1	24	85,7	2	7,1	28	13,72
	7-12	8	13,3	47	78,3	5	8,3	60	29,41
	13-18	9	16,7	35	64,8	10	18,5	54	26,47
	19-24	4	12,9	25	80,6	2	6,5	31	15,20
	25-30	7	26,9	17	64,4	2	7,7	26	12,74
	>31	1	20	4	80	0	0	5	2,45
Total		31	15,2	152	74,5	21	10,3	204	100
4.	<b>Marital status</b>								
	Widower	4	18,2	15	68,2	3	13,6	22	10,78
	Married	21	17,9	87	74,4	9	7,7	117	57,35
	Unmarried	6	9,2	50	76,9	9	13,8	65	31,86
Total		31	15,2	152	74,50	21	10,3	204	100

**Table 1. Cross Tabulation Respondent Characteristics with Safety Driving (Cont..)**

No	Safety Driving	Well		Enough		Less		Total	
		n	%	n	%	n	%	n	%
5.	<b>The number of the dependent driver</b>								
	1-3 people	11	13,8	56	70	13	16,3	80	39,21
	4-6 people	16	15,8	78	77,2	7	6,9	96	47,05
	7-9 people	4	18,2	18	81,8	0	0	22	10,78
	10 people	0	0	0	0	1	100	1	0,29
Total		31	15,2	152	74,5	21	10,3	204	100
6.	<b>Wife's job</b>								
	Not working	14	16,28	73	84,89	9	10,46	86	42,15
	Household assistants	11	23,4	31	66	5	10,64	47	23,03
	Trading	6	11,8	41	80,4	4	7,8	51	25
	Private	0	0	7	70	3	30	10	4,90
Total		31	15,2	152	74,5	21	10,3	204	100
7.	<b>Ethnic group</b>								
	Java	20	13,7	111	76,7	14	9,6	145	71,07
	Sumatera	2	66,7	1	33,3	0	0	3	1,47
	Madura	8	19,04	29	69,05	5	11,91	42	20,58
	Other Etnic	1	7,14	11	78,6	2	14,3	14	6,86
Total		31	15,2	152	74,5	21	10,3	204	100
8.	<b>How to get licenses for the first time</b>								
	Through brokers	20	14,81	100	74,07	15	11,1	135	66,17
	With official tests	11	15,94	52	75,36	6	8,7	69	33,82
Total		31	15,2	152	74,5	21	10,3	204	100
9.	<b>How to get driving competence</b>								
	Self-taught	27	14,9	136	75,14	18	9,9	181	88,72
	Through tutoring	4	17,4	16	69,6	3	13,04	23	11,27
Total		31	15,2	152	74,5	21	10,3	204	100
10.	<b>Experience of accident during the past one year</b>								
	No answer	3	15	14	70	3	15	20	9,80
	Never	5	13,51	27	73,8	5	13,5	37	18,13
	1-2 times	21	14,8	109	76,7	12	8,5	142	69,60
	3-4 times	2	40	2	40	1	20	5	2,45
Total		31	15,2	152	74,5	21	10,3	204	100
11.	<b>The condition of accidents experienced during the past one year</b>								
	All condition	2	22,2	7	77,8	0	0	9	4,41
	There are victims other than passengers	3	11,1	22	81,5	2	7,4	27	13,23
	There were passengers	14	15,4	67	73,6	10	11	91	44,60
	Broken car	11	15,9	50	72,5	8	11,6	69	33,82
	Never	1	12,5	6	75	1	12,5	8	3,92
Total		31	15,2	152	74,5	21	10,3	204	100

The categorization of age in this present research is made in accordance with the categorization of age of the Department of Health of the Republic of Indonesia year of 2009. Dealing with safety driving behavior, the low category was mostly made by the respondents under the age category of late mature (36-45 years) and this driving safety driving tended to decrease in line with the respondents' increasing age. Hobs's, who divides age in line with WHO, states age is divided into three namely adulthood, old age and the elderly. It can be stated that productive age (18-40 years) has a lower risk than unproductive age (>40) for accidents <sup>[2,13]</sup>. It is because at unproductive age, one will experience the decrease in sight and hearing and in reactions than the productive age. Bus drivers with mature ages have more capability in controlling the emotions when driving buses so that it is expected to give effects on their safety driving. It is in line with the results of the research in Tehran, Iran that there is a negative correlation between age and accidents of bus drivers. The older the drivers, the lower their safety driving would be, therefore the higher the number of accidents occur <sup>[8]</sup>. These various patterns of tendency show that the age indicators did not influence the safety driving behavior.

Education according to Green is a predisposition factor of one's behavior, therefore, the educational background is the fundamental factor to motivate the behavior or give a personal reference in one's learning experiences <sup>[4]</sup>. One with higher level of education will be easy to accept and develop knowledge and technology. Hobs's theory explains that one with high level of education will have lower risks in work accidents since education influences the way of thinking and of acting during the work including avoiding work risk <sup>[4,5]</sup>. The result of this present research is that the respondents who did not finish their elementary school even had the highest level of safety driving than those with higher levels of education. It happens because the drivers with low level of education have a longer work period.

The respondents who obtained the driving licenses for the first time through official test showed a high category in their safety driving behavior. This also applied for those getting driving competences by joining in official driving courses. When joining in driving courses, ones would be taught a good driving technique by experienced instructors, as a result the candidate drivers will have more knowledge in safety driving behavior. The results from the unstructured interviews showed that there were many drivers who got their driving competences by serving as *sopir kain lap*. (*Sopir kain lap* is the driver who at first worked as bus washer in the terminals or in bus garages). During their work they should drive forward or backward the buses, so that at last they may be able to drive buses and become bus drivers after getting driving licenses illegally (through brokers). In this case <sup>1</sup> special requirements such as theoretical and practical tests as stipulated in the Law No. 22 year of 2009 regarding Land Transportation and Traffic Rules, article 77 is not fulfilled <sup>[9]</sup>. The driving license ownership is the evidence of registration and identification made by the police to someone who has fulfilled administrative requirements, has been healthy mentally and physically, has understood traffic regulations and skills in driving motor vehicles. These requirements indicate that one driving a motor vehicle has experienced a series of tests



conducted by the Police and is stated to pass the test, so that he or she has right to drive the motor. This sentence itself has been stipulated in the Law No. 22 year of 2009 in Article 1 word 23 that a driver is the one who drives a motor vehicle on the road who has had a driving license. The test itself consists of general and traffic knowledge aspects as the basic knowledge standard such as traffic signs, age as the psychological control and the level of one's self control ability, the health aspect and passing the practice test to confirm the readiness of a candidate driver<sup>[9]</sup>. Based on the Government Regulation No.43 in the year of 1993 on the traffic infrastructures and facility, a traffic accident is an accidental and unintentional event on the street that involves a vehicle with or without other road users, resulting human victims or property losses<sup>[10]</sup>. The accidents a respondent has experienced during the past one year is the number of accidents a bus driver has experience. The respondents identified to have 3-4 accidents in the past one year showed the safety driving behavior under high category, meaning that their safety driving behavior is better. It means that accidents may give effects on the City Transport bus drivers' driving behavior.

Actually in his first career, each bus driver drives his bus well, meaning that he is trying to obey traffic regulations. He drives his bus everyday and finds much traffic violations, so that he often becomes "victims" of the violations. It is this at last that changes his behavior, and he also shows bad behavior in the street. It is conducted as a mechanism of his self-defense as a bus driver.

## **CONCLUSION**

From the descriptions above, it be concluded that the percentages of the good internal characteristic factors City Transport bus drivers in East Java in safety driving are as follows: age (36-45); elementary school ; work period (25-30 year); marital status (widower); the number of the dependent; Sumatera ethnic group; the way in obtaining driving competence officially; the way in obtaining the the driving license through legal process; the 3-4 accidents experienced in the past one year; and the condition of accidents experienced in the past one year with the victims from the passenger, other drivers and car damages.

## **CONFLICT OF INTEREST**

None

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## **ETHICAL CLEARANCE**

The study was approved by the institutional Ethical Board of the Public Health, Airlangga University number 146-KEPK.

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