Investigating the Barrier Factors of Seat -belt use on Public Transport Services in Selected City Administrations in Amhara Regional State, Ethiopia

Desalegn Tesfaw Abate[1]

[1] Wollo University, Ethiopia

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Abstract

The objective of this study was to investigate the barrier factors of seat belt use on public transport services in selected city administration in Amhara regional state. This study used simple random sampling technique to select 223 samples whereas data was collected with the help of questionnaire and personal observation. In order to analyze data, descriptive statistics with the help of SPSS 16.0 version were used. The findings of the study show that more than 83.5

Index terms— seat belt use, health belief model, psychological factors

1 Introduction

ccording to European Transport Safety Council (ETSC) (2006) seat belt use rates from different countries perspectives are varied. For example, seat belt use rates in European Union countries varied from 59% to 96% for front-seat occupants and from 21% to 90% for rear-seat occupants, with lower seat belt use rates in Southern (e.g., Greece) and Eastern European countries (e.g., Poland), compared to Northern (e.g., Sweden) and Western European (e.g., France) countries. Compared to the developed countries; however, developing countries where seat belt laws mostly came into effect more recently have considerably lower seat belt use rates. For instance, in Argentina after the seat belt law in 1992, seat belt use was reported to be 32% for drivers and 30% for front-seat passengers in the city of Buenos Aires. Similarly, in Saudi Arabia where a seat belt law came into effect more recently in 2000, an average seat belt use rate of 60% for drivers and 22.7% for front seat passengers was reported in two suburbs of Riyadh **??**Bendak, 2005).

When we come to Africa, Ethiopia as a country implements seat-belt law which is less than 20%. So, from this one can understand that Ethiopia is implementing seat belt poorly **??**WHO, 2009). As more countries begin or continue to take steps towards addressing their national road safety problem, it has become apparent that regular global assessments of road safety are needed. These are required not only to measure global progress, but also to enable countries to compare their road safety situation with other countries. Such a global assessment requires a standardized methodology that can provide governments, donors, practitioners, planners, and researchers with the information that they need to make evidence-based decisions **??**WHO, 2009). According to WHO, 97% of the world countries have incorporated seat belt law into the road safety program, but Ethiopia as a big country which has more than 83 million people has adopted seat belt law at sub national level. In order to improve the behavior of vehicle occupants to use seat belt different social change campaigns have devoted their time and effort like Medias-Ethiopian Radio and Television and traffic police programs. Thus, the purpose of this study is to investigate barrier factors of seat belt use in selective city administrations.

2 II.

3 Statement of the Problem

In Ethiopia there is ministry office, Transport Minister, which focused on road and transportation issues. This office also has several regional, zonal, "Woreda" and city administration branch offices. These branch offices' responsibility is to develop and maintain a long-term and sustainable road and transportation programs which will keep the safety of drivers and passengers. In addition to developing and maintaining sustainable road and transportation programs, respective branch offices have been trying their best to change the behavior of the drivers and passengers, and traffic polices through social marketing, the systematic application of marketing along with other concepts and techniques, to achieve specific behavioral goals for a social good. Social marketing can be applied to promote merit goods or to make a society avoid demerit goods and thus promote society's well being as a whole (Kotler, 2005). However drivers are not willing to use seat belt (Dessie Road & Transport Office, 2013). According to Abbas (2011), seatbelts were designed to prevent injury to the restrained passengers during Road Traffic Collision (RTC) by preventing the occupant from hitting the vehicle components or being ejected from the vehicle. Moreover, seat belts protect people from needless death and injury.

According to WHO report traffic accident is the third leading cause of death in most countries. As a developing country Ethiopia implements seat-belt law less than 20% **??**Federal Police Commission, 2007). Given this chronc problem to the country, Ethiopia, there is no research on this issue. There is no doubt that traffic accidents cause social and economic problems and leave a direct impact on people (Shaaban, 2012). Although seatbelts were recognized as an important safety measure, it still remains underused in many countries (Abbas et al, 2011). 97% of the world countries have incorporated seat belt law into the road safety program, but Ethiopia as a big country, which has more than 83 million people, has adopted seat belt law at sub national level **??**WHO, 2009). As more countries begin or continue to take steps towards addressing their national road safety problem, it has become apparent that regular global assessments of road safety are needed. So, the purpose of this study is to investigate the barrier factors of seat belt use on public transport services.

4 III.

5 Research Questions

This research is expected to address the following questions; ? What is the relationship between sociodemographic factors of the drivers and seat belt use? ? What is the relationship between the likelihood of perceived susceptibility and seat belt use? ? What is the relationship between the likelihood of perceived severity and seat belt use? ? What are the major perceived benefits of seat belt use? ? What is the association between seat belt use and cues to action to wear a seat belt?

IV.

6 Objectives of the Study

The general objective of this study is to describe the barrier factors of seat belt use in public transport services in selected city administrations, Amhara regional state. The specific objectives of the study are stated below:

? To determine the relationship between sociodemographic factors of the drivers & seat belt use?

? To measure the relationship between the likelihood of perceived susceptibility & seat belt use? ? To see the relationship between the likelihood of perceived severity & seat belt use? ? To identify the major perceived benefits of seat belt use? ? To describe the association between seat belt use & cues to action to wear a seat belt?

V.

Review of Related Literatures the Health Belief Model (HBM) The HBM is a social cognition model that refers to the way individuals make sense of social situations. Such approach to a study of human behavior focuses on individual's cognition or thoughts as processes which intervene between observable stimuli and responses in situation. By using social cognition approaches, social behavior is described as subjective perceptions of reality rather than a function of objective description of reality (Conner and Norman, 1996).

Mostly, HBM is practiced in highly developed countries like on the issue of smoking, Tuberculoses, dietary behavior and etc. Indeed, there is very little research evidence of implications for the HBM components in health behavior from developing countries like Ethiopia.

The model assumes that people are rational decision makers whose desire is to avoid a negative health consequence as the prime motivation. The HBM is based on the understanding that a person will take a health-related action (such as using a seat belt when driving a car) if that person feels chances of negative health condition (such as likelihood of road accident related injury or death) and that such a negative health conditions has severe outcomes. Thus, the HBM is based on sex key concepts namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, socio-demographic characteristics, seat belt use and cue to action.

7 a) Seat belt use

Several studies have been studied to assess the pattern of seat belt use among different countries. However, most of the studies were conducted in developed countries, especially in western countries and few are in developing countries. For instance, in the U.S. from 1994 to the 2008 seat belt use rates have increased steadily, with 90% seat belt use on expressways in 2008 **??**NHTSA, 2008). A study conducted in Saud Arabia using observations, an average seat belt use of 60% for drivers in the first few months after enactment of seat belt laws **??**Bendak, 2005)and later on decreased to 27% (Bendak, 2007). Similarly, a study done in Israel among teenagers reported that 64% of teenagers used front seat belts all of the time whereas only 8% used the rear seat belts of all of the time **??**Knishkoey, 2002). Some of the factors that have been found to be associated with increased seat belt use are older age (Bendak, 2007), education (Shinar, 2001), married drivers (Bendak, 2007), and long distance driving experience. In the continebt of Africa, very few studies on seat belt use have been conducted. For instance, a South African study conducted in several provinces showed that seat belt use for the front seat passengers (45-61%), and back seat passengers (1-16%) were much lower than for drivers 975-88%). The national figure for seat belt use for drivers in 2002 was 81% (Olukoga, 2005). In Ethiopia, however, studies to asess the pattern of seat belt use among drivers have not been done.

8 b) Perceived susceptibility to road traffic accident related injury or death

Perceived Susceptibility is one's belief of the chances of getting a condition. A few atudies have investigated perceived susceptibility to road traffic accidents. A study conducted among African-American and Caucasian boys and girls in USA found that the boys and girls believed that they were at the greatest risk of being injured in a motor vehicle accident **??**Ey et al, 2000). In a study done in Turkey, it was found that risk perception was not a good predictor of seat belt use. Betl use was mainly influenced by individal factors such as gender, perceived frequency of an accident and age (Calisar, 2002).

9 c) Perceived benefits of seat belt use

Perceived benefit to health action denotes one's belief in the efficacy of the advised action to reduce risk or seriousness of impact. Several studies have been conducted to examine beliefs about the effectiveness of the seat belt. A prospective study was carried out between December 1991 and October 1992 to assess the knowledge, attitudes and practices of hospitalized drivers regarding seat belt usage in United Arab Emirates (UAE). It was observed that the majority of patients stated that seat belts are the best protective measure against all injuries and severe injuries of road traffic accidents. There was also a strong support for the mandatory use of safety seat belts (56%) **??**Bener et al 1994). Another study in Saudi Arabia found that 89% of the drivers knew the importance of wearing seat belts (Bendak, 2007). Moreover, in Spain, undergraduate students were of the opinion that seat belts are more effective for avoiding injuries or death when driving at higher speeds than when traveling at lower speeds (Cunill, 2004).

10 d) Perceived barriers to use seat belts

Perceived barrier refers to individual's opinons of the tangible and psychological costs of the advised action. Fhaner et al (1974) asked drivers in UAS why they did not wear seat belts. Reasons given varied from difficulty to unlock or fasten the belts, feeling of discomfort, restraint harming the driver's image and providing in a sense of insecurity. Some respondents felt was wearing a seat belt might cause accidents because the driver might feel "too secure" and drive less carefully.

11 e) Cues to use seat belts

Verbal and verbal cues may act as reminders to activate readiness to take a healthy action. Adolescents in the USA reprted higher safety belt use during the time the mandatory safety belt use law was in effect, and those who learned to drive that period reported higher safety belt use law was in effect, and those who learned to drive during that period reprted higher safety belt use than those who learned to drive when no law was in effect. Parents' and friends' safety belt use and perceived benefits of safety belt use were positively correlated with adolescents use (Riccio-Howe, 1991).

12 VI.

13 Methodology of the Study

This study was conducted by using descriptive type of research design. The population of this study is taxi drivers in Dessie, Kombolcha and Hayik, and Mini bus drivers who work from Dessie to Kombolcha, and Dessie to Hayik routes. The size of this study population was 598. The size of the sample is 223 whereas the sampling technique used was simple random sampling. In order to collect data questionnaire and personal observation were employed. To determine the relationship between dependent and independent variables, Pearson correlation coefficients were employed. In order to check whether the measuring instruments are valid or not, they were evaluated by panel

of experts at departmental level. Thus, because of these concerned experts the content, criterion related and construct validity were checked. Whereas to check the reliability of data collection instruments questionnaires were tested in the form of pilot test on selected study participants. Once the researcher has conducted pilot test questionnaires were reviewed and modifications were made. In addition to this, the Chronbach alpha test result of the instrument is 0.76. Therefore, the reliability of the items in questionnaire is more than average.

14 VII.

15 Research Result and Discussion

This section contains the result of the research which was analyzed from self administered questionnaires. From the total samples 98% of them involved in this study and this much percent of the questionnaires were returned back for analysis purpose. As table 1 revealed that, majority (51%) of the respondents' age is found between 25 and 32 years. Thus, one can understand that majority of the drivers are found in young age group. Whereas majority (40.2%) of the respondents' educational status is secondary school completed. Thus, it is possible to say that more than 98% of the respondents' minimum educational status is primary school completed. Moreover, 63.7% of the study participants are single. However, the relationship respondents' age, educational status and marital status with seat belt use is not significant. As table 2 revealed that, it is possible to say that more than 89% of the study participants believed that they perceived themselves to be at risk of being involved in a traffic accident. Furthermore, it was also noted that majority of drivers (91%) perceived the likelihood of being injured or dying in a vehicle crash accident. This result also supported by Armogaston (2007). Therefore, majority of drivers are using seat belt to reduce the perceived susceptibility of road traffic accident. A correlation analysis was used to examine the relationship between the perceived susceptibility of drivers to injury and seat belt use habit. The correlation result was found to be statistically significant, r (209) = .141, p= .042, two-tailed. It is a positive relationship which means when respondents perceiving as they are susceptible to road traffic accident their tendency to use seat belt will increase. Therefore, as drivers' perceived susceptibility to road traffic accident and tendency to use seat belt have a linear relationship.

According to table 2, majority of the study participants (81.95%) believe that perceived severity of the traffic accident is dangerous and may results for the death of the crash's victims. In general, more than 86.92% of the study participants believe that perceived susceptibility of getting a road traffic accident, getting injured in a road traffic accident, and being permanently disabled in a road traffic accident would be also dangerous. Therefore, drivers are using their seat belt by perceiving the severity of road traffic accidents.

A correlation analysis was used to examine the relationship between the perceived severity of drivers to injury and seat belt use habit. The correlation result was found to be statistically significant, r (209) = .277, p=.000, two-tailed. It is a positive relationship which means when respondents' perceived severity increases their tendency to use seat belt will increase. Therefore, taxi and minibus drivers are using their seat belt by perceiving the severity of road traffic accident. This result is also supported by Armogaston (2007), who concluded that as drivers perceived severity of road traffic accident increases the tendency to use seat belt also increases.

As it is presented table 2, the study participants was agreed (93.87%) that using seat belt prevents drivers from crash's injury. In addition to this, study participants also (68.725%) believe that using seat belt also reduces the worries of getting an accident because of traffic crash. Not only this taxi and mini bus drivers also believe that using seat belt helps one not to leap forward when breaks are engaged abruptly and also prevents a driver from crash's death. Furthermore, majority of the study participants also agreed that using seat belt while driving prevents driver from traffic crash's death. Thus, most of the respondents are aware about the benefits of seat belt i.e. to prevent driver from crash's injury, to reduce worries of getting an accident, to help a driver not to leap forward when breaks are engaged abruptly, and to prevent driver from crash's death.

A correlation analysis was used to examine the relationship between the perceived benefits of seat belt use and seat belt use habit. The correlation result was found to be statistically significant, r (201) =.264, p=.000, two-tailed. It is a positive relationship which means when drivers understanding about the benefits of seat belt increases drivers' tendency to use seat belt will increase. Thus, perceived benefits of seat belt and the tendency of drivers to use seat belt have a linear relationship.

The study participants also were asked about the reason behind why they are not using their seat belt. Accordingly, majority of the respondents (71.56%) were agreed that because of the unavailability of functional seat belts installed on the vehicle. In addition to this, more than 80% of drivers are not using their seat belt because of drivers' negligence which results for adverse effect on driver and also on the life of passengers and also on the property. Furthermore, 60.57% of the study participants are agreed that they are not using their seat belt because of poor enforcement of laws on seat belt use. Finally, 60.75% and 70.67% of the study participants agreed that they are not using the installed safety belt because of discomfort when using seat belts and lack of awareness on the importance of seat belts, respectively. Thus, majority of the respondents have the stated barriers to use their seat belt.

A correlation analysis was used to examine the relationship between the barrier factors of seat belt use and seat belt use habit. The correlation result was found to be statistically insignificant, r (200) =.114, p=.109, two-tailed. This implies that there is no significant relationship between barrier factors to use seat belt and seat belt use habit.

With regard to actions that would make someone remember to use seat belt, majority of the respondents agreed that, (56.08%) seeing a billboard, (55.87%) witnessing a road traffic crash, (55.92%) seeing fellow drivers using a seat belt, (70.42%) seeing a traffic police officer, (66.51%) remembering a strict penalty, and (71.76%) anticipating death because of crash. Among the given alternatives remembering the death because of the crash are the most influential cues to action of to use seat belt. Therefore, majority of the respondents' cues to action to use their seat belt is anticipating death because of crash, seeing a traffic police officer and remembering a strict penalty.

A correlation analysis was used to examine the relationship between the perceived cues of action and seat belt use habit. The correlation result was found to be statistically significant, r (203) =.164, p= .019, twotailed. It is a positive relationship which means when respondents understand and observe the cues to use seat belt drivers' tendency to use seat belt will increase. Therefore, cues to action to use seat belt and drivers' tendency to use their seat belt have a linear relationship. Table 3 revealed that on average 70.16% of the total respondents are using their seat belt always while they are driving on asphalt and rough road as well as driving at night and day time with a high speed. Therefore, drivers are using their seat belt while driving on asphalt and rough road as well as driving at night and day time with a high speed VIII.

16 Conclusion

This study was focused on associated factors of seat belt use in case of taxi and mini-bus drivers who are serving community from Dessie to Kombolcha, and Haik and also in Dessie in Taxi services. Among the sampled drivers more than 83.5% are using safety belt while driving. This result is comparable to those reported from various districts in South Africa where safety belt use for drivers ranged between 75%-88% (Olukoga, 2005). The result of this study also matches with Western countries' research result like USA where more than 80% of the drivers have used their seat belt properly. However in other countries like Scotland, among the taxicab drivers only 11% are using their seat belt **??**Campbell, 1993). The differences among countries may be employing different methodologies and influenced by different factors. Drivers' age featured as one of the factors associated with seat belt use. As previous research result like, Bendak (2007) when the age of drivers increases there is high tendency of seat belt use. However, in this study the association between age and seat belt use is insignificant. Though the correlation result shows as insignificant, those drivers whose age is greater than 38 years use seat belt than drivers whose age is below 38 years. The level of education of taxi and min buses' drivers was considered as a factor associated with seat belt use. The result shows that there is no significant relationship between drivers' educational status and seat belt use habit.

As a third factor the relationship between drivers' marital status and seat belt use was also investigated. Previous studies have found that married individuals reported that using seat belts more usual that single/unmarried drivers **??**Chaudhary, 2004;Bendak, 2007). However, in this study the result shows that there is insignificant relationship between drivers' marital status and seat belt use.

In this study, majority of the respondents were using their seat belt while they perceive the susceptibility and severity of road traffic accident. So, this study confirmed that there is a strong relationship between perceived susceptibility and severity of road traffic accident and seat belt use. In the same fashion perceived benefits of seat belt use and cues to action to use seat belt have a significant relationship with seat belt use. On the contrary, perceived barrier factor to use seat belt and seat belt have insignificant relationship.

In this study it was observed that taxi and mini bus drivers perceived that unavailability of functional seat belts, negligence of drivers, poor enforcement of laws on seat belt use, discomfort when using seat belts and lack of awareness on the importance of using seat belts are considered as barrier factors that inhibit drivers to use seat belt. This study result also supported by previous studies like Armogaston **??**2007). In addition to this the study done in USA among drivers found that reasons for not using seat belts include difficulty to unlock or fasten the belts, feeling of discomfort or restraint harming the driver's image and providing a sense of insecurity (Fhaner, et al 1974 **??**ited in Armogaston, 2007). From this study it was observed that respondents are using seat belt whie they are seeing a billboard, seeing fellow drivers using a seat belt, witnessing a road traffic crash, seeing a traffic police officer, remembering about strict penalty, and anticipating death because of crash.

17 IX.

18 Recommendation

According to this research result the following possible recommendations are forwarded. The government first should create intensive awareness about the benefits of using seat belt while driving a car. In addition to this there should a strong enforcement law to use seat belt in order to keep drivers and passengers life and prevent property devastation because of crashes. As per this research result majority of the drivers are using their seat belt while they are seeing traffic officer and remember the penalty because of seat belt use failures. So, the government and the owners of vehicles should emphasize on drivers attitudinal changes with the application of social marketing. In addition to this drivers are not using seat belt because of availability non-functional seat belt. So, the concerned body should have intensive follow up whether the belt is functional or not. Furthermore, if the belt is not functional the concerned office should ban the vehicle from serving the community. As the research result shows divers are using their seat belt while they perceive the susceptibility and severity of road

271 traffic accident is high. So, the concerned body should give due emphasis to the vehicles susceptibility to road
272 traffic accident and its chronic severity up to the loss of humans life. In general, different concerned offices should focus on the attitude of drivers rather than assigning different traffic patrols on the street. [1]

1

Drivers' age	Frequency	Percent	p-value
Age below 25	33	15.1	
25-32 years	113	51.6	
33-37 years	38	17.4	
38-42 years	13	5.9	p-value=0.724
43-47 years	7	3.2	
48-52 years	11	5.0	
Age above 52 years	4	1.8	
Educational Status			
Uneducated	4	1.8	
Primary school completed	71	32.4	
Secondary school completed Certificate holder	88 25	40.2 11.4	p-value=0.595
Diploma holder	23	10.5	
First degree holder	8	3.7	
Marital Status			
Single Married	78 137	36.3 63.7	p-value=0.187

Figure 1: Table 1 :

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2

HBM Components	Items	Likely (%)	Indifferent (%)	Unlikely (%)	p-value
Perceived susceptibility to road traffic accidents	Perceived susceptibility of being involved in a road traffic accident	91.5%	1.9%	6.6%	
	Perceived susceptibility of being injured in a traffic accident Perceived susceptibility of being becoming permanently disabled in a road traffic accident	92.42%	2.37%	5.21%	0.042
		89.52%	4.76%	5.72%	
	Perceived susceptibility of dying during a road traffic accident	91.39%	3.83%	4.78%	
Perceived severity of road traffic accidents	Perceived severity of getting a road traffic accident would be so dangerous	91.16%	2.79%	6.05%	
	Perceived severity of getting injured in a road traffic accident would be dangerous Perceived severity of being permanently disabled in a road traffic accident would also be dangerous	87.38%	4.67%	7.95%	0.000
		86.92%	3.74%	9.34%	
	Perceived severity of dying in a road traffic accident would be dangerous	81.95%	3.24%	14.81%	
Perceived benefits of seat belt use	Prevents driver from crash's injury	93.87%	0.46%	5.67%	
	Reduces worries of getting an accident	68.72%	4.27%	27.01%	
	Helps one not to leap forward when breaks are engaged abruptly	90.1%	2.35%	7.55%	0.000
	Prevents driver from crash's death	77.36%	3.31%	19.33%	
	Unavailability of functional seat belts	71.56%	4.27%	24.17%	
Barrier factors of seat belt use	Negligence of drivers Poor enforcement of laws on seat belt use Discomfort when using seat belts	78.6%	1.40%	20.00%	0.109
		60.57%	5.16%	34.27%	
	Lack of awareness on the importance of using seat belts	60.75%	6.07%	33.18%	
		70.67%	3.85%	25.48%	
	Seeing a billboard	56.08%	4.67%	39.25%	
	Witnessing a road traffic crash	55.87%	5.63%	38.50%	
Cues to action	Seeing fellow drivers using a seat belt Seeing a traffic police officer	55.92%	4.27%	39.81%	0.019
		70.42%	3.29%	26.29%	
	Remembering about strict penalty	66.51%	4.65%	28.84%	
	Anticipating death because of crash	71.76%	4.17%	24.07%	

Source: survey (

Figure 2: Table 2 :

3

Items	Always	Often	Rarely	Never
Using seatbelt during driving on asphalt	74.8%	13.6%	8.9%	2.8%
Using seatbelt during driving on rough road	65.6%	19.3%	9.0%	6.1%
Using seatbelt during driving at night time	67.0%	14.2%	10.4%	8.0%
Using seatbelt during driving at a high speed	72.2%	15.1%	8.0%	4.7%
Using seatbelt during driving at day time	71.2%	19.8%	6.1%	2.8%
			Source: survey (2014)	

Figure 3: Table 3 :

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