FACTORS ASSOCIATED WITH USE OF SEAT BELTS AMONG TAXI DRIVERS IN DAR-ES-SALAAM, TANZANIA.

By

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A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Science a dissertation entitled **Factors associated with use of seat belts among taxi drivers in Dar-es-Salaam, Tanzania**, in fulfilment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.

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DEDICATION

This work is dedicated to my wife and daughter, Anne and Nagena.

ABSTRACT

In Tanzania, road traffic accidents are a major public health and development problem. Between 2002 and 2003, the number of persons died and injured during road traffic crashes increased by 8% and 11% respectively. About 35% of all road traffic accidents in Tanzania occur in Dar-es-Salaam. Safety belt use is one of the most feasible measures to reduce severity of road traffic accident related injuries, but its use is not known among taxi drivers.

Guided by the Health Belief Model (HBM) conceptual framework, the study investigated use of seat belts and its associated factors among taxi drivers in Dar es Salaam city. The study was conducted in 3 municipals namely Ilala, Kinondoni and Temeke. The study design was cross-sectional with seat belt use as the main outcome variable. The study involved 208 taxi drivers who were randomly selected. Data collection was done from June to July 2007 using an interviewer-administered questionnaire after obtaining informed consent from the participants. Ethical clearance was sought from the relevant authorities before data collection begun.

Overall, 75% of the respondents reported that they used seat belts most of the time or all of the time when driving their cars and 4.3% of the respondents never used seat belts when driving. Furthermore, 40% of the respondents reported that they rarely

Respondents aged 50 years and above had the highest proportion of seat belt users (84.6%), whereas 67.3% of those aged between 30-39 years reported using seat belts when driving.

There was a significant association between education and seat belt use ($p=0.006$). That is, the proportion of seat belt users among taxi drivers who had no formal education was higher (84.4%) than among those who had secondary and above level of education (60%).

The study also found that perceived susceptibility of being involved in road traffic accident was significantly higher among drivers who use seat belts than those who do not ($p<0.0001$). Taxi drivers using seat belts had significantly high perceived benefits of using seat belts than those who reported not to use seat belts ($p=0.013$). There was no association between perceived severity, cues to action, perceived barriers and seat belt use.

Furthermore, majority of the respondents were aware of the importance of seat belt use while about three quarters of the respondents perceived that negligence of the drivers was the reason for not using seat belts.

There is a need to implement effective strategies to ensure that seat belt usage levels are increased to reduce road traffic injuries and fatalities. Further research involving

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LIST OF ACRONYMS/ABBREVIATIONS

HBM	Health Belief Model
NRSC	National Road Safety Council
ODPS	Oklahoma Department of Public Safety
WHO	World Health Organization
USA	United States of America
UAE	United Arab Emirates

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Injuries are among the leading causes of death and disability in both developed countries and less developed countries. An estimated five million people lost their lives from injuries in 2000, for an overall mortality rate of 88.7 per 100,000. More than 90% of these injury deaths occur in lower and middle-income countries. World wide, among persons aged 15-44 years, injuries account for 6% of the leading causes of death (Krug et al, 2000).

Road traffic accidents are an emerging global epidemic, causing 13% of disease burden from injuries and 1.2 million deaths every year (WHO, 2004). More than 85% of road traffic deaths and injuries occur in developing countries. Recent data from the World Health Organization (WHO) shows that in the developing world as a whole, road traffic crashes alone are the third leading cause of death in 5-14 year old and the second leading cause in 15-44 year old (Krug et al, 2000). The most vulnerable road-users in road traffic accidents in most regions of the developing world are pedestrians and passengers (Odero et al, 1997).

Road traffic accidents are a major public health and development problem in Tanzania. In 2003, the total number of killed persons in road traffic accidents was around 2,250 and the number of injured persons was 18,000 (Ministry of Works, 2004). Out of the injured persons, 85-90% were severely injured. Statistics show that

the number of killed persons increased by 8% and the number of injured persons by 11% from 2002 to 2003. The number of killed persons in relation to the number of motor vehicles is 30-40 times higher than in most countries in Western Europe and it is also higher than in Kenya or Zimbabwe. The two major risk groups are passengers and pedestrians.

Apart from the enormous impact on families and communities, road traffic crashes are costing the government too. The yearly cost for road traffic accidents in Tanzania in the year 2002 was estimated to be 172 billion Tanzanian Shillings per year (Ministry of Works, 2004). Health facilities are over-burdened with victims of road traffic crashes (Senkoro, 2000).

Several studies have been conducted in Tanzania investigating the occurrence and pattern of road traffic accidents (Kayombo, et al 1995; Museru et al, 1998; Rwebangira, 1999; Barengo, 2006). The study on regional distribution of road accidents shows that about 35% of all road traffic accidents in Tanzania occur in Dar es Salaam region (Rwebangira, 1999). As such, there was an increase in road traffic accidents in Dar-es-Salaam region by 4.3% between 1999 and 2000 and 2.7% between 2000 and 2001 (Barengo, 2006). Furthermore, road traffic accidents in Dar es Salaam accounted for 56% of all patients admitted to hospital due to injuries (Museru et al, 1998). Data from police records show that in the year 2006 in Dar es Salaam, there were 7377 road traffic accidents, with 410 deaths and 4897 injuries

Reducing the burden of traffic injuries requires interdisciplinary approaches with behavioral and social science theory and methods being essential components of the preventive efforts (Liller, 2004). Consistent use of seat belts is among the approaches that have been found to be effective in reducing the impact of crashes by minimizing injuries and deaths (Derriq, 2002; Harris, 2005; El-Sadig, 2004). The use of seat belts has been proved to be one of the most effective ways to reduce road traffic fatalities and reduce the number of injuries or minimize the extent of these injuries (Bendak, 2005). Evidence from developed countries shows that, when properly used, seat belts reduce the risk of serious and fatal injury by between 40-65% (Kobusingye, 2004). The 1973 Road Traffic Act for Tanzania which was amended in 1990 includes mandatory use of seat belts for front seating passengers. However, anecdotal evidence shows that the use of seat belts is very low both by drivers and by passengers in the front seat of cars in Tanzania. This behaviour is probably common because many people are not aware of the proved fact that seat belts are the most important life-savers in cars.

1.2 Problem Statement

Road traffic accidents in Tanzania have become a major problem due to increasing numbers of motor vehicles year after year. About 35% of all road traffic accidents in Tanzania occur in Dar es Salaam region (Rwebangira, 1999). This is likely to be explained by the high concentration of motor vehicles, which leads to increased probability of road traffic accident occurrence.

Information from various sources shows that the groups most at risk of road traffic accidents are passengers and pedestrians (Ministry of Works, 2004). Sufficient evidence from developed countries reveals that seat belts considerably reduce the risk of serious injuries and deaths. Data on road traffic crashes in Tanzania are routinely collected by the Traffic Police Department. Existing evidence shows that use of seat belts among drivers and front seating passengers is low. On the basis of available road traffic accident data, it is estimated that less than 25% of the drivers who died due to road traffic accidents were using seat belt at the moment of the accident (Ministry of Works, 2004). This could be due, in part, to lack of awareness about the effectiveness of seat belts. Information on the level and pattern of seat belt use in the general population is lacking.

Road safety efforts to reduce the burden of road injuries exist in Tanzania. Road safety weeks which are organized by National Road Safety Council (NRSC) are usually held every year. Amendments have been made to the existing Road Traffic Act of 1973 which now includes mandatory use of seat belts for front seat

passengers. However, an evaluation of the impact on road safety in Tanzania has not been made by the NRSC.

To the knowledge of the researcher, no study has been done to assess the pattern and level of seat belt use in Tanzania. There is also a need of understanding different factors that influence seat belt use. A study was therefore planned to investigate factors that are associated with use of seat belts among taxi drivers in Dar es Salaam.

1.3 Rationale

Results from this study would be useful for understanding the pattern of seat belt use among drivers and how it varies by different groups. Information that would be generated from the study would also provide an insight on drivers' perspective of effectiveness of safety seat belt wearing in reducing injuries, disability and mortality associated with motor car traffic accidents.

The national target for Tanzania for a period of 10 years is to achieve a 25% reduction in the number of people killed and seriously injured in road traffic accidents by 2014 (Ministry of Works, 2004). Seat belt use is among the planned themes for improving use of safety equipment among road users. The information obtained from this study would be useful to the stakeholders for designing and planning targeted interventions in order to meet the national target.

The findings for this study would also be useful for comparison with other studies

1.4 Objectives

1.4.1 Broad Objective

To determine factors associated with use of seat belt among taxi drivers in Dar es Salaam.

1.4.2 Specific Objectives

1. To determine the proportion of taxi drivers using seat belts.
2. To investigate association between demographic factors and the use of seat belts.
3. To assess the relationship between perceived susceptibility to road traffic accidents and use of seat belts.
4. To examine the association between perceived severity of road traffic related injuries and use of seat belts.
5. To assess the relationship between perceived benefits of seat belts and seat belt use.
6. To investigate the relationship between perceived barriers to use of seat belts and seat belt use.
7. To assess the association between cues to action in use of seat belts and seat belt use

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature related to health perceptions and seat belt use among taxi drivers using the Health Belief Model (HBM) as a conceptual framework.

2.2 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 behaviour focuses on individual's cognition or thoughts as processes which intervene between observable stimuli and responses in situation. By using social cognition approaches, social behaviour is described as subjective perceptions of reality rather than a function of objective description of reality (Conner and Norman, 1996).

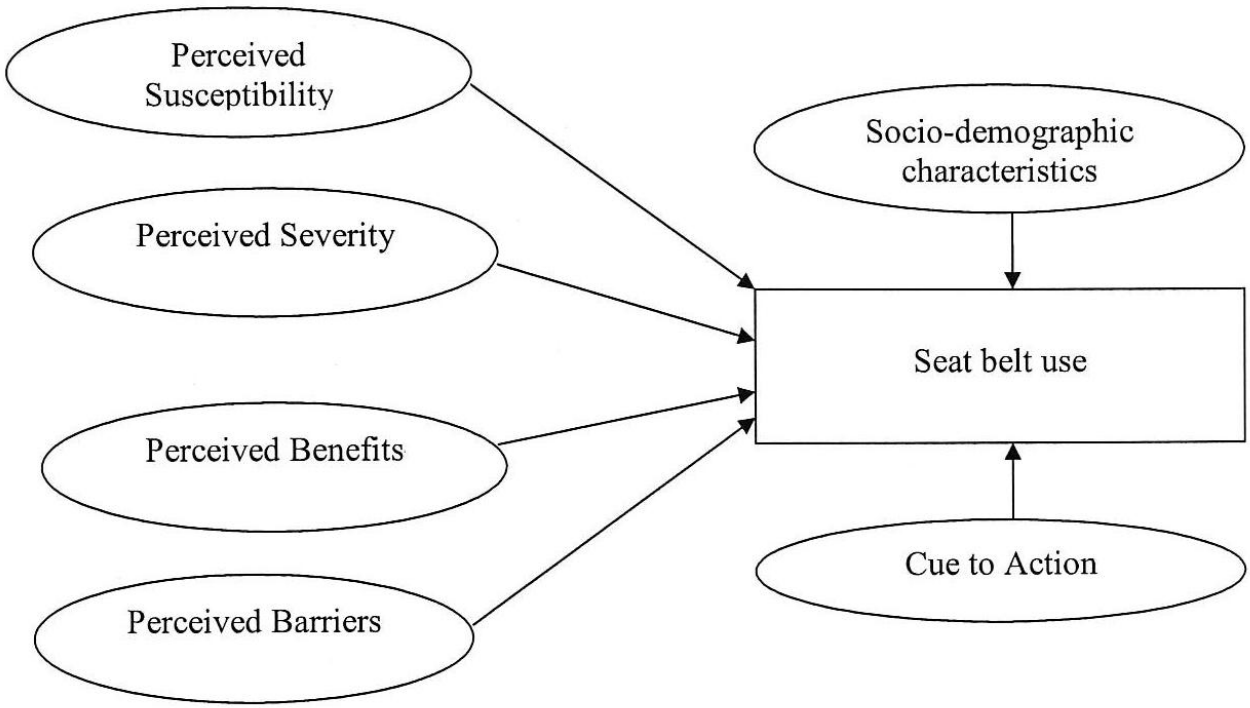
The Health Belief Model has widely been used to explain health behaviours by understanding health related beliefs. The HBM was introduced in 1950's by Social Psychologists in their attempt to facilitate reasoning as to why individuals participate in health programs such as health checks and immunization programs. Later on, the HBM was widely applied to a range of health behaviours in a variety of settings. The

driving (Beck, 1981); dietary behaviour (Becker et al, 1977); smoking (Winberger et al, 1981); exercises and physical activities (O'Connell et al, 1985). Nonetheless, the application of HBM has widely been based on developed countries. Indeed, there is very little research evidence of the implications for the HBM components in health behaviour from developing countries such as Tanzania.

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 a negative health condition (such as likelihood of road accident related injury or death) and that such a negative health condition has severe outcomes. Likewise, a person may take a preventive action when he or she has a positive expectation that by taking a recommended action, he or she will avoid a negative health condition (for instance, a belief that using a seat belt is effective in preventing road traffic accident related injury or death). Furthermore, to perform a healthy action, one has to believe that there are fewer barriers to successfully take a recommended health action (for example, one believing that he or she can use seat belts comfortably without any embarrassments). Moreover, verbal and nonverbal signals (such as seeing a billboard along the road) may act as reminders to individual's performance of a healthy behaviour.

Thus, the HBM is based on six key concepts namely perceived susceptibility,

Figure 1: The Health Belief Model (HBM) as adapted to seat belt use behaviour among taxi drivers



Source: Modified from Rosenstock (1974)

2.3 Seat belt use

Several studies have been conducted to assess the pattern of seat belt use among different populations. However, most of the studies have been done in developed countries and a few in developing countries. A study done in the USA showed that the percentage of motoring population wearing seats belt has generally grown from 11% in 1980 to 68% in 1995 (Rivera et al, 1999). In another study conducted among the adult driving population in USA, 67% of the males reported using seat belts all the time compared to 78% of the females (Shinar, 2001). Another study conducted in the USA revealed that male teenage drivers had low seat belt use than adults but

differences between female teenagers and adult drivers were slight (Williams et al, 2003).

A study done in two suburbs of Saudi Arabia using observations recorded an average seat belt use of 60% for drivers in the first few months after the enactment of seat belt laws (Bendak, 2005) and later on decreased to 27.8% (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 all of the time (Knishkowy, 2002).

Some of the factors that have been found to be associated with increased seat belt use are older age (Bendak, 2007; Shinar, 2001; Li, 1999), education (Shinar, 2001), married drivers (Bendak, 2007) and long driving experience (Bendak, 2007). An analysis was performed using the Oklahoma Department of Public Safety (ODPS) crash file and the hospital in-patient data discharge file from the Oklahoma State Department of Health (OSDH). The results of the analysis showed that non-seat belt-users tended to be young and male (Baker, 2000).

A study done in Australia to assess predictors of safety belt use suggested that alcohol use was negatively correlated with safety belt use (Li, 1999). Similarly, a study done in America among high school students associated failure to wear seat belts with a higher use of alcohol, cigarettes, marijuana, and cocaine; more tolerance

In Africa, few studies on seat belt use have been done. For example, 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 (75-88%). The national figure for seat belt use for drivers in 2002 was 81% (Olukoga, 2005). In Tanzania, studies to assess the pattern of seat belt use among drivers have not been done.

2.4 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 studies 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. Belt use was mainly influenced by individual factors such as gender, perceived frequency of an accident and age (Calisir, 2002).

A survey done in Tanzania to investigate social and behavioral correlates of perceived vulnerability to traffic injuries in an urban and rural setting found that in Dar es Salaam, 75 and 82% of males and females, respectively, perceived it as likely that they would experience a traffic injury in general (Astrom et al, 2000).

2.5 Perceived benefits to seat belt use

Perceived benefit to a 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 (62.1%) and severe injuries (29.1%) 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 conducted in two cities 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).

2.6 Perceived barriers to use of seat belts

Perceived barrier refers to individual's opinion of the tangible and psychological costs of the advised action. Fhaner et al (1974) asked drivers in the United States of America 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 a sense of insecurity. Some respondents felt that wearing a seat belt might cause accidents because the driver might feel "too secure" and drive less carefully.

In another study, Pender's health promotion model was used as the conceptual framework for analyzing the relationship among health value, locus of control, and other cues influencing the use of a safety belt by adolescents in the United States of America. The number of perceived barriers was negatively correlated with safety belt use (Riccio-Howe, 1991).

In the western region of Mexico, seat belts are very rarely worn due to the erroneous belief that its use does not protect, and may even harm its wearer (Penuelas, 1989).

2.7 Cues to use of seat belts

Verbal and non verbal cues may act as reminders to activate readiness to take a healthy action. Adolescents in the United States of America reported higher safety belt use during the time the mandatory safety belt use law was in effect, and those who learned to drive during that period reported 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).

A 4-year follow-up study was done in Virginia, USA, which six senior communities with seat belt signs were compared to six-matched control senior communities with no signs. Safety belt usage was stable, across 4 years, at approximately 80% for both male and female drivers and front seat passengers for the six communities with signs, and was approximately 55% for the control sites which had no signs. The authors concluded that simple and low-cost interventions of erecting signs to prompt safety

belt use had persistent benefits that affect driver and passenger behavior alike (Cox et al, 2005).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study area

The study was carried out in Dar es Salaam region. This region was chosen due to its high road traffic accident rate. A previous study has shown that about 35% of all road traffic accidents in Tanzania occur in Dar es Salaam region (Rwebangira, 1999). Dar es salaam has three Municipals namely Ilala, Temeke and Kinondoni. According to the 2002 National Tanzania census, the population of Dar es Salaam region was 2,497,940 (National Bureau of Statistics, 2003).

3.2 Study design

A cross-sectional study was conducted for 4 weeks from June to July 2007.

3.3 Study population

The study population was taxi drivers from the three Municipals of Dar es Salaam. The choice of the study population was made based on the fact that it is an easily accessible population since taxi drivers usually park their cars at known parking stands and most of them are registered.

3.4 Sample size

Sample size calculations were made based on the following formula (Kirkwood, 2003):

$$n = \frac{z^2 p(100-p)}{\varepsilon^2}$$

where n = the required minimum sample size

ϵ = margin of error (7%)

p = proportion of taxi drivers using seat belts (estimated at 50%)

z = standard normal deviate corresponding to 95% confidence level=1.96

Since there are no previous studies done on the use of seat belts in Tanzania, we assumed that seat belt use is 50% among taxi drivers. Considering a margin of error of 7% and a 95% confidence level, then the minimum required sample size was 196 taxi drivers.

3.5 Sampling technique

The sample for the study was selected in several stages. The number of divisions in Ilala, Kinondoni and Temeke municipals is 3, 4 and 3 respectively. One division was selected purposively from each municipal based on its location (easy to reach). From each selected division, two wards were selected purposively. A total of six wards namely Kinondoni, Magomeni, Kimara, Temeke, Kigamboni, Keko, Ilala, Ukonga and Kariakoo were selected for the study. In each ward, efforts were made to identify the different taxi stands that exist. Four taxi stands were selected in order to ensure a

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participate in the study was written on separate pieces of paper. The papers were shuffled and one of the drivers picked 8 out the available pieces of paper.

3.6 Training of research assistants

Two persons were trained by the principal researcher for one day about the aim of the study and on how to collect data. Emphasis was made on understanding the questions in the questionnaire and how to fill it.

3.7 Data collection procedure

Data were collected by the principal researcher and two trained research assistants. A questionnaire consisting of closed ended questions was used during the interviews. The questionnaire was translated from English to Kiswahili language that is understood and well spoken by all Tanzanians, particularly for the taxi drivers in Dar es Salaam city. It contained the following information corresponding to the objectives of the study:

- Respondent's particulars (age, marital status, religion, level of education)
- Seat belt use
- Information on perceived susceptibility to road accidents, perceived severity of road accident-related injuries, perceived benefits of seat belt use, perceived barriers to seat belt use and cues to action for seat belt use.

Several measures were taken to ensure data quality. Field monitoring of data quality was done through supervisory visits and checking questionnaires that had been filled in.

3.8 Variables

Dependent variable - seat belt use

Independent variables

Socio-demographic - age, marital status, religion, level of education.

Psychosocial - perceived susceptibility to road traffic accident, perceived severity of road traffic accident related injuries, perceived benefits of seat belt use, perceived barriers to seat belt use and cues to action for seat belt use.

Other - history of a traffic crash, alcohol drinking, ownership of the taxi, possession of driving license.

3.9 Data management

3.9.1 Measures

The outcome of interest, seat belt use, was determined using a single measure. Participants were asked to respond to the single question based on a 4-point Likert scale: 'How often do you use a seat belt when driving a taxi? (1) All of the time, (2) Most of the time, (3) Rarely or (4) Never. Seat belt use was then dichotomized into 'users' (all of the time/most of the time) and 'non-users' (rarely/never).

The five HBM components were measured as described below. Perceived susceptibility of being involved in a road traffic accident and perceived severity were measuring four items. Respondents were then requested to indicate whether they thought it was likely or unlikely by using a 4-point Likert scale. Perceived

using four, six and five items respectively. Responses were 1) strongly agree; (2) agree to some extent; (3) disagree to some extent or (4) strongly disagree.
Each item within each HBM component was dichotomized into two groups: agree (strongly agree/agree to some extent) and disagree (strongly disagree/disagree to some extent). In addition, each response was given a particular score, and then the scores were added for the construction of a scale for each HBM component.

3.9.2 Data entry and analysis

The filled-in questionnaires were checked and edited for any inconsistencies or discrepancies. Data were entered into the computer using EPI-INFO software programme. Data were cleaned before being subjected to analysis. Data analysis was performed using SPSS software programme. Information was summarized using frequency tables and cross tabulations. The chi-square test was used to compare proportions and the chi-square test for trend was used to test for trends in proportions. Mean scores were obtained for each HBM component and analyzed by seat belt use to assess whether there was a relationship between the HBM components and seat belt use. The unpaired t test was used to compare the mean scores. A p-value of equal or less than 0.05 was considered statistically significant.

3.10 Ethical considerations

Ethical clearance was sought from Muhimbili University of Health and Allied Sciences (MUHAS) Research and Publication Ethical Committee. Permission from the Region and District administrative authorities was obtained. Informed consent from study participants was sought using an informed consent form (see Appendix

1). The objectives of the study were explained to the participants and the benefits of the study were clarified. Potential participants were also assured of confidentiality and that no harmful risks would be involved. Prospective participants were also informed of their right to refuse to participate in the study and whom to contact in case they had additional questions. Only participants who consented for the interview were included in the study.

3.11 Limitations of the study

Information on seat belt use was collected through self reports. This could have led to socially desirable responses and thereby may have caused over reporting on seat belt use. To minimize this problem, taxi drivers were assured before being interviewed that the information they provided was for research purpose only. This might have encouraged them to provide true information.

CHAPTER FOUR

4.0 RESULTS

This section consists of the results elicited through interviews. The sample comprised of 208 taxi drivers from Temeke, Ilala and Kinondoni municipalities in Dar-es-Salaam. Table 1 shows that majority of the respondents were from Ilala (38.9%) and Kinondoni (34.6%) whereas (26.4%) of the respondents were from Temeke.

Table 1: Distribution of respondents by municipality

Municipality	Frequency	Percentage
Temeke	55	26.4
Kinondoni	72	34.6
Ilala	81	38.9
Total	**208**	**100.0**

The socio-demographic characteristics of the respondents are shown in Table 2. All of the respondents were males. The age of study participants ranged from 18 to 65 years with mean age (SD) of 39.9 (11.9) years. The respondents were distributed almost equally among the 10- year age groups (about one quarter for each age group). Of all the respondents, 15.3% had no formal education. About half of them were either Muslims or Christians. Over a half of the respondents were married while 18% were single. More than three quarters (78.3%) of the interviewed drivers had attended driving school, 64.7% and 23.5% of the drivers possessed a class C and D driving license respectively.

Table 2: Socio-demographic characteristics of respondents (n=208)

Characteristic	Frequency	Percentage
Age (years)		
<30	46	22.1
30-39	55	26.4
40-49	55	26.4
50+	52	25.0
Level of education		
No formal education	32	15.3
Primary	78	37.5
Secondary	73	35.1
Post Secondary	25	12.0
Religion		
Christian	100	48.5
Muslim	101	49.0
Others	5	2.4
Marital status		
Married	120	57.6
Single	37	17.7
Divorced	14	6.7
Separated	14	6.7
Widowed	23	11.0

Table 3: The pattern of seat belts use among taxi drivers

Item	Seat belt use								
	All the time		Most of the time		Rarely		Never		Total
	No	(%)	No	(%)	No	(%)	No	(%)	No
When driving in general	64	(30.8)	92	(44.2)	43	(20.7)	9	(4.3)	208
When driving on rough roads	68	(32.7)	45	(21.6)	84	(40.4)	11	(5.3)	208
When driving at low speed	47	(22.6)	48	(23.1)	97	(46.6)	16	(7.7)	208

Table 3 shows the pattern of seat belt use among the respondents. Overall, 75% of the respondents reported that they used seat belts most of the time or all of the time when driving their cars. In order to assess seat belt use in different contexts, respondents were asked whether they use their seat belts when driving on rough roads. Forty percent responded that they rarely did so. Similarly, 46.6% of the respondents reported that they rarely used seat belts when driving in low speed.

Table 4: Association between demographic factors and the use of seat belts

Characteristic	Seat belt use			Significance
	No (n=52)	Yes (n=156)	Total	
	No (%)	No (%)		
Age (years)				
<30	13 (28.3)	33 (71.7)	46	Chisquare =4.63;
30-39	18 (32.7)	37 (67.3)	55	d.f. = 3;
40-49	13 (23.6)	42 (76.4)	55	P-value=0.201
50+	8 (15.4)	44 (84.6)	52	
Level of education				
No formal education	5 (15.6)	27 (84.4)	32	
Primary education	14 (17.9)	64 (82.1)	78	$Chisquare_{trend}$ =
Secondary education	23 (31.5)	50 (68.5)	73	7.47; p = 0.006
Post secondary education	10 (40.0)	15 (60.0)	25	
Marital status				
Married	31 (25.8)	89 (74.2)	120	Chisquare=0.45;
Single	10 (27.0)	27 (73.0)	37	d.f. =2;
Divorced/separated/ widowed	11 (21.6)	40 (78.4)	51	P-value= 0.800
Alcohol drinking				Chisquare= 0.006;
Yes	27 (25.2)	80 (74.8)	107	d.f. =1;
No	25 (24.8)	76 (75.2)	108	P-value= 0.936
Ever had a road traffic accident				
Yes	26 (21.0)	98 (77.0)	124	Chisquare= 2.66;
No	26 (31.0)	58 (69.0)	84	d.f. =1;
				P-value= 0.103

The relationship between demographic factors and seat belt use was explored. Results from Table 4 show that there was a tendency of seat belt use to increase as the age of the respondent increased. That is, respondents aged 50 years and above had the highest proportion of seat belt use (84.6%) whereas 67% of those aged between 30 and 39 years reported that they used seat belts when driving a car. This difference, however, was not statistically significant.

Furthermore, findings from the study reveal that seat belt use decreased as the level of education increased. That is, drivers with no formal education or with primary education were significantly more likely to use seat belts compared to their counter parts with secondary and above level of education ($p = 0.006$). There were no significant differences in the percent of seat belt use among the marital status categories. More than one half of the respondents (51.4%) reported that they drink alcohol. However, seat belt use rates were similar among drivers who drink alcohol and those who do not.

About 60% of the respondents reported to have been involved in a traffic crash. The proportion of seat belt users was higher among those who reported to have been involved in a traffic crash (77%) than among those who had no such experience (69%). The difference, however, was not statistically significant.

Table 5: Perceived susceptibility of being involved in a traffic crash and perceived severity of road traffic- related injuries

Item	Unlikely		Likely		Total
	No	(%)	No	(%)	
Perceived susceptibility					
Perceived likelihood of:					
Being involved in a road traffic accident	85	(40.9)	123	(59.1)	208
Being injured in a road traffic accident	25	(12.0)	183	(88.0)	208
Becoming permanently disabled in a road traffic accident	18	(8.7)	190	(91.3)	208
Dying during a road traffic crash	25	(12.0)	183	(88.0)	208
Perceived severity					
Getting a road traffic accident would be so dangerous	48	(23.1)	160	(76.9)	208
Getting injured in a road traffic accident would be so dangerous	31	(15.0)	176	(85.0)	207
Being permanently disabled in a road traffic accident would be so dangerous	21	(10.1)	187	(89.9)	208
Dying in a road traffic accident would be dangerous	38	(18.4)	169	(81.6)	207

Slightly more than one half of the respondents perceived themselves to be at risk of being involved in a traffic accident (Table 5). It was also noted that majority of the interviewed drivers (88%) perceived the likelihood of being injured or dying in a

traffic crash. Similarly, most of the respondents perceived that getting a road traffic accident was a serious event.

Table 6 shows results on perceptions on benefits, barriers and cues to action on use of seat belts. More than eighty percent of the respondents agreed about the statements on the benefits of seat belt use. However, with regards to the barriers of seat belt use, 60% of the respondents disagreed with the statement that lack of functioning seat belts is one of the reasons for drivers not using seat belts. Furthermore, about half of the respondents had the opinion that lack of laws on seat belt use, poor enforcement of seat belt laws and discomfort felt when wearing seat belts could be one the reasons why drivers do not put on their seat belts. More than one quarter of the interviewed drivers also felt that drivers did not wear seat belts merely due to negligence. With regards to actions that would make someone remember to use a seat belt, majority of the respondents agreed that seeing a billboard (86.1%), witnessing a traffic crash (87%), seeing a traffic police officer (89.9%), seeing fellow drivers wearing seat belts (79.3%) and remembering about strict penalties (cues for using a seat belt) would be helpful (83.7%).

Table 6: Perceived benefit, barriers and cues to action on the use of seat belts by taxi drivers

Item	Agree		Disagree		Total
	No	(%)	No	(%)	
Perceived benefits of seat belts					
Prevents some one from injury during crash	169	(81.3)	39	(18.7)	208
Protects some one from death during crash	167	(80.3)	41	(19.7)	208
Reduces worries of getting an accident	186	(89.8)	21	(10.1)	207
Helps one not to leap forward when breaks are engaged abruptly	177	(85.1)	31	(14.9)	208
Perceived barriers to using seat belts					
Unavailability of functioning belts	83	(39.9)	125	(60.1)	208
Negligence of drivers	163	(78.4)	45	(21.6)	208
Lack of laws of seat belt use	102	(49.0)	106	(51.0)	208
Poor enforcement of laws on seat belt use	93	(44.7)	115	(55.3)	208
Discomfort when using seat belts	101	(48.6)	107	(51.4)	208
Lack of awareness on the importance of seat belts	68	(32.7)	140	(67.3)	208
Cues to action (reminders for using seat belt)					
Seeing a billboard	179	(86.1)	29	(13.9)	208
Witnessing a road traffic crash	181	(87.0)	27	(13.0)	208
Seeing fellow drivers using a seat belt	165	(79.3)	43	(21.7)	208
Seeing a traffic police officer	187	(89.9)	21	(10.1)	208
Remembering about strict penalty	174	(83.7)	34	(16.3)	208

Table 7: Mean scores for HBM component between users and non-users of seat belts

HBM Component	Scale Range (low-high)	Seat Belt Use						p-value*
		No			Yes			
		N	Mean	SD	N	Mean	SD	
Perceived Susceptibility	6-16**	52	11.83	2.53	156	12.97	1.80	***0.0001***
Perceived Severity	3-12**	52	9.40	1.71	154	9.87	1.68	0.086
Perceived Benefits	4-14***	52	7.85	2.51	155	6.94	2.17	***0.013***
Perceived Barriers	6-24***	52	15.37	3.77	156	15.81	3.74	0.462
Cues to Action	5-20***	52	8.67	3.59	156	8.56	2.87	0.824

One observation is missing for perceived severity and perceived benefits

*P-value for comparing means between seat belt users and non-users; SD = Standard deviation

**The higher the value on each sum score, the higher the perceived risk

***The higher the value on each sum score, the greater the disagreement

The association between the HBM components and seat belt use was investigated by calculating mean scores for users and non users of seat belts (see Table 7). Analysis indicated a statistically significant difference of means in terms of perceived susceptibility between taxi drivers who were users and non-users of seat belts (p-value <0.001). As such, taxi drivers who use seat belts had low mean score (11.83±2.53) of perceived susceptibility as compared to non seat belt users (12.97±1.80).

The results also show a statistically significant difference of means in terms of perceived benefits between taxi drivers who were users and non-users of seat belts (p-value <0.05). Taxi drivers who use seat belts had a high mean score (7.86±2.51) of perceived benefits to seat belt use as compared to non users of seat belts (6.94±2.17).

Of the HBM components, perceived severity, perceived barriers and cues to action did not discriminate significantly taxi drivers who were users and non-users of seat belts.

Table 8: Respondents' opinions on ways of increasing seat belt use

Opinions	Frequency	Percentage
Educate drivers on the use of seat belts	89	42.8
Increase awareness about road safety issues	62	29.8
Strict penalties	41	19.7
Encouragement from other people	16	7.7
Total	**208**	**100.0**

Table 8 shows the results of drivers' opinions on what should be done to increase the usage of seat belt among taxi drivers. Out of all drivers interviewed, 42.8% suggested that drivers should be educated on the use of seat belts while about 30% mentioned raising awareness about road safety issues could be one of the ways of increasing seat belt use.

CHAPTER FIVE

5.0 DISCUSSION

In this study, we sought to assess seat belt use and its associated factors among taxi drivers in Dar es Salaam city. Self-reported safety belt use among taxi drivers in the studied sample was quite high with 75% of the interviewed drivers reporting that they used seat belts when driving cars. These results are comparable to those reported from various provinces in South Africa where seat belt use for drivers ranged between 75%-88% (Olukoga, 2005). Results for the present study are also comparable to those of industrialized nations (Cunil, 2004; Fernandez, 2006). For example, in the USA, the national figure seat belt use for 2004 was 80% (Fernandez, 2006). However, the figure from the present study is much higher than that reported in Boston where safety belt use among taxicab drivers was 6.8% (Fernandez, 2005) and in Fife, Scotland where seat belt use was 11% among taxicab drivers (Campbell, 1993). The differences in the seat belt use could be explained by the different methodologies used. Other studies show that self-reported measures result in higher levels of usage than direct observation measures (Bendak, 2007).

Level of education of the driver featured as one of the factors associated with seat belt use in that, the level of seat belt use decreased with increasing level of education. The explanation for this paradox is unclear. Indeed, one would expect that individuals with higher levels of education to have higher levels of seat belt use. Nonetheless, a possible explanation could be that drivers who have some form of education are over confident, and just neglect the use of seat belts when they drive.

Findings from this study are inconsistent to what has been reported by other studies where reported use of safety belts increases with education (Shinar, 2001).

Use of seat belts has been shown to also increase with age (Bendak, 2007; Shinar, 2001; Li, 1999). Findings from this study, however, did not reveal a significant association between age and seat belt use although seat belt use among drivers aged 50 years and above was higher than among those aged below 30 years. Nevertheless, this possibility may not be ruled out in the population of this study.

The relationship between marital status and seat belt use was also investigated. Previous studies have found that married individuals reported using seat belts more often than unmarried people (Chaudhary, 2004; Bendak, 2007). In this study, there was no relationship between marital status of the drivers and seat belt use.

From the present study, it was observed that seat belt use was similar among taxi drivers who reported not to drink alcohol and those who drink alcohol. Despite the lack of an association, it may be logical to argue that drivers who use alcoholic drinks are more likely to engage themselves in risky behaviours including neglecting to use seat belts. This assertion is supported by studies done elsewhere. A study done in USA among crash-involved drivers found that alcohol involvement was associated with a lower rate of safety belt use (Li, 1999). Similarly, a study done in America among high school students associated failure to wear seat belts with higher use of alcohol (Maron, 1986).

In this study, majority of the respondents were aware of the importance of seat belt use. The perceived benefits mentioned were prevention of injuries and death, reduction of worries of getting an accident and refraining from leaping forward when breaks are engaged abruptly. These findings are similar to those reported in Saudi Arabia where 89% of the drivers knew the importance of wearing seat belts (Bendak, 2007).

From the study it was observed that respondents perceived that unavailability of functioning seat belts, negligence of the driver, lack of laws on seat belt use and lack of awareness on the importance of seat belt use as barriers contributing to lack of use of seat belts by taxi drivers. Other studies have reported similar findings. A study done in United State of America 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).

The relationship between components of HBM and seat belt use was also studied. As expected, perceived susceptibility of being involved in a road traffic accident was found to be higher among drivers who used seat belts than those who did not. This could explain the fact that people who feel to be vulnerable to health risks are more likely to take a preventive action that those who feel to be less vulnerable to a health risk.

had high perceived benefits of seat belts than those who reported not to use seat belts. Our findings are similar to those reported in the US where individuals with high perceived effectiveness of belts had higher levels of seat belt use compared to those with lower perceived effectiveness of belts (Chaudhary, 2004).

Lack of an association between perceived severity, perceived barriers, cues to action, and seat belt use may be due to methodological issues including having very few items for each of the HBM components.

Although seat belt use is best estimated from direct roadside observations, self reports are also useful. However, estimates from self-reports are usually much higher than the actual figures. This study used self-reports to estimate the proportion of seat belt users. One should therefore assume that the true levels of seat belt use are probably lower than the levels reported in this study.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study showed that the use of seat belts was high for the majority of the interviewed taxi drivers. However, about one quarter of the taxi drivers rarely or never used seat belts, a figure which is still high considering the consequences involved. Findings also showed that forty percent of the respondents reported that they rarely used seat belts when driving on rough roads where as about half of them rarely used seat belts when driving in low speed.

Factors that were found to be associated with increased seat belt use were low level of education, high level of perceived susceptibility of being involved in a traffic crash and high perceived benefits of seat belt use. Age, ever had a traffic crash, marital status, alcohol drinking, were not significantly related to use of seat belts. In addition, perceived barriers of seat belt use, perceived severity of the injuries, cues to action were also not associated with usage of seat belts. Some of the barriers perceived by the drivers to be associated with poor use of seat belts were unavailability of functioning seat belts, lack of law on seat belt use, lack of awareness on the importance of seat belt use, negligence of the drivers and discomfort.

6.2 Recommendations

1. Enforcement of seat belt law:

The Government should improve and implement effective strategies to ensure enforcement of the existing seat belt law in the country so as to reduce the high levels of road traffic injuries and fatalities.

2. Increase awareness on seat belt use:

There is a need to intensify drivers' awareness on seat belt use through media campaigns. These campaigns should be directed differentially to different target groups and should be a continuous process rather than only on special days as it is currently done.

3. Establish monitoring system

There is a need of establishing a monitoring and evaluation system so as to assess the impact of the laws in place.

4. Further studies:

Further studies employing other methodologies are required to understand better the predictors of seat belt use so that strategies for improving seat belt use can be planned and implemented. Such studies should involve drivers of different domains such as those using private and commercial vehicles, and other passengers.

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