PERCEPTIONS ABOUT THE TRAFFIC SAFETY AMONG THE TAXI MOTORCYCLISTS AND THEIR PASSENGERS IN PHAYATHAI DISTRICT, BANGKOK

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ABSTRACT

Traffic safety behavior is a major concern in coping with increasing road traffic injuries. In Bangkok, road traffic accidents are the second leading cause of death. To look into this grave issue and to recommend some strategies, a cross sectional study aimed to determine the personal characteristics of the taxi motorcyclists and their perceptions about the susceptibility, severity, threat and cue to action, in terms of the traffic safety behavior, as perceived by their passengers, was conducted from 25th January to 9th February 2004 among 208 taxi motorcyclists and their passengers. Interview questionnaires with accidental sampling were used.

In general, the taxi motorcyclists had an above average perception about susceptibility to and severity of road traffic accidents, and also about traffic safety. However, the passengers of these taxi motorcyclists were concerned about traffic rules and regulations such as, using correct lane, use of helmet, driving smoothly and not drinking and abusing drugs. Most of the taxi motorcyclists acquired information about traffic safety from television, yet only the information from the newspapers was responsible for higher traffic safety behavior. It was found that knowing people without an accident in the past did have a role in practicing high traffic safety behavior.

The behavior doesn't seem to follow a protective pattern. Intervention is needed to improve traffic safety behavior with the involvement of health and law authorities. In particular I found that role of newspapers, as media, knowing people without accidents and following the traffic laws and regulations need attention for intervention and future studies.

KEY WORDS: TRAFFIC SAFETY/ TAXI MOTORCYCLISTS/ PERCEPTION

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CONTENTS

CONTENTS (Cont.)

Page

LIST OF TABLES

TABLE Page

LIST OF TABLES (Cont.)

TABLE Page

LIST OF FIGURES

FIGURE Page

LIST OF ABBREVIATION

DALLYs	:	Disability Adjusted Life Lost Years
DBQ	:	Driver Behavior Questionnaire
GNP	:	Gross National Product
HBM	:	Health Belief Model
HCP	:	Health Care Provider
M/C	:	Motor Cycle
MOPH	:	Ministry of Public Health (Thailand)
RBG	:	Risk Behavior Group
RR	:	Relative Risk
RTA	:	Road Traffic Accident
WHO	:	World Health Organization
YALLs	:	Years of Active Life Lost
YPLL	:	Years of Productive Life Lost

CHAPTER I
INTRODUCTION

1.1 Rationale and justification of the study

Road traffic accident is one of the leading causes of the social, economic and health degradation in the society. Thailand has a critical problem in coping-up with morbidity and mortality due to injury (1). World Health Organization (WHO) defines accident as an unpremeditated event resulting in recognizable injury; or any event interrupting the normal work process, caused by one or more unsafe act or unsafe condition or both that may or may not result in personal injury, property damage or both but has the potential to do so (2).

Historically, two deaths were registered in 1896, in Great Britain, due to motor vehicles. One was registered in the United States in 1899. From these small beginnings a terrible stream of deaths and injuries has followed. In 1951 the United States recorded its 1000,000 deaths from road traffic accidents and other countries which have become highly motorized, have suffered similarly (3).

Size of the problem as being stated on national level, according to Thailand Health Profile 1999-2000, the road traffic accidents rank second after HIV/AIDS among ten-leading causes of death in Bangkok. Although there has been some negative impact of the economic crisis in Thailand on the general indicators of morbidity and mortality, as some studies show; yet the Thai government has been able to sustain the process of improved heath interventions along with the introduction of universal coverage schemes like the Thirty Baht for Treatment of Every Disease Policy. The tide of the accident and injuries is again towards the higher side for accidents and injuries. There is an increase in the traffic jams in the urban settings of Bangkok. Motorcycle riders are the favorite hiring transport of the Thai people, those who don’t have their own transport, during the busy working hours. Table 1 shows

number and mortality rates from accident and injuries and the estimated damage from 1984 to 2001. The data shows an up and down trend. Presently there is a shift towards a rise (Figure 1).

The problem when assessed on the severity level, the accidents and injuries are the major leading causes of the morbidity and mortality. In Thailand a retrospective study was carried out in March 2000 that showed an analysis done on 3,225 injured motorcyclists, treated at Phra Chom Klao Hospital, during April 1, 1999 to March 31, 2000. The peak of all motorcycle crashes was found between 6 p.m. and 9 p.m. Male motorcycle riders accounted for 69 percent of the accident population. Approximately, 21 per cent of the accidents-involved riders those had been drinking alcohol and about half of the riders were unlicensed. Only 4 percent of the riders were wearing helmets at the time of the accident. Helmet usage was much lower among passengers, only about 1 per cent. The upper and lower extremities were injured most frequently, although these injuries were not life threatening. The most fatal injuries to the motorcyclists were to the head, abdomen, and chest in decreasing frequency (4).

Globally, as we look at the past, the size of the problem is indicated by the member states returns for motor vehicle accidents. In 1957, the forty seven Member States of the World Health Organization that completed separate returns for Motor Vehicle Accidents, 102552 people (79810 of them males), in total population of some 650 million, were killed in such accidents (5). The loss of lives then and today is no more less than a moderate-scale war per annum. The demise of Road Traffic Accidents is that they particularly involve the young, perhaps the young and adventurous. Males aged 15-29 years are especially involved. Fatal accidents among this group represent not only tragic family losses but also a serious economic loss to the community, for their education and training have been wasted.

Several studies show that motorcycle accidents result in the disability among the sufferers. Clark JA and Langley JD (6) showed in their study conducted in New Zealand that among the sample population, disabilities, handicaps and extremity injuries predominated, especially to the lower limb. The majority of these were

fractures. Most common impairments occurred in the areas of 'skeletal', 'disfiguring' and being 'generalized'. Mechanical impairment of a limb was reported in 68% of cases, often with associated disfigurement. Disability mostly involved problems with locomotion and problems coping with physical stresses at work. Occupational handicap was the most common of the handicaps reported, with mobility handicap the next most common (6).

Many factors however, predispose the attitude and perceptions. This is well explained by the Health Belief Model. People tend to take the preventive or the risky behavior according to their innate beliefs and trusts. The prevention of mortality and injury from Road Traffic Accident (RTA) is essentially a public health problem. Public health departments in all parts of the world have dealt, and continue to deal effectively, with epidemic and communicable disease, using orthodox techniques of preventive medicine and epidemiology. More than 100,000 persons are killed and many more are injured in road traffic accidents through out the world annually and the attention of the public and primary health should have to be focused on this non-communicable disease problem, as well. The community thinking should be oriented in the direction of the question raised. The public conscience should be so developed that every individual automatically thinks in prevention terms about road traffic accidents.

A recent research (March-June 2003) at Community Medicine Center, Faculty of Medicine, Ramathibodi Hospital, Mahidol University (7), recommended the investigation into behavioral determinants of road traffic accidents and road/traffic safety issues. The study identified the known behavioral risk factors like drunk driving, substance abuse, speeding, and failure to use helmet and seat belts. This study therefore, tries to look into the significance of the behavioral factors that are responsible in Phayathai district, Bangkok among the taxi motorcyclists. By investigating the particular behavioral role for traffic safety, this study is expected to identify the gaps that render traffic safety laws implementation ineffective to some extent in bringing down the status quo of present accidental injuries and deaths. The behavior of the drivers is very important to know so as to incorporate the possible

fruitful interventions and to get the maximum compliance for the traffic safety laws. The base line information gathered from this study can form the building blocks of the revised strategy and planning, to produce better intervention with suitable resource allocation to get the desired results by filling the gaps. This study particularly looks into the host factors associated with health beliefs for the predisposition to the accidents. This implication pertains a special attention towards the local attitudes and behaviors that might have a hampering effect on the past and current interventions in making the road a safer place for the travelers and the users so as to decrease the mortality and disability rates.

The inferences drawn from this study are hoped to be able to be generalized for main behavioral and attitudinal campaigns to augment the efforts done in order to cut down the accidents. The impact of loss to health and economy of the country might be reduced by addressing the major determinant of epidemiology of disease (injury). Hence, this study also take into the consideration the recent research recommendation to deal with this important health and economic concern, brought into action by the epidemiological triad of causation of morbidity and mortality.

Table 1 Number and Rates of the Accident Deaths and Injuries, and Estimated Damage 1984-2000

Year	No of Population	No of Accidents	Deaths		Injured		Property Damages (Baht)
			Number	Rate per 100,000 Population	Number	Rate per 100,000 population	
1984	50,583,105	18,334	2,904	5.74	8,770	17.34	56,265,453
1985	51,795,651	18,955	2,788	5.38	8,901	17.18	60,645,504
1986	52,696,204	24,432	2,086	3.94	9,242	17.45	55,061,650
1987	53,873,172	25,639	3,991	7.41	12,947	24.03	129,539,616
1988	54,960,917	43,439	8,651	15. 74	22,370	40.70	329,527,667
1989	55,888,393	43,557	8,967	16.04	23,083	41.30	439,028,000
1990	56,303,273	43,646	7,997	14.20	23,161	41.14	477,603,000
1991	56,961,030	49,625	8,608	15.11	24,995	43.88	639,616,000
1992	57,788,965	61,329	8,184	14.16	20,702	35.82	607,793,000
1993	58,336,072	84,892	9,496	16.28	25,330	43.42	1,021,464,000
1994	59,095,419	102,610	15,176	25.68	43,541	73.68	1,408,216,000
1995	59,277,900	94,362	16,727	28.22	50,718	85.56	1,631,117,000
1996	60,116,182	88,556	14,405	23.96	50,044	83.24	1,561,708,187
1997	60,186,227	82,386	13,836	22.75	48,711	80.09	1,571,786,469
1998	61,115,888	73,725	12,234	20.00	52,538	85.91	1,378,637,826
1999	61,577,827	67,800	12,040	19.55	47,770	77.58	1,345,958,811
2000	61,770,259	73,737	11,988	19.41	53,111	85.98	1,242,205,524
2001	62,093,855	77,616	11,652	18.76	53,960	86.90	1,240,801,187

Source: Thailand Health Profile, 1999-2000

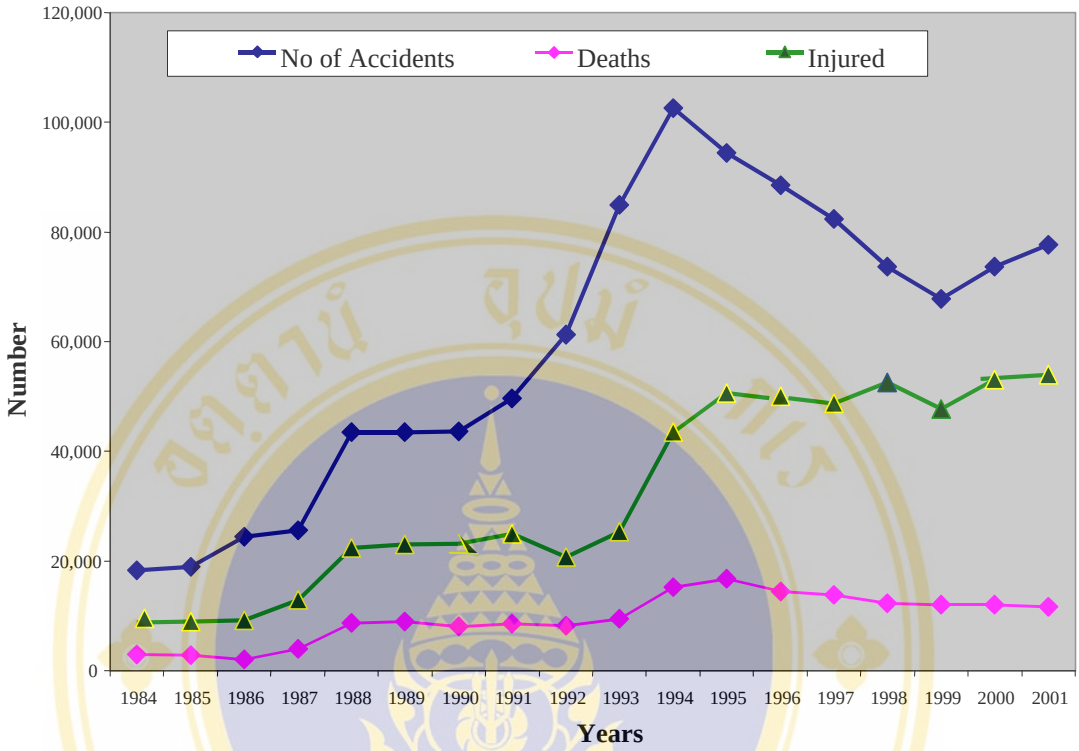

Figure 1. Number of accidents estimate 1984-2001
Source: Thailand Health Profile, 1999-2000

1.2 Research questions

What are the traffic safety behaviors among taxi motorcyclists and their passengers.

What are perceptions of the taxi motorcyclists and their passengers toward traffic safety.

What are the factors related to traffic safety (including the perception factor).

1.3 Research objectives

1.3.1 General objective:

The main objective was to identify traffic safety behavior and its related factors among taxi motorcyclists and their passengers.

1.3.2 Specific objectives:

Aimed to:

1. Describe personal characteristics of the taxi motorcyclists in terms of sex, age, marital status, education level, experience, driving license, duration of driving and visual problems while driving.

2. Describe perception of taxi motorcyclists regarding:

- Perceived susceptibility to road traffic accidents
- Perceived severity to road traffic accidents
- Perceived threat to traffic safety

3. Describe cues to action in terms of traffic safety behavior

4. Describe the traffic safety behavior as perceived by the passengers of the taxi motorcyclists

5. Identify the relationship between 1,2,3 and traffic safety behavior as perceived by the passengers of the taxi motorcyclists.

1.3.3 Conceptual framework

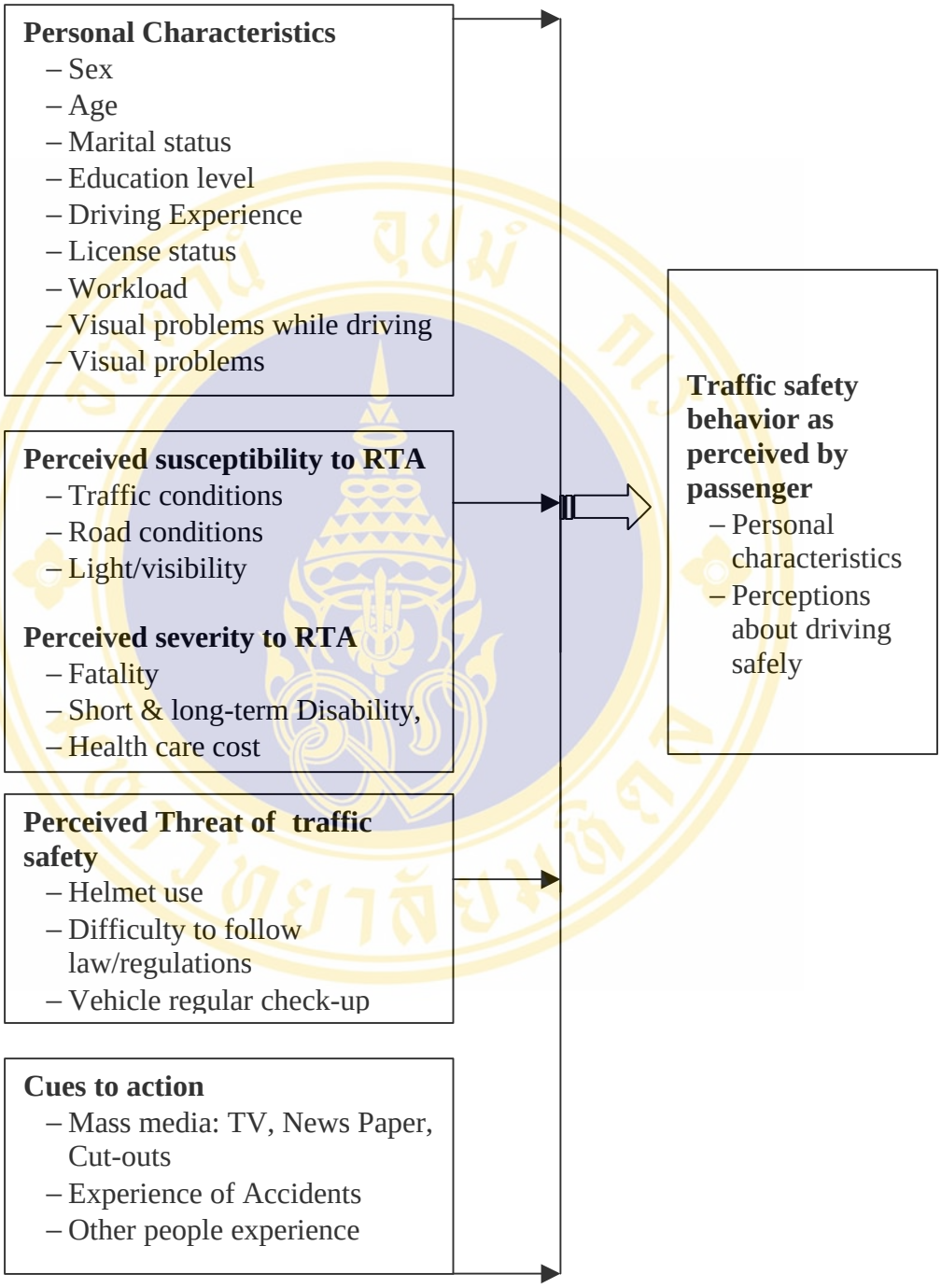

Figure 2: The conceptual framework for the study
Note: The conceptual framework has been adopted from Health Belief Model

1.4 Operational definitions

Traffic safety behavior as perceived by passengers: Traffic safety behavior as the passengers perceive being practiced by the taxi motorcyclists. It formulates the dependent variable of the conceptual framework and carries passengers' personal characteristics and their perceptions about the taxi motorcyclists' behavior regarding traffic safety.

Education: Education of the respondents as being either illiterate or having primary, elementary, high school and college/university level.

Helmet use: Both for the taxi motorcyclist and the passenger (s) riding, whether they use the helmet regularly or some times.

License: License is defined as being the piece of paper which rider has to acquire according to law and the riders are supposed to be of good manners and know how to drive safely and perfectly. It can be classified into two types of temporary and permanent.

Awareness about road signs and regulations: The concern of the taxi motorcyclist and the passengers of the road signs information and its regulations.

Working hours: Refers to the working hours and period of time like day and night times, of the taxi motorcyclist.

Experience of driving: The experience in motorcycle driving presented in years.

Alcohol and Drug use: Blood alcohol concentration (BAC) describes the amount of alcohol in a person's blood expressed as weight of alcohol per unit of volume of blood. For example, at 0.10 percent Blood alcohol concentration, there is 100 mg of alcohol per 100 ml of blood. For most legal purposes, however, a blood

sample is not necessary to determine a person's Blood alcohol concentration. It can be measured much more simply by analyzing exhaled breath.

Drug blood concentrations differ for each illegal drug that impair the driving capabilities of the drivers.

Speed limits: According to law, the driving speed is limited by each city or town for the safety of the driver and the passenger.

History of Visual problems: The in-accuracy of vision for driving like near and farsightedness, double and blurred vision etc.

Perceptions about the Traffic Conditions: Traffic being heavy or no traffic and the perception about the traffic safety regarding these conditions.

Periodicity of check-up: After how much time the service provider checks the motorcycle –up, weekly, monthly or annually.

Perceived susceptibility to road traffic accidents: The perceptions of the taxi motorcyclists about contracting the risk of being injured or involve in an accident.

Perceived severity to road traffic accidents: The feelings concerning the seriousness of contacting the road traffic accident and its dire consequences.

Perceived threat to traffic safety: The particular negative aspects of not complying with the traffic safety measures. The following of the traffic rules and regulations has a particular role in improving the traffic safety and decreasing the risk of contacting an accident.

Cues to action: The stimuli necessary to trigger decision-making process in terms of traffic safety and enabling the taxi motorcyclist to take the traffic safety behavior in action.

1.5 Expected Outcomes

The study has tried to explore the perceptive determinants of the road traffic accidents as classified by ICD-10 as " Accidents. Violence and Suicide", being the leading cause of severe injury and death in broad category. Among the ten leading causes of death, accidents and injuries rank second after HIV/AIDS in 9 provinces and 4 districts in Bangkok, and this study particularly aims at the host factors associated with health beliefs for the predisposition to the accidents. This implies towards the local attitudes and behaviors that might hamper with the past and current interventions and strategies to make the road safer for the population and the users so as to bring down the mortality and disability rates.

The results of this study may become a baseline for future studies that could be generalized for major behavioral and attitudinal campaign to supplement the efforts to cut down the accidents and the loss to the health and economy of the country, by addressing the major determinant of epidemiology of disease (injury).

1.6 Limitation of the study

This study was conducted in Phayathai District, Bangkok, Thailand. The target population was selected by accidental sampling, amongst the taxi motorcyclists of this area and their passengers, depending upon selecting elements in a population that happened to be at the right place at the right time so, the subjects who chose to participate might have characteristics different from others. However the major assumption had to be associated with this type of sampling was that the elements in the target population were not different on the basis of accessibility or availability. The results, however, might not be generalized to the motorcyclists and passengers over the whole country.

CHAPTER II
LITERATURE REVIEW

2.1 Epidemiology of Road Traffic Accidents.

Thailand is an emerging industrialized country. Shifting of the rural community to the urban settings has increased the proportion of the migrant from 30.01 in 1990 to 32.3 percent in 1995. It is the forecast that by 2010, 40% of the total population will reside in urban areas. Those destinations are mostly Bangkok Metropolitan Areas and its proximity, as well as eastern seaboard areas (9). Also the countries, which are in the process of industrialization, have the highest prevalence, as the road safety does not keep pace with motorization (10).

It is well known that the accident liabilities of motorcyclists and the resulting causalities increase with the exposure and fall with age and riding experience (Taylor and Lockwood, 1990). However, descriptive variables, such as age, experience and exposure, provide limited information about how to improve rider safety. Understanding that how psychological variables (rider's cognition and behavior) relate to motorcyclists' accident involvement, is potentially more useful to decide upon what remedial action to take (11).

2.2 The HBM Theory

People's beliefs and attitudes make them decide to take a preventive action in case of an insult to physical and psychological health of the human body. Health Belief Model (HBM), as a conceptual formulation for understanding why individuals did or did not engage in a wide variety of health-related actions and provided considerable support for the model.

The HBM was developed in the early 1950s by a group of psychologists at the U.S. Public Health Service in an attempt to accept disease preventive or screening tests for the early detection of asymptomatic disease (12).

The fundamental components of the HBM are derived from a well-established body of psychological and behavioral theory whose numerous models hypothesize that behavior depends mainly on two variables: (a) The value placed by an individual on a particular goal and (b) the individual estimation that the given action will achieve that goal.

Specifically, the HBM consists of the following dimensions

2.2.1 Perceived Susceptibility.

Individual vary widely in their feelings of personal vulnerability to a condition (in case of medically established illness, this dimension has been reformulated to include such questions as estimates of re-susceptibility, belief in diagnosis, and susceptibility to illness in general). Thus this dimension refers to one's subjective perception of the risk of contracting a condition.

Looking in this dimension, the study aims to evaluate the perceived susceptibility among the taxi motorcyclists that how much they have the awareness of the vulnerability of the disease. Their perceptions about contracting the risk of being injured or involved in an accident.

2.2.2 Perceived Severity:

Feelings concerning the seriousness of contracting an illness (or of leaving it untreated) also vary from person to person. This dimension includes evaluation of both medical/clinical consequences (e.g. effects of the condition on work, family life and social condition).

2.2.3 Perceived Benefits:

While acceptance of personal susceptibility to a condition also believed to be serious was held to produce a force leading to behavior, it did not define the particular course of action that was likely to be taken; this was hypothesized to depend upon beliefs regarding the effectiveness of the various actions available in reducing the disease threat. Thus a “sufficiently-threatened” individual would not be expected to accept the recommended health action unless it was perceived as feasible and efficacious.

Now this dimension demands a lot research in this area to find out how people feel about some believes and actions and how much they are threatened or confident on other part and how much that research could be translated into the “people-owned actions” as an intervention.

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2.2.4 Perceived Barriers:

The potential negative aspects of a particular health action may act as impediments to undertaking the recommended behavior. A kind of cost benefit analysis is thought to occur wherein the individual weighs the action’s effectiveness against perceptions that it may be expensive, dangerous (e.g., painful, difficult, upsetting), inconvenient, time-consuming, and so-forth. Thus, as Rosenstock notes, “The combined levels of susceptibility and severity provided the energy or force to act and perceptions of the benefits (less barriers) provided a preferred path of action”. However, it was also felt that some stimulus was necessary trigger decisions-making process. This so-called “cue to action” might be internal (i.e., symptoms) or external (e.g., mass media communications, interpersonal interactions, or reminder postcards from the health care providers).

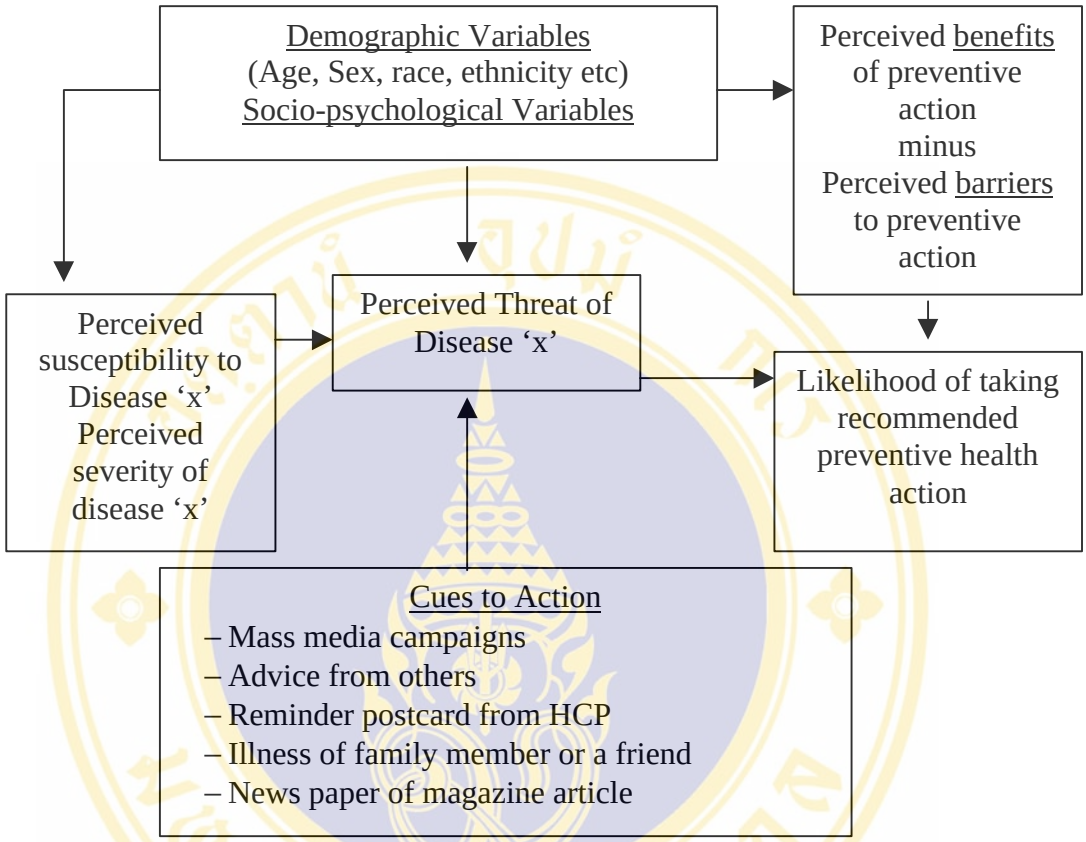

Figure 3 : The Health Belief Model (adopted for HBM).

2.3 Review about the outcome variable

2.3.1 Traffic safety in Thailand

Injuries and deaths from traffic crashes have become a major public health and socio-economic problem in Thailand. Injuries, fatalities and economic losses due to traffic crashes have increased with the rising level of motorization. This study (13) analyzes hospital-based data compiled by the Ministry of Public Health, data compiled by the National Police Office and data compiled by the traffic engineering division of the Department of Highways, Ministry of Transport and Communications. Analysis reveals that 70% of the people injured or killed in traffic crashes are aged 10-39.

Men are at four to five time higher risk of death and injury due to traffic crashes than women. The number and rate of traffic injury in Thailand swung from a record low during the economic recovery in the 1980's to record a high during the bubble economy, then declined with the economic crisis in 1997. The economic costs were estimated at U.S.$1.6 billion in 1995.

An urban-rural difference in traffic injuries has been recorded with a higher rural case-fatality rate. A number of known behavioral risk factors have been identified, i.e., drunk driving, speeding, substance abuse and failure to use helmets and seat belts. However, determinants of behavior need further investigation. Hazardous road locations have also been mapped. Trends of traffic injuries seem to follow trends of economic growth. Without effective policy and implementation programs to control the determinants, it is expected that traffic injuries will increase as the country recovers from economic crisis. A major pitfall to many current government programs is that they incorporate no systematic evaluation. The fragmented structure of road safety authorities further complicates collaboration and coordination. A broad coalition of stakeholders is needed to catalyze policy action (14).

Table 2: Road Traffic Accidents in Thailand and Bangkok

Year	Number of Cases	Number of Vehicles		People Involved		Property Damage
		Motorcycles	Cars	Injured	Dead	Damage
			Whole Kingdom			
1993	84,892	48,853	36,039	25,330	9,496	1,021.00
1994	102,610	57,305	46,305	43,541	15,176	1,408.20
			In Bangkok			
1993	64,006	41,554	22,452	9,960	695	495
1994	72,359	45,117	27,218	18,845	1,290	416.7

Source: Police Department, Division of Police Highway

2.4 Review about the independent variables

There are essential factors that govern the predisposition of the traffic users to comply or violate the traffic safety measures, like age of the driver and the age of the passenger. Many studies reveal the strong association of age of a person and his/her attitude towards the traffic safety (15). The sex of the traffic users has a preference for the males than the females. . There is an evidence from the literature that male are prone to the risk taking behavior and are involved more in road traffic accidents than the females. A study was conducted in this perspective in Spain (16), published in year 2000. According to a study conducted in 1997 (17) in Bangkok Metropolitan Area, the single-marital status had an RR of 2.25 (1.7-3.1). The interpretation appears to be that the single status has a 2.25 times mote risk of having the road traffic accidents than those of the married ones.

Education: Education plays a major part in determining the action towards the cue to actions in a community. A case-control study conducted in rural Thailand on motorcycle riders in 1995 (18), showed the results of the intervention study. A community-based programme for motorcycle rider education was provided for motorcyclists in all villages of 3 randomly selected sub-districts in Mae Sot District, Tak Province, northern Thailand, between January and March 1995. Following the

education programme, the injury rates for 1995 and 1996 were significantly lower in the intervention than in the control population. The annual number and rate of fatal motorcycle injuries decreased after the intervention although there was no significant difference between the two populations. Motorcycle rider education has been documented in this study for being a promising positive role player in enforcement of the other intervention programs to reduce the incidence and prevalence of the road traffic accidents. Thus this variable inclusion will try to look into this established association on the part of the motorcyclist.

In Pakistan, literacy rate is lower than Thailand. The low educational level Among the drivers might have a strong association with the accidents and injuries and lower compliance with the road safety measures.

Helmet use: It is a well-established fact that the helmet use is protective against the head injury, if properly used, in case of the motorcycle accidents. There are a number of the studies to support this fact, all over the world and in Thailand. A study published in Annals of Emergency medicine, conducted in California counties (19), looked at the retrospective cohort of about 4,790 non-fatal injured motorcycle riders. This study estimated trends in impairment before and after the 1992 California Mandatory Helmet Use Law using the Injury Impairment Scale (IIS)

After implementation of the law, the proportion of riders likely to sustain head injury–related impairments decreased by 34.1%. Helmet nonuse, speeding, and drinking were among variables associated with increased odds ratios of head injury estimated to cause impairment.

In Thailand, a retrospective study conducted recently in Phra Chom Klao Hospital, Phetchaburi, showed analysis done in 3,225 injured motorcyclists. Approximately 21 per cent of the accident-involved riders had been drinking alcohol and about half of the riders were unlicensed. Only 4 per cent of the riders were wearing helmets at the time of the accident. Helmet usage was much lower among passengers, only about 1 per cent (20).

Helmet usage, as shown in the above-mentioned study is still low in Thailand, particularly the passengers of the motorcyclists. This necessitates the investigation into the perceptions of the passengers about their perceptions into the road safety and their behavior towards it.

In my country, Pakistan, according to National Injury Survey of Pakistan (1997), the motorcyclist suffers 21% of the proportion of injuries by mode of transport. The exact data of the percent using helmets while driving motorcycles is not yet available. In Pakistan, there is no tradition of having taxi motorcyclists , however Rakshaws (Tuk Tuk in Thailand) are quite common, as mode of public transport. The motorcyclists in general population need in-depth investigation.

Number of years of driving: Studies (21) have shown that the experience is negatively correlated with the accidents. The greater the experience is , lesser is the chance of indulging into the accidents and may be the greater insight into the road safety.

License: Licensing in relation may show some acquired ability or some experience or skill in motorcycle driving. A study conducted in Bangkok, published in 1997, showed injuries from road traffic accidents in Bangkok Metropolis. The study included 346 in-patient cases suffering injuries from road traffic accidents in Bangkok Metropolis. Most of the patients drove a motorcycle, had their license for only a short period, and drove more than 5 hours a day (22). The short lived or absent license might have some behavioral component towards the risk-taking attitude and casual perceptions about the road safety. Also regular suspension of the driving license indicates the regular casual behavior.

Drug and Alcohol use: Motorcycle drivers have the highest frequency of alcohol use among all road users. A study in California in 1991-1992, among over 3,000 motorcyclists, investigated alcohol use among a large sample of injured motorcycle drivers and examined how crash characteristics differ with the use of alcohol. Among drivers tested for alcohol use, 42% tested positive for the presence of

alcohol. Drinking drivers were more likely to be speeding and less likely to wear a helmet, and more frequently had single motorcycle crashes than non-drinking drivers.

In Australia, the incidence of alcohol and drugs in fatally injured drivers were determined in three Australian states; Victoria (VIC), New South Wales (NSW) and Western Australia (WA) for the period of 1990-1999 (23). A total of 3398 driver fatalities were investigated which included 2609 car drivers, 650 motorcyclists and 139 truck drivers. Alcohol at or over 0.05 g/100ml (%) was present in 29.1% of all drivers. The highest prevalence was in car drivers (30.3%) and the lowest in truckers (8.6%). Almost 10% of the cases involved both alcohol and drugs. Drugs (other than alcohol) were present in 26.7% of cases and psychotropic drugs in 23.5%. These drugs comprised cannabis (13.5%), opioids (4.9%), stimulants (4.1%), benzodiazepines (4.1%) and other psychotropic drugs (2.7. Cannabis had a larger prevalence in motorcyclists (22.2%).

The use of alcohol is a crime by law for the Muslim population in Pakistan. However, among the truckers and the private transport drivers are generally thought of having some drug addiction (mostly marijuana). The association of this addiction has not been yet established scientifically in Pakistan. The rules are strict and with occasional check points by the highway police to check judge the driver’s condition while driving but very few places are equipped with the scientific measures to document the blood levels of the illicit drugs.

Number of Passengers: The presence of the number of the passengers has also significant influence on the accident and low road safety.

A study conducted in New Zealand, a logistic model was fitted to data for the years 1995-2000 to estimate the effects of alcohol, driver's age and the influence of passengers carried on the risk of driver fatal injury in New Zealand.. Driving with a single passenger was associated with approximately half the nighttime risk of driver fatal injury relative to driving either solo or with two or more passengers (24). According to a recent travel survey, the types of passengers carried at the times of

night and days of week studied appear to differ significantly from the types of passengers carried generally, which may lead to different passenger effects on driver behaviour.

Condition of the vehicle: The riders of the larger engine capacity tend to wear more protection against the threatened injury due to accident. The Thai taxi motorcyclists and passengers are to be investigated through this study to look into the behavior regarding this referred evidence from the study (26).

Regular check-up of the motorcycle: According to "Motorcycle Accident Cause Factors and Identification of Countermeasures" (the Hurt Report). This study examined nearly 4,500 crashes occurring in the Los Angeles area and was sponsored in part by NHTSA in 1981. Motorcycle riders in these accidents showed significant collision avoidance problems. Most riders would over brake and skid the rear wheels, and under brakes the front when greatly reducing collision avoidance deceleration. The ability to counter steer and swerve was essentially absent. This also implies if these essentialities toward the safe driving are mal or non-functioning.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Study design

A cross-sectional survey, which was aimed to describe personal characteristics, perceptions towards the susceptibility and severity to RTA, threat to traffic safety and cues to action. The data collection was done by the structured questionnaires and observations during 25th Jan 2004 to 9th February 2004. The study population was selected as accidental sample of 200 respondents for each category i.e. taxis motorcyclists and their passengers. About 220 respondents were contacted and after data cleaning and sorting 208 were found to be eligible to be included for data analysis

3.2. Study population and place

Taxi motorcyclists and their passengers in Phayathai District of Bangkok, Thailand.

Sampling frame was done according to the randomly selected geographical locations within the Phayathai district, and sampling was done on accidental basis. These geographical locations and the number of the target population are represented in table 3. The taxi motorcyclists and their passengers were free to refuse and the respondents contacted the next available respondent, in that case. The numbers of the jacket of the taxi motorcyclists were used to contact the respondents of the same taxi motorcyclists, during the period of the data collection procedure, by chance. There were about 20 sites and mostly the population was very dynamic and mobile. Only at Soi Aree, there were 46 respondents due to the huge input an output of the taxi motorcyclists from near by other places.

Table 3. Sampling of the taxi motorcyclists per geographical location

No	Geographical location	Number (N=208)
1	Yothi road	21
2	Child Mental Health Department	16
3	Soi Sasana	26
4	Department of Science	4
5	Rachawithi 15	1
6	Soi Luacha	10
7	Petchburi 5	11
8	Department of Public relations	5
9	Soi Aree	46
10	Savia	4
11	Suan Nguan	4
12	Phayathai Pirom Garden	2
13	Faculty of Dentistry	1
14	Under Express Way	6
15	Rachawithi 2	20
16	Ministry of Finance	3
17	Military Welfare Center	6
18	Soi Boon Chusi	6
19	Rang Nam	10
20	Rachakroo	6

3.3 Sample size

The accidental sampling was done on 200 taxi motorcyclists and 200 passengers of those motorcyclists, in the study area.

3.4 Research instruments

The structured questionnaire was prepared in English and translated into Thai language for the taxi motorcyclists and their passengers. It consisted of 5 main parts.

This questionnaire was adopted to some extent and modified from the previous study done at Mahidol University (27).

The investigator himself got the real experience with minimum of 10 rides randomly selected from the target group of taxi motorcyclists.

The passenger questionnaire consisted of the questions to assess the passenger view of the driver's riding and getting the required information in possible less consuming time of the passenger.

For analyzing the data, appropriate method was used using the standard statistical package (e.g. Minitab and Epi info).

3.5 Validity and reliability testing

The questionnaires was tested upon the thirty motorcycle riders and their passengers from the area around Victory Monument i.e. around the area of Faculty of Public Health, Mahidol University as a pre-test, first, for validity and reliability. The reliability of the questions was checked and necessary changes were made.

3.5.1 Content validity

The content validity was done by the thesis committee by repeated check-up and revision for paper contents and meaning.

3.5.2 The reliability testing

The reliability testing was done by performing the pre-test in the area of faculty of public health. This data was then analyzed for the reliability on alpha co-efficient of Cronbach for the items in the questionnaire about the perceptions about the susceptibility, severity to RTA and threat to traffic safety. These items had an

interval measurement scale for “agree”, “undecided” and “disagree”. The results of this reliability testing are tabulated in table C 1, appendix C.

3.6 Data collection

Regarding representative of sample, face to face interviews were conducted for clear information. In order to solve the language barriers and answer the sensitive question, the questionnaire was translated into Thai language and trained female local language speakers, who were the graduate students, worked as interviewers. Thus, sampling methods became reliable. Before questioning begins, the interviewers explained the purpose of the study, and obtained the respondents’ full consent to participate, reducing refusal bias. The information bias might come up on both sides, but this was taken care by the researcher’s own practical observation with some taxi motorcyclists and also the structured questionnaire limited the exaggerations by the respondents.

3.6.1 The taxi motorcyclists

Bangkok Metropolitan City (Phayathai District) has almost 50-motorcycle taxi service points. There are 10-20 riders in each service point. The drivers were contacted by the interviewers on the basis of chance. The drivers were free to not answer the questionnaire, thus only the drivers who were willing to answer, their data was noted down on the questionnaires by the interviewers. The driver was asked according to the structured questionnaire and the jacket number of the driver was noted down to contact the same driver’s passenger for his/her questionnaire part, on the availability of a willing respondent.

3.6.2 The passengers

The passenger of the same driver was asked according to the passenger questionnaire, on the point of the service used. The passengers were also free to not

answer the questions. They were contacted according to accidental sampling technique.

3.6.3 Quality control

The quality control of the data was maintained by recruiting the educated interviewers. The data was cleaned at the survey site. In case of a refusal, the next available respondent was contacted to complete the estimated sample size. In total, 416 (208 each) questionnaires were found eligible The respondents' secrecy was strictly maintained. The data's hard and soft record was kept under lock/password protection.

3.7 Data analysis

3.7.1 Descriptive Statistics

Frequency and percentage was used to describe the study variables.

3.7.2 Inferential Statistics

After frequency distribution cross tabulation was done along with Chi-square test that assessed the relationship between independent and dependent variables. The significance level worked at 0.05.

CHAPTER IV
RESULTS

This research was conducted to describe the perceptions of the taxi motorcyclists and their passengers about the traffic safety. The study area was selected as Phayathai district of Bangkok. A pre-test was done in a similar area close to Phayathai district around Faculty of Public Health over a sample of 30 taxi motorcyclists and their passengers (total 60 respondents) in Jan 2004. The reliability measures were taken into account for the questions and then the necessary adjustments were made, before the introduction of the tool to the study population.

The data collection was carried out from 25th Jan 2004 to 9th February 2004. The study population was selected as accidental sample of 200 respondents for each category i.e. taxis motorcyclists and their passengers. About 220 respondents were contacted and after data cleaning and sorting 208 were found to be eligible to be included for data analysis. All the valid questionnaires were then analyzed on MiniTab and Epi info statistical software.

The purpose of the study was to determine the personal characteristics of the taxi motorcyclists and their perceptions about the susceptibility and severity to RTA, threat to traffic safety and cues to action in terms of the traffic safety as perceived by their passengers according to their own personal characteristics. The study results are presented in two parts:

Part I: Descriptive explanation of results,

Part II: Inferential explanation of results, as follows:

4.1 Descriptive explanation of the results

This part presents the results as a tabular presentation along with the explanation for the readers, as needed, for prescribed factors for the study as under:

1. Personal characteristics of the taxi motorcyclists
2. Perceived susceptibility to road traffic accidents by taxi motorcyclists
3. Perceived severity to road traffic accidents by taxi motorcyclists
4. Perceived threat to traffic safety by taxi motorcyclists
5. Cues to action for the traffic safety for taxi motorcyclists

4.1.1 Personal characteristics for taxi motorcyclists

The personal characteristics of the taxi motorcyclists included sex, age, marital status, educational level, length of the driving the motorcycle, license status; duration of driving in hours and visual acuity status as they drive the motorcycle.

Table 4 shows that the most of the taxi motorcyclists were males (97.1%), although small percentage of them were females (2.9%). The ages of the taxi motorcyclists were grouped into three. Most of the drivers, irrespective of their sex, fell in the age group of 31-45 years of age (47.8%). The age group 15-30 years was the second one having about 45.6% of the respondents. The least number was seen for the age group 46-70 years (6.3%). The median age happened to be 32 years with a standard deviation of 7.704 and the minimum age for the respondent around19 years to a maximum of 64 years.

Table 4 Frequency distribution of personal characteristics of the drivers.

Personal characteristics	Number (N = 208)	Percent
Sex		
Male	202	97.1
Female	6	2.9
Age		
15 to 30 years	95	45.9
31 to 45 years	99	47.8
46 to 70 years	13	6.3
Mean =32.33,SD=7.704, Min=19, Max=64, Median=32.00		
Marital Status		
Unmarried	90	43.3
Married	118	56.7

Personal characteristics	Number (N = 208)	Percent
Education level		
Illiterate	2	1.0.
Primary school	66	31.7
Elementary school	62	29.8
High school	54	26.0
College/university level	24	11.5
Experience of driving the motorcycle		
Less than 5 years' experience	83	39.9
5-9 years' experience	60	28.8
≥10 years' experience	65	31.3
Mean =7.125,SD=6.284, Min=0.5, Max=40, Median=5.0		
Having driving license		
No	5	2.4
Yes	203	97.6
Status of driving license	**(n=203)**	
Temporary	99	48.8
Permanent	103	50.7
Don't know	1	0.5
Riding motorcycle hours per day		
1 to 6 hours per day	47	22.8
7 to 12 hours per day	131	63.6
13 to 24 hours per day	28	13.6
Visual problems while driving		
None	193	92.8
Blurring	6	2.9
Double vision	2	1.0
Spots	2	1.0
Can't see far	5	2.4

For the marital status of the respondents, most of them were married (56.7%), as shown in table 4. The motorcyclists, who were single (40.4%) and divorced, separated or widowed (2.9%), constituted a group for some attention, as we would see in our further discussion.

Education level of the respondents (taxi motorcyclists) fluctuated around the primary school level and the high school level, mostly. The primary school level education was about one third (31.7%), nearly approached by the elementary school level (29.8%) and the high school levels (26.0%). It is quite interesting to note that some of the respondents not falling in the above categories are the ones who attain their bachelors, certificate or diploma level education, for the “College/University” category of the results. Negligible number of the respondents (1.0%) were illiterate.

Slightly more than one third (39.9%) of the drivers had an experience of less than 5 years. About one third (28.8%) had an experience of 5 to 9 years. Rest of one third (31.1%) had the experience of 10 and more than 10 years to the maximum experience of 40 years of driving the motorcycle.

For driving license status, almost all of the respondents were having some license, either temporary or permanent. Mostly (97.6%) said that they held a license. Among them nearly half (48.8%) had the temporary license in possession and half (50.7%) had permanent license. Only about small number (2.4%) were without any license.

The most of the drivers (63.6%) drove 7 to 12 hours per day. About less than one third (22.8%) drove less than that and some (13.6%) drove more than 12 hours to round the clock.

Visual acuity is considered must for a good driving and maximum (92.8%) of the taxi motorcyclists in this study were having no visual problems, less (2.9%) presented with the blurring of vision, and equally (2.4%) couldn’t see far, and least (1%) had double vision or saw spots in their visual fields.

4.1.2 Perceived susceptibility towards road traffic accidents

The table 5 shows the drivers' perceptions about the road traffic accidents. The questionnaire was administered to the respondents in three parts for their perceived susceptibility, severity and threat to the traffic safety. The instrument was graded according to the positivity or the negativity of the questions.

Table 5 Number and percentage of the drivers' answers classified by level of agreement to perceived susceptibility to RTA

No	Statement (N=208)	Level of agreement		
		Agree %	Undecided %	Disagree %
1	You are driving in an area where accident may occur easily	61.1	24.5	14.4
2	Motorcycle is easy to drive, no need to take care as so much because less of accident occur	7.2	13.9	78.8
3	Traffic lights located in suitable area can prevent accidents	91.8	5.8	2.4
4	Accident cannot happen more if people use cross roads	84.1	8.7	7.2
5	It is easy to get accident when it has rained on the roads	95.7	2.4	1.9
6	The rough road should not be one cause of accidents	13.5	7.7	78.8
7	No accident occurs if there is clear visibility	60.1	23.6	16.3
8	It is not likely to get an accident when light is bad	7.2	17.8	75.0
9	Accident may occur if there is insufficient traffic light	75.5	11.5	13.0

The table highlights the descriptive analysis of the perceptions about the susceptibility towards the road traffic accidents, for the taxi motorcyclists among 208 respondents, all responded for this section. Some above the half (61.1%) of the respondents agreed when asked about their surroundings those could render them susceptible towards the road traffic accident. However, around one fourth (24.5%)

were not pretty sure about the situation, least number (14.4%) of the respondents disagreed. While the instrument tried to look into the negative perception about the susceptibility towards RTA, by asking for not being necessary to take care while driving motorcycle, majority of the taxi motorcyclists disagreed with the statement (78.8%). A small number was either not sure or just agreed with this negative statement. A very genuine statement regarding the presence of traffic lights in suitable areas resulted in maximum agreed responses (91.8%). Only a mere number of respondents remained not sure or showed disagreement (5.8% and 2.4%, respectively).

When asked about the use of cross roads that may diminish the accident occurrence, majority agreed (84.1%) while about equal number of respondents were either not sure or disagreed the statement (8.7% and 7.2%, respectively). The wet roads, when it is rained, leave roads slippery and vulnerable for the motorcycles. The respondents, most of them (95.7%) agreed. Rest were either undecided or not in agreement of the statement. Another question regarding road condition that happened to be a negative one for the condition of the road being rough one, mostly (78.8%) disagreed with the statement for not being one cause of the road traffic accidents. On lesser part (13.5%) agreed and least (7.7%) remained undecided.

Regarding visibility and the road traffic accidents, two questions were asked in proviso of the susceptibility. When asked that there could be no accident if there were clear visibility, a little more than half agreed with the statement (60.1%). Nearly one fourth (23.6%) remained undecided about the role of visibility and its relation to road traffic accidents. Minimum (16.3%) disagreed. For the bad light conditions those might not be causing the accidents, two third (75%) of the respondents disagreed, showing that bad light conditions do have a role in the causation of the RTAs. However, most of rest (17.8%) remains undecided about that, while some (7.2%) showed agreement to the statement. In the same manner two thirds also believed that traffic lights if remain insufficient, may result in accidents (75.5%), almost half of the rest (11.5%) kept undecided and half (13%) disagreed.

Table 6 explains the total score towards perceived susceptibility to road traffic accidents, which also makes the baseline for the further statistical analysis in part II. The total score happened to be 27 for susceptibility questions and a cutoff point was made at the median of 23 score and about one third (31.3%) fell at the median. Minimum score was 15 and maximum 27. The scoring criteria depended upon the allocation of one score for the correct answer and zero for the wrong answer, hence adding up scores for all the nine questions and getting the frequency for over all score (table B1, appendix B). Only three respondents answer all questions correctly. This overall score was then grouped into two for low and high safety as shown in table 6.

Table 6. Group classification of total score for perceived susceptibility of drivers towards road traffic accidents

Total score	Number (N = 208)	Percent
≤ Median score (≤ 23 score)	67	32.2
> Median score (> 23 score)	141	67.8

4.1.3 Perceived severity towards road traffic accidents

In re of the motorcycle accidents, not being serious problems, almost 71% (70.7%) disagreed with the assertion. About half of the one third (14.4%) settled for not a decision and almost same (14.9%), selected to prevail as disagreed. This seriousness of a motorcycle accident, in nature, when further looked into majority (63.5%) of the respondents were inconsistent that death due to a motorcycle accident is serious enough, in terms of being more to happen, when we compare it with other vehicle accidents. About this severity, less than one third (22.6%) showed undecided retort and about of this (13.9%) dissented. As for the motorcycle accidents not being more lethal than other vehicle accidents, roughly about half or so(43.3%) declined the statement and showed consistency that motorcycle accidents can be more deadly than

the others. About less than a half of the respondents (37%) rendered not assured and remaining (19.7%) agreed.

In lieu of the perceived severity to RTAs, table 7 depicts the statements with the percentages as acquired by the respondents for their agreements to disagreements or remaining undecided about the statements asked from them. The frequency of the distribution for perceived severity to road traffic accident was used to calculate the low and high level (table B2, appendix B). The scoring criteria was used as giving one score to correct answer and zero for the wrong answer, hence adding up scores for all the nine questions and getting the frequency for over all score. The table 7 gives the descriptive analysis as explained in the following paragraphs:

Table 7 Number and percentage of the drivers' answers classified by level of agreement to perceived severity to RTA

No	Statement (N=208)	Level of agreement		
		Agree %	Undecided %	Disagree %
1	The motorcycle accident is not a serious problem	14.9	14.4	70.7
2	Death from motorcycle accident is more serious as compared to other vehicles	63.5	22.6	13.9
3	The motorcycle accidents don't have more deaths than other vehicles	19.7	37.0	43.3
4	The motorcycle accidents cause severe injuries or permanent disabilities	85.6	8.7	5.8
5	Most motorcycle accidents cases are spent less than 2 weeks for hospitalization	25.0	52.4	22.6
6	The motorcycle injury can lead to long-time absence from work	71.6	18.8	9.6
7	The road traffic accidents do not lead to vast loss of money	21.6	22.6	55.8

No	Statement (N=208)	Level of agreement		
8	When compared to other accidents, a motorcycle accident causes a lot of money spent on treatment	57.7	29.3	13.0
9	An accident can cause financial crises in a family	87.0	7.2	5.3

Apropos to the resulting injuries from a motorcycle accident, that can lead to severe injury or permanent disability, plurality agreed and a few remain undecided or disagreed (85.6%, 8.7% and 5.8%, respectively). There was a tilt towards being undecided about the status of hospitalization of the accident cases for less than two weeks (52.4%). Some one fourth thought it to be likely to happen and almost the same number was against it (25% and 22.6%). Most (71.6%) agreed that a motorcycle accident could lead to long time absence from the work. Rest (18.8% and 9.6%,) was either not sure or dissented on this aspect, respectively.

Midway of the total (55.8%) valid respondents (n=208), declined with the notion that motorcycle accident could lead to the vast loss of money. Half of this (22.6%) were doubtful and nearly same (21.6%) agreed that it might not lead to vast loss of money. Another aspect of financial loss due to motorcycle accident, as compared with the other accidents; more than half (57.7%) acquiesce that motorcycle accidents caused a lot of money spent on the treatment. About one third (29.3%) were indecisive and minimum (13%) differed. An accident can lead to financial crises in a family and this statement was consistent with the most (87%) of the respondents. Only a very small number showed confusion about decision or resulted in a disagreement (7.2% and 5.3%, respectively).

The perceived severity to RTA was run in frequency distribution and it was found to be not normally distributed with a negatively skewed distribution (-0. 579). The median was 23 and minimum score as being 14 to the maximum of 27. About 9 respondents were able to answer correctly. This distribution was then

grouped for two of low and high safety as shown in table 8 for detailed inferential analysis.

Table 8 depicts the low and high perception levels for traffic safety as grouped into two. This criterion is based upon the marginal median value for the score for the perceived severity to road traffic accidents (table B 2, appendix B).

Table 8 Group classification of total score for perceived severity of drivers towards road traffic accidents

Total score	Number (N = 208)	Percent
≤ Median score (≤ 23 score)	97	46.6
> Median score (> 23 score)	111	53.4

4.1.4 Perceived threat to traffic safety

In view of the threat to the traffic safety, table 9, encompasses the inferences from the instrument submitted in order to measure the perceived threat to traffic safety by the taxi motorcyclists.

Table 9 Number and percentage of the drivers' answers classified by level of agreement to perceived threat to traffic safety

No	Statement (N=208)	Level of agreement		
		Agree %	Undecided %	Disagree %
1	Helmet use has a major role in traffic safety	99.0	0.5	0.5
2	Helmet has no role in traffic safety on small roads	9.6	9.6	80.8
3	On a motorcycle ride, passenger should also use helmet	92.8	5.8	1.4

No	Statement (N=208)	Level of agreement		
		Agree %	Undecided %	Disagree %
4	It is not necessary to always wear a helmet while riding a motorcycle	13.9	8.2	77.9
5	The traffic laws are necessary for all drivers	99.0	1.0	0.0
6	Traffic regulations are not beneficial	2.4	1.9	95.7
7	A good conditioned motorcycle gets less traffic accidents	78.8	13.9	7.2
8	It is difficult to follow traffic laws and regulations	19.2	24.0	56.7
9	A vehicle must have a regular check-up	95.7	3.8	0.5
10	It is not possible for you to have your vehicle checked regularly	25.0	21.2	53.8

Helmet use during a motorcycle ride is a proven safety measure. Three different statements peeped into the perceptions of the respondents about the helmet usage as a safety measure. Almost all (99.0%) of the respondents voted for the helmet as having a major role in traffic safety. They also have almost same concern about the helmet's importance on small roads and about most (80.8%) support the use of helmet even on small roads. It is interesting to note that some percentage is still in doubt or consider helmet not useful on the small road (9.6% each), although this percent seems to come out of the 99%, that considered its importance in traffic safety. However, not being very significant (as we see in inferential statistical part of this chapter). Passenger's safety is an important issue in regards to the traffic safety. A greater number (92.8%) of drivers realized the importance that the passenger should have also used the helmet. Some (5.8%) kept themselves undecided and few (1.4%) didn't have the affirmative response. Majority (77.9%) considered it necessary to always wear the helmet while driving and minority (13.9%) thought that it was not necessary to always wear a helmet while driving. Some (8.2%) of them were indecisive about it.

Almost all of the respondents (99%) agreed that traffic laws were necessary for all the drivers. Bulk (995.7%) thought that they were also beneficial and a few (2.4%) didn't seem to agree but the few (1.9 %) remained in the mist of indecisiveness. Following traffic laws and regulations as a practice, only little above the half (56.7%) found it not difficult. However, small number (19.2%) of respondents conveyed their perception by agreeing to the difficulty in following traffic laws and regulations. About one fourth (24%) couldn't decide either way.

For the condition of vehicle as perceived by the drivers in lieu of the traffic safety measure, Maximum (78.8%) agreed that a good conditioned motorcycle gets less traffic accidents. Some (13.9%) being not certain and lesser number (7.2%) declined the agreement. Most (95.7%) of the respondents were in the favor of having a regular check-up of the motorcycle. Very few (3.8%) were not sure about this and negligible number (0.5%) disagreed. Regarding having a possibility to have a regular check-up of the motorcycle, half (53.8%) said that it was possible for them and about one fourth (25%) showed their agreement for the negative response. Nearly one fourth (21.2%) remained ambivalent whether it was possible for them or not to have a regular check-up of the motorcycle.

The perceived threat to traffic safety was analyzed on frequency distribution and it was found that it was not normally distributed with a negatively skewed distribution (-0.795). The median was 28 and minimum score as being 20 to the maximum of 30 (there were 10 questions as compared to previous ones who had 9 question each). This distribution was then grouped for two of low and high safety as shown in table 10 for detailed inferential analysis. (The frequency distribution is presented in table B 3 of appendix B).

The low and high safety perceived in view of the threat to traffic safety, is analyzed in group for the frequency distribution, showing less than half (40.4%) in low safety group and more than a half (59.6%) in high safety group. Generally having higher traffic safety perception.

Table 10 Group classification of total score of drivers towards threat to traffic safety

Total score	Number (N = 208)	Percent
≤ Median score (≤ 28 score)	84	40.4
> Median score (> 28 score)	124	59.6

4.1.5 Cues to action

Respondents were asked for cues to their actions for their perceptions in acquiring safety behavior on the roads. The frequency distribution of the persons known to the taxi motorcyclists was grouped according to the median of the results i.e. 3. The standard deviation was 3.517, minimum person known was 1 and maximum known persons were 25 (table B 4, appendix B)

There are a number of cues to action in accordance with the traffic safety. Media plays an important role as depicted by the maximum number of the respondents in drivers' category, as shown in table 11. Most (62%) of the respondents get the cue to action or influenced by the campaigns on TV, followed by the Newspaper (20.7%) and cutouts (17.3%). 62% think that media has a role in making people act appropriately, but not always. Some (36.1%) had an opinion that yes it does play a role, while a few (1.9%) remain didn't agree with the either.

Table 11 Number and percentage of drivers by cues to action

Cue to action	Number (N = 208)	Percent
Getting most information on traffic safety		
TV	129	62.0
Newspaper	43	20.7
Cut-outs	36	17.3
Media role in making people adopt traffic safety		
No	4	1.9
Yes (not always)	129	62.0
Yes (always)	75	36.1

Cue to action	Number (N = 208)	Percent
Having ever an accident in past 2 years		
No	79	38.0
Yes	129	62.0
Having had an accident and hospitalization	**(n = 129)**	
Hospitalized	60	46.5
Not hospitalized	69	53.5
Hospitalization due to fractures	**(n = 60)**	
No	38	63.3
Yes	22	36.6
Knowing a person who had had an accident in the past 2 years		
No	60	28.8
Yes	148	71.2
Specification for known persons	**(n = 143)**	
Know at least 3 persons	96	67.1
Know 3 to 25 persons	47	32.9

More than one third (38%) didn't have any occurrence of accidents in the past two years. Rest (62%) revealed that they had had accidents in the past two years. Among those, who had an accident in the past two years, some (46.5%) were hospitalized for their accidents. Others (53.5%), did not get any hospitalization. Still more (36.6%) of those hospitalized, said that they had fractures as the cause of their hospitalization. Apart of this, rest (63.3%) had reasons other than fractures for getting hospitalized.

A little more than one fourth (28.8%) didn't know any person who had had an accident in the past two years. Most (71.2%) of the respondents among the taxi motorcyclists (drivers), knew any person who had had an accident in the past two years. Total number of this percentage was 148. Only 143 gave the exact number of

the persons known to them. For 143 positive answers, most (67.1%) knew less than 3 persons. Only about one third (32.9%) knew more than 3 persons to up to 25 persons who had an accident in the past two years.

4.1.6 Personal characteristics of the passengers of the taxi motorcyclists

The table number 12 shows personal characteristics of the passengers such as sex, age, education level, length of having motorcycle ride in years, minutes of ride per day on motorcycle and experiencing any problems with the driver; were inquired as a base for their perceptions about driving safely. It forms the dependent variable for this study.

The frequency distribution of the duration of riding the motorcycle by the passengers was grouped according to the median of the results i.e. 4. The standard deviation was 3.806, minimum years ridden was 0.08 years and maximum were 20 years (table B 5, appendix B). The median was chosen as the cut-off level due to the non-symmetrical distribution of the frequencies (positively skewed to 1.123 and leptokurtosis of 1.437) and grouped into two. Less than 4 and more than 4 were chosen to present the data.

The minutes of ride per day were also run into the frequencies and it was also found not being under normal curve (positive skewness of 4.040 and leptokurtosis of 20.627). Thus the median value (5 minutes) was selected to make it into two groups of less than and more than 5 minutes (table B 6, appendix B). The standard deviation was 8.863 with minimum time duration in minutes of 1 and maximum of 67 minutes.

Table 12 Number and percentage of the personal characteristics of the passengers

Personal characteristics	Number (N = 208)	Percent
Sex		
Male	108	51.9
Female	100	48.1
Age		
15 years and less	6	2.9
16 to 30 years	129	62.0
31 to 45 years	53	25.5
46 and above	20	9.6
Mean =29.24,SD=10.242, Min=9, Max=59, Median=27		
Education level		
Primary school	26	12.7
Elementary school	21	10.3
High school	54	26.5
College/university level	103	50.5
Duration of riding the motorcycle		
≤ 4 years	108	51.9
> 4 years	100	48.1
SD=3.806, Min=0.08, Max=20.00, Median=4		
The minutes per day of motorcycle ride		
≤ 5 minutes per day	130	62.5
> 5 minutes per day	78	37.5
SD=8.863, Min=1, Max=67, Median=5		
Experiencing problems with the driver		
No	196	94.2
Yes	12	5.8

Respondents, the passengers, fall into the equal halves on the basis of sex. Males were 51.9% and females 48.1%. Most of them aged between 16 to 30 years of

age group (62%) followed by 31 to 45 year's age group (25.5%). 46 years and above were about 9.6% and rest 2.9% were 15 years or less of age. As for the education level, none of the respondents was found to be illiterate. Most (50.5%) fell into the "others" category that constitutes the education level beyond the high school. Among the others (n=103), most (80.5 %) were the bachelors, a few (3.8%) were having certificates, some (9.7%) had acquired diploma in their education and lesser than that (5.8%) were master degree holders. High school level education remained 26.5%, primary school 12.7% and elementary school was 10.3%, among the respondents.

About half (51.9%) has been riding the motorcycle for less than 4 years. More than 4 years constituted around another half (48.1%). Mostly (62.5%) spent less than 5 minutes per day for their taxi motorcycle ride. Only 37.5% used the taxi motorcycle for more than 5 minutes, up to 30 to 60 minutes in a few cases. Bulk of the respondents (94.2%) were not having any problems with their drivers. Only the few (5.8%) expressed some problems with their drivers of taxi motorcycles, those will better dealt with in the discussion part.

4.1.7 Passengers' perceptions about driving safely

The passengers were interviewed for their knowledge and perception about driving safely. The correct answer was given the score one and total number and percent was accounted for the correctly answered questions for each question, as practice (table 13).

For riding with the driver along, whether alone or accompanied by some other passenger, majority (96.2%) responded that they ride alone with the taxi motorcyclists. Most (89%) said that the taxi motorcyclists use the helmet before they start the ride. More than two third (76.9%) responded that the driver starts up with the ride smoothly. A little above the half of the passengers (59.1%) was confident that the drivers drive at optimal level of speed. Driving on the usual (left-hand side in Thailand), was only agreed by nearly half (47.6%). Only some (42.8%) had a view that the drivers (taxi motorcyclists) follow the traffic rules and regulations. In contrast

to this most (88.9%) were well confident that drivers see and follow the traffic light signals. Most of the taxi motorcyclists were having good behavior with their passengers (98.6%). Two third of the passengers (74.5%) reported that the drivers were not found drunk or abusing some drugs.

Table 13 Passengers' perceptions about driving safely

No	Passengers' perception about driving safely	Correct (N = 208)	Practice (%)
1	Ride alone with the driver only	200	96.2
2	Taxi motorcyclist wears helmet before he drives	186	89.4
3	Starts-up with the drive smoothly	160	76.9
4	The driver drives on an optimal level of speed	123	59.1
5	The driver rides on the road on the usual side	99	47.6
6	The driver follows the traffic rules and regulations every time	89	42.8
7	Driver sees and follows the traffic light signals	185	88.9
8	The driver has a good behavior with the passenger	205	98.6
9	Driver is not found drunk or abusing drugs	155	74.5

4.2 Inferential statistical explanation

The inferential explanation of the results mainly has a basis on the relationship of the independent variables to the dependent variable. During this part of the chapter, it will be seen that most of the results come out to be interesting for the target group.

4.2.1 Traffic safety as perceived by the passengers

The traffic safety behavior constitutes the dependent variable in this study. In the table 14 it is shown as the frequency distribution according to the correct answers given by the respondents for the 9 questions asked about the drivers' driving

safely. The median score happened to be 7 and was chosen to make the reference point for the division into low and high safety (table 15). The minimum score was 2 and maximum was 9. The standard deviation remained at 1.557. The distribution was negatively skewed to the value of 0.544.

Table 14 Total score about the traffic safety by the passengers.

Traffic safety score	Number (N= 208)	Percent
2	2	1.0
3	7	3.4
4	5	2.4
5	27	13.0
6	44	21.2
7	56	26.9
8	37	17.8
9	30	14.4

Median = 7, ± SD = 1.557, Minimum = 2, Maximum = 9

According to high and low safety behavior as perceived by the passengers. 59.1% of the respondents had the high safety level and 40.9% were having low safety level. The tilt towards high level is depicting that majority has a high safety behavior. However, such a small difference lacks significance yet being of concern for further investigations in future.

Table 15: Perceptions about the traffic safety by number and percentage of passengers

Passenger perception level about driving safely	Number (N = 208)	Percent
Safety level in two groups		
≤ Median score	85	40.9
> Median score	123	59.1

4.2.2 Relationship between traffic safety behavior and the personal characteristics of taxi motorcyclists

When the personal characteristics of the taxi motorcyclist were cross-tabbed for relationship with the traffic safety, it was revealed that percentage of the high safety behavior doesn't have much significant influence by the age difference. For age group 15 to 30 years, 39(41.1%) had a low safety level and 56(58.9) had high safety level. For age 31 to 45, it did not show any much difference as for the first mentioned group, being 41(41.4%) in low safety profile and 58(58.6%) in the high safety enclosure. For age group 46 to 75 years it appeared to be negligible number of respondents to be considered. However, overall, 5(38.5%) had the low and 8(61.5%) had high safety level. The p-value is beyond the significance level of 0.05, standing at 0.980 rendering the results non-significant for age groups of the taxi motorcyclists. Age group 46 to 75 years, though small in number, yet shows promising attitude towards traffic safety. In total, considering all age groups, some (41.1%) had the low perception towards traffic safety and more than half (58.9%) had high perception towards traffic safety.

The marital status of the respondents (taxi motorcyclists), when grouped as unmarried (single, divorced, widowed and separated) and married, showed 38 (42.2%) of the unmarried respondents having a low safety behavior, only. 52(57.8%) of the unmarried respondents were having the high safety behavior towards traffic safety. 47(39.8%) of the married respondents were bearing low safety status, while 71 (60.2%) of the married respondents showed the high level of perception for traffic safety. The p-value stood 0.728 for the significance level. However, generally, percentage wise married had a bit better profile for safety than the unmarried ones. Over all, 40.9% of the respondents divulged low and 59.1% high safety perception level.

The education level of the motorcyclists stands for non-significance on Chi-square as we look at the table (p-value = 0.124). The illiteracy and primary school level education was grouped together. One-third (48.5%) were having a low

safety level and same (51.5%) were having a high safety level. Regarding elementary level education, a little above one third (41.9%) were of low safety perception and more than half (58.1%) unveiled a high safety perception level. High school education depicted more than one-third (38.9%) having low and somewhat less (61.1%) of high safety levels. College and university level group, which constituted bachelors, certificate and diploma level of education, though minor in number, yet higher in harboring the high safety perception towards traffic safety measures. This is reiterated in number and percentages as being lower (20.8%) for having low and much higher (79.2%) for high level of the safety behavior.

The experience of the drivers for the purpose of the inferential statistics was grouped of having less than 5 years, 5 to 9 years and 10 and more than 10 years of experience. Amid less than 5 years of experience, more than one-third (36.1%) had a low approach towards the traffic safety and most (63.9%*) were having high one. In the age group of 5 to 9 years of experience nearly less than half (46.7%) displayed low and about half (53.3%) showed high perception for the traffic safety behavior.

These results worked on significant level of 0.446, remaining non-significant for alpha at 0.05 of statistical significance. 40.9% had low safety and 59.1% had high safety, in toto. 10 or more years of experience highlighted being low in safety for almost same (41.5%) and high for majority (58.5%) of respondents.

The number of hours driven by the taxi motorcyclists was grouped into three. 1 to 6 hours of drive had 20 respondents (42.6%), having low safety level and more than half (57.4%), high safety level. Driving 7 to 12 hours a day resulted in less (40.5%) of respondents who fell in low safety and most (59.5%) in high safety categories. About more than one third (35.7%) of 13 to 24 hours drive were having low safety profile, while most (64.3%) were of high segment. In total, less than half (40.3%) were of low and more than (59.7%) of high safety level.

Table 16 Relationship between traffic safety behavior and the personal characteristics of taxi motorcyclists

Perceived severity	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
Age groups (years)					0.041 (2)	0.980
15-30	39	41.1	56	58.9		
31-45	41	41.4	58	58.6		
46-75	5	38.5	8	61.5		
Marital status					0.121 (1)	0.728
Unmarried	38	42.2	52	57.8		
Married	47	39.8	71	60.2		
Education level					5.755 (3)	0.124
Illiterate and primary	33	48.5	35	51.5		
Elementary	26	41.9	36	58.1		
High	21	38.9	33	61.1		
College/university	5	20.8	19	79.2		
Experience of driving motorcycle in years					1.613 (2)	0.446
6 months to 4	30	36.1	53	63.9		
5 to 9	28	46.7	32	53.3		
10 and more than 10	27	41.5	38	58.5		
Hours per day driven					0.345 (2)	0.841
1 to 6	20	42.6	27	57.4		
7 to 12	53	40.5	78	59.5		
13 to 24	10	35.7	18	64.3		

4.2.3 Relationship between perceived susceptibility to road traffic accidents and traffic safety behavior, as perceived by passengers

Susceptibility to RTA (road traffic accident), was leveled into two of high and low as shown in table 17. The traffic safety was also measured on high and low levels. When compared on cross tabulation, those having low susceptibility to RTA (12), practice 30% at low level and 28(70%) practice at high level for traffic safety.

Measurement of high perception towards susceptibility to RTA commemorates traffic safety practice with less than half (43.5%) at low level and more than half (56.5%) at high level. Pearson Chi-square values 2.419 at a p-value 0.120. The total percentage for traffic safety by low and high-perceived susceptibility remains at 40.9% and 59.1%, for low and high traffic safety practices. Hence, the level of susceptibility to RTA doesn't have any significant association with the traffic safety being practiced by the target population of Thai taxi motorcyclists in Phayathai district of Bangkok. The tables for grading the susceptibility levels are given as table B 1 in appendix B and tables 14 and 15 of this chapter.

Table 17 Relationship between perceived susceptibility to road traffic accidents and traffic safety

Perceived susceptibility	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
≤ Median score	12	30.0	28	70	2.419	0.120
> Median score	73	43.5	95	56.5	(1)	

4.2.4 Relationship between perceived severity to road traffic accidents and traffic safety

The perceived severity to RTA, as divulged by table 18, was measured as low and high perception about the severity of RTA. 208-taxi motorcyclist responded

for their perceptions and their graded perception was cross-tabulated against their traffic safety practices, graded also in low and high. The results were taken in numbers and percentages, both to test the association, if any exists. The grading of low and high perceptions is done on the basis of the tables 14 and 15 given in the text and table B 2 given in appendix B.

Table 18 Relationship between perceived severity to road traffic accidents and traffic safety

Perceived severity	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
≤ **Median score**	40	41.2	57	58.8	0.010	0.919
> **Median score**	45	40.5	66	59.5	(1)	

Less than half (41.2%), with low perceived severity to RTA also had low level of traffic safety. Somewhat more than (58.8%) with low perceived severity practiced at high traffic safety level. The ones who had high-perceived severity about RTA (40.5%), practiced traffic safety at the low level. However, more than half (59.5%) did practice at high level of traffic safety among the Thai taxi motorcyclist, interviewed. In accumulation for the practicing traffic safety for perceived susceptibility to RTA, more than one third and less than half (40.9%) practiced at low and rest (59.1%) did at high level. These results when testified by the Chi-square test proved not being significant for possible relationship among the group of the respondents as study population. Thus the perceived severity at low and high levels does not have any relationship with the traffic safety practices among the Thai taxi motorcyclists at Phayathai district of Bangkok.

4.2.5 Relationship between perceived threat to road traffic accidentsand total safety

The taxi motorcyclists when they perceive threat to traffic safety at a low level, practice traffic safety almost same at both low and high levels. A little below the half (44%) of them had low traffic safety and mere above (56%) had a practice of high traffic safety. Table 19 elaborates the findings in comparison and association. The tables may be referred for the determinations of the low and high levels of perceived threat and safety are tables 13 and 14 in the text and table B 3 in appendix B.

Table 19 Relationship between perceived threat to road traffic accidents and traffic safety

Perceived threat	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
≤ Median score	37	44.0	47	56.0	0.590	0.442
> Median score	48	38.7	76	61.3	(1)	

In contrast, when they perceive threat at a high level they practice traffic safety at lower percentage at low level and at a higher percentage at high level, although not significant at alpha set for the study (p = 0.05). Slightly above the one-third (38.7%) practiced low traffic safety when they have high perceived threat to traffic safety. Mostly (61.3%) do practice high level of traffic safety among them. Collectively, in a summation, Less than half (40.9%) of who perceive threat to traffic safety at low level also practice traffic safety at low level and More than middlemost (59.1%) of those who have perceive threat to traffic safety at a high level also practice at high level.

4.2.6 Relationship of information source as cues to act and traffic safety

Cues to action in favor of traffic safety were inquired and it was found as indicated by table 20, that the taxi motorcyclists of Phayathai district who had a low level of traffic safety in practice, approaching to midway (45.7%) of responses, there was information sought from television. Information from television accounted for above half (54.3%) for the ones who had a high traffic safety in their courts. Newspaper is one of the most popular source of information and the ones who had a minimal number and percentage of low traffic safety, had information mainly from newspaper (12, 27.9%). High level of traffic safety was found among the newspaper group for the cues to action i.e. most (72.1%) as compared to low level of safety in the same group. Cutouts were responsible for the low safety of above one third (38.9%) and a high safety of most (61.1%).

Table 20 Relationship of information source as cue to action with traffic safety

Cue to action	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
Television	59	45.7	70	54.3	4.313	0.116
Newspaper	12	27.9	31	72.1	(2)	
Cutouts	14	38.9	22	61.1		

Chi-square test was carried out to look into the possible association. P-value of 0.116 rendered the results non-significant but the preliminary inference drawn gives an insight towards the importance of newspaper and cut-outs being better information sources for cues to action then the TV.

4.2.7 Role of media in traffic safety

Table 21 shows the results for the role of media in traffic safety. The respondents were found to be in favor of media's role for cue to act. There were three

options whether no, yes (not always) or yes (always). For the statistical purposes, as no responses were only 4 in number, the no and yes(not always) were merged together. Most of the respondents responded for yes category. Selecting only yes answers reveals although not significant (p-value = 0.172), yet nearly half (44.2%) having low safety level said that it has a role but not always. Same response was in midway (55.8%) response for high traffic safety value. Those who said media always had a role were in low safety group (26, 34.7%) and majority (65.3%) in high safety level.

Table 21 Relationship between role of media, as agreed by the respondents, and traffic safety

Media role	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
Never received/received sometimes	59	44.4	74	55.6	1.865 (1)	0.172
Always received	26	34.7	49	65.3		

4.2.8 Knowledge of people having had accidents and association with traffic safety

This aspect of cues to action actually revealed that among the 208 respondents, one fourth (28.3%) with low safety level were not knowing any person who had had an accident in the past and about two third (71.7%), roughly, of them having high safety. Ones who narrated that they knew the persons who had had an accident during past two years, nearly half (45.9%) were having low safety while a bit above the half (54.1%) were of high safety.

The p-value for this result stood significant at the level of 0.019.

Table 22 Relationship between knowing the people with accidents and traffic safety

People known	Traffic safety				χ^2 (df)	p value
	Low N =85	%	High N=123	%		
No	17	28.3	43	71.1	5.480	0.019*
Yes	68	45.9	80	54.1	(1)	
Status of the known	**(n = 143)**				0.238	0.626
					(1)	
≤ 3 persons	45	46.9	51	53.1		
> 3 persons	20	42.6	27	57.4		

The knowledge of people of less than 3 in number or more than 3 in numbers, was for less than 3 persons approximately half (46.9%) were having low safety profile and more than this (53.1%) stood at high safety point. For more than 3 (3-25) persons known, below half and above the one third (42.6%) were having the low safety level and mostly (57.4%) had high safety level.

CHAPTER V
DISCUSSION

This study was designed in the beginning as a preliminary step to describe the perceptions of the taxi motorcyclists towards traffic safety by virtue of their personal characters, perceptions towards susceptibility and severity to RTA (road traffic accidents), threat to traffic safety and cues to action, depending upon the traffic safety behavior as perceived by their passengers. A cross sectional study was therefore conducted in this regard in order to identify the relationship between the traffic safety and the characteristic described above. Traffic safety is of immense importance, as road traffic accidents constitute the second leading cause of mortality in Thailand, as described in earlier chapters.

5.1 Traffic safety

In this study traffic safety, as being dependent variable for the conceptual framework of the study, was identified on a high safety to low safety level. Traffic safety as perceived by the passenger, majority (59.1%) of the total percentage was having the high safety level. About more than one third (40%) considered the practices of traffic safety by the taxi motorcyclists as being of low safety level. Unsafe practices lead to the fatal injuries, as shown by a study done in Australia by Stella J., in 2002 (28).

Experiencing problems, isolated cases responded to the questions asked about experiencing the problems with the drivers. There were complaints like the taxi motorcyclists drive too fast sometimes. There were more complaints of crashing into other vehicles and that some drove fast and not being smooth as well. One aged respondent showed her concern about the height of the taxi motorcycle, being too high for her to climb for the ride. Regarding fares, some respondents had a view that the fares of their taxi motorcyclist were more as compared to other ones. One of the

concerns by some respondent was interesting to note that the driver didn't care much about the safety of the passenger. Like, they drove sometimes before the passenger is well seated. Other thought that they drive somewhat very slow and sometimes not aware of the routes, on which they were heading for. Some had an experience of having an angry driver, like being not polite, very fast and very easy to get upset with the situation.

Personally, the researcher himself experienced 10 motorcycle rides in the study area for observation. In the nutshell, it was observed that 9 out of 10 never offered the helmet to the researcher. However, 8 out of 10 worn helmet by themselves. The researcher drove as single passenger with the driver at all times. One did not know the place exactly and wandered along and drove fast. Almost all started up the bike smoothly except one. Most (8) drove at optimum speed. Mostly they drove in a zigzag manner (6 out of 10). One drove on the right side of road and didn't use any indication for turning and going around from right to left side on the busy road. Mainly, they freely switched between the sides. Almost all obeyed the traffic light signals. They all had good behavior and none was found drunk or abusing drugs (except smoking in rest area). However, some of the pictures posted in the appendix B in pictures section were taken in the study area, those show some of the findings of concern.

5.2 Personal characteristics of taxi motorcyclists

5.2.1 Sex

Almost all of the taxi motorcyclists were of male sex (97.1%). It is evident that from the past study by Ferrando J., in 2000, (16) that males are more prone to both risk taking behavior and involvement in road traffic accidents than the females. It was observed by the researcher himself, in the study area during the data collection period those male drivers generally driving on the footpaths and taking short cuts having the passenger along with them. Females taxi motorcyclists were, though very less in number, observed where ever possible for such a behavior and

were not found following their male colleagues. The observation drives took over by the researcher couldn't happen with a female driver to observe deeply their behavior.

5.2.2 Age

Personal characteristics of the taxi motorcyclists according to age happened to be that they were having the minimum age of 19 and a maximum of 64. The median age was 32 years. There were 95 respondents in the age group of 15 to 30 years, 99 in 31 to 45 years and 13 in 46 to 70 years age group. The distribution of the age group was not normal so that Chi-square was used for a p-value of 0.980 and hence the significant relationship -could not be found for the age. Nonetheless, for high traffic safety practices, age 46 to 75 years showed a higher percentage than the other two groups. This result is consistent with the study done by Mullin B., in 1993 (15), that increasing driver age has a strong relationship with decreasing moderate to severe fatal injury.

5.2.3 Marital status

Marital status of the respondents for the taxi motorcyclist (drivers) was grouped in to unmarried and married ones. Single status and the divorced, separated and widowed ones were grouped into unmarried category for the purpose of analysis. Very few (2.9%) were divorced, separated or widowed. This study reveals no significant association, yet show a lower percentage among married respondents for low traffic safety and a higher percentage (60.2%) for the ones in high traffic safety category. The data from a previous study conducted in 1997 by Na Ayuthya RS, Bohning D., showed that the single marital status has a relative risk (RR) of 2.25 times than that of the married ones. This is consistent with the other studies (17) in general.

5.2.4 Education level

This study found that most (31.7%) of the respondents were primary school level educated. Elementary school education was not much lower than primary one (29.8%). Rest being of high school, others (bachelors, certificates and diplomas) and illiterate. It was interesting to note that the non-significance of relationship between the education level and the traffic safety practices (p-value = 0.124). However, The higher the education level was, higher was the traffic safety level for the taxi motorcyclist. The highest safety practice being for the group having bachelors, certificates and diplomas. These result are totally consistent with the results of the study conducted by Swaddiwudhipong W., Boonmak C., Nguntra P., Mahasakpan P., in rural Thailand in 1995, where the educational program resulted in a decrease in motorcycle accidents. This result is considered important and a baseline for the major recommendations made in next chapter of this text.

5.2.5 Experience of driving motorcycle

This study didn't reveal any relationship between the duration and the traffic safety. Drivers with a minimal experience of 6 months to 4 years (39%) were having better high safety than the other groups. This result was not significant and also the figures are contradictory to previous findings, such as by Mullin B, Jackson R, Langley J, Norton R., a study done in Aukland in 1993, which showed a protective effect if driven more than 5 years. In this study, however, traffic safety was considered and less than 5 years have a high safety than the others

5.2.6 Status of the driving license

Most of the taxi motorcyclists (97.6%) were having license. Na Ayuthya RS, Bohning D., showed in their study, conducted in Bangkok in 1997, that their study population with license for short term was more involved in RTAs. This study doesn't show any significant association (table B 7, appendix B), when cross-tabbed for with traffic safety. The reason could be that some of the drivers were found having

temporary license for even upto11 years, due to the fact that they have to cope with the day to day expenditures and have to save money for that then to spend a lot money that they earn over the permanent licensing fee. Temporary licensing fee is obviously less than the permanent one. This assumption seems to compromise the consistency with the previous reference results.

5.2.7 Riding motorcycle per hour a day

Riding motorcycle as per hours a day came out to be the most for 7 to 12 hours (63.6%). For 13 to round the clock only 13.65% were driving along. 1 to 6 hours per day was driven by less than one third (22.8%) of the taxi motorcyclists. There was no significant association found among these times and traffic safety (table B 8, appendix B). This is also supported by the review done by Brown ID.,(25), in his article in June 1994 that the driver fatigue is associated with the irregular working hours rather than the time spent on the wheel.

5.2.8 Riding motorcycle per hour a day

Visual problems among the drivers were inquired and most (92.8%) were not having any visual problems. Negligible number (2.9%) presented with complaint of the blurring of vision, same, somewhat lesser (1%) was having double vision and spots and almost the same (2.4%) couldn’t see far enough.

5.3 Perceived susceptibility and severity to Road Traffic Accidents

According to Health Belief Model, individual has subjective perceptions towards the illness in general (12). The behavior of the individuals change and adopt accordingly.

According to the results of this study, for the correct responses, when the respondents were asked about their perceptions about the susceptibility towards the RTAs, most (61.1%) agreed that the area in which they drove could be a vulnerable to

accidents, showing about some (14.4%) disagree with that and thought that the area in which they drove was not at risk of accidents. About one fourth (24.5%) remained undecided over this. Also most (91.8%) of the respondents agreed that if the traffic lights were located in the suitable area, could prevent the accidents. They also agreed on the use of cross roads that could prevent the accident on an average of about majority (84.1%). When asked whether it was easy to get an accident if the roads were wet due to rain, almost all (95.7%) agreed. About a little more than half (60.1%) agreed that if there were clear visibility, no accident could happen. A few (16.3%) disagreed and nearly one-fourth (23.6%) remained undecided. For the occurrence of the accidents in the presence of insufficient traffic lights, two third (75.5%) agreed and gave the correct answer, showing that about most of the respondents believe in the importance of the traffic lights only. Rest, a few (13%) gave the wrong answer and rest (11.5%) was not sure about that. This can also happen due to absence of traffic light in some areas and some respondents were not that much aware of the traffic lights' importance as traffic safety measure and of a protective measure against the road traffic accidents.

When asked about the easy driving or lax driving in case of a motorcycle Most (78.8%) disagreed that motorcycle is easy to drive and there is no need to take care so much, by giving the correct answer. Less (13.9%) were undecided and least (7.2%) gave the wrong answer. Same percent of respondents gave the correct answer when asked about the condition of the road that rough road should not be one cause of the accidents. A small number of the respondents (13.5%) gave the wrong answer and very few (7.7%) remained undecided, almost similar to the fore-mentioned result. Good light was better for the clear visibility, two third (75%) gave correct answer. Less than one fourth (17.8%) were not confident and least (7.2%) responded wrongly.

About the perceived severity to RTA, the Health Belief Model (12) explains about the feelings concerning the seriousness of contracting an illness (or of leaving it untreated) vary from person to person. According to this the evaluation of both medical and clinical consequences are important. This dimension was tried to be explored through the structured questionnaire.

The study when looked into for the correct responses, the respondents were asked about their perceptions about the severity to RTAs, most (70.7%) disagreed with that motorcycle accident is not a serious problem. Some (14.4%) were not sure about that and almost equally (14.9%) agreed that motorcycle accident was not a serious problem. Well above than half (63.5%) agreed that death from motorcycle was more serious than that of other vehicles. Almost nearly half (43.3%) disagreed that motorcycle accidents didn't have more deaths than other vehicles. About the same (37%) were in a mist about the status and remaining (19.7%) agreed that motorcycle accidents didn't have more deaths than other vehicles. Most (85.6%) had an opinion that motorcycle accident could cause severe injuries or permanent disabilities. When asked whether most motorcycle accident cases were spent less than two weeks in hospital, most (52.4%) were not sure. This depicts that people don't have an idea about the seriousness of the motorcycle accident. Rest (25% and 22.6%) was either in agreement or disagreement, receptively. Long-term absence from the work is one of the consequences of the accident. More than two thirds (71.6%) agreed about this. This shows the awareness about the loss of opportunity from work to some extent. But when asked that RTA didn't lead to vast loss of money, fewer (55.8%) disagreed. This point in author's view corresponds to the insurance policies that people are not much concerned about their finances in case of accidents. An almost equal number of respondents (22.6% and 21.6%) were either not sure or agreed to a false statement. Similarly, the respondents (taxi motorcyclists) were only just above the half agreeing that a motorcycle accident could cause a lot of money spent on treatment when compared to other accidents. About one third (29.3%) were undecided and few (13%) were not agreeing. When inquired about the financial crises in a family due to an accident, most (87%) agreed. Thus an extreme limit might provoke a correct response but small insults were ignored, a behavioral matter that could lead to some insight in future behavioral studies.

Over all less than half (46.6%) had low score towards traffic safety and a little above the half (53.4%) showing an approximately equal distribution between low and high. This has to be improved through some interventions, as we will discuss in recommendation part.

5.4 Perceived threat to traffic safety

Correct responses for the perceived threat to the traffic safety, identified respondents who responded on their perceptions about the threat to traffic safety. Most (99%) agreed with that the helmet use has a major role in traffic safety. When asked in a negative way, this percentage dropped a little bit (80.8%), for the helmet had no role in traffic safety on small roads. It showed that some (9.6%) were not sure about that and equally (9.6%) agreed that helmet has no role in traffic safety on small roads. This was also observed during the data collection that the taxi motorcyclist some times didn't use helmet on small roads. Most of them (92.8%) agreed that on a motorcycle ride passenger should also use the helmet, but on observation most didn't care about that. Mainly (77.9%) they disagreed with not to wear helmet at all times (always). However, some (13.9%) agreed and few (8.2%) chose to be undecided. This shows a little not clearance about the regularity of helmet usage. Nearly all (99%) agreed that traffic laws were necessary for all the drivers. Regarding benefit of the traffic laws, lesser than that but still most (95.75%) did agree. Condition of the motorcycle was agreed upon by more than two third of the respondent taxi motorcyclists. For having a mandatory regular check-up of the vehicle, majority (95.7%) agreed but possibility of not having a regular check-up remained in suspension (53.8% disagreed, 25% agreed and 21.2% remained undecided).

In a sum, less than half (46.6%) had low perception towards threat to traffic safety and a mere above the half (53.4%) depicted an approximately equal distribution between low and high. This calls for some measures to be taken into account to reduce the damage caused by violations of the traffic safety regulations.

5.5 Relationship of information and role of media with cues to action in traffic safety

The information source was evaluated for its role in traffic safety and it was seen that with low safety practices, TV had the almost the same (45.7%) percentage as for the high safety (54.3%). However, newspaper contributed less (27.9%) to low

safety practices and rather higher to high safety practices (72.1%). Cut-outs remained the second category showing better results from TV alone but less than newspaper (38.9%, for low safety and 61.1% for high safety). Most have an agreement that media does play a role in traffic safety (65.3%).

5.6 Knowing the persons having had accidents and traffic safety

With low safety, less (28.3%) didn't know any person in contrast to most (71.7%) who didn't have a person known to them with an accident in the past two years. Fewer than half (45.9%) were having lower safety when they knew some person and a marginal above half (54.1%) were having the higher safety level when they knew a person with accident in past two years. This contrast stood significant with the significant level of 0.019. This shows a better practice when there was better practice going around too among the peer groups.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

It happened to be a cross sectional survey to describe the perceptions of the taxi motorcyclists and their passengers about the traffic safety. The study area was selected as Phayathai district of Bangkok..

The purpose of the study was to determine the personal characteristics of the taxi motorcyclists and their perceptions about the susceptibility, severity, threat and cue to act in terms of the traffic safety as perceived by their passengers according to their own personal characteristics.

On the basis of the interpretations drawn through the results of this study, following conclusion is made:

The inference drawn in respect of the perceptions about the traffic safety behavior by the passengers of the taxi motorcyclists, majority (59.1%) of the total percentage was having the high level. About more than one third (40%) considered the practices of traffic safety by the taxi motorcyclists as being of low safety level.

The results indicated that knowing more people with good practice improved the traffic safety practice. As for less (28.3%) didn’t know any person in comparison with most (71.7%) who didn’t have a person known to them with an accident in the past two years. This shows a better practice when there was better practice going around too among the peer groups

Increasing age is better in practice and so do the married ones, strengthening other finding previously, was seen. Education has a definite role and people with

higher education practice traffic safety at much higher level. However, lower education level needs training and attention to improve the over all traffic safety profiles. Experience had little effect.

Status of driving license didn't prove to be promising due to other possible factors described earlier. Driving hours and visual problems also showed no possible relationship, as also supported by past studies on respective areas.

General beliefs about the health risks seem to spread on a mid-way level regarding susceptibility, severity to RTAs and threats to road traffic safety. The behavior doesn't seem to follow a protective pattern. It needs recommended interventions to improve it.

Information system has to look into cheaper and effective part as shown by the study (newspapers and cutouts). More emphasis is , there for on the perceptions and beliefs about the severity and threats to the RTAs and traffic safety.

6.2 Recommendation

6.2.1 For interventions

1. Apropos to the results of this study it is evident that education and safe practice among the peer groups has a major role in adopting the traffic safety among the taxi motorcyclists in Phayathai district of Bangkok. The target for the intervention is illiterate and the primary education level. Also most of the respondents get the information from the news papers and the campaigns through newspaper

2. As evident from the percentages from the susceptibility to the road traffic accidents, most do agree that the death from the motorcycle accidents is more serious then the other vehicles, but also quite a big proportion of the respondents, as compared, is also not in agreement or are indecisive. The study population doesn't take much it as a severe problem. This attitude has to be improved by educating the target group of illiterate and the primary education level. The same is the case with the perceptions about the hospitalization after a motorcycle accident. Most are either in wrong court or not sure about this severity. Intervention might prove as an augmentation to support the traffic safety laws and regulations and improving the present conditions regarding mortality and morbidity due to RTAs.

3. It was seen that the nearly equal number of the respondents were having low and high levels of traffic safety when perceived through the severity of road traffic accidents. To minimize the traffic injuries and improve the safety measures, it is suggested to emphasize upon the behavioral change procedures like more awareness towards the severity of the road traffic accidents.

4.: Media and campaigns have a role in modifying the behavior of the people. It was observed in this study that newspaper still enjoy a prime place in conveying the message and making people believe in their practices. Cutouts remain

the alternative choice. TV however, had a lower comparable percent and definitely an expensive method and media for conveying the ultimate message.

5. In lieu to the helmet use by taxi motorcyclists, as perceived by the passengers, mostly (89.4 %) use helmets. However, ideally, by law all (100 %) should have been using helmet while driving. This small but significant gap should be filled in by the proper intervention by the concerned authorities in Phayathai district of Bangkok.

6. Another important aspect exposed from the passenger's perceptions about driving safely was regarding the driving speed on optimum level. This practice happens to be nearly sixty percent (59.1%). Speed limits are enforced by law and the local authorities may use this result to look into possible suggested interventions to improve the compliance of the taxi motorcyclists for law. The suggested intervention is for behavioral modification, such as rewards and recognition for the drivers driving at the optimum level of driving speeds. Along with this driving off the usual side is more common than the driving on the usual side (47.6%), as perceived by the passengers. About two thirds (74.5%) of passengers believed that the drivers were not found drunk or abusing drugs. Rest was mostly affirmative answers. This is however not clear that those were having what particular aspect but an affirmative answer does implicate a serious concern about the drunk driving or otherwise an abused driving, making the passenger safety compromised. The interventions may also look into this behavioral aspect along with the speed and following the traffic rules and regulations (42.8 %), as a combined approach towards the behavioral modification and improving the current situation regarding the morbidity and mortality due to RTAs, in Phayathai district of Bangkok.

7. This study signifies the effect of general protective behavior and its impact on the behavior of the motorcyclists. Knowing fewer people with risky attitude has promoting effect for good practice. Campaigns focusing on the examples of good practices might prove beneficial. Local law and health authorities may work together to improve the situation with continuous monitoring and evaluation.

6.3 For future studies

In re of future studies, it is recommended to look into the possible role of the age and education with a larger population sample. It is recommended that that study should confirm the intervention strategy and evaluate its impact based on the recommendations on this study.

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APPENDIX

APPENDIX A

QUESTIONNAIRES

PERCEPTIONS ABOUT THE TRAFFIC SAFETY AMONG THE TAXI MOTORCYCLISTS AND THEIR PASSENGERS IN PHAYATHAI DISTRICT, BANGKOK

INSTRUCTIONS: Please write the date, location and driver's number of the respondent on the given space and check (X) the blank space for each question according to the response.

TAXI MOTORCYCLIST'S QUESTIONNAIRE

Time beginning_____

Date of registration____/____/____Registration No. ____/____/____

Driver No._____ Today's date: _____/ ____/____

Location_____

I PERSONAL CHARACTERISTICS

1. Sex [ ] 1. Male [ ] 2. Female
2. Age (in years)……..
3. Marital Status [ ] 1. Single
   [ ] 2. Married
   [ ] 3. Divorced/ Separated/ Widowed
4. Education Level [ ] 1. Illiterate
   [ ] 2. Primary School
   [ ] 3. Elementary school

[ ] 4. High School

[ ] 5. Other, specify……..

5. How long have you been driving the motorcycle?

_____Years

6. Do you have a driving license?

[ ] 1. No [ ] 2. Yes

If yes, please state its status whether it is;

[ ] 1. Temporary [ ] 2. Permanent

[ ] 9. Don't know

7. How many hours per day do you ride the motorcycle?

_____Hours

8. Do you experience visual problems while driving Like: (please chose one)

[ ] 1. None [ ] 2. Blurring

[ ] 3 Double vision [ ] 4. Spots

[ ] 5 Can't see far [ ] 6 Can't see near

II PERCEIVED SUSCEPTIBILITY TO ROAD TRAFFIC ACCIDENTS (RTA):

Please mark X in the space provided for each question

Q No	Statement	Agree	Undecided	Disagree
09	You are driving in an area where accident may occur easily			
10	Motorcycle is easy to drive, no need to take care as so much because less of accidents occur			
11	Traffic lights located in suitable area can prevent accidents			
12	Accident cannot happen more if people use cross roads			
13	It is easy to get accident when it has rained on the roads			
14	The rough road should not be one cause of accidents			
15	No accident occurs if there is clear visibility			
16	It is not likely to get an accident when light is bad			

Q No	Statement	Agree	Undecided	Disagree
17	Accident may occur if there is insufficient traffic light			

III PERCEIVED SEVERITY TO RTA:

Please mark X in the space provided for each question

Q No	Statement	Agree	Undecided	Disagree
18	The motorcycle accident is not a serious problem			
19	Death from motorcycle accident is more serious as compared to other vehicles			
20	The motorcycle accidents don't have more deaths than other vehicles			
21	The motorcycle accidents cause severe injuries or permanent disability			
22	Most motorcycle accident cases are spent less than 2 weeks for hospitalization			
23	The motorcycle injury can lead to long-time absence from work			
24	The road traffic accidents don't lead to vast loss of money			
25	When compared to other accidents, a motorcycle accident causes a lot of money spent on treatment			
26	An accident can cause financial crises in a family			

IV PERCEIVED THREAT OF TRAFFIC SAFETY:

Please mark X in the space provided for each question

Q No	Statement	Agree	Undecided	Disagree
27	Helmet use has a major role in traffic safety			
28	Helmet has no role in traffic safety on small roads			
29	On a motorcycle ride, passenger should also use helmet			
30	It is not necessary to always wear a helmet while riding a motorcycle?			
31	The traffic laws are necessary for all drivers			
32	Traffic regulations are not beneficial			
33	A good conditioned motorcycle gets less traffic accidents			

Q No	Statement	Agree	Undecided	Disagree
34	It is difficult to follow the traffic laws and regulations			
35	A vehicle must have a regular check-up			
36	It is not possible for you to have your vehicle checked regularly			

V CUES TO ACTION:

Please mark X in the space provided in front of each question for a response.

37. Where do you get most information on traffic safety (choose only one)

[ ] 1. TV

[ ] 2. Newspaper

[ ] 3. Cut –outs

[ ] 4. Others (specify)……

38. Do you think that above-mentioned media has any role in making people adopt traffic safety?

[ ] 1. No

[ ] 2. Yes (not always)

[ ] 3. Yes (always)

39. Did you ever have an accident in the past 2 years?

[ ] 1. No (go to Q No 43, please)

[ ] 2. Yes

40. If Yes, please specify whether you were:

[ ] 1. Not hospitalized (go to Q No 43, please)

[ ] 2. Hospitalized _____ days

41. If hospitalized, was it due to any fractures you had?

[ ] 1. No

[ ] 2. Yes

42. Among the people you know, are/is there any one who has suffered an accident in the past 2 years?

[ ] 1. No

[ ] 2. Yes (specify) _____persons

Time ending_____

PASSENGER'S QUESTIONNAIRE

INSTRUCTIONS: Please write the date, location and the driver's number for the respondent on the given space and check (X) the blank space for each question according to the response.

Time beginning_____

Today's date: _____/_____/_____ Location_____

Driver's number_____

I PERSONAL CHARACHTERISTICS

1. Sex: [ ] 1. Male [ ] 2. Female
2. Age (in years)……..
3. Education Level
   - [ ] 1. Illiterate
   - [ ] 2. Primary School
   - [ ] 3. Elementary school
   - [ ] 4. High School
   - [ ] 5. Other, specify……..
4. How long have you been riding the taxi motorcycle?

   _____Years
5. How many hours per day do you ride the motorcycle?

   _____Hours
6. Do you experience problems with your motrocycle driver?

   [ ] 1. No [ ] 2. Yes

(Specify please the type of problems)

_____

II. PASSENGER'S PERCEPTIONS ABOUT DRIVING SAFELY

7. When you ride with a taxi motorcyclist , do you:

   [ ] 1. Ride alone with the driver only

[ ] 2. Ride with another passenger along with the driver

8. Does the taxi motorcyclist wear the helmet before he drives?

[ ] 1. No

[ ] 2. Yes

9. How he starts-up with the drive:

[ ] 1. Smoothly

[ ] 2. With a jerk

[ ] 3. Giving you almost a fall off

10. Does he drive:

[ ] 1. Slow

[ ] 2. Optimum

[ ] 3. Fast

11. The driver drives on the road:

[ ] 1. On the left hand side (usual side)\

[ ] 2. On the right hand side

[ ] 3 Switches between the sides during the ride

12. Does the rider follow the rules and regulations of traffic?

[ ] 1. No

[ ] 2. Yes, (Sometimes)

[ ] 3. Yes, (Everytime)

13. Does the driver see and follow the traffic light signals?

[ ] 1. Not see, not follow

[ ] 2. Yes, see but ignores

[ ] 3 Yes, Does see and follow

14. Does the driver have a good behavior with you?

[ ] 1. No

[ ] 2. Yes

15. Do you find the driver drunk or abusing some drugs?

[ ] 1. No

[ ] 2. Yes

[ ] 3. Not sure

Time ending_____

APPENDIX B

MISCELLANEOUS TABLES

Table B 1. Frequency distribution for perceived susceptibility to road traffic accidents

Total score	Number (N = 208)	Percent
15	1	0.5
18	1	0.5
19	9	4.3
20	8	3.8
21	21	10.1
22	27	13.0
23	65	13.3
24	35	16.8
25	34	16.3
26	4	1.9
27	3	1.4

Median = 23, ±SD = 1.799, Min = 15, Max = 27

Table B 2. Frequency distribution for perceived severity to road traffic accidents

Total score	Number (N = 208)	Percent
14	2	1.0
15	1	0.5
16	4	1.9
17	9	4.3
18	4	1.9
19	18	8.7

Table B 2. Frequency distribution for perceived severity to road traffic accidents (contd.)

Total score	Number (N = 208)	Percent
20	13	6.3
21	24	11.5
22	22	10.6
23	28	13.5
24	36	17.3
25	24	11.5
26	14	6.7
27	9	4.3

Median = 23, ±SD = 2.838, Min = 14, Max = 27

Table B 3. Frequency distribution of perceived threat to traffic safety

Total score	Number (N = 208)	Percent
20	1	0.5
21	2	1.0
22	5	2.4
23	3	1.4
24	18	8.7
25	14	6.7
26	25	12.0
27	16	7.7
28	39	18.8
29	26	12.5
30	59	28.4

Median = 28, ±SD = 2.365, Min = 20, Max = 30

Table B 4 Number and frequency of known persons to the taxi motorcyclists

Known persons	Number (N= 143)	Percent
1	28	19.6
2	37	25.9
3	31	21.7
4	10	7.0
5	17	11.9
6	4	2.8
7	1	0.7
8	2	1.4
10	9	6.3
15	2	1.4
20	1	0.7
25	1	0.7

Median = 3, ± SD = 3.517, Minimum = 1, Maximum = 25

Table B 5 Passengers' duration of riding motorcycle

Duration of motorcycle ride (Years)	Number (N= 206)	Percent
0.08	1	0.5
0.10	1	0.5
0.25	1	0.5
0.42	10	0.5
0.50	3	1.5
0.66	1	0.5
1.00	20	9.7
1.40	1	0.5
1.50	1	0.5
2.00	32	15.5

Duration of motorcycle ride (Years)	Number (N= 206)	Percent
3.00	20	9.7
4.00	26	12.6
5.00	22	10.7
6.00	10	4.9
7.00	9	4.4
8.00	17	8.3
9.00	4	1.9
10.00	26	12.6
12.00	3	1.5
15.00	3	1.5
17.00	2	1.0
19.00	1	0.5
20.00	1	0.5

Median = 4, ± SD = 3.806, Minimum = 0.08, Maximum = 20

Table B 6 Minutes per day of motorcycle ride for passengers

Ride in minutes per day for passenger	Number (N= 206)	Percent
0.08	1	0.5
0.10	1	0.5
0.25	1	0.5
0.42	10	0.5
0.50	3	1.5
0.66	1	0.5
1.00	20	9.7
1.40	1	0.5
1.50	1	0.5
2.00	32	15.5

Ride in minutes per day for passenger	Number (N= 206)	Percent
3.00	20	9.7
4.00	26	12.6
5.00	22	10.7
6.00	10	4.9
7.00	9	4.4
8.00	17	8.3
9.00	4	1.9
10.00	26	12.6
12.00	3	1.5
15.00	3	1.5
17.00	2	1.0
19.00	1	0.5
20.00	1	0.5

Median = 4, ± SD = 3.8.6, Minimum = 0.08, Maximum = 20

Table B 7 Status of license of the taxi motorcyclists

License status	Traffic safety				χ^2 (df)	p-value
	Low		High			
	Number (N = 85)	%	Number (N = 123)	%		
Temporary	42	42.4	57	57.6	0.143	0.705
Permanent	41	39.8	62	60.2	1	

Table B 8 Riding motorcycle hours per day for taxi motorcyclists

Driving Hours	Traffic safety				χ^2 (df)	p-value
	Low		High			
	Number (N = 85)	%	Number (N = 123)	%		
1 to 6 hours	20	42.6	27	57.4	0.039	0.579
7 to 12 hours	53	40.5	78	59.5	2	
13 to 24 hours	10	35.7	18	64.3		

APPENDIX C

RELIABILITY ANALYSIS

Table C 1 Reliability analysis-scale (alpha)

Variables	Mean	Variance	Standard deviation	Alpha
Before adjusted questionnaire				
Perceived susceptibility to RTA	23.1786	7.0410	2.6535	0.3910
Perceived severity to RTA	22.4286	8.6984	2.9493	0.4133
Perceived threat to traffic safety	18.7333	6.7540	2.5989	0.6318
Over all score				0.6663

BIOGRAPHY

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