ROAD ACCIDENT RISK PERCEPTION AMONG POLICE OFFICERS

THANESH RAJ A/L GOBAL

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By:

THANESH RAJ A/L GOBAL

824123

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ABSTRACT

Police job is regarded as one of the riskiest profession with high likelihood to experience physical harm while on duty. Amongst the greatest safety and health hazards towards them are road accidents that may cause injuries and deaths. The purpose of this study is to investigate the differences and relationship level on road accident risk perception among police officers as dependent variable with independent variables which are demographic characteristics, driving attitudes toward safe driving and link between management commitment on vehicle safety. The research method is quantitative analysis and adopting cross-sectional survey in data gathering. Primary data generated from the questionnaire choose as a data collection which consist of 25 questions. Random sampling method used in collecting data involving police officers around Klang Valley area. SPSS version 25.0 was used for quantitative analysis and the findings shows driving attitudes toward safe driving and management commitment on vehicle safety influences road accident risk perception.

Keywords: Police officer, Risk perception, Demographic, Management commitment, Attitude, Road accident

ABSTRAK

Pekerjaan polis diketahui sebagai salah satu profesion paling berisiko dengan kemungkinan besar mengalami kecederaan fizikal semasa bertugas. Antara ancaman keselamatan dan kesihatan yang paling besar adalah kemalangan jalan raya yang boleh menyebabkan kecederaan dan kematian. Tujuan kajian ini adalah untuk mengkaji serta menyiasat perbezaan dan tahap hubungan terhadap persepsi risiko kemalangan jalan raya di kalangan pegawai polis di sekitar Lembah Klang sebagai pemboleh ubah bersandar dan menggunakan pemboleh ubah bebas pula merupakan ciri demografi, sikap memandu terhadap pemanduan yang selamat dan hubungan antara komitmen pengurusan terhadap keselamatan kenderaan. Kaedah kajian adalah analisis kuantitatif dan menggunakan pendekatan tinjauan keratan rentas dalam pengumpulan data. Data primer yang dihasilkan dari soal selidik dipilih sebagai pengumpulan data yang terdiri daripada 25 soalan. Kaedah pengambilan sampel secara rawak yang digunakan dalam mengumpulkan data yang melibatkan pegawai polis di sekitar kawasan Lembah Klang. SPSS versi 25.0 digunakan untuk analisis kuantitatif dan hasilnya menunjukkan sikap memandu terhadap pemanduan yang selamat dan komitmen pengurusan terhadap keselamatan kenderaan mempengaruhi persepsi risiko kemalangan jalan raya.

Katakunci: Pegawai polis, Persepsi risiko, Demografi, Komitmen pengurusan, Sikap, Kemalangan jalan raya

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LIST OF ABBREVIATIONS

SPSS	Statistical Package for The Social Science
MPV	Multi-purpose Vehicle
URB	Motorcycle Patrol Unit
RMP	Royal Malaysian Police
MCO	Movement Control Order
KMO	Kaiser-Meyer-Olkin

CHAPTER 1

INTRODUCTION

This chapter sets to clarify certain important issues about this study. Firstly, it provides an overview of the background of the study, problem statement, research questions, research objectives, significance of the study, scope and limitations of the study.

1.1 Background of the study

The RMP is a centralized body with duties ranging from traffic control to gathering intelligence. The main functions of RMP as stated in Section 3(3) Police Act 1967, includes maintaining law and order, preserving Malaysia's peace and security, preventing and detecting crime, apprehending and prosecuting offenders and collecting intelligence on security matters.

However, studies have shown that the police work has been described as one of the most dangerous and physically demanding occupations in which injury occurs more frequently than in other professions (Larsen et al., 2016 & Claire, 2002). It is also categorized as an unsafe occupation due to significant likelihood of dying or getting seriously injured on the job (Tiesman et al., 2015). Due to the unpredictable, varied, and physical nature of law enforcement, these officers are at a high risk in facing threats to their safety and well-being compared to other vocations and general population. The physical law enforcement duties might include load-free and varied distances, detention of non-compliant suspects, transportation of wounded or unconscious persons, self-defense activity and handling tasks manually (Lyons et al.,2016).

One of the common risk which can happen to almost everyone and anywhere every day in life, generally unintended but avoidable would be road accidents. The World Health Organization (WHO) in 2001 reports that currently, the numbers of deaths resulting from road accidents have been projected to reach 8.4 million in the year 2020. Furthermore, the British Medical Journal in 2002 indicated that traffic accident caused about 1.2 million deaths and injury 10 to 15 million people a year in the world (Krug, 2002). According to the Social Security Organization of Malaysia (SOCSO), there is an average of two (2) deaths daily among employees due to road accidents in the recent one year in Malaysia.

Police officers are also not spared from this common risk as most of them spend a great deal of time with motor vehicles such as car and motorcycles, which naturally increases their risk of being injured caused by an accident. The nature of their work such as responding to an emergency call, routine patrolling, following a suspicious person or vehicle or an investigation pursuit puts the police in extremely vulnerable positions to road accidents (LaTourette, 2015). As the police in USA engages themselves in hundreds of high-speed motor vehicles chases daily resulting to serious personal injury besides property damages, this became a major public concern as well (Justin, 2005).

Moreover, traffic related fatalities and injuries are serious among these officers. An estimated 1,473 police officers and sheriff's deputies in the USA died while on duty between the years 2004 to 2013, and nearly half of the deaths resulted from vehicle crashes or being struck by a vehicle (LaTourrette, 2015). In transportation-related incidents, the mortality rate for police officers and sheriff's deputies is about four times higher than the transportation-related mortality rate for all US workers (Bureau of Labor Statistics, 2015). The elevated risk for police in non-fatal transportation-related injuries is even greater, with an estimated injury rate

from 2009 to 2013 of 96 per 10,000 full-time officers, which is 17 times greater than the number for transportation-related injuries for all US employees during this span (Bureau of Labor Statistics, 2014 & 2015).

Police officers spend their days protecting the people from criminals or offenders by patrolling the streets to prevent crime. These professionals have an extremely important role to play within the society. They also endanger themselves every day due to the inherently dangerous nature of their work.

Due to road accidents faced by the police officers, they may have to bear costly medical expenses or unable to return to work while recovering from the injuries, which affects them not only physically but also emotionally and mentally. Even more worse would be a tragic death which the family members left behind may face financial and emotional challenges. Moreover, road accidents faced by the police officers could impact adversely the government on the financial resources including compensation costs as well as the workforce burdens of days lost due to injury, post-injury and fatalities.

Physiological and psychological impacts on the officers and their families due to road accidents affect the job satisfaction among police officers. Job satisfaction directly relates to the effective functioning of police organization from better productivity, quality services, reduced stress, and lower turnover among officers (Lokesh et al., 2016).

Thus, this study will help to understand the risk perceptions on road accidents among the police officers which related to their job satisfaction. Risk perception is defined as acknowledgement of the probability of incurring harm (LaTourette, 2015). The police officers risk perceptions are vital in ensuring a safe work environment and we can understand their safety behaviour which can be applied towards establishments of effective solutions for this problem.

1.2 Problem Statement

The nation was surprised with news on Malaymail dated 28 February 2019 when two men wanted for a drug-related case were arrested today after they rammed their car into a police multi-purpose vehicle (MPV) and other motorists while trying to escape the police in Gombak. The duo refused to adhere to the police order to pull over, and instead rammed into the police vehicle before speeding away recklessly as the police gave chase. However, the chase came to an end when the police shot into the tires of the suspect's car and arrested them.

Moreover, less than two months prior to the above incident, TheStar on 5th Dec 2018 reported a member of the police's Motorcycle Patrol Unit (URB) was killed and another was injured after a car rammed into them from behind as they had stopped a car near Jalan Semantan for a routine check. These two reported cases clearly show the risks faced by police officers while on duty on the road which requires immediate attention to protect the safety of the police officers. Further, the awareness of road safety among the police officers and their organization will be researched.

Therefore, the study is directed towards the risk perception of police officers on road accidents which they are constantly exposed while on duty. Their perceptions on the causes which contributes to road accidents will be studied in this research paper. This mainly includes the influence of demographic characteristic, driving attitude on safe driving and management commitment on vehicle safety that relates to the road accident risk perception among the police officers.

Studies have shown that demographic characteristics such as gender and age differences influences the risk perception on road accidents. Research by David M. Dejoy, (1990) reveals that young males perceive that less risks are faced in a variety of dangerous driving behaviors and are more optimistic than the females in terms of their driving skills. Further, older drivers who possess better driving experience were involved in lower number of casualty accidents as compared to the young drivers (Drow et al., 1988). Hence, the differences in demographic characteristics such as gender, age, driving experience, education level and road accident experience that may influence road accident risk perception among police officers will be further studied to understand the causal relationships.

There were extensive studies on driving attitude towards road safety. Driver attitude plays a major role in traffic safety and the change in attitude offers an opportunity for injury reduction (Iversen and Rundmo, 2004). Assum, (1997) discovered that risk of road accident was affected by drivers' attitudes and responsibility as a road user. Moreover, a study by Jonah, (1986) showed risk-taking attitude is proven to be a major factor underlying high accident risk.

Generally, across many industries, the perception of support that the workers have from their organization is vital for the implementation and success of behavior-based safety-related

activities (DePasquale & Geller, 1999). The perceptions of the employees reflect how they believe safety is valued by their top management (Arboleda, A., Morrow, P. C., Crum, M. R., & Shelley II, M. C, 2003). A study by Walton in 1999 showed that drivers claimed to feel less safe when they believed their employers had less support for their safety and were less concerned about the number of hours they drive (Walton, 1999).

Furthermore, researches assessing the risk perception of road accidents among police officers in the Malaysian context are nearly non-existent. The relationship between demographic characteristic, driving attitude on safe driving and management commitment on vehicle safety that affects their risk perceptions of road accidents, are yet to be deeply researched internationally and mainly in Malaysia.

A gap exists in this area and more knowledge will be needed to understand awareness among the police officers on road safety. Lastly, related data and analysis on accidents faced by the Malaysian police officers in the line of duty are uncommon; hence this study will be looking into the matter that will assist in identifying solutions and safety initiatives in the police force.

Theoretically, the Cultural Theory of Risk describes the relationship between demographic characteristics, driving attitude and management commitment towards road accident risk perception. Douglas and Wildavsky, (1982) examined about the effect of beliefs and cultural environments on perception of risks in the early of 1980s. Risk identification and concern about environmental or social problems are, in their opinion, presented socially and culturally. This means that the values and worldviews of some social or cultural contexts shape the individual's perception and evaluation of risk.

1.3 Research Questions

In order to achieve the purpose or objectives of the research, the following guiding questions or lines of inquiry are devised (as an alternative):

a. Does demographic characteristics differentiate road accident risk perception among police officers?

b. Does driving attitude towards safe driving influence road accident risk perception among police officer? And

c. Does management commitment on vehicle safety influence road accident risk perception among police officers?

1.4 Research Objectives

The study will be specifically geared to attain the following objectives:

a. To investigate the differences on road accident risk perception among police officers due to demographic characteristics;

b. To identify the relationship between driving attitudes toward safe driving and road accident risk perception among police officers; and

c. To determine the link between management commitment on vehicle safety and road accident risk perception among police officers.

1.5 Scope and Limitation of the Study

This study involves police officers of all departments under the Royal Malaysian Police (RMP) who are based in Klang Valley. Their risk perception towards road accident while on duty is the key element of this study.

However due to travel restrictions from the Government's Movement Control Order (MCO) in mid of March 2020, the information gathering related to this study was limited to online questionnaire responded by police officers in few departments. As such, the findings gathered may not represent the police organization entirely.

1.6 Significance of the study

Due to the vulnerable nature of work, police officers are prone to road accidents (LaTourette, 2015). However, little is known about how the police officers view this significant job hazard.

Thus, the purpose of this study is to explore the police officers' road accident risk perception and examine how the differences of demographic characteristic, driving attitude on safe driving and management commitment on vehicle safety influences this perception.

The workers' perception of risk is important in identifying specific safety behaviors that determines a safe workplace (Mullen, 2004). Safety measures or precautions may not be properly taken should the worker has an inaccurate perception of risk. (Huang et al., 2006; Harrel, 1998). The police officers who are working in an ever-changing environment are ought to constantly assess the risk for injury and death while at work.

Further, a better understanding of police officers' risk perception through this study can be pivotal for the effective establishment and communication of workplace prevention programs and policies especially on road safety.

Besides that, the data obtained in this study, can be leveraged by the police force in reviewing their resource planning. The recommendations given if considered will be benefit the Royal Malaysian Police on prevention as well as corrective measures to mitigate the risk of road accidents among their police officers. The information can also be applied as baseline data in future related researches.

1.7 Definition of Key Concepts

1.7.1 Police Officers are referred to individuals who are tasked to protect and serve the community. They often discharge their duties through crime related investigations patrolling. An individual who assumed the role of police officer faces innumerable calls for service with constant and discreet engagement with the with the citizens (McElvain and Kposowa, 2008).

1.7.2 Demographic Characteristics are the outward attributes of a targeted group of audience which includes but not exhaustive to age, gender, income status, educational qualification and area of residence (Shahid and Hassan Syed, 2011).

1.7.3 Management Commitment is referred as administration's determination on safety initiatives and actions undertaken to prevent accidents at workplace which are often

demonstrated through staff training and management involvement in safety committees (Arboleda et al., 2003).

1.7.4 Driving Attitudes Toward Safe Driving are described are inclinations of individuals in evaluating an entity with a certain degree of approval or disapprovals and generally expressed in perceptive and behavioral responses. The function of the attitude concept develops partly from its anticipated ability to guide, influence, direct, shape, or predict actual behavior (Eagly and Chaiken1993).

1.7.5 Road Accident Risk Perception refers to the subjective experience of risk in probable traffic perils (Hamish A. Deery, 1999).

1.8 Organization of the Thesis

The research paper is divided into five chapters. **Chapter One** introduces the research background, significance of the study, provides an overview of the research background, problem statement, research questions, research objectives, and explains the purpose and the rationale of the study.

Chapter Two reviews the main literature: regarding the rewards which are monetary reward and non-monetary reward and also the job satisfaction. The study also discusses the results of earlier study in various organizational contexts and at different levels to provide more literature claim. **Chapter Three** describes the methodology followed by the theoretical framework with suggested by the researcher according past framework that have been

discussed, data collection procedures. Issues concerning the gaining of trust, reliability and validity of participants, and ethical considerations associated with the study are also mentioned. Finally, the techniques used when analyzing data are revealed and discussed.

Chapter Four presents the finding from statistical analysis, and offers details interpretations. **Chapter Five** presents the discussion of the findings focuses on the research question and objective of this study. This chapter also includes with a summary of the research and its key findings. Limitation and suggestions for future research also discussed at the end of the chapter.

1.9 Summary

Malaysian Transport statistics show that there is an increasing number of road accidents in Malaysia. Moreover, the recent accidents involving the police officers that caused injuries and death seems a matter of concern. It is high time to understand the risk perceptions of the police officers in relation to the road accidents risk faced by them that may lead into financial loss or even loss of their lives.

As such, this study aims to address the lack of findings on how road accident risk perception of police officers in Malaysia is affected by the differences of demographic characteristic, driving attitude on safe driving and management commitment on vehicle safety. The next chapter will cover the literature review of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter depicts about literature review leading to the conceptualization and development of the research model. It begins with the discussing both the accidents risk perception and road accident risk perception. Next, it talks about the factors which contribute to road accident risk perception among the on-duty police personnel such as demographic characteristics, driving attitude on safe driving, role of management commitment on vehicle safety. Finally, it concludes with the development of hypotheses, research framework and underpinning theory that suitable for this study.

2.2 Road Users Accident Risk Perception

According to Eboli et al. (2017) distorted risk perception is regarded as one of the main causes of road accidents all around the world. Researchers all around the world have provided several definitions for risk perception e.g. risk perception was referred as a subjective experience during any road hazards (Elander et al., 1993). Similarly, Mills et al. (1998) defined as the aptitude to read the road. Moreover, risk perception was regarded as the awareness to detect dangerous situations while driving. They further narrated that risk perception is the only element from driver's diverse skills which is directly associated in road accidents.

The risk perception of road user is pertinent especially while driving because it effects its driving behavior, also, it also pivotal because it allows to understand the phenomenon how drivers obtains, process and acts upon the information attained from the driver's environment (Machado-León et al., 2016). Furthermore, the extant literature is full of already established empirical studies that risk perception can be a determinant of insecure driving behaviour (Ram and Chand, 2016; Glandon et al., 2014).

In the domain of decision making, risk perception is differentiated into two streams i.e. risk based on analysis and risk based on feelings (Machado-León et al., 2016: Kinnear et al., 2013). According to Solvic et al. (2002) risk as a feeling is an exclusive quality of good or bad experience due to negative or positive quality of stimulus faced at feeling state. However, from the thorough investigation of extant literature it was narrated by Kinnear et al. (2013), in view of dual process theory of information processing reveals that both risk as analysis and risk as a feeling are developed by specific systems i.e. analytical system and experiential system respectively.

Whereas, from the lens of neurological theory, the Somatic Market Hypothesis (SMH) illustrates that both these analytical and experiential systems work similarly together. There is no doubt that risk perception is believed to be a complicated process and yet no viable differentiation between risk as analysis and risk as a feeling is made in extant literature (Machado-León et al., 2016). To add charity to the idea of road user risk perception, researchers have posited that every individual risk perception is unique as compared to other person (Dixit et al., 2014). In reality risk perception of drivers may depend of numerous factors such as socio-economic characteristics i.e. age and gender, transportation mode (Noland, 1995), travelling with other people (Iraguen and de Dios Ortuzr, 2004) etc. Several researchers

have studied risk perception in various context. Kouabenan (2002) studies risk perception with three exogenous variables i.e. driving experience, accident history and subject's occupation. The study empirically revealed that both novices and experts' drivers differ in their perception pertaining to road hazards.

2.3 Road Accident Risk Perception

As stated earlier that slanted risk perception or perceived risk is regarded as the individual valuation of the likelihood that an unwanted occasion might befall and an examination of the possible austerity of significances if such a happening takes places (Eboli et al., 2017; Ram and Chand, 2016).

Due to the scarcity of proper countermeasures, it is expected that roughly 80% rise in road traffic incidents especially in middle- and low-income countries such as India, Russia Uganda and Tanzania. It is believed that road traffic accident may increase in the coming years. Though road traffic instances may be viewed as community health matters both in low- and high-income countries. However, most of the extant literature regarding the risk perception of road traffic accidents have been examined in western or developed country context, therefore, owing to the scarcity of the studies in developing countries warrants further investigation (Lund and Rundmo, 2009; Nordfjærn and Rundmo 2009).

In a study conducted by Zhang and Prevedouros (2005) they had examined the drivers risk perception of accidents especially in a specific weather condition i.e. rain. During their study, they surveyed 2000 respondents to analyze and stipulate how weather condition i.e. rain influences driver driving behaviour. It was further empirically established that drivers

conceive a higher risk of accidents in rain when found themselves in heavy traffic. It was also narrated that driver's perception of road accidents was not dependent on demographical characteristics such as driving experience, education, age etc. Similarly, an investigation was conducted by Oviedo-Trespalacios et al., (2017) to study the characteristics of usage, compensatory strategies, risk factor and characteristics of high frequency criminals of mobile phone usage whilst driving. The findings deliver provision for concentrating on the progress of injury deterrence approaches owing to the usage of mobile phone while driving. Forecasters of mobile phone usage were essentially dissimilar amid texting, talking and browsing. Both novice drivers and everyday drivers were highly expected to involve in preoccupied driving (Oviedo-Trespalacios et al., 2017). Nonetheless, the advancement of harmless attitudes and upgrading of risk-related education and information could aid in plummeting the road accidents e.g. car crash.

2.4 Factors Contribute to Road Accident Risk Perception

On the contrary, there lies another side to risk approximations, viz. personal risk evaluations or risk perceptions. The term 'risk perception' is actually a misnomer. It is believed that the notion and the tendency of human decision making is what leads to face hazardous situations not the risk itself. Hazardous situations or hazards itself is been defined as a threat to people and the objects they worth. In general risk perception is the notion of investigating people's attitudes, their beliefs, their emotions relating to threats and peril in a broader perspective of cultural and social values. Risk perception has been advanced from both streams i.e. human decision making and cognitive psychology. Furthermore, besides personality, political, cultural and social developments also play a pivotal part in the establishment of certain attitude on safe driving and raising the tolerance level of road risks.

2.4.1 Demographic Characteristic

The current study investigates the impact of demographical characteristics including age, gender, education, driving experience and work-related accidents, along with attitude on safe driving and management commitment on road risk perception. These demographic characteristics represents the demographic profile of the respondent. In view of Riordan and Shore (1997) to classify people into categories, individuals may use the demographic attributes. The following section will provide further details about demographical characteristics.

The current research seeks to bring more detail about direct impact of gender on road accident related risk perception. Gender has been the focus of the researchers for a long time and a lot of research has highlighted its sheer significance when it comes to road safety related matters. In a recent study by Cordellieri et al. (2016) who investigated the effects of gender in young road users on road safety attitudes behaviours and risk perception on 2681 young drivers. Researchers focused on young drivers especially in a period of life when they are more prone to such risk behaviours. In their study they empirically established important findings pertaining to risk perception by stating that level of risk perception for both female and male are same no difference was found in this regard, however, researchers observed that there are significant differences in the way level of concern about risk. They also established that females are more concerned about the level of risk involved whereas, males were found to be less cautioned by the risk involved, therefore, their level of concern as compared to females were less. Their findings also established that the foremost difference among both the genders is how

they perceive the risk associated while driving rather than judgment of the perceived risk.

Similarly, extant literature has also established that pertaining to risk behaviour males are found to have risk prone than females (Hidalgo-Fuentes, S., & Sospedra-Baeza., 2019). Authors reported in their study that severity of accidents was lower in females as compared to male. They further narrated that their results warranted to develop measures separated by gender. In another study by Mairean (2020) who investigated the posttraumatic stress signs, fear and escaping of driving and deviant deriving behaviour. In their study the researcher used the moderating role of gender and through the application of multi group analysis, researcher empirically concluded that the relation between aberrant driving behaviour and posttraumatic stress disorder symptoms are found significant for males than females. Thus, there is plethora of research which states that males are more prone to road traffic violations then females, thus, signifying the important of gender in road safety procedures (Tabibi et al., 2015; Moradi et al., 2013).

Beside gender, age is again one of the main demographic characteristics of road users when it comes to road accidents. The element of age in road related accidents have been center of research for many researchers and it has been reportedly established that from various accident databases from all around the world that young drivers are found to be more aberrant drivers and the ratios of accidents is found significantly more in young aged people as compared to any other generational cohort (WHO, 2015; OCED, 2016).

Furthermore, researchers also narrated that besides the element of age in accidents, there could others factor such greater tendency to assume risk and derisory driving skills are time and again highlighted (Cordellieri et al., 2016; Giannini et al., 2013). Even there has been studies which have empirically established that young drivers are more prone to traffic violations, aggressive and risk driving (Lund and Rundmo, 2009). In their study they compared the Ghanaians and Norwegian adolescents' drivers and discovered that Ghanaians adolescents were less subtle to risks, were more eager to embrace risks associated to adults and older adults in Ghana and arbitrated the severity of repercussions to be not as much of. Whereas, adolescents from Norway were found to be less prone to risk and were found to be more risk taking compared to adults.

There is sufficient indication viewing that younger drivers are extra optimistic compared to elder drivers and that they observe fewer risk in a diversity of driving actions and circumstances (Dejoy, 1992). Car crashes are a noteworthy risk to undeveloped drivers all-inclusive (Peden et al., 2004). Particularly in the United States of America car accidents are the principal reason of death for individuals ranging from aged 15–20 years old (NHTSA, 2009). There was found to be a significant difference between the teen drivers and adolescents' drivers. According to the statistics nearly out of the accidents in 2008, nearly 12 were adolescents who were involved in life taking car accidents and among them 7% were found to be licensed teen drivers (NHTSA, 2009). Similarly, driving experience is found to be another significant factor in predicting the behaviors of drivers and risk associated with it (Tao et al., 2017).

Earlier literature has already established that age and gender has mystified effect on risky driving, in view of McCartte et al. (2009) driving experience has an effect which

is autonomous of age factor. Similarly, it was opined that as younger drivers are more prone to risk related driving and takes less seriously to road accident related risk as compared to older drivers (Tao et al., 2017; Castella and Perez, 2004). Similarly, in a study by Tao et al. (2017) who examined the role of driving experience (license tenure and daily driving time) and role of personality traits (lie, extraversion, neuroticism, psychoticism) to predict the road accidents on Chinese drivers. They empirically concluded that driving experience has direct impact on accident risk perception. In their view, more experience drivers were found to be involved more accidents, which signifies that from their experience's drivers did not seek any benefit to avoid the accidents. However, their study did not find any effect of driving experience on risky driving behaviors, however there have been studies which narrated discovered that driving experience could significantly affect drivers' risk perception (Machado-Leon et al., 2016). Their study results were in line with the earlier studies by Constantinou et al. (2011) and Tronsmoen (2010).

Moreover, in June 2009, according to a report by World Health Organization on road safety which indicated that road traffic incidents are one the major health and development problems (Union, 2013). Various studies have also reported that human factors consisting of gender age and education, especially in the context of developing countries play a significant role and warrants more in-depth investigation to rectify such issues. Along with gender and age, education also plays as a pivotal role as human factor impacting road accidents (Sami et al., 2013). In a study by Sami et al. (2013) who examined the road traffic incidents in a province of Iran i.e. Fars by examining the age and educational level of drivers to unearth the outlines that can avert or lessen number of road traffic incidents. In their investigation, they investigated 1831 people

who were involved in a deadly road traffic accident and empirically discovered that 1274 (69.6%) were having seriously low level of education, resultantly, they established that level of education has a significant association with mortality.

2.4.2 Driving Attitude on Safe Driving

In view of majority of psychologist, attitude signifies the tendency to appraise an object with some degree of favor, generally articulated in affective, cognitive and behavioral responses (Mohamed and Bromfield, 2017; Manstead, 1996). Cognitive aspect of attitude consists of road safety knowledge regarding rules and regulation of traffic, whereas personal attributes like feelings, emotions and admiration for others on road including pedestrians is categorized under affective aspect of attitude towards road safety. Finally, the way road driver drives exhibit behavioral aspect of attitude (Ram and Chand, 2016). Research has posited that drivers those are equipped with information and awareness about the rules and regulation pertaining to traffic laws, are most likely to adhere to safe driving behaviour. Plenty of extant literature has established that driver attitude towards road safety meaningfully forecasts drivers behaviour and shows their level or risk perception (Mohamed and Bromfiled, 2017; Ram and Chand, 2016; Cordellieri et al., 2016; Tabibi et al., 2015).

Ram and Chand (2016) conducted a study to explore the factors which can affect drivers' risk perception and their attitude towards road safety. In this regard they took a 1500 drivers' sample in three districts of Indian. Authors discovered a significant positive association between risk perception and attitude towards safe driving. At the same time, extant literature has also posited that attitude towards traffic safety have

been found to associate with aberrant aggressive driving behaviour (Parker and Mastead, 1996). To cater speedy risk driven driving especially by young aged people researchers have suggested to alter the attitude of drivers especially young one and their increase their knowledge about risk perception (Ram and Chand 2016). Similarly, there is also a positive association between risky driving behaviour and risk takers attitude. These risk-taking attitude in drivers includes law desecration, thoughtless driving, fast moving and drink driving. In another study by Mirzai et al. (2014) examined the association amongst attitudes concerning road traffic guidelines and their impact on traffic crashes and discovered that safer attitudes to traffic rules were related with reduced connection in traffic accidents. Similar results were achieved by Hassan (2016) who examined the drivers' attitude towards overspending in the context of Saudi Arabia and discovered that attitude has a significant influence the probability of crashes especially among young drivers.

2.4.3 Management Commitment on Vehicle Safety

Protection management schemes are edifices combined into the company (Labodova, 2004) intended to observe the dangers that can impact employee's safety and well-being. Security management performs are the strategies, procedures, developments, and actions employed or experienced by an organization's administration that guarantees the shield of its employees.

This research, following the footsteps of Vredenburgh (2002) comprises management appointment as one of the management procedures, and is measured using items connected to the security importance of organization, counteractive activities, safety

manager appearing in safety related meetings, incidents or near miss, and acceptable individual protecting gear provided.

Management leader and their contribution are the maximum critical issues of any administration's triumph with a safety plan. None of the added aspects of safety administration can be employed without members' continuous devotion, supervision and reassurance. Exhibition of enthusiasm, commitment and inspiration by the organization is the foremost feature in each exercise in safety management. The organization's pledge to safety enterprises ought to be deciphered into their attitude and behavior (Hofmann et al., 1995).

Dedicated and loyal management should essentially address the safety related anxieties among employee. Furthermore, management also must safeguard that their employees operates in a harmless, secure and safe working atmosphere (Vredenburgh, 2002). Employees are keen to take portion in safety performance events if their own safety apprehends the employers (Langford et al.,2000).

For each organization, their safety and health related policies towards employees reflects the ambitions of the management and the protection goals (Waring, 1996; Chan et al., 2004; Law et al., 2006). Resultantly, the implementation and communication regarding such measures may contribute to the results, indicating that implementation, communication and the entire process of safety related measures needed to be tickled from top to bottom management (Langford et al.,2000; Hon et al.,2014).

2.5 Hypothesis Development

According to Robert, Brian & Sekaran, (2001) a hypothesis can be defined as a logically conjectured (assumption, supposition, guess) relationship between two or more variables expressed in the form of testable statement (H) or is a testable statement of the relationship between variables. The previous chapter had discussed the relation of demographic characteristics, driving attitude on safe driving and management commitment on vehicle safety towards road accident risk perception.

2.5.1 The Influence of Demographic Characteristic On Road Accident Risk Perception

Demographic characteristics are essential in evaluating the relationship of perception on risks involved in road accident. In this study, several demographic factors, including gender, race / ethnicity, and socioeconomic status, were hypothesized to influence perceptions of the risk (Millstein and Halpern-Felsher, 2002).

Savage (1993), had also investigated the effects of demographics on psychometric risk perception measures through sampling, which encompasses a broad cross-section of the metropolitan Chicago population. In this study, there was a view formed that 80-90 percent of variation in individual perceptions of risk is a function of a person's character rather than demographic characteristics. However, the findings had clearly indicated that there were significant differences in perceptions of risks explained by demographic characteristics.

Another study had researched the general patterns of bias in risk beliefs which varies across demographic group of almost 500 people. The regression analysis had yielded

a consistent result with the well-established pattern in terms of the risk belief assessment for small and large risks, however, the accuracy of these risk beliefs varies across demographic elements such as age, race, gender, work and personal experiences and educational achievement (Hakes and Viscusi, 2004).

Hence, the above studies had showed the influence of demographic characteristics on risk perception. The hypotheses proposed are:

H1: Demographic characteristics have significant effect on road accident risk perception.

H1(a). Gender differences and road accident risk perception

H1(b). Age differences and road accident risk perception

H1(c). Driving experience and road accident risk perception

H1(d). Educational level and road accident risk perception

H1(e). Road accident experience and road accident risk perception

2.5.2 The Relationship Between Driving Attitude On Safety Driving and Road Accident Risk Perception

Rundmo (2000), had studied that fatalism (the belief that all events are predetermined and therefore inevitable) as one of the dimension of employee safety attitude, to be closely related with the cognitive component of risk perception. This study which aimed to understand the effects on risk perception as well as risk behavior based on employee safety attitude, safety climate, commitment to safety and organizational factors, had indicated that employee attitudes on safety and accident prevention led to a significant effect to the variance in employee occupational risk behavior.

A review was conducted to measure risk perception and attitudes to safety in the UK and Norwegian offshore oil and gas industries. The studies found that workers are generally aware of the risks they face at their operation place, and that the risk perceptions are relatively accurate. As such, safety attitudes affect these employees' perceptions of risk (Mearns and Flin, 1995).

These researches may indicate the implication of driving attitude on safe driving and road accident risk perception. Thus, the hypothesis proposed is:

H2: Individual attitudes on safe driving significantly impacts road accident risk perception

2.5.3 The Link Between Management Commitment On Vehicle Safety and Road Accident Risk Perception

Management commitment factor plays a significant role in ensuring safety is an utmost priority in its organization. Management participation and engagement towards safety initiatives are translated into their actions and behavior (Hofmann et al., 1995).

As such, this indicates that safety practices which are planned and executed with strong support and guidance with a top bottom approach from the employer would contribute immensely to the organization's safety success (Waring, 1996; Chan et al., 2004; Law et al., 2006).

Furthermore, an examination on the effect of management commitment and involvement in safety issues on perceived risk of 915 employees discovered that the most effective way to lessen dissatisfaction with safety measures may be to directly increase management and supervisor commitment and involvement in safety initiatives. This is because the respondents' risk perceptions were found to be driven by organizational factors, such as safety attitudes, employees' satisfaction with safety and job environment. Satisfaction towards safety measures and safety attitudes contributed to both job environment and perception of risk. Employees who were satisfied with the safety measures and described a more positive attitude towards safety, felt more controlled and more secure (Fleming et al., 1998).

Thus, the above studies may show the effect of management commitment on vehicle safety on road accident risk perception. The hypothesis proposed is:

H3: Management Commitment on vehicle safety suggestively influences road accident risk perception

2.6 Underpinning Theory: Cultural Theory

Douglas (1966, 1978) and Douglas and Wildavsky (1982) have pioneered cultural theory, which has proven to be a significant in matters pertaining to risk perception and risk understandings (Dake, 1991; Wildavsky and Dake, 1990). The fundamental aim of this research is to appraise the significance of this theory in risk perception exploration. Culture is grounded on the exceptional human capability to categorize involvements, encrypt such arrangements representatively, and impart such concepts to people around us. It is typically learnt through the process which an elder age group encourages and coerces a fresher

generation to replicate the recognized routine. Accordingly, culture is entrenched in an individual's means of life, i.e. that is to how an individual spends the daily routine, is a vital thought in and it originates from theory of group and grid by Mary Douglas (1978). Formerly, Douglas established the theory as an impartial tool where the morphology of communities could be associated regardless of their presence (Thompson et al., 2018). Conferring to the theory, perceived risk is also thoroughly knotted to cultural obedience and communal education. Contingent on whether one is informally partaking and which groups one fits to, one will emphasis on diverse varieties of risks. Individuals select what to dread and in what way they respond to their fears and anxieties. Therefore, cultural theory intends to explain how individuals observe and behave in the world around them. Exclusively, cultural theory claims that this is mainly attained by communal features and social obedience. It was also opined by the researchers that this theory is more fitting to predict and elucidates which potential hazard will be perceived by which kind of people (Wildavsky and Dake, 1990).

A significant and an essential element regarding individuals risk observations are their overall attitudes to nature (Thompson et al., 1990). From the lens of cultural theory, opinions about the nature and other individuals are entwined with way of life and worldview. Though some desires to use insecticides on woodlands and vegetation to avert ailments, others have faith in the nature that it is proficient of dealing with its own glitches without human intrusions. Nonetheless, individuals display diverse attitudes towards nature, which is surely not unplanned; individuals act in harmony to one of five so-called “myths of nature” (Thompson et al., 1990). These are overall opinions about in what way the nature operates and how it will retort to human interferences.

Based on the notion that if cultural theory is deemed fit for elucidating the risk perception and its understanding, one would also imagine it to develop robust investigation giving sustenance to the hypothesized elucidations. Though, the very few studies have found empirical support to this theory (Raynes, 1992; Sjöberg, 1997). Furthermost have testified that the theory only elucidates a negligible portion of the alteration in how individuals observe risks. Therefore, to further validate the theory, researcher in this research has adopted the cultural theory and grounded the study framework so gauge its impact on Malaysian police employees risk perception. Most of the extant literature has also posited that is will be reasonable to believe that drivers' attitude towards safe driving and their attitude towards risk perception to traffic differs culturally (Lund, 2009). Therefore, cultural theory fits the study purpose.

2.7 Research Framework

The study aims to investigate the road accident risk perception among police officers by applying independent variables such as demographic characteristics, driving attitude on safe driving and management commitment on vehicle safety. The theoretical framework of the research is shown as follows:

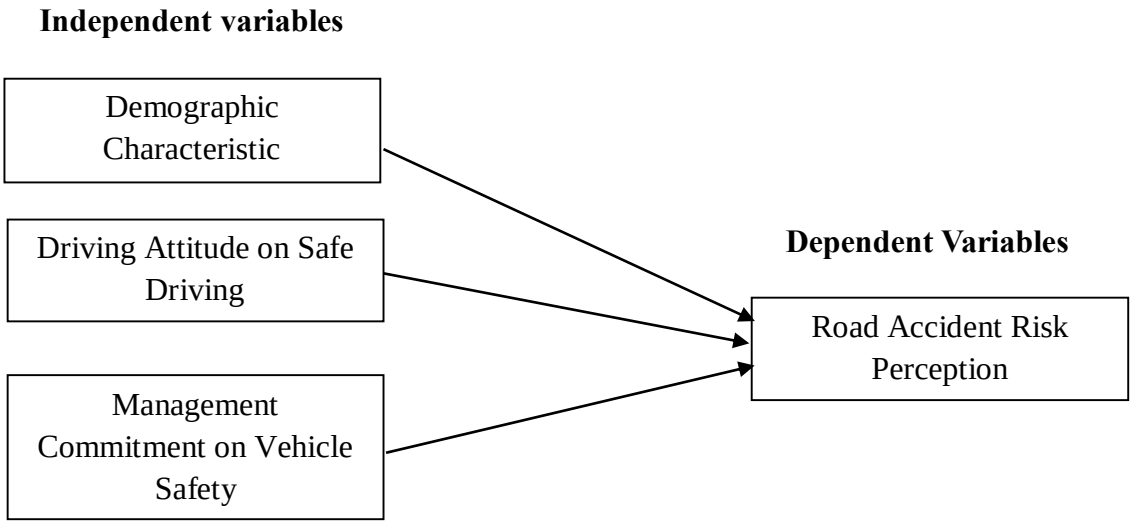

Figure 2.1 Research Framework

2.8 Summary

This chapter described in detail on all the elements involved in this current study with a variety of literatures in backing. A designed questionnaire was used to measure all the elements which were mentioned in this chapter. Therefore, the conceptual structure was established using the above literature review. The following chapter is Chapter Three, which describes about the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the study's research methodology, and how to reach the objectives. The ensuing section presents an overview of the methods used in the study, namely the framework and hypotheses development, design, population, sampling, instrument used and data analysis. It also mentions the ethics involved in the research.

3.2 Research Design

This study applied a quantitative descriptive analytical cross-sectional design involving record reviews in order to investigate road accident risk perception in the Royal Malaysian Police. A cross-sectional study is an observational study which determines the exposure and occurrence of road accident risk perception in a given population at the same point in time (MacDonald, 2012). Information that develops from a given population is reported without the variables being manipulated (MacDonald, 2012). It is possible to use a cross-sectional approach to estimate the population parameters in which may be sum, proportion, risk ratio or risk factors (MacDonald, 2012).

3.3 Population, Sample Size, Sampling Techniques and Unit of Analysis

Population of a study is the total group of people or subjects that is of interest to the researcher and which fulfils the criteria that the researcher intends to discover (Miquel, 2008).

Sampling is a selection process of a number of subjects from the entire population through a mathematical calculation. This includes the rationalization in accessing information and in selecting a representative sample of the population in an appropriate way (Miquel, 2008).

Nonprobability sampling designs fit into the categories of convenience sampling and purposive sampling. The purposive sampling is associated with specific categories of people who can provide the information they need, either since they are the only people who have it, or because they comply to certain criteria set by the researchers (Sekaran & Bougie, 2010). Therefore, considering the research objectives, the current research selected purposive sampling as the sampling design. Thus, 150 survey questionnaires were distributed to the population. The population identified is police personnel who had experienced motor-vehicle injuries at least once while on duty. The respondent of this study consists of all ranked police personals around Klang Valley.

3.4 Research Instrument

The survey questionnaire was adopted from (LaTourrette, 2015) and (Vinodkumar and Bhasi, 2010). The questionnaire contained questions with 25 items of demographic characteristic, driving attitude on safe driving and management commitment on vehicle safety. The survey questionnaire was divided into 3 parts. Nominal scale was used in Part A that consist seven

(7) questions about demographic. Part B contain 14 questions that asked about driving attitude on safe driving and management commitment on vehicle safety. This section used five points Likert scale range from '1' strongly disagree to '5' strongly agree. There are 4 items related with road accident risk perception in Part C with five points Likert scale range from '1' signified as 'Not at all dangerous' and '5' represented 'Very Dangerous'. All item in dual language system which is English and Bahasa Malaysia. The details of questionnaires items are as showed in Table 3.1.

Table 3.1

List of Instruments

Variables	Operational Definition	Measures	Source	Number of Items
Demographic Characteristics	Salient information about the 'structure' of the population	1. Job title 2. Gender 3. Age 4. Working Tenure 5. Education level 6. Road Accident Experience 7. Number of road accident cases		7
Driving Attitude on Safe Driving	Attitudes are 'tendencies to evaluate an entity with some degree of favour or disfavour, ordinarily expressed in cognitive, affective and behavioural responses'.	Officer talking on cell phones. Officer driving/riding when restless Officer driving/riding when sleepy. Officer had enough sleep (8hours) prior reporting to duty. Officer driving/riding well over the speed limit. Driving/riding their vehicle on the wrong lane (including during emergency calls). Officer driving/riding while not obeying traffic signs (including during emergency calls).	LaTourrette (2015)	7
Management Commitment on Vehicle Safety	Administration's determination on safety programs	Safety is given high priority by the Polis Diraja Malaysia (PDRM) management.	Vinodkumar & Bhasi (2010)	7

	and to avoid accidents at workplace demonstrated through employee training and management participation in safety committees	Safety rules and procedures are strictly followed by the PDRM management. Corrective action is always taken when the PDRM management is told about unsafe practices. PDRM considers safety to be equally important as their daily Key Performance Indicator (KPI). I feel that management is willing to compromise on safety for increasing KPI. When near-miss accidents are reported, my PDRM management acts quickly to solve the problems. PDRM provides sufficient personal protective equipments for the officers.		
Road Accident Risk Perception	Subjective experience of risk in potential traffic hazards	Driving/riding under emergency conditions. Driving under non-emergency conditions. Driving in responding to domestic violence calls. Driving in responding to other scenes of violence.	Tiesman et al., (2015)	4

3.5 Data Collection and Procedures

This study uses the questionnaire survey to collect or gather data by asking respondents to answer the questions provided. The survey is conducted by distributed all the respondents required in each selected police department around Klang Valley on a specific agreed date. The questionnaires then distributed and answered by all respondents on the same day. Questions were administered personally where it will be confined to a local area where respondents will be responding to the questionnaires within a limited period. The data will be collected after the respondents answer the question.

3.6 Pilot Study

The statistical tools used for data analysis including the uses of and statistical tool used are listed in this section. The statistics study was carried out using the Social Science Statistical Software (SPSS) computer program version 25.0. The aim of the pilot test is to test the reliability of the respondent questionnaire. In order to assess suitability of research instruments, a pilot study is carried out with a total of 30 respondents with the same population. The near Cronbach Alpha is to 1, the more reliable the reliability factor is according to Sekaran & Bougie (2016). Following is the results of the pilot study.

Table 3.2

Reliability Coefficient for Each Variable

Measurement	Cronbach's Alpha
Driving attitude on Safe Driving	0.861
Management Commitment on Vehicle Safety	0.881
Road Accident Risk Perception	0.828

3.7 Data Analysis Technique

Data will be analyses to optimize and describe the data by concise statistics. For socio-demographic elements, the frequencies, percentages and mean are determined using SPSS version 25.0 for Windows to achieve the appropriate performance. Two-way ANOVA were applied to compare the mean differences between groups that were split on two independent

variables (called factors). A two-way ANOVA 's primary purpose is to understand whether the dependent variable is interacting between the two or more independent variables. Pearson Correlations has been used to establish any relationship between the independent variables and the dependent variable. While the multiple regression analysis will determine the relationship between the two independent and dependent variables. The difference is determined by the value of R and beta coefficient test the ranking of contributors. The intensity of the association between the two variables is determined by the coefficient of correlation (r).

3.8 Summary

Methodology of the study is described in this chapter. An overview of the manner in which the study was conducted was briefed. The main parts of chapter three are, research design, research instrument, population, sample size, sampling techniques, unit of analysis, pilot study and data analysis technique. Moreover, the study applied a quantitative descriptive analytical cross-sectional design including record reviews. The identified population was police officers around Klang Valley in the year 2017. Data from the statistics, incident reports and questionnaires were used and descriptive analysis was done. The ethical principles of anonymity and confidentiality were observed accordingly while conducting the research. The next chapter will present the description of the study findings.

CHAPTER 4

FINDINGS OF THE STUDY

4.1 Introduction

In this section of the study researcher conversed the findings. Data collection was grounded on the study procedure conversed in earlier chapter. The data were administered according to the study questions mentioned in Chapter 1 and the hypotheses established in Chapter 2.

Furthermore, this section of the study elucidated the socio-demographic aspects of the respondents. Later, findings driven by statistical methods as mentioned in earlier chapter of the study such as regression, descriptive statistics and correlation analysis were offered to evaluate the connection amid the constructs and confirm the hypotheses of this study.

4.2 Demographic Profile of Respondents

The researcher employed a survey technique by distributing 200 self-administered questionnaires by email to the potential audiences of the study. From the distributed 200, a total of 150 was deemed fit for data analysis with a response rate of 75%.

Gender, age, overall experience, experience with current organization, education, occupational accidents and frequency of safety training provided were some of the socio-demographic information of respondents which was collected.

From Table 4.1, the results showed that 148 (98.7) male respondents had participated in this survey whereas female respondents were 2 (1.3%). The respondents who aged 21-30 are 10%, respondents who aged 31-40 comprised of 62.7%, aged 41-50 are 10.7%, aged 51-60 are 16%, whilst respondents who aged above 60 are 0.7%. In this survey out of the total population only 85.3% of the respondents had severe injury at work, meanwhile 14.7% respondents did not have any severe injury. Among the respondents, 96.7% who had accidents were treated at the scene, whereas 3.3% were not.

In terms of respondents' highest education level, 8% of them had master's degree, 18% of them have bachelor's degree, 14.7% are diploma holder and 54% are SPM, whereas, 4.7% have some certifications. For the respondents' overall experience, most of the respondents were in the range of having 11-20 years of experiences (50%), followed by 1-10 years (28%), 10% of respondents had 21-30 years of experience closely followed by 11.3% who had 31-40 years of experiences, whereas only, 0.7% of respondents had more than 41 years of experience. Meanwhile from the survey population, 47.3% of respondents have 1-10 years of experience with current organization, followed by 37.3% who have 11-20 years of experience with same organization. 6% of respondents had 21-30 years, and 8.7% have 31-40 years of experience with same organization, whereas only 0.7% have higher association of working experience within the same organization i.e. more than 41 years.

In regard to the numbers of occupational accidents, from the survey population 11.3% have never had any occupational injury, but, majority (82%) of respondents have 1-2 times incidents at occupation, followed by 5.3% who had 3-4 times and only 1.3% had 5-6 times. Among the respondents, 26.7% of them have never had safety training, whereas, 2% were given training

once in three months. Majority of survey respondents i.e. 58.7% had a safety training once a year and 12.7% of respondents were given safety training every month.

Table 4.1 Profile of Respondents

Demographic		**Frequency**	**Percentage (%)**
Gender	Male	148	98.7
	Female	2	1.3
Age	21-30	15	10.0
	31-40	94	62.7
	41-50	16	10.7
	51-60	24	16.0
	Above 61	1	.7
Overall Experience	1-10	42	28.0
	11-20	75	50.0
	21-30	15	10.0
	31-40	17	11.3
	More than 41	1	.7
Experience with current Organization	1-10	71	47.3
	11-20	56	37.3
	21-30	9	6.0
	31-40	13	8.7
	More than 41	1	.7
Education	Secondary school	81	54.0
	Diploma	22	14.7
	Certificate	7	4.7
	Degree	27	18.0
	Master above	12	8.0
	Others	1	.7
Occupational Accidents	Never	17	11.3
	1 – 2	123	82.0
	3 - 4	8	5.3
	5 - 6	2	1.3
Safety Training	Every month	19	12.7
	Once in three month	3	2.0
	Once a year	88	58.7
	Not at all	40	26.7

4.3 Goodness of Measure

Few of the foremost measures adopted to exam the goodness of measure are reliability and validity. The process which administers how constantly an instrument measures whatsoever concept is being measured is called reliability, however, validity is to assess on how well an instrument established quantifies the precise concept it is planned to measure (Sekaran and Bougie, 2016). Factor analysis was made to further measure validity in the meantime reliability analysis was performed to assess the reliability for the items in the questionnaire.

4.4 Reliability Test

For the uniformity and steadiness of the measurement items, researcher conducted reliability analysis by using Cronbach's Alpha criterion (Sekaran, 2003). According to Hair et al. (2010) Cronbach's Alpha must be between 0 and 1, the cut off is suggested to be 0.7.

Table 4.2 shed more light on the reliability analysis of this research. The results of the study reveals that all the constructs' Cronbach's Alpha is higher than the cut off value of 0.7, thus it can be said the items are reliable achieves satisfactory reliability measurement Cronbach's Alpha for all constructs e.g. management commitment (0.881), It is evident from the results that all the constructs in this study were found to have met the satisfying threshold level of Cronbach's alpha i.e. 0.7. Therefore, all measurement items are reliable, and no measurements items need to be dropped.

Table 4.2 *Reliability of all The Studied Constructs*

Variables	No. of Items	Item Dropped	Cronbach's Alpha
Management commitment	7	0	0.881
Attitude on Safe Driving	7	0	0.861
Road Accidents Risk Perception	4	0	0.828

4.5 Descriptive Analysis

There is no doubt that the determining the socio-demographic analysis of any study enables the researcher with an improved understanding of the spread of the data in both descriptive and numeric form. Table 4.3 provides the details of descriptive statistics of this study elucidating the mean and standard deviation of the variables.

The mean measured in this research for variables attitude on safe driving and management commitment was based on the Likert Scale where 1 specifies Strongly Disagree to 5 specifies Strongly Agree. From the findings in Table 4.3, management commitment recorded to have highest mean of 3.33 meanwhile attitude on safe driving the lowest i.e. 3.0743. Standard deviation for the variables ranged from .805 to .904.

Table 4.3 *Descriptive Statistic for All Variables*

Descriptive Statistics

Variables	Mean	Standard Deviation
Attitude on safe driving	3.0740	.90149
Management commitment	3.3324	.90404
Risk perception	3.0783	.80588

Also, to investigate the influence of demographical variables on risk perception of drivers, it is evident from the ANOVA results that none of the individual factors such as age, gender,

overall experience, education and road accident experience were found to have significant influence on road rivers accidents risk perception.

Table 4.4 ANOVA Results

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Risk Perception * Overall Experience	Between Groups	(Combined)	35.249	4	8.812	.845	.499
	Within Groups		1513.024	145	10.435		
	Total		1548.273	149			

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Risk Perception* Education	Between Groups	(Combined)	46.610	5	9.322	.894	.487
	Within Groups		1501.664	144	10.428		
	Total		1548.273	149			

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Risk Perception * Occupational accidents	Between Groups	(Combined)	44.991	3	14.997	1.457	.229
	Within Groups		1503.283	146	10.296		
	Total		1548.273	149			

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Risk Perception * Age	Between Groups	(Combined)	37.212	4	9.303	.893	.470
	Within Groups		1511.061	145	10.421		
	Total		1548.273	149			

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Risk Perception * Gender	Between Groups	(Combined)	.071	1	.071	.007	.935
	Within Groups		1548.203	148	10.461		
	Total		1548.273	149			

4.6 Correlation Analysis

In the quest of determining the linear association between the exogenous and endogenous variable, correlation analysis is used (Pallant, 2013). Pearson correlation method was applied to assess the correlation among the constructs. According to Pallant (2013), Pearson correlation coefficient ranges from -1.00 and +1.00 where -1.00 represent negative relationship, +1.00 represent positive relationship and r=0 represent there is no relationship among studied constructs. The findings from Table 4.5 sheds light on the inter-correlation among variables. The results in the table indicate that all exogenous variables of this research namely, attitude on safe driving and management commitment had significant relationship with road accident risk perception. Whereas, no relationship was discovered between demographical characteristics including age, gender, education, driving experience, job title and road accident experiences and road accident risk perception. However, results also reveal that exogenous variable named as demographical factors was found to have insignificant effect on road accident risk perception i.e. the dependent variable of the study.

Table 4.5 *Pearson's Correlation Matrix of Study Variables*

Variables	DRIVING ATTITUDE	MANAGEMENT COMMITMENT	RISK PERCEPTION
DRIVING ATTITUDE			
MANAGEMENT COMMITMENT	.592**		
RISK PERCEPTION	.554**	.526**	

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the level 0.05 level (2-tailed).*

4.7 Multiple Regression Analysis

Application of regression analysis enables the researcher to examine the relationship between several studied exogenous variables and endogenous variable. In this research, the independent variables are demographical factors, management commitment and attitude on safe driving whereas road accident risk perception is studied as dependent variable. The findings of regression are illustrated in Table 4.6, and Table 4.7. According to the finding of study, the current study model was tested at a significance level of $p<0.01$ and $F=42.750$. The R square (R^2) was 0.368 indicating that 36.8% variations of road accident risk perception could be explained by the current study's exogenous variables i.e. individual factors, management commitment and attitude on safe driving. The adjusted R square (R^2) was 0.359.

Table 4.5 indicates which of variable included in the study contributed to the prediction of dependent variable i.e. road accident risk perception. Results in Table 4.6 reveal that all independent variable i.e. attitude and management commitment, had positive and significant relationship with road accident risk perception. In this study, the significant variables such as

attitude and management commitment were found to have standardized coefficient beta value of 0.374 and 0.305 respectively. These two variables were significant at *p<0.01*.

Table 4.6 *Regression Result of the Relationship between Variables.*

Variables	Unstandardized Beta	Standardized Beta	T-stats	Sig
DRIVING ATTITUDE	.191	.374	4.594	.000**
MANAGEMENT COMMITMENT	0.155	.305	3.744	.000**
R Square			**0.367**	
Adjusted R Square			**0.359**	

*Significance level: **p<0.01.*

Table 4.7 Model Summary

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.606[a]	.368	.359	2.58055	.368	42.750	2	147	.000**

a. Predictors: (Constant), Management Commitment, Attitude on safe driving

b. Dependent Variable: Risk Perception

*Significance level: **p<0.01.*

4.7.1 Summary of Regression Analysis

Table 4.8 illustrates the summary of the hypotheses and the findings accordingly. Results reveal that out of four hypotheses of this study only three were supported, whereas only one was rejected.

Table 4.8 *Summary of Hypotheses Testing*

	Hypotheses	Result
H1(a-e)	*Demographic characteristics (a) gender, (b) age, (c) overall expereince, (d) education and (e) road accident expereince have significant effect on road accident risk perception*	Not Supported
H2	*Individual attitudes on safe driving significantly impacts road accident risk perception.*	Supported
H3	*Management Commitment on vehicle safety suggestively influences road accident risk perception.*	Supported

4.8 Summary

This chapter explained the results and the finding of demographic of respondent characteristics, descriptive analysis, reliability test, factor analysis, correlation analysis and Multiple Regression Analysis that will be further discussed in Chapter 5.

CHAPTER 5

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Introduction

The issue of road safety is gaining substance universally. The number of people involved in deadly crashes all around the world on annul basis are increasing especially pertaining to motor vehicle accidents. According to WHO (2020), roughly 1.35m people are dying each year due to road traffic accidents. Similarly, it is also stated that road traffic accidents all around the world cost 3% of gross domestic product. While setting an agenda for sustainable development has set out a future plan to halve the number of deaths due to motor vehicles by 2020. It is no doubt that evaluation of driving risk related perception and their overall attitude is a very complex task. However, researcher in this study sets out to investigate this alarming phenomenon from the lens of developing country and to further enhance the extant body of knowledge by including a better understanding of the relationships between demographic factors (age, gender, education, work experience and road accident experience), personal attitudes and drivers road accident risk perception.

5.2 Discussion

In this section researcher will offer comprehensive examination of current research objectives conversed in Chapter 1, assessing the hypothesis established in Chapter 4. As previously mentioned, the findings of this study revealed that 2 out of 3 hypotheses were supported.

Several research objectives were made part of this study along with 3 hypotheses were proposed to test the proposed research framework. All hypotheses were investigating the direct effects on the studied dependent variable i.e. road accident risk perception. The study introduced by investigating the relationship among demographic variables. Moving on, researcher sough to examine the association between driver's road safety attitude with road accident risk perception. Lastly, researcher tried to examine the impact of management commitment on driver's road accident risk perception.

5.2.1 Relationship between Demographic Characteristics with Road Accident Risk Perception

Findings of the study revealed that demographic characteristics does not show statistically significant support on risk accident risk perception, thus H1 was not supported. Differences in risk perception based on demographic characteristics have been reported in the existing literature which generally show that demographics seems to influence the perceived risk behaviour which is contrary to our result.

5.2.1.1 Relationship between Gender Differences with Road Accident Risk Perception

Our result report insignificant change in the independent variable which remains indifferent to the driver's gender though we have seen that women drivers have higher perceived risk due to lack driving skills and increased judgemental error than their male counterparts in existing literature (Deery,

1999; Glendon et al. 2014; Iragüen & Ortúzar, 2004; Ivers et al. 2009; Parker et al. 1992; Rhodes & Pivik, 2011; Wang et al. 2002). Thus, H1a was rejected.

5.2.1.2 Relationship between Age Differences with Road Accident Risk Perception

Findings of the study also empirically established that along with gender as a demographic factor, age was identified as negative predictor in accident risk perception, thereby, H1b was rejected. Contrary to our result that young novice drivers seem to rely more on their sensory alertness, competence and driving skills and generally are have more carefree attitude (Cordellieri et al. 2016; Deery, 1999; Underwood, 2007). Our result seems to have potential indifference in risk perception of drivers of varying age bracket. An insignificant negative result show that there is limited age variance in our convenience sample.

5.2.1.3 Relationship between Driving Experience with Road Accident Risk Perception

The result of the current study also shows that the drivers overall experience does not significantly affect the relative risk perception of drivers, hence H1c was not supported. Increased number of years of experience does not seems to influence the risk perception of these drivers in our sample. Even though less experienced drivers tend to disregard the rules more than more experienced drivers as supported by literature (Machado-Leon et al., 2016).

A possible explanation for this result could be that the bulk of the respondents fall in above 10 years of experience and hence are more well versed in following traffic rules and take less risk.

5.2.1.4 Relationship between Education Level with Road Accident Risk Perception

From the statistical analysis, researcher also established that this study also found little support of formal tertiary educational on the perceived accident risk, thus, H1d was rejected. Majority of the respondents fall in under secondary education level and hence less likely to be exposed to detailed traffic rules of safety protocols which are more specific to specialized trainings. Hence the results show no improvement on the risk appetite of more educated drivers who have greater number of degrees.

5.2.1.5 Relationship between Road Accident Experience with Road Accident Risk Perception

Although personal experience seems to have powerful impact on identification of risks involved and willingness to take precautions, but literature suggest that personal accident history and injury seems to have little to no effect on preventive measure such as use of seatbelt (Weinstein, 1989). Repeated accidents are believed to be an inevitable happening and precautions seems to be futile (Robertson, 1975, Robertson, O'Neill, and Wixom. 1972). Our study also validates previous literature by having insignificant effect of

prior occupational accident on the dependent variable, thereby, H1e was not supported.

5.2.2 Relationship between Driving Attitude on Safe Driving with Road Accident Risk Perception

Furthermore, commonly, attitudes towards traffic safety are motivated by their respective behavioural beliefs which are subjected on the consequences of the event happening. Perceived risk is of importance as immature or adolescent drivers underestimate the potential risk caused by a traffic situation in relation to more mature and experienced driver willing to show responsible behaviour (Parker et al. 1998; Brown and Groeger, 1988; Deery, 1999). Researcher ought to find the impact of a driver's personality which is depicted by his attitude on the extent of risk taking. Earlier literature show that personality trait has an indirect effect on risk taking and is mediated through influencing attitudes. The result of our study show that risk perception of a driver is based on his behavioural attitude. A positive significant coefficient of 0.394 show that a driver learnt attitude regulates their risk-taking propensity, thereby, H2 was supported. Anxious individuals are characterised by being fearful and nervous when making decisions and hence similarly an anxious driver will be more aware of the risk associated and its consequences and therefore be more reluctant and careful in driving. On the other hand, an impatient attitude would most likely disregard the consequences of an unfortunate accident and more likely to overspeed, drunk-driving or even breaking traffic signal.

5.2.3 Relationship between Management Commitment on Vehicle Safety with Road Accident Risk Perception

Furthermore, management commitment is cornerstone to ensure road safety and in minimizing occurrence of potential accidents on road. Positive safety climate change takes place when senior management demonstrate, communicate and implement safety policies which benefit all the relevant stakeholders. Management support is needed to fund training programs and allocate resources to achieve safety objectives. Management commitment have been included as one of the management practices ensuring safe working environment for their employees, which ensures that management objectives are consistent with their health and security statement. (Vredenburgh, 2002). The result of our study shows the highest mean for management commitment with the highest explanatory power among all independent variables of the study, thus H3 was supported. The main reason for this result could be that people among the target audience look up to management as being the safety advocates who guarantee appropriate workplace safety. The result also revalidates the previous study where willingness to take part in performance activities is subjected to management's strong positive attitude towards safety management (Langford et al. 2000). It seems that the respondents risk perception is driven by organizational factors, where risk perception is positively influenced by increasing management and supervisor commitment in safety initiatives.

5.3 Implications

Based on the findings in the current study, the implications on both theoretical and managerial will be discussed in the next section.

5.3.1 Theoretical Implications

The objective of this research is to review the relationship and effect of demographic characteristics, driving attitude towards safe driving and management commitment on vehicle safety to road accident risk perception among police officers working around Klang Valley. The research was conducted in order to achieve the objective of this study.

The findings of this study emphasizes the focus or need for management commitment and driving attitude on safe driving among police officers to promote and practice safe work environment at RMP. Thus, the awareness on road safety implicated from this study ay substantially help to minimize the probability of road accidents among police officers around Klang Valley.

5.3.2 Managerial Implications

Certain limitations must be faced in preparing this research and need to be highlighted to the researchers. This is because the study was narrowed or emphasized on road accident risk perceptions by police officers in the Klang Valley area.

This study of risk perception on road accident would greatly assist policy makers and practitioners. Moreover, the safety policies and risk perception should be examined and practiced at the individual level and managerial level.

Based on the study result, the independent variables driving attitude towards safety driving and management commitment on vehicle safety were noted to effect in the evaluation of road accident risk perception among police officers. These two independent variables may also give an impact on the safety behavior of the police officers. Thus, these could promote better behavior and reduce road accidents.

5.4 Limitations of The Study

Nevertheless, this study met all its research objectives, but like all the research it has some limitations too. Firstly, as a limitation of this research, it is worth mentioning that skills of the drivers may influence driver's road accident risk perception and this aspect of drivers was not considered in our study. Next, only few findings and articles from Malaysia to support this research leading the researcher to take journals and articles from other countries. Finally, due to limited time period the researcher only managed to conduct the study around Klang Valley area.

5.5 Suggestion for Future Research

Therefore, future researchers need to inculcate this aspect when it comes to examine driver's road accident risk perception. Moreover, this research did include the personality related traits of drivers which have been found in previous researches to have a significant effect on drivers' road accident risk perception. Therefore, future researchers need to consider this when centralizing their research model. The current sample also had a lower proportion of women than men which may limit its generalizability to the wider female population. Next, while this study measured only the behavioral factors on road accidents there are other factors such as environmental aspects, vehicle safety features etc. that impact drivers risk perception while driving, such as urbanization and heavy traffic. The automobiles industry has taken enterprises to produce sturdier and vigorous vehicles for drivers by accepting the safety ratings of crash evasion and crashworthiness. Lastly, this study was cross sectional in nature which may limit its ability to imply causality in the associations among the studied constructs. For future studies, a longitudinal study is needed to detect active changes involved in detecting driver's road accident risk perception.

5.6 Conclusion

In this research, researcher intended to recognize significant factors affecting the driver's road accident risk perception. The findings of the study empirically established that out of the studied factors i.e. demographical factors (age, gender, education, work experience and attitude towards road safety and role management commitment only two factors both attitude and role of management commitment was found to have substantial impact on drivers' road accidents risk perception. Moreover, there is no significant association was found between any

of demographical factors and road accident risk perception. These results contain a significant impact in a developing country like Malaysia, where very few studies were conducted. From the findings of this results exclusive measures can be taken to provide safe driving among employees all across the Malaysia. To conclude, these conclusions propose that there is a necessity to emphasis on detailed characteristics of risk perception and attitudes in the development of road protection movements. Explicitly, more driver education programs related to aberrant driving on and significances of traffic accidents may be likely to underpin drivers' apprehension about traffic risks. Furthermore, to modify drivers' attitudes toward rule violations and speeding, many education efforts may be conducted to emphasize the importance of obeying traffic rules and the strong relationship between rule violations and crash risks.

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APENDIX A: RESEARCH QUESTIONNAIRE

Dear Participant,

Thank you for agreeing to participate in this research titled**:**

ROAD ACCIDENT RISK PERCEPTION AMONG POLICE OFFICERS

I am a Master of Science in Occupational safety and Health Management student (By Research) and I would appreciate it if you could answer the questions carefully as the information you provide will influence the accuracy and the success of this research.

The objective of this research is to determine the road accident risk perception among police officers around Klang Valley. There is no right or wrong answer to the statements listed in the questionnaire. Your sincerity and honesty is highly required in answering these statements.

It will take no longer than 15 minutes to complete the questionnaire. All answers will be treated with strict confidence and will be used for the purpose of the study only. If you have any questions regarding this research, you may address them to me at the contact details below.

Thank you for your cooperation and the time taken in answering this questionnaire.

Yours Sincerely,

Thanesh Raj A/L Gobal
School of Business Management
Universiti Utara Malaysia
Malaysia
Email: thanesh4646@gmail.com

SECTION A: DEMOGRAPHIC INFORMATION

SEKSYEN A: MAKLUMAT DEMOGRAFI

Please fill in blank and tick (√) in the appropriate boxes that corresponds to your answer to each of the following questions below.

Sila isikan tempat kosong dan tandakan (√) untuk mewakili jawapan anda pada semua soalan di bawah.

1. Job title/ *Jawatan* : _____

2. Gender/ *Jantina* : ☐ Male/ *Lelaki* ☐ Female/ *Perempuan*

3. Age/ *Umur* : _____ *years*/ *tahun*

4. How long have you been working with the present organisation? /

   Sudah berapa lama anda bekerja dengan organisasi sekarang? : _____ *years*/ *tahun*

5. Highest Educational level/ *Tahap pendidikan tertinggi* :

   ☐ Secondary school/ *Sekolah Menengah* ☐ Diploma/ *Diploma*
   ☐ Certificate/ *Sijil* ☐ Degree/ *Ijazah*
   ☐ Master above/ *Master ke atas* ☐ Others/*Lain-lain*:……

6. Have you ever had any road accident ever since you started working in this organisation/ *Adakah anda pernah mengalami kemalangan sepanjang bekerja di organisasi ini?*

   ☐ Yes/ Ya ☐ No/ Tidak

7. If yes, how many road accidents have you had while working in this organisation? / *Jika ya, berapakah bilangan kemalangan yang pernah dialami sepanjang bekerja di organisasi ini*?

   ☐ 1- 2 ☐ 3 – 4
   ☐ 5 - 6 ☐ Above / *lebih* 6

SECTION B

SEKSYEN B

GUIDELINES: Considering only your perception, please circle the most appropriate answer to you based on the scale below:

GARIS PANDUAN: Dengan hanya mengambil kira pandangan anda, bulatkan jawapan yang paling tepat kepada anda berpandukan pada skala jawapan di bawah:

1 = Strongly Disagree / *Sangat Tidak bersetuju* (SD)	2 = Disagree / *Tidak bersetuju* (D)	3 = Neutral (N)	4 = Agree / Setuju (A)	5 = Strongly Agree / Sangat Bersetuju (SA)

		SD	**D**	**N**	**A**	**SA**
B1.	Officer talking on cell phones. *Pegawai menggunakan telefon bimbit semasa memandu/menunggang.*	1	2	3	4	5
B2.	Officer driving/riding when restless. *Pegawai memandu/menunggang dalam keadaan pening kekurangan rehat.*	1	2	3	4	5
B3.	Officer driving/riding when sleepy. *Pegawai memandu/menunggang dalam keadaan mengantuk.*	1	2	3	4	5
B4.	Officer had enough sleep (8hours) prior reporting to duty. *Pegawai telah berehat secukupnya (8jam) sebelum lapor tugas.*	1	2	3	4	5
B5.	Officer driving/riding well over the speed limit. *Pegawai memandu lebih daripada had laju yang ditetapkan oleh kerajaan.*	1	2	3	4	5
B6.	Driving/riding their vehicle on the wrong lane (including during emergency calls). *Memandu/menunggang kenderaan dalam keadaan lawan arus (termasuk semasa kecemasan).*	1	2	3	4	5

B7.	Officer driving/riding while not obeying traffic signs (including during emergency calls). *Pegawai memandu/menunggang dalam keadaan tidak mengikut lampu isyarat (termasuk semasa kecemasan).*	1	2	3	4	5
B8.	Safety is given high priority by the Polis Diraja Malaysia (PDRM) management. *Tahap keselamatan dalam orginisasi PDRM diberi keutamaan yang tinggi.*	1	2	3	4	5
B9.	Safety rules and procedures are strictly followed by the PDRM management. *Peraturan dan prosedur keselamatan diikuti dengan ketat dalam organisasi PDRM.*	1	2	3	4	5
B10.	Corrective action is always taken when the PDRM management is told about unsafe practices. *Langkah-langkah pencegahan/pembetulan sentiasa diambil apabila organisasi PDRM dimaklumkan tentang amalan kerja tidak selamat.*	1	2	3	4	5
B11.	PDRM considers safety to be equally important as their daily Key Performance Indicator (KPI). *PDRM mempertimbangkan keselamatan adalah sama kepentingannya dengan KPI hariannya.*	1	2	3	4	5
B12.	I feel that management is willing to compromise on safety for increasing KPI. *Saya berpendapat bahawa PDRM bersedia berkompromi keselamatan untuk meningkatkan KPI.*	1	2	3	4	5
B13.	When near-miss accidents are reported, my PDRM management acts quickly to solve the problems. *Jika terdapat sebarang insiden kemalangan hampir berlaku, organisasi PDRM saya akan bertindak dengan cepat untuk menyelesaikan masalah tersebut.*	1	2	3	4	5
B14.	PDRM provides sufficient personal protective equipments for the officers. *PDRM akan memperuntukkan kelengkapan alat perlindungan diri yang secukupnya semasa bertugas di lapangan.*	1	2	3	4	5

SECTION C

SEKSYEN C

GUIDELINES: Considering only your perception, please circle the most appropriate answer to you based on the scale below:

GARIS PANDUAN: Dengan hanya mengambil kira pandangan anda, bulatkan jawapan yang paling tepat kepada anda berpandukan pada skala jawapan di bawah:

1 = Not at all dangerous / *tidak berbahaya sama sekali* (ND)	2 = Somewhat Dangerous / *Seperti Membahayakan* (SD)	3 = Dangerous / *Bahaya* (D)	5 = Very Dangerous / Sangat Bahaya (VD)

		ND	**SD**	**D**	**VD**
C1.	Driving/riding under emergency conditions. *Memandu/menunggang semasa keadaan kecemasan.*	1	2	3	4
C2.	Driving under non-emergency conditions. *Memandu/menunggang semasa bukan kecemasan.*	1	2	3	4
C3.	Driving in responding to domestic violence calls. *Memandu untuk menanggani/membalas panggilan keganasan domestic.*	1	2	3	4
C4.	Driving in responding to other scenes of violence. *Memandu untuk menangani/membalas keganasan di tempat-tempat kejadian yang lain.*	1	2	3	4

Thank you for your participation in answering this questionnaire.
Terima kasih di atas kerjasama anda dalam menjawab soal selidik ini.