FACTORS AFFECTING AND PROTECTION AGAINST MOTORCYCLE ACCIDENTS : A CASE STUDY OF KANCHANABURI NON-COMMISSIONED POLICE

POL. LT. NUTTAPHOL SITANONTH

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The objectives of this study are to determine the behavior level of protection against motorcycle accidents and to study the factors affecting protection against the motorcycle accidents, including the problems, obstacles and suggestions for protection against the motorcycle accident.

Data were collected by questionnaires. The sample size was 225 cases of the non-commissioned police in Karnchanaburi Province. Statistical analysis used for data analysis were percentage, mean, standard deviation and association analysis between the general characteristics and behavior for protection against motorcycle accidents.

The results of this study found that the behavior level of non-commissioned police officers on the protection against motorcycle accidents were at a medium level. Factors affecting behavior of non-commissioned police on protection against motorcycle accidents were number of working, rank, type of work, average speed in riding motorcycle, frequency of using the motorcycle, knowledge about protection against motorcycle accidents, value of life and asset. The factors not affecting accidents were age, education level, Income per month, marital status, number of year using a motorcycle and experience of motorcycle accidents.

From this study the suggestions are a training course for giving knowledge and understanding about the rules, protection against the motorcycle accidents and safety from accidents. The drivers should follow and understand the law and rule of road accidents. The police should be stricted on their duty directly and give justice for the government. Other organizations should promote public relations and give more information to people about how to use motorcycles safely.

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ร้อยตำรวจโทณัฐพล สิตานนท์ : ปัจจัยที่มีผลต่อการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ของเจ้าหน้าที่ตำรวจชั้นประทวน กรณีศึกษา : ตำรวจภูธรอำเภอเมือง จังหวัดกาญจนบุรี (FACTORS AFFECTING AND PROTECTION AGAINST MOTORCYCLE ACCIDENTS : A CASE STUDY OF KANCHANABURI NON-COMMISSIONED POLICE.) คณะกรรมการควบคุมวิทยานิพนธ์ : อัศวิน วัฒนวิบูลย์ น.บ., สค.ม, พันตำรวจโทอุดม เปี่ยมศักดิ์, นภ กาญจนกันติ ศศ.บ,M.S. 95 หน้า ISBN 974-04-1309-9

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาระดับพฤติกรรมการป้องกันอุบัติเหตุจราจร ปัจจัยที่มีผลต่อพฤติกรรมการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ ปัญหา อุปสรรคและข้อเสนอแนะในการป้องกันอุบัติเหตุจราจรจากพฤติกรรมการขับขี่รถจักรยานยนต์ เก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม กลุ่มตัวอย่าง คือ เจ้าหน้าที่ตำรวจชั้นประทวนตำรวจภูธรอำเภอเมือง จังหวัดกาญจนบุรี จำนวน 225 ราย แล้วนำข้อมูลมาวิเคราะห์โดยใช้สถิติ อัตราส่วน ค่าเฉลี่ยเลขคณิต ค่าเบี่ยงเบนมาตรฐาน การวิเคราะห์ความสัมพันธ์ระหว่างลักษณะทั่วไปของประชากรที่ศึกษากับพฤติกรรมการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ของเจ้าหน้าที่ตำรวจชั้นประทวน

ผลการศึกษา พบว่า พฤติกรรมการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ของเจ้าหน้าที่ตำรวจชั้นประทวนอยู่ในระดับปานกลาง ปัจจัยที่มีผลต่อพฤติกรรมการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ คือ จำนวนปีที่รับราชการตำรวจ ชั้นยศ ปฏิบัติงานสายงาน ความเร็วเฉลี่ยในการขับขี่รถจักรยานยนต์ ความถี่ในการใช้รถจักรยานยนต์ การได้รับข่าวสารป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ ความรู้เกี่ยวกับการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ การให้คุณค่าต่อชีวิตและทรัพย์สิน ส่วน อายุ ระดับการศึกษา รายได้เฉลี่ยต่อเดือน สถานภาพสมรส จำนวนปีที่ใช้รถจักรยานยนต์ ประสบการณ์การเกิดอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์ ไม่มีผลต่อพฤติกรรมการป้องกันอุบัติเหตุจราจรจากการขับขี่รถจักรยานยนต์

ข้อเสนอแนะ : ควรมีการจัดอบรม ให้ความรู้ความเข้าใจเกี่ยวกับกฎจราจร และการป้องกันการเกิดอุบัติเหตุจราจรและความปลอดภัยในการใช้รถใช้ถนนร่วมกัน ผู้ขับขี่ยังต้องเคารพกฎจราจร ปฏิบัติตามกฎระเบียบ ข้อบังคับอีกด้วย และทางเจ้าหน้าที่ตำรวจปฏิบัติงานอย่างเข้มงวดจริงจังตรงไปตรงมา ส่วนหน่วยงานราชการและหน่วยงานที่เกี่ยวข้องต้องมีการรณรงค์ ประชาสัมพันธ์อย่างต่อเนื่องและให้ข้อมูลข่าวสารเกี่ยวกับการขับขี่ที่ปลอดภัยแก่ผู้ใช้รถใช้ถนนให้มากกว่านี้อย่างสม่ำเสมอ

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CHAPTER 1

INTRODUCTION

1.1 The Cause and Important of Problems

The police department is one of systems of the judgement process for advocate, court and (Praseon Magmanee 1980; 3). The duty of policeman is protecting, investigating, interrogating, and arresting people who break laws, especially police warrant officers.

A researcher, a policeman acting as interrogation (royal letter of appointment) at Puthon police station in Ladya in Meung in Kanjanabnure, used to work at a police station in the district of Mueng in Kanjanaburee for 1 year as a lieutenant responsible for interrogation of criminal and traffic cases. For his past experience when working there, he knew that traffic accidents often occurred on the road and those accidents were informed mostly: a motorcycle crashed into another or a motorcycle crashed into a car or sometimes that driver of motorcycle fell on the road while riding it without a party. Those cases had just damaged property and those people were injured. The most severity of the damage was to make people die. It was because that most people living in the district of Meung in Kanjanaburee were likely to use bikes more. The reasons that they did so were convenience, saving up the gas, availability and cheaper than car. Other than these, Kanjanaburee is the center of historical and natural resources in the west of Thailand and it is only 129 kilometers far from Bangkok. For these reason, Thais and foreign visitors like going to the district of Mueng in Kanjanaburee.

A lot of hotels and Guest Houses were established there so Kanjanaburee's economy have grown rapidly. Hotels and Guest Houses arrange rent motorcycles for visitors to driving and seeing the views of the district of Meung and around the area. For these reasons, on the road it is full of motorcycles and it is one of the causes of traffic accidents.

Police warrant officers of Puthon police station in the district of Meung in Kanjanaburee were noticed by researchers that most use motorcycle at work and after work because the condition of the road in Meung was suitable for riding motorcycle. Furthermore, they can save up the gas and the price of motorcycle was cheaper than its car.

However, riding motorcycle of Puthon warrant officers are risk to accident like general people. If any police warrant officers have accident and are injured or die on account of riding motorcycle, it effects to police's working and it discourages other police warrant officers. For these reasons, it is necessary for policemen to riding motorcycles carefully not to accident and loose such officers.

The statistic of traffic accident since 1998 to 2001 collected by the general affairs section of criminal case of Puthon Police Station in Kanjanaburee as following

In 1998 there were 28 cases, in 1999 there were 49 cases, in 2000 there were 57 cases, in 2001 there were 30 cases. It showed that not only traffic cases of Puthon Police Station are likely to increase but also police warrant officers are more risk to having accidents.

The causes of the traffic accident as above made researchers interested in finding the factors influencing behavior of protecting motorcycle accident of Puthon

police warrant officers at Puthon Police Station in Meung in Kanjanaburee. This is the vital way to find the measure for protection of National Police Department.

1.2 The Objective of the Research

1. To study the level of protecting traffic accident caused by using motorcycle of police warrant officers.
2. To study the factors influencing protection of motorcycle accident of police warrant officers.
3. To study the problems, obstacles, and proposals of protection of motorcycle accident of police warrant officers.

1.3 The Range of Research

The study is aimed to not only the level of protection motorcycle accident of police warrant officers in Meung in Kanjanaburee but also the factors involved in protection of motorcycle accident. Other than these, researchers studied the problems, obstacles and proposals of protecting motorcycle accident of police warrant office in Meung in Kanjanaburee.

1.4 The Definition of Terms in Research

Factor is thing or obstacle influencing the protection of motorcycle accident of police warrant offices.

Income is money earned from doing work per month.

Receiving information is the way how to get information of protecting motorcycle accident such as receiving information from people: commander; colleague, from media: radio; television; telephone or publishing.

The frequency of using motorcycle/week is how much police warrant officer ride motorcycle per week

The knowledge of protecting traffic accident is knowledge of the fact, laws and the way to protect traffic accident which police warrant officers have studied, researched, noticed and experienced.

Experience from motorcycle accident is police warrant officer has had accident because of riding motorcycle.

Police warrant officer is people joining the government service, and their titles are major-general or private policeman working at Puthon Police Station in Meung in Kanjanaburee.

Realizing value of Life and property is being concerned with our life; others around us and property by way of taking care them, being careful and protecting accident.

Averaging speed of driving is the rate of unit speed (kilometer an hour) that driver rides motorcycle on average each time.

1.5 Researched Variables

Independent Variables consist of personal and social factors: age, official year, title, the field of work, highest education, income, driving license, martial, number of years of riding motorcycle, the speed of driving, the frequencies of using motorcycle and motorcycle accident. Stimulating factors are receiving information of

traffic accident, knowledge of traffic accident protection and realizing valve of life and property. A dependent variable is the protection of motorcycle accident of police warrant officers.

1.6 Variables and Levels of Measure

Independent variables	Level of measure
1. Personal and social factors	
- Age	Nominal, Interval
- official year	Nominal, Interval
- title	Ordinal
- the field of work	Ordinal
- highest education	Nominal
- income	Nominal, Interval
- driving license	Nominal
- martial	Nominal
- number of years of riding motorcycle	Interval
- the speed of riding motorcycle	Nominal, Interval
- the frequency of using motorcycle per week	Nominal, Interval
- experience of motorcycle accident	Nominal, Interval
2. Stimulating factors	
- Receiving information of traffic accidents	Nominal
- Knowledge of protection of traffic accidents	Interval
- Realizing value of life and property.	Nominal, Interval

Dependent variables	Level of measure
- Protection of motorcycle accident	Nominal

1.7 Hypotheses of the Research

1. Personal and social factors consist of age, official year, title, the field of work, highest education, income, driving license, martial, number of years of riding motorcycle, the speed of riding motorcycle, the frequency of riding motorcycle and motorcycle accident

Hypothesis Police warrant officer having differences between personal and social factors has the different way to protect motorcycle accident.

2. Stimulating factors comprise receiving information of traffic accident, the knowledge of protection of traffic accident and realizing value of life and property.

Hypothesis Police warrant officer different in stimulating factors has the different way to protecting motorcycle accident.

1.8 Expected Benefits

1. Knowing how to protect motorcycle of police warrant officer in Meung in Kanjanaburee
2. Knowing factors of motorcycle accident of police warrant officer in Meung in Kanjanaburee
3. Knowing problems, obstacles and the way to protect motorcycle accident.
4. Being primary information for affiliated unit to consider, plan and implement the policy of protecting motorcycle accident of police warrant officer in Meung in Kanjanaburee.

CHAPTER 2

REVIEWING WRITING AND INVOLVED RESEARCH

Researchers studied concepts, theories, documents and involved researches for the purpose of primary information and the way to do research. There are main points:

1. Concepts of Behaviour Theory
2. Theories concerning accident
3. Protection of traffic accident
4. Information of Puthon Police Station in Meung in Kanjanaburee
5. Involved researches
6. Variables involved in research

2.1 Concepts of Behaviour Theory

The research of factors influencing protection of motorcycle accident of Puthon police warrant officers in Meung in Kanjanaburee that researchers studied the meaning of factors and the propriety of behaviour as following

The research of Human Behaviour that psychologists, socialists, anthropologist and behaviourists studied had many theories. Sociology is the study of the relationships between people living in groups and human behaviour or Behaviourism (Banpot Veerasai, 1971:15). Social psychology is one of the fields of sociology aimed to human behaviour stimulated by society (Suntree Komin, 1979 : 126). Culture anthropology is the study of the human race, its culture, society and its physical development (Thongchai Santiwong, 1983 : 32). Researcher should have

known the meaning of behaviour before studying theories since there are a lot of the fields of science and theories regarding behaviour.

2.1.1 The meaning of behaviour

There are a lot of people giving the meaning of the word "behaviour" as following:

Somchit Supantad (1982 : 97) defined that it is any acting or activities of animals and human beings that is noticeable or innoticeable.

Suda Chitpitak (1979 : 2) defined that it is not only acting of people but their thought which is innoticeable such as value, attitude, opinion, belief, and taste which all of these are individual character and it stimulates behaviour.

Prapapen Suwan (1973 : 15) defined that if is all of noticeable and innoticeable human activities such as heart beating, walking, having a conversation, thinking, feeling, preferring and interesting

Ornthai Cheonmanoot (1976 : 23) defined that it is the thing involved in the relationships between people living in groups and in society and it effects to others : it stimulates others' behaviour.

Thongchai Santiwong (1974 : 24) defined that if is any individual acting that people express in environment or surroundings.

Bandura (1977 : 16) defined that it is knowledge, comprehension, or belief of people stimulating their acting.

Payom Inkatawat (1982 : 41) defined that it is any responding of acting to over and covert stimulating things.

Guskin (1970 : 89) defined that it is the result of social role: the theory of social role is primary agreement of society expecting that people having high social roles will act like characters determined their acting in the movie.

Chaiporn Wichawoot (1980 : 1) defined that it is noticeable and innoticeable human acting which people express consciously and what people do without consciousness such as talking, walking, blinking their eyes, hearing, understanding, preferring, thinking and feeling angry which all of these are behaviour.

- Munm (1962 : 5) defined that it is any activities or acting of human beings.
- Boles and Davanport (1975 : 423) defined that it is the kind of acting
- Longman Dictionary (1984 : 90) defined that it is the acting of psychological individual responding, acting which responds to over and covert stimulating things and noticeable and innoticeable activities.
- Sopa Chopikuchai (1978 : 2) defined that it is any activities which is noticeable both animals and people it is proved by examining machine such as laughing, crying, eating, sleeping and playing.
- Rachabaditsatan Dictionary (1981 : 33) defined that it is any acting which people have experienced, that is, people'll such an acting because they have done so before. Human Behaviour is different from natural character.

Tawin Thararod said that there were 2 kinds of behaviours:

1. Over Behaviour is any acting perceived by perceptual knowledge such as walking and crying.

2. Covert Behaviour is any noticeable acting such as thinking, perceiving, feeling and emotion.

Rober M.Goldensor (1984 : 90) defined that if is acting and responding of individual psychology and it responds to both over and covert stimulating things and it is any noticeable activities and any activities which are thought and done unconsciously.

Wimonsit Hoyangkon (1983 : 35) defined that Human has psychological behaviour and covert behaviour controls over behaviour. Human has perceptual knowledges : touching, perceiving, learning, recognizing and making decision. Other than these, it means any emotions stimulated by others and surroundings. Such a psychological behaviour is involved in over behaviour.

Psychological behaviour also involved in both human beings and environment. No matter what people have done, others will know so. People try to understand that why environment have changed. This makes people enthusiastic to study and think, it is useful to mental development.

The meanings of behaviour said as above is concluded that behaviour means acting and any activities which people do in any situation and it is noticeable and innoticeable actings : thinking, feeling, concept, talking and behaving. Those actings influence that environmental concervation of people for supporting and maintaining natural resources and environment. The knowledge, attitude and comprehension make people to behave noticeably and innoticeably.

2.1.2 Theory of Human Behaviour

Concepts and primary theories of Human Behaviour that students, behaviourists and scholars in any fields have studied are different in each theory. It depends on their purposes of study. There are many interesting theories of human behaviour as following

Benjamin S. Bloom said that behaviour is any noticeable and innoticeable activities of people and it is separated 3 parts:

1. Cognitive Domain perceives, knowledge, recognition, cognitive ability, thought, development of ability and mental skill, thought of reasons to help for making decisions. It consists of 6 abilities: knowledge, comprehension, application, analysis, systhesis and evaluation.

2. Affective Domain is interest, concept, feeling, preference, disliklyness, value, acceptance and improvement. All of them are covert behaviour hard to explain. There are 5 of them:

1) Receiving or attending	- Awareness
	- Willingness to receive
	- Controlled or Selected Attention
2) Responding	- Acquiescence in Respond
	- Willingness to Respond
	- Satisfaction in Respond
3) Valuing	- Acceptance of a Value
	- Preference of Value
	- Commitment

4) Organizing	- Conceptualization of a Value
	- Organization of Value System
5) Characterization by a Value	- Generalized Set

3. Psychomotor Domain is noticeable physical acting or delaying acting: people doesn't act immediately but they are expected to do so soon which it is stimulated by factors: knowledge, opinion, value and preference. This behaviour is easily estimated but the process of expressing this behaviour must take time and be decided which researchers believe that the process of study all make people to easily act this behaviour.

Phenomenology Theory is one of Social Theory that explains reasonably about Human Behavior. The concept of the theory believes that Human Behavior is a product of how people interpret their world.

Lewin's Field Theory was given the concept, by Lewin (1951), that human behavior is caused by the relation between human's personal inside and outside factors that they respond. So what, how and when they behave do not depend on either their need or outside stimulus, but on various inside and outside factors according to each person's experience. Lewin's Field Theory offer a formula to study about behavior related to the coverage of environment that one has individually life space:

B = f(P,E)

by

B = Human Behavior

P = Person

E = Environment

f = fruit of interaction between two parts

It is that Behavior (B) depends on the relation between Person (P)'s factors and Environment (E) that they respond. The environment is not a real condition and does not mean only the physical environment, but also includes the social and cultural environment.

2.1.3. Component of Behavior

Prapapen Suwan (1983; 15-17) said that the psychologist believe that the behavior is a fruit from Human or Organism's perform and Environment.

Cronbach classified the component of human behavior in 7 ways as follows:

1. **Goal** is a need or objective that causes the activities. People perform to respond the rising need. Some performances are satisfying and respond the need immediately, but the other take a long time to reach the need. We have various needs at the same time and always respond the urgent one first and the need in the distance later.

2. **Readiness** means the level of expertise or required ability to perform and to respond to the need. We can not respond every need, some are beyond our ability.

3. **Situation** is the circumstance that gives the opportunity to perform to respond to the need.

4. **Interpretation** Before we do something, we should try to consider every situation first, then pick an option that is expected to be most satisfying.

5. **Response** is a performance to respond to the need by using the way considered in the stage of Interpretation.

6. **Consequence** After we perform something, the consequence will follow. It may confirm or contradict our thoughts.

7. **Reaction to thwarting** If we can not respond to the need, means that we are disappointed. In this case, we may reinterpret the situation and choose new way to respond.

Pat Sujumnong (1979: 80-82) says about the component of Human Behavior as follows:

1. **Social Group** such as neighborhood group, classmate group and schoolmate group etc.

2. **Identification Figure** such as father, mother, brother, sister, teacher, famous person in the society etc.

3. **Status** Social status such as gender, age, religion. Personal status such as rank or title. When we have different status, the behavior is also different.

4. **The development of technology** For example, at present, people use labor-saving devices in working instead of labor as before. That makes human behavior changed.

5. **Law** Some of human behaviors are controlled by law, for example, smoking on the bus in Bangkok Metropolitan Administration is illegal, so the behavior of smoking on the bus decreases.

6. **Religious** Each religion has different rule, so people in different religion may have different behavior in some situations.

7. **Tradition** All of beliefs have an influent on all people's performance, such as the tradition of bringing up baby in each society are different in belief.

8. **Environment** People in different environment have different behavior such as people in the country and in the city.

9. **Attitude** has an influence on human behavior. For example, the students having bad attitude to teacher always behave strangely such as not paying attention to or being absent in that teacher's class.

10. **Learning** In psychology, most behaviors are from learning. Learning is a process rising continuously from boy to be man, such as that a child learns how to behave from an adult etc.

2.1.4. Category of Behavior

Human behaviors or performances including feeling, word acting and attitude are important because they are main factors to live with other in the society. By using observation vitally, human behavior may be classified in various characters.

Somchitt Supantat (1983: 98) classified human behavior in two kinds in accordance with Pariyaporn Wongbuthroj (1978: 7) as follows:

1. Covert Behavior is acting or activities happening inside a person by the brain having a duty to collect, order and command. Covert behavior are both concrete – heart beating, intestine pressing – and abstract – thought, feeling, attitude, belief, value – that are in a person's brain which is unnoticeable.

2. Overt Behavior is person's reactions or activities whatever the other can see in word, acting, attitude such as speaking, laughing, eating, cleaning and planting. Overt Behaviors are most important factor to live with other and to help the world or conserve the environment.

Besides, Somjit Supantat (1983: 101-105) also classified behaviors in two characters as follows:

1. Normal Behavior means that persons' behaviors in the society has to have development, be in accordance with culture they live, and be valid of the social law. It has standard to consider as follows.

First: It has to have the step of development in each person's expertise.

Second: It has to be in accordance with the social culture they live.

Third: It has to follow the social rule.

2. Abnormal Behavior means the behavior that doesn't follow the social rule. Some Behaviorists call the behavior the changing behavior. It may change in positive or negative way. Some abnormal behaviors in one culture are normal behaviors in another, because each culture is different in system of cultural value.

Sucha and Surang Janaim (1974: 1) classified behavior in two categories as follows:

1. Unlearned Behavior means the behavior that body behaves without learning before. It may be performed after the birth, so it was suspected not to be the unlearned one. However, the unlearned behavior performed late behind time of birth cannot avoid the efficiency of learning.

2.1.5 The nature of behavior

According to study of means, theories, components and categories of behavior, we know adequate intensive concept about behavior. To understand human behavior, it is necessary to know about their natural behavior – (Somjit Supantat: 106). It can be included as follows:

1. Behavior is performed by causes has causes to perform. Behaviors including invert, covert, normal and abnormal behaviors have to have causes to stimulate person to behavior such as a person who eats because of hunger or need.

2. The same cause is not necessary to lead of the same behavior. For example, when the nurse vaccinate the students, some cry painfully, some look at syringe without feeling, some smile and some turn their faces away.

3. The different behaviors may have the same causes. For example, some like to sit and close their eyes, some like to play cards, some like to go to the movie and the others like to sleep because they are lazy to work that is the same reason.

4. They're maybe different reasons for one behavior. For example, some people have meals at luxurious restaurant, when they are hungry, enjoys listening to music while having a meal, expect good service, like to sit in an air-conditioned room and want others to know that they have high taste. Some people committing suicide may have many causes at the same time.

The four principles, as mentioned, make those who are studying behavior clearly understand the basic of behavior and know the causes of behavior. That is necessary for studying deeply what kind of components and factors which cause people's behavior

2.2 Theory of Accident

Accident is a side effect of development and a second cause of death in Thailand. At present, it is one of biggest problem. It is given the meanings as follow (Vichitr Boonyahantra, 1994: 38-39)

Accident is something happens unpredictably, and causes jury, death, and lose property that we do not want to happen.

Adversity is danger from accident that can be divided into 4 categories as follows:

(1.) Traffic Accidents are adversities of land (road, railway etc.), marine and air traffic. In Thailand, adversity of land traffic is the most important problem.

(2.) Occupational Accidents are the adversities caused by working both indoor and outdoor such as construction and public utilities.

(3.) Home or Domestic Accidents are the adversities - falling down, cutting oneself, gas explosion and getting fire - happening in the resident.

(4.) Public Accidents are the adversities generally happening in public such as in school, office, hotel .

The interesting and believable theory of accident is as follows:

Domino Theory

H.W. Heinrich, inventor of the theory, said that damages were directly affect of adversities caused by carelessness(or unsafe situation). He compared the factors causing the accident with 5 dominoes put in a line. When one fell down, the rest would also fall. The factors were as follows: (Heinrich claimed in Vichitr Boonyahotra, 1994: 143-144)

1. Social Environment of Background
2. Defect of Person
3. Unsafe Acts / Unsafe Condition
4. Accident
5. Injury / Damages

According to this theory, defect of person (having incorrect attitude to safety, and being careless) was the result from one's social environment of background (family status, living condition and graduation)

This theory can also be called "Accident Chain." The accident protection concept of the theory is that when one domino falls down, the others follow. So, if we don't want the 4th domino (Accident) falls down, take out the 3rd (Unsafe Acts). There will be no damages.

The theory offers the idea that to protect the accident in the 1st and 2nd domino is difficult because they are infused as personal qualification.

Imbalance Cause Theory

The accident is caused from meanwhile unbalancing between people's behavior and their work system. To protect the accident is to change their behavior, booth of them, one of them. The best way is the latest as the chart 2.1 (Vichitr Boonyyahotra, 1994: 144)

2.3 To Protect the Land Traffic Accident

2.3.1. The concept to protect the land traffic accident

The factor causes the accident on the street

From the study about the causes of accident on the street, it was found that there are 4 main causes – person, vehicle, street and environment. The details are as follows:

Person

Considering the driver, there are 4 related factors as follows (Vichitr Boonyanotra, 1994:152-154):

1. Age Young people like to express themselves, and break the traffic law, are careless and lack of example. They make more accidents than people in other age. So some countries allow people 21 years old and above have driving license.

2. Lacking of experience. There are lacking of experience in device such as not being familiar with vehicle, having no enough training etc. in condition -- weather – such as driving in the familiar places etc. Form the study, 12% of people who have driving license in Thailand have been training from driving training school. To drive carefully can reduce the accident.

3. The condition of mind and emotion can effect on the accidents.

4. The level of alcohol in blood can effect on the accidents. Form the survey of death rate by traffic accident in Europe and America, 50% of the accident is caused of the alcohol. (WHO, 1981:38) The level of alcohol in blood can be divided in 3 level as follows:

- Responsible or social drinking equals about 2 glasses of beer. There should be not over 46milligram % of level of alcohol in blood.
- Risky drinking. There is 50-99 milligram % of level of alcohol in blood.
- Intoxicated drinking equals more that five glasses of beer. There is 100milligram % of level of alcohol in blood.

- To campaign people use equipment to reduce violent from accident such as using safety belt, wearing safety helmet motorcyclist. That can reduce extremely the accident and is necessary.

Vehicle

Considering about the safety of vehicle, we found that, in equal distance, motorcycle has risky to have accident 20 times more that car. Motorcycle has excessive power, high-speed up, much accelerating but not good in balance and remarkable as car. Additional, riding motorcycle is like the body covering the metal.

When, the accident happens, it is much serious (Paiboon Suriyawongpaisarn, 1997:32.)

To reduce the injuries and death, in some countries, such as the United States of America, the motorcycle sold in USA is enforced to be installed front light system. That makes other driver can see in far distance. So the campaign to turn on front light all time is a way to protect the accident happened.

Additionally, to maintain the vehicle in good condition also reduce the accident. In Thailand, the vehicle maintenance is lack of efficiency and the climate has high effect on the vehicle dilapidation.

Road

The road condition that causes the accident is bellow:

- The road being dilapidation, full of ruts and holes, and waved.
- The road being slippery and having water flowing, bad surface, poor sticky value.
- The road being slope, sleep and curve.
- The road being constructed and repaired.

From the study, in USA, the condition of raining and flood makes the road slippery and it is found that the accident caused by the slippery road is about 13% of all adversity (Rumar, K. claimed by Vichitr Boonyahotra 1994:157.)

Circumstances

There are 3 circumstances that can cause traffic accidents:

1. Safety devices are incomplete. Traffic signs such as guide posts, prescribed signs and caution signs must be placed in the area that can be clearly seen even at night. The signs must be easy to read, should not be imply. To increase safety on the road, the sizes of the signs must be fit to the speed and the distance that drivers can read. Besides, the roads that are safe and easy to drive should have clear markings (road makings). Reflective paint can help drivers see runways clearly at night. The important useful things for driving at night are bright street lights and blinking lights.

2. Natural circumstances that can cause poor vision. Hard rain and flood effect safety in driving. Drivers should be more careful.

3. Man made circumstances that effect driver's health and concentration. This cause driver's emotional disorders and may cause deviant behavior easily. The circumstances are noise and air pollution.

2.3.2 Measures for Preventing Traffic Accidents

Measures generally used for preventing traffic accidents consist of 3 E's. They are education, enforcement and engineering. (The National Committee of Preventing Accidents. 1992:3)

Education

1. Direct education
   - Educating students in classes
   - Educating in driving schools
   - Youth and general people educating
   - Educating people asking for driving license and traffic police
   - Educating people violating traffic regulations when asking for warnings
2. Indirect education
   - Educating on mass media broadcasting on televisions, radios and newspapers
   - Setting up traffic exhibition education and traffic auditory education
   - Setting up driving arenas

Continually campaigning and educating on every kind of mass media encourage public awareness, public precaution and permanent decrease of traffic accidents. (Vijit Bunyahotara, 1994: 158)

Enforcement

- Strictly regular arrests of people violating traffic regulations.
- Concentrating on arrests of people violating traffic regulations in the time, places and actions that oftentimes cause accidents
- Seizing or canceling driving license
- Arresting high-speed
- Arresting high-alcohol
- Arresting drug addictions

- Arresting toxic smoke
- Checking vehicle's condition
- Safety Belt
- Crash Helmet

According to the study, strict enforcement will decrease accidents more than 40% (Chawalit Sukhawan and Chalat Kittham,1981:13)

Engineering

- Improve road's surface and widen roads adequately to the numbers of cars
- Carefully design roads, junctions, and winding roads to decrease accidents
- Construct bridges, widen bridges appropriately to the road, construct overpasses and flyovers
- Provide signal lights, paint roads and provide equipments for preventing danger that might happen along the roads
- Provide lights sufficiently on roads and in risky area
- Provide suggestion signs, warning signs, and prohibiting signs along the roads
- Plant along sidewalks to make drivers relax
- Improve vehicle safety standards such as safety belts, crash helmets, safety mirrors, rubber bumpers, air bags and steering wheels that can be drop down

2.3.3 Safe riding motorcycles

Basic characteristics of motorcycles

Motorcycles are suitable for people who cannot earn much because they are economize on prices, maintenance, and fuel oil. They can be ridden in many road's conditions especially in narrow or limited area.

However, there are faults about motorcycles,

- Motorcycles are small so it's risky when riding beside cars. Riders should always be aware of cars' side mirrors and avoid to be near them
- Motorcycles are unstable. If riders cannot control their balances the vehicles may be turn over suddenly.
- Riders who do not have protecting covers. This may cause injuries easily when accidents occur.

1) Clothing for safety

1.1) Riders must wear clothing which allow them move easily. Riders should wear crash helmet, jacket, pants, gloves and boots.

1.2) Choice of clothing should be colorful and bright. Most of the accidents were because of the color of wearing. Riders were negligent or the other did not heed the riders. To prevent accidents, riders should wear striking clothing especially at night. Wearing black is seen in distance 50% shorter than white. Colors that can be clearly seen are white, cream, red, green, gray and black.

2) Checking motorcycles before riding

Things to be checked everyday before riding motorcycles are as follows:

2.1) Open the fuel tank to ensure that there is enough fuel before driving.

2.2) Make sure that the engine oil is enough, clean, or it need to be changed.

2.3) Check the tires whether they are flat or there are pins or nails stick on them. Make sure that the treads and wheel teeth are in working conditions. For adding the air into the tires, read the manual or the sticker of its model.

2.4) Chains should be stretched 10-20 mm saggy (when the vehicles stand on the center standing leg). Lubricate, check and tighten the chains every times before riding.

2.5) Check the engine to ensure that there is no leak on the engine and the engine is enough.

2.6) Set the brakes appropriately. Setting it too high may seem that you are using it all the time.

2.7) Try pressing the clutch to ensure that it is in usual working condition. Check the string whether it is torn or slip off.

2.8) Lights must be in working conditions. Check and leave the stop lights shine suddenly when using brakes. If the bulb is out of use, a new one must be replaced.

2.9) Check must be made to ensure that battery has enough distilled water, rearview mirror are in appropriate position, and bolts such as front choke, back choke and back leg are not getting loose.

2.10) Start the engine and make sure that it does not make unusual sound.

2.11) Inspection must be made to confirm that step places are sticking out and the covering rubbers are in good condition. If the rubbers are torn, the new ones must be replaced. The step places that are in wrong position make the riders feel uncomfortable when riding and using brakes and gear.

3) How to ride correctly

To ride motorcycles smoothly riders must practice regularly. Make your body balance the vehicles by habitual practice.

The important 7 areas for riding are :

3.1) Widen your eyesight equally so that you can see everything coming to your sight. The important thing is being conscious all the time do not look around when riding. Riding unconscious it seems riding as a blind.

3.2) Relax your shoulder. Do not tense in order to keep your balance.

3.3) Do not stretch your elbows out when riding. This may cause crashing accidents at all time and lose your balance when using the brakes.

3.4) Place your hands on the handle and put your thumbs under the handle and hand brake. Place your hands in the position that allow

your wrists move easily so that you can use hand brake instantaneously.

3.5) Sit on the position where you can place your hand on the handle without tensing on your arms or shoulders. Do not trespass to the back or front. Sitting in an inappropriate position will cause difficulty in moving. You must be careful and sit in the appropriate position.

3.6) Keep your legs close to the fuel tank and tighten them when riding on rough roads or turning in winding roads so that you can keep your balance.

3.7) Keep your toes point forward to the gear. Load the weights on your legs onto the brake and keep them parallel to the road's surface so that you can step on the brake or shift the gear instantaneously.

4) Stopping motorcycles

The principal of stopping motorcycles is using both hand brake and step brake simultaneously. When riding in the rain, if you brake with the equal force as usual riding the vehicle may lose its balance. The force to be used with the brakes must be shared equally. For these reasons, both front and rear breaks of motorcycles should be separate, which differs from driving cars.

Normally, the wheels of a motorcycle (the body of vehicle and rider) weigh evenly on back and front but when braking forcefully it will load to front wheel. If riders brake with an equal force, the load on front wheel will be increased. Hand brake will not be workable enough and stop distance will be longer. Contrastingly, step brake which is loaded less will cause an over excessively affect. The wheel will be

locked and the vehicle will loose its balance. As of these reasons, on general road riders must force hand brakes a little harder and step on brake harder on slippery road. These are techniques for stopping motorcycles.

The roads with constructing steel plates or pipe covers will be more slippery when they are wet. The friction of wheel and roads will be decreased. Hard braking may cause wheels to be suddenly locked. Usually the front wheel of motorcycles will be locked harder but when slippery both wheels are locked easily. In the case that the front wheel is locked, comparing to the back, the vehicles will lose its balance and turn over easily. This is very dangerous. Besides, in this case handles are almost uncontrollable. For these reasons, riders should avoid hand brakes on slippery road.

How to use brake

The first reason that cause motorcycles to lose its balance and turn over is sharply brake, so riders must ride with the speed that suits to the conditions of the road and traffic in order to avoid sharply braking.

An important thing to remember when using brakes

a. Upright motorcycles before using brakes

b. Avoid suddenly braking

c. Step on brakes repeatedly and give a signal to others behind you

d. Use clutches before the vehicle stop

<u>Using Hand Brake</u>

1. Force hand brakes
2. Release brakes slightly (with a half)
3. Force again with a power that suits to the running speed

Using Step Brake

1. As same as the hand brakes
2. Do not brake too suddenly because the wheels may be locked

In the case that riders cannot avoid sudden braking, decrease gears rapidly. Do not use hand brake and step brake at the same time. Try to slowly increase power on brakes to avoid locked wheel as least as possible.

5) Riding on winding road

When riding on winding road, there occurs a force pushing the motorcycle out of the way and slide off. This force is called centrifugal force (center escape force)

The centrifugal force is like a pendulum which is tied with a rope and escape from the rope when whirling. The slant of the vehicle is the same. The amount of the force depends on the speed of vehicle and the bend of roads. The speed is completely related to the force that is if the speed is two times increased the force will be four times increased.

When turning into winding road turning the vehicle towards the curve is called leaning. The angle for turning is called leaning angle. Comparing with cars, motorcycles cannot turn by using only handle the steering wheels. If the motorcycle is not leaned, it will slide to the opposite or off the roads and lose its balance. Motorcycles, therefore, must lean towards the curve to resist the centrifugal force and to keep its balance so that it does not slide off the road.

How much the motorcycle should lean depends on the amount of the centrifugal force. The higher the speed or the narrower road is, the more the motorcycles should lean, otherwise it cannot be turned.

For these reasons, rider must slow the motorcycle down before turning into winding road and then turn slowly in order to decrease the centrifugal force.

6) Passing other Vehicles

When drivers want to change lane and accelerate to get ahead of the front cars the first things to do is to look carefully. Getting yourself and your car ready, and be sure that you are an experienced driver.

a. Get ready to start changing lanes

- Make sure that the road is clear
- Changing through two lanes is very dangerous when the car behind is going ahead or already passing
- On a two way road, check the distance of the cars driving in the opposite direction and estimate the possibility and the speed before changing lanes
- Be sure that you can change lane before the cars in the opposite direction reach yours and whether there is enough space left when you have already pass
- Be sure that the car driving in front is not going to turn left or right

b. Steps for changing lanes

- Make sure that there is no others cars behind or going to change lanes
- Keep driving in readiness , signal and get ready to accelerate
- Take a look on the right following cars and go right when it is safe
- Turn on left signal so that the car behind can see it clearly
- Turn off the signal

c. Traffic regulations for places where changing lanes is not permitted

- Where there is a no lane changing sign
- On winding roads
- While going downhill
- On cross walks
- On intersection
- On dense lined roads

d. Regulations for changing lanes

- It is known that lane changing can only be taken on the right lane
- When the car in the front changing the middle lane or getting ready to make a right turn, switch over to the left lane
- When already overpass keep driving straight in order to allow the overtaken cars get preparations
- Do not cut right in front of the car that you just by pass
- Control your temper. Do not get quick-tempered with drivers who are driving around you and do not be coarse with them
- Do not accelerate to compete with others who are trying to merge into you lane. Let them bypass easily and safely
- If you are overtaken, slow down your cars and let them bypass easily

7) Changing lanes and making a u-turn

a. How to change lanes

Before changing lanes, look at the rearview mirror to see if there is other vehicles following right behind you. Check to see if it is safe and turn on the signal.

Make sure that there is enough space between your car and the car behind you before changing lanes.

b. Prohibition of changing lanes

You must drive in only one lane. If you want to change lanes and make a u-turn, do not do so at the bend of the road or when you are between the line on the road.

c. Be careful when the car in the front is changing lanes

If the car in the front turns on any signals, you must be more careful, slow down or avoid turning to the lane the car is turning to.

d. Making a u-turn

Regulations provided that nobody can make a u-turn wherever there is no traffic signs. Steps of making a u-turn is as follows:

- Change right lane as soon as possibe.
- Turn on right signal and looking around carefully
- Stop and wait at the u-turn lane. You must make sure that you do not block the others cars driving in the going straight lane
- When you have already made a u-turn, turn off the signal, speed up, and go straight on

8) Basic principle for safe riding

1) Put on a helmet before riding a motorcycle
2) Frequently check up the break, tire and light systems. Make sure that they are in good condition and ready to use
3) Look at the back and turn on the signal each time before changing lane

4) Acknowledge the traffic rules and signals

5) Do not ride in the opposite direction or across the lane

6) Be careful and slow down while riding on a rough and wet road

7) Do not ride faster than the speed limit

8) Do not drink while riding a motorcycle

9) If there is heavy traffic at an intersection, stop or slow down and check to see if it is safe before riding through the intersection. Be aware of other vehicles driving from unseenable corner, blind spct of heavy traffic, intersecting road, or cars turning from opposite side of the side of the road.

10) Riding a motorcycle on dark road and where there is little traffic, the drivers can see only areas where the light shines, so ride with slower speed than by day in order to foresee or solve any situations.

2.4 Other Involving Research

According to others involving researches about "Factors effected the behavior of police warrant officers to prevent motorcycle accident: Policemen in Muang district, Kanjanaburi Province Case Study," it has not been found any previous studies but there are some involving or relating researches as follows:

Kitti Putthiganon (1998: 61) has studied about "Risk factors for car accident of students in Lumpang Province." It was found that groups of students who were fond of risk, excitement, and rush had the most risk to have an accident.

Pakit Prommayon (1998:Brief) has studied about "Knowledge and how to prevent car accidents in Bangkok." It was found that government and state enterprise officers, drivers who had completed high school or lower, drivers who had been driving for 10 years, were more than 40-year-old male, and were the most careful drivers. From the test, it was found that these factors effected the drivers' behavior to prevent car accidents at the level of 0.001 in statistic. It was also found that knowledge in preventing car accidents had positive relation to drivers' behavior to prevent accidents at the level of 0.01 in statistic.

Sujittra Pattieng (1992:83) has studied about "Relation between factors effected the intention of wearing helmets of 400 motorcycle riders, who had paid tax at Pitsanulok Province Transportation Office, and 342 injured people who were admitted in accident and emergency sections of Putthachinnarach Hospital." It was found that the numbers of accidents related to the intention of wearing helmets of the riders at the level of 0.005 in statistic.

Rumpha Hataitahum (1995:Brief) has studied about "Factors related to accidents of motorcycle taxis in Samutsakorn Province." It was found that the factors related to the accidents were that the riders had mainly earned their living by being a motorcycle taxi for more than a year, drove more than 8 hours and more than 100 kilometers a day. They had disorder hearing, and had low intention to prevent accident. They drove faster than 60 kilometers per hour and did not frequently check up their vehicles and condition of the road and the surroundings.

Yupa Hongwachin (1999:Brief) has studied about "Wearing helmets behavior of motorcycle riders in Chachengchao municipality." It was found that gender, age, occupation, income, marriage status, motorcycle riding experience,

distance, and accident experience were related to wearing helmet behavior at the level of 0.05 in statistic.

Noppadol Bumrungkit (2001: Brief) has studied about "Air force warrant officers' behavior to prevent motorbike accident." It was found that Air force warrant officers' behavior to prevent motorbike accident was at the middle level. The main factors were marriage status, acknowledging how to prevent accident, valuing their lives and asset, which were effected the motorbike riders' behavior to prevent accident with high level in statistic (P-value < 0.001). Average income was effected the motorbike riders' behavior to prevent accident with high level in statistic (P-value < 0.01). Age, the numbers of years of riding motorcycle, knowledge about preventing accident were effected the motorbike riders' behavior to prevent accident with high level in statistic (P-value < 0.05). Furthermore, the frequency of riding a motorcycle had positive relation to the riders' behavior to prevent accident. While average speed of riding had negative relation to riders' behavior to prevent accident.

2.5 Variables Involving in the Research

2.5.1 Age

Pakit Prommayon (1987:66) has studied about "Car drivers' knowledge and behavior to prevent accidents in Bangkok." It was found that different ages effected behavior to prevent accident at the level of 0.001 in statistic.

Sumittra Soi-in (1993:79) has studied about "Car drivers' knowledge and behavior to prevent air pollution in Bangkok." It was found that the survey groups, who were 31-40 years old, 30 years old and younger, had knowledge about preventing

air pollution almost the same level, and more than the groups of 41-year-old and up drivers.

Prapa Nakkara (1996:105) has studied about "Risk behavior to have an accident of motorcycle riders in Phuket Province." It was found that different age effected the risk behavior to have an accident of motorcycle riders at different level with high level in statistic.

In brief, it can be hypothesized that the police warrant officers with different age have different behavior to prevent motorcycle accident.

2.5.2 Education Level

Pratueng Yimyai (1991:Brief) has studied about "People's opinion about traffic problem in Nakornrachaseema municipality." It was found that people with different level of education had different opinion about traffic problems and effected on physical and mental health.

Suvimon Phakpibul (1992:224) has studied about "Factors effected housewives' behavior to get rid of rubbish in Bangkok." It was found that housewives with high education could get rid of waste better than housewives with low education at the level of 0.01 in statistic.

Veera Gesaruk (1993:106) has studied about "Fastening a seat belt of drivers in Bangkok." It was found that education had an effect on fastening a seat belt at the level of 0.05 in statistic.

In brief, it can be hypothesized that the police warrant officers with different education have different behavior to prevent motorcycle accident.

2.5.3 Average monthly income

Veera Gesaruk (1992:109) has studied about "Fastening a seat belt of drivers in Bangkok." It was found that income had positive relation to fastening a seat belt.

Yupa Hongwachin (1999:50) has studied about "Wearing helmet behavior of motorcycle riders in Chachengchao municipality." It was found that income was related to wearing helmets behavior at the level of 0.001 in statistic.

In brief, it can be hypothesized that the police warrant officers with different average monthly income have different behavior to prevent motorcycle accident.

2.5.4 Marriage status

Sujittra Pattieng (1992:83) has studied about "Factors related to the intention of wearing helmets of motorcycle riders" It was found that marriage status related to the intention of wearing helmets of the riders at the level of 0.001 in statistic.

Virat Chomchuen (1993:17) has studied about " People's behavior to get rid of rubbish in Nakornpathom municipality." It was found that the survey groups who were single had gotten rid of rubbish better than the groups of married. Marriage status was effected people's behavior to get rid of rubbish at the level of 0.001 in statistic.

Yupa Hongwachin (1999:50) has studied about "Wearing helmets behavior of motorcycle riders in Chachengchao municipality." It was found that marriage status was related to wearing helmets behavior at the level of 0.01 in statistic.

In brief, it can be hypothesized that the police warrant officers with different marriage status have different behavior to prevent motorcycle accident.

2.5.5 The number of years of riding a motorcycle

Chollada Nakasemsuwan (1991:128) has studied about "Truck drivers' behavior to follow the law of air and noise pollution in Bangkok." It was found that the number of years of driving a truck had positive relation to the drivers' behavior. The drivers who had been driving for more than 16 years had better behavior to follow the law than ones who had been driving for 6-15 years or less.

Prasert Gemprakon (1996:96) has studied about "The readiness of the motorcycle riders to the enactment of wearing helmets: studied only the fifth public health case." It was found that the riders who had been riding for more than 10 years were readier to follow the law than ones who had been riding less than 10 years. The reason of this was that the riders who had been riding longer had more experiences and had seen more accidents, so they had more awareness of safety.

Saovaluck Kutchamat (1997:81) has studied about "Factors effected the accident of bus drivers of the forth line, Mass Transportation Bangkok." It was found that driving experience had negative relation to accident. This meant that less experienced drivers had more chance to have an accident.

In brief, it can be hypothesized that the police warrant officers with different number of years in riding motorcycle have different behavior to prevent motorcycle accident.

2.5.6 Average speed in riding motorcycle

Gumlai Treechaisri (1993:67) has studied about "Comparing factors involving high school students' motorbike accident in Saraburi Province." It was found that average speed in riding motorcycle in the municipality area was related to accident with high level in statistic (P=0.0067) and average speed in riding motorcycle

outside the municipality area was related to accident with high level in statistic (P=0.0061)

Rumpha Hataitahum (1995:51) has studied about "Factors related to accidents of motorcycle taxis in Samutsakorn Province." It was found that riders who rode faster than 60 kilometers per hour had more chance to have an accident than who rode slower than 60 kilometers per hour at 2.97 times (P=0.001)

In brief, it can be hypothesized that the police warrant officers who drive at different speed have different behavior to prevent motorcycle accidents.

2.5.7 Accident Experience

Sujittra Pattieng (1992:99) has studied about "Factors effected the intention of wearing helmets of motorcycle riders." It was found that the number of accidents were related to the intention of wearing helmets of the riders at the level of 0.05 in statistic.

Yupa Hongwachin (1999:Brief) has studied about "Wearing helmet behavior of motorcycle riders in Chachengchao municipality." It was found that accident experience was related to wearing helmet behavior at the level of 0.05 in statistic.

In brief, it can be hypothesized that the police warrant officers who have different accident experience have different behavior to prevent motorcycle accident.

2.5.8 Acknowledging the information about how to prevent accident

Vilasinee Vongprasert (1986:61) has studied about "Wearing helmet of motorcycle riders in Bangkok." It was found that the riders who had acknowledged different information about the use of helmet had different reaction to wearing helmet at the level of 0.05 in statistic.

Veera Gesaruk (1992:106) has studied about "Fastening seat belt of drivers in Bangkok." It was found that acknowledging the information about the use of seat belt effected fastening seat belt of drivers at the level of 0.001 in statistic.

Noppadol Bumrungkit (2001: 125) has studied about "Air force warrant officers' behavior to prevent motorbike accident." It was found that Air force warrant officers who acknowledged different information about how to prevent accident had different behavior to prevent accident at the level of 0.001 in statistic.

In brief, it can be hypothesized that the police warrant officers who acknowledge different information about how to prevent accidents have different behavior to prevent motorcycle accident.

2.5.9 Knowledge about preventing accident

Prapa Nakkara (1996:Brief) has studied about "Risk behavior to have an accident of motorcycle riders in Phuket Province." It was found that knowledge about traffic rules were related to the risk behavior to have an accident of motorcycle riders with high level in statistic.

Noppadol Bumrungkit (2001: 125) has studied about "Air force warrant officers' behavior to prevent motorbike accidents." It was found that Air force warrant officers who had different knowledge about how to prevent accidents had different behavior to prevent accidents at the level of 0.05 in statistic.

In brief, it can be hypothesized that the police warrant officers who have different knowledge about how to prevent accidents have different behavior to prevent motorcycle accident.

2.5.10 Valuing lives and asset

Saovaluck Kutchamat (1998:182) has studied about "Eco-travel behavior of Thai Tourists in Saiyok National Park." It was found that different valuing the environment and the nature of Thai tourists in Saiyok national Park effected the Eco-travel behavior at different level at the level of 0.001 in statistic.

Noppadol Bumrungkit (2001: 125) has studied about "Police warrant officers' behavior to prevent motorbike accident." It was found that police warrant officers value lives and asset differently, and have different behavior to prevent motorbike accident at the level of 0.001 in statistic.

In brief, it can be hypothesized that the police warrant officers who value lives and asset differently have different behavior to prevent motorbike accidents.

CHAPTER 3

RESEARCH PROCESS

3.1 Target Group

The target groups of this research are the police warrant officers in Muang District, Kanjanaburee Province. This research is to collect information from 146 warrants in Census.

3.2 Research Method

The researcher made a set of questionnaire to collect information and to analyze the information as the following steps:

3.2.1 Steps of making the questionnaire

1) Review existing literary work involving in this research in textbooks, journals, documents, and research of both Thai and foreign researchers.

2) Study and review research process in social science and technique of making the questionnaire.

3) Making the questionnaire by setting the questions involving only in the topic and people can answer the question base on the fact and accord with the object of the research.

4) Reviewed the questionnaire by qualified people in order to edit, improve the questionnaire.

5) The qualified people review the questionnaire again in Logical Analysis and Content Validity.

6) Use the completed questionnaire to collect information.

3.2.2 Type of questionnaire

Questionnaire can be divided in to 4 parts as follows:

Part 1 is questions about personal and social factors: age, number of years working in government section, rank, highest education, average income, marriage status, number of years riding motorcycle, average speed of riding motorcycle, frequent of riding motorcycle per week, number of motorcycle accidents.

Part2 is questions about supporting factors: Acknowledging the information about how to prevent accident, Knowledge about preventing accident, Valuing lives and asset.

Part3 is questions about behavior of preventing motorcycle accident.

Part4 is suggestion and others.

3.2.3 The method testing

1. Try out the completed questionnaire with survey groups (50 police warrant officers in Banpong District Ratchaburee Province, who have similar basic life style as local population).

2. Analyze the collected information in order to find out the reliability of factors in working, and comprehending of police warrant officers' readiness to find Internal Consistency by Coefficient Alpha of Cronbach and improve the questionnaire. Finally the reliability of 7.4 was gotten.

3.3 Collecting Information

1. Collect the information from 146 police warrant officers in Muang district, Kanjanaburee province for 2 days.

2. Correct the information.

3. Make a key and code by case identification for every police, fill out the coding form and record in computer for further analysis.

3.4 Analysis of Data

This research analyzes the information by using statistical software program SPSS/PC in order to combine with the measure level of variables and research hypothesis as following:

1) Conclude the character of survey population: Personal and social factors, Supporting factors of police warrant officers presenting in statistic, percentage, mean, standard deviation, maximum, and minimum.

2) Test of the relation between an independent variable (measure in group) and a dependent variable (measure in range) by using statistic analyze of One Way Anova by breakdown dependent variable.

3) Test of the relation between many independent variables (measure in group), a dependent variable (measure in range) and many controlling variables (measure in range) by using Analysis of Variance and Multiple Classification Analysis.

CHAPTER 4

DATA ANALYSIS RESULT

Factors effected the behavior of police warrant officers to prevent motorcycle accident: Policemen in Muang district, Kanjanaburi Province Case Study, have been studied by collecting the information from the target groups by using questionnaire. The target groups are 225 police warrant officers working in Muang district, Kanjanaburi Province. The result of the study is presented by the explanation with table that can be divided into 3 parts as follows:

Part 1 Present the result of the studies after analyzing the information collecting from the target groups about their personal and society characteristic; their acknowledgment the information about how to prevent accident, the level of their acknowledgment the information about how to prevent accident; their knowledge about preventing accident, the level of their knowledge about preventing accident; their valuing lives and asset, the level of their valuing lives and asset; their behavior to prevent motorcycle accident, and the level of their behavior to prevent motorcycle accident. All of the studies consider the frequency, percentage, average (X), and standard deviation (S.D.).

Part 2 Present the result of the test of the relation between an independent variable and a dependent variable, that is the behavior to prevent motorcycle accident of police warrant officers, by using statistic analyze of One Way Analysis of variance.

Part 3 Present the problems, barriers, and suggestions about the behavior to prevent motorcycle accident of police warrant officers.

Part 1 General characteristic of the target groups

4.1 General Characteristic of the Target Groups

According to the studies (Table 4.1), it was found that most of the target groups are 30-46 years old 59.1%, 29 years old or less 20.9%, 47 years old or more 20%. The average age of the target groups is 35 years old. The oldest is 58 and the younger is 24 years old.

The number of years working as the police officer: Most of the target groups have been working as the police officers for 7-21 years 62.7%, and 3-6 years and 22-36 years are equal 18.7%. The average of the number of years working as the police officer is10 years and the least is 3 years.

Rank: Most of the target groups are lance corporal, corporal, and sergeant 41.8%, petty officer 29.3, police officer 19.1% and general 9.8%.

Type of work: Most of the target groups work in prevention and elimination sections 36.9%, in traffic control 17.3%, administration 16.4%, investigation 15.1% and interrogation 14.2%.

Education Level: Most of the target groups completed their high school or comparable 59.6%, bachelor degree or comparable 20.9%, diploma or comparable 12.4% and certificate 7.1%.

Average monthly income: Most of the target groups earn 10,000 baht or less 47.6%, 10,001-15,000 baht 37.3%, 15,001-20,000 baht 14.2%, and 20,001 or more 0.9%.

Type of Driver license: Most of the target groups hold permanent license 76.4%, temporary license 19.6%, and do not hold any 4.0%.

Marriage status: Most of the target groups have married 68.4%, single 24.0% and widowed/divorced/separate 7.6%.

The number of years of riding a motorcycle: Most of the target groups have been riding a motorcycle for 5-20 years 69.3%, 4 years or less 20.4% and 21 years or more 10.2%. The average number of years of riding a motorcycle is 10 years. The most number of years is 38 years and the least is never riding a motorcycle at all. The Average speed in riding motorcycle: Most of the target groups ride 80 km per hour or slower 40.4%, 81-100 km per hour 36.9%, 101-120 km per hour 9.8%, 121 km per hour or faster 2.2% and 10.7 % have never ridden a motorcycle at all.

The frequency of riding a motorcycle per week: Most of the target groups ride a motorcycle 10 times or more per week 29.8%, 7-9 times per week 27.6%, 4-6 times per week 18.7%, 3 times or less 13.2% and 10.7 % have never ridden a motorcycle at all.

Accident Experience: Most of the target groups have had 2 accidents 25.3%, never had any accident 22.7%, had 3 accidents or more 21.8%, had an accident 19.6% and 10.7% have never ridden a motorcycle at all.

Table 4.1 Characteristic of the target groups

Characteristic of the target groups	Percentage	Number
Total	100.0	225
Age		
29 years old or less	20.9	47
30-46 years old	59.1	133
47 years old or more	20.0	45
X = 37.8, S.D. = 9.0, MAX = 58, MIN = 24		
The number of years working as the police officer		
6 years or less	18.7	42
7-21 years	62.7	141
22 years or more	18.7	42
X = 14.32, S.D. = 8.0, MAX = 36, MIN =3		
Rank		
General	9.8	22
Lance corporal, corporal, and sergeant	41.8	94
Petty officer	29.3	66
Police officer	19.1	43
Type of work		
Administration	16.4	37
Prevention and elimination sections	36.9	83
Investigation	15.1	34

Table 4.1 Characteristic of the target groups (Continue)

Characteristic of the target groups	Percentage	Number
Interrogation	14.2	32
Traffic control	17.3	39
Education Level		
Certificate	7.1	16
Diploma or comparable	12.4	28
Bachelor degree or comparable	20.9	47
High school or comparable	59.6	134
Average monthly income		
10,000 baht or less	47.6	107
10,001-15,000 baht	37.3	84
15,001-20,000 baht	14.2	32
20,001 or more	0.9	2
Type of Driver license		
None	4.0	9
Temporary license	19.6	44
Permanent license	76.4	172
Marriage status		
Single	24.0	54
Married	68.4	154
Widowed/divorced/separate	7.6	17

Table 4.1 Characteristic of the target groups (Continue)

Characteristic of the target groups	Percentage	Number
The number of years of riding a motorcycle		
4 years or less	20.4	46
5-20 years	69.3	156
21 years or more	10.2	23
X = 11.6, S.D. = 8.1, MAX = 38, MIN = 0		
The Average speed in riding motorcycle		
80 km per hour or slower	40.4	91
81-100 km per hour	36.9	83
101-120 km per hour	9.8	22
121 km per hour or faster	2.2	5
Never ride a motorcycle	10.7	24
The frequency of riding a motorcycle per week		
3 times or less	13.2	30
4-6 times per week	18.7	42
7-9 times per week	27.6	62
10 times or more per week	29.8	67
Never ride a motorcycle	10.7	24
Accident Experience		
Never have an accident	22.7	51
1 accident	19.6	44

Table 4.1 Characteristic of the target groups (Continue)

Characteristic of the target groups	Percentage	Number
2 accidents	25.3	57
3 accidents or more	21.8	49
Never ride a motorcycle	10.7	24

4.2 Acknowledging the Information about how to Prevent Cccident

According to the table 4.2, when study the type of information resource, the frequency of acknowledging the information about how to prevent accident, types of information from resources, it was found that most of the target groups have acknowledged the information about how to prevent accident 81.8 % and have never acknowledged any information 18.2%.

Television: Most of the target groups have acknowledged the information 3-4 times per week 40.4%, 1-2 times per week 22.7%, 5 times or more per week 22.2%, have never acknowledged any information 12.9% and 1.8% did not answer this question.

Radio: Most of the target groups have acknowledged the information 1-2 times per week 45.3%, 3-4 times a week 20.0%, have never acknowledged any information 18.7%, 5 times or more per week 12.9% and 3.1% did not answer this question.

Newspaper: Most of the target groups have acknowledged the information 1-2 times per week 28.9%, 3-4 times a week 28.0%, have never acknowledged any information 23.1%, 5 times or more per week 18.7% and 1.3% did not answer this question.

Journal, magazine, and brochure of the Royal Police Office: Most of the target groups have never acknowledged any information 47.1%, have acknowledged the information 1-2 times per week 28.0%, 3-4 times a week 15.1%, 5 times or more per week 8.0% and 1.8% did not answer this question.

Conference, training, seminar: Most of the target groups have never acknowledged any information 47.1%, have acknowledged the information 1-2 times per week 37.3%, 3-4 times a week 9.8%, 5 times or more per week 4.9% and 0.9% did not answer this question.

Discussing with the superior: Most of the target groups have acknowledged the information 1-2 times per week 43.1%, have never acknowledged any information 37.3%, have acknowledged the information 3-4 times a week 10.2%, 5 times or more per week 5.3% and 4.0% did not answer this question.

Discussing with the colleagues: Most of the target groups have acknowledged the information 3-4 times per week 39.1%, 1-2 times a week 24.9%, 5 times or more per week 18.2%, have never acknowledged any information 15.1%, and 2.7% did not answer this question.

Most of the target groups feel that the promotion of the information about how to prevent accident is not enough 70.7%, while 29.3 feel that it is enough.

Most of the target groups want to acknowledge the information from the mass communication sources (television, radio, newspaper and so on) 32.4%, from the

government or involving sections 29.3%, from the Royal Police Office 18.2%, from the conference, seminar, and training 17.8% and 2.2% do not want to acknowledge anymore information.

Table 4.2 Acknowledging the information about how to prevent accident

The information resources	Percentage	Number
Total	100.0	225
Whether have you ever acknowledged any information about how to prevent accident or not?		
No	18.2	41
Yes	81.8	184
Type of sources		
Television		
Never acknowledge any information	12.9	29
1-2 times per week	22.7	51
3-4 times per week	40.4	91
5 times or more per week	1.8	4
Did not answer this question	12.9	29
Radio		
Never acknowledge any information	18.7	42
1-2 times per week	45.3	102
3-4 times per week	20.0	45
5 times or more per week	12.9	29
Did not answer this question	3.1	7

Table 4.2 Acknowledging the information about how to prevent accident (Continue)

The information resources	Percentage	Number
Newspaper		
Never acknowledge any information	23.1	52
1-2 times per week	28.9	65
3-4 times per week	28.0	63
5 times or more per week	18.7	42
Did not answer this question	1.3	3
Journal, magazine, and brochure of the Royal Police Office		
Never acknowledge any information	47.1	106
1-2 times per week	28.0	63
3-4 times per week	15.1	34
5 times or more per week	8.0	18
Did not answer this question	1.8	4
Conference, training, seminar		
Never acknowledge any information	47.1	106
1-2 times per week	37.3	84
3-4 times per week	9.8	22
5 times or more per week	4.9	11
Did not answer this question	0.9	2

Table 4.2 Acknowledging the information about how to prevent accident (Continue)

The information resources	Percentage	Number
Discussing with the superior		
Never acknowledge any information	37.3	84
1-2 times per week	43.1	97
3-4 times per week	10.2	23
5 times or more per week	5.3	12
Did not answer this question	4.0	9
Discussing with the colleagues		
Never acknowledge any information	15.1	34
1-2 times per week	24.9	56
3-4 times per week	39.1	88
5 times or more per week	18.2	41
Did not answer this question	2.7	6
Whether the promotion of the information about how to prevent accident is enough or not?		
Not enough	70.7	159
Enough	29.3	66

Table 4.2 Acknowledging the information about how to prevent accident (Continue)

The information resources	Percentage	Number
From what source do you want to acknowledge the information the most?		
The mass communication sources (Television, radio, newspaper and so on)	32.4	73
The government or involving sections	29.3	66
The Royal Police Office	17.8	40
Acknowledge enough information	2.2	5

4.3 Level of Acknowledging the Information about how to Prevent Accident

To measure the level of acknowledging the information about how to prevent accident, the researcher put the all the score together. Then, consider the scores of the target group by using average, standard deviation, and percentage. If the target groups get 7 points or less, it means that they get the information at low level. 8-16 points, it means that they get the information at middle level. 17 points, it means that they get the information at high level.

The result of the research is that the target groups get the information at middle level 68.0%, low level 16.4%, and high level 15.6%. The average scores are 12.1. The maximum is 23 and the minimum is 1.

Table 4.3 Level of acknowledging the information about how to prevent accident

Level of acknowledging the information	Percentage	Number
Total	100.0	225
Low level (7 points or less)	16.4	37
Middle level (8-16 points)	68.0	153
High level (17points or more)	15.6	35
X =12.1, S.D. = 4.9, MAX = 23, MIN = 1		

4.4 Knowledge about the Information how to Prevent Accident

To study the knowledge of the target groups about the information how to prevent accident, ten yes or no questions are used. (Table 4.4)

1. When there is a yellow light flashing, the drivers should slow down and drive carefully. The target groups answer this question correctly 90.2% and incorrectly 9.8 %.

2. Traffic signs on the highway can be classified into reminding sign and obligation sign. Driving on the left lane or right lane sign is a reminding sign. The target groups answer this question incorrectly 65.8 % and correctly 34.2%.

3. Law limits that the drivers can not have more than 60 milligram-percent alcohol in the blood. The target groups answer this question correctly 51.6% and incorrectly 48.4 %.

4. If the drivers want to turn left but there is no turning left lane, the driver should drive in the left lane. The target groups answer this question correctly 85.3% and incorrectly 14.7 %.

5. The drivers can not overtake other vehicles 50 meters ahead to the crosswalk, circle, traffic island or railway. The target groups answer this question correctly 76.0% and incorrectly 24.0%.

6. In any situation, nobody can change the traffic right or traffic signs. The target groups answer this question correctly 74.2% and incorrectly 25.8 %.

7. According to the law, horn should be heard not least than 80 meters. The target groups answer this question incorrectly 59.6% and correctly 40.4%.

8. It is a prohibition to make a U-turn at safety zone, heavy traffic, on a bridge, or 50 meters from the bridge. The target groups answer this question correctly 80.0% and incorrectly 20.0%.

9. According to the law, the motorcycle riders can ride not faster than 100 kilometers per hours, except in Bangkok, Pattaya or municipality, the speed limit is 80 meters per hour. The target groups answer this question correctly 56.6% and incorrectly 43.1%.

10. The only kind of helmet can be used is the one that over the whole head. The target groups answer this question correctly 54.2% and incorrectly 45.8%.

Table 4.4 Knowledge about the information how to prevent accident

Question Correct Incorrect	Percent	Number	Percent	Number
1.When there is a yellow light flashing, the drivers should slow down and drive carefully.	90.2	203	9.8	22
2.*Traffic signs on the highway can be classified into reminding sign and obligation sign. Driving on the left lane or right lane sign is a reminding sign.	34.2	77	65.8	148
3.Law limits that the drivers can not have more than 60 milligram-percent alcohol in the blood.	51.6	116	48.4	109
4.If the drivers want to turn left but there is no turning left lane, the driver should drive in the left lane.	85.3	192	14.7	33
5.The drivers can not overtake other vehicles 50 meters ahead to the crosswalk, circle, traffic island or railway.	76.0	171	24.0	54

Table 4.4 Knowledge about the information how to prevent accident (Continue)

Question Correct Incorrect	Percent	Number	Percent	Number
6.In any situation, nobody can change the traffic right or traffic signs.	74.2	167	25.8	58
7.*According to the law, horn should be heard not least than 80 meters.	40.4	91	59.6	134
8.It is a prohibition to make a U-turn at safety zone, heavy traffic, on a bridge, or 50 meters from the bridge.	80.0	180	20.0	45
9.According to the law, the motorcycle riders can ride not faster than 100 kilometers per hours, except in Bangkok, Pattaya or municipality, the speed limit is 80 meters per hour.	56.9	128	43.1	97
10.*The only kind of helmet can be used is the one that over the whole head.	54.2	122	45.8	103

Notice * Negative Question

4.5 Level of Knowledge about Preventing Accident

To measure the level of knowledge about preventing accident, the researcher put all the score together. Then, consider the scores of the target group by using average and standard deviation. If the target groups get:

5 points or less, it means that they have knowledge about preventing accident at low level.

6 points or more, it means that they have knowledge about preventing accident at high level.

The result of the research is that most of the target groups have knowledge about preventing accident at low level 20.4% and at high level 79.6%. The average scores are 6.8, the maximum is 10, and the minimum is 0.

Table 4.5 Level of knowledge about preventing accident

Level of knowledge about preventing accident	Percent	Number
Total	100.0	225
Low level (5 points or less)	20.4	46
High level (6 points or more)	79.6	179
X = 6.8, S.D. = 1.7, MAX = 10, MIN = 10		

4.6 Valuing Lives and Asset

To study the valuing lives and asset, 10 multiple choice questions are used. (Table 4.6)

1. The motorcycle riders should be more careful when raining or windy. Most of the target groups agree with this 84.9%, disagree 9.8%, and are not sure 5.3%.

2. The riders should wear blight color clothes at night. Most of the target groups agree with this 68.9%, disagree 21.3%, and are not sure 9.8%.

3. The riders should get some information about preventing accident. Most of the target groups agree with this 76.4%, disagree 15.1%, and are not sure 8.4%.

4. The riders should wear helmet certified by the government section. Most of the target groups agree with this 69.3%, disagree 15.6%, and are not sure 15.1%.

5. The riders should follow the speed limit. Most of the target groups agree with this 71.6%, disagree 18.7%, and are not sure 9.8%.

6. The riders should not ride motorbike at night. Most of the target groups disagree with this 52.4%, agree 30.7%, and are not sure 16.9%.

7. The riders should have insurance. Most of the target groups agree with this 75.1%, disagree 13.3%, and are not sure 11.6%.

8. The noise of the motor should not be louder than 80 decibel. Most of the target groups agree with this 61.3%, are not sure 25.8%, and disagree 12.9%.

9. Motorcycles cause most of the noise and air pollution. Most of the target groups disagree with this 48.0%, agree 36.4%, and are not sure 15.6%.

10. Motorcycle are important for police. Most of the target groups agree with this 77.3%, disagree 22.7%, and are not sure 8.4%.

Table 4.6 Valuing lives and asset

N =225

Question	Agree	Disagree	Not sure	Percent
1.The motorcycle riders should be more careful when raining or windy.	84.9	9.8	5.3	100.0
2.The riders should wear blight color clothes at night.	68.9	21.3	9.8	100.0
3.The riders should get some information about preventing accident.	76.4	15.1	8.4	100.0
4.The riders should wear helmet certified by the government section.	69.3	15.1	15.6	100.0
5.The riders should follow the speed limit.	71.6	18.7	9.8	100.0
6.The riders should not ride motorbike at night.	30.7	52.4	16.9	100.0
7.The riders should have insurance.	75.1	13.3	11.6	100.0
8.The noise of the motor should not be louder than 80 decibel.	61.3	12.9	25.8	100.0

Table 4.6 Valuing lives and asset (Continue)

N =225

Question	Agree	Disagree	Not sure	Percent
9.Motorcycles cause most of the noise and air pollution.	36.4	48.0	15.6	100.0
10.Motorcycle is important for police.	77.3	22.7	8.4	100.0

4.7 Level of Valuing Lives and Asset

To measure the level of valuing lives and asset, the researcher put all the score together. Then, consider the scores of the target groups by using average standard deviation and percent. If the target groups get:

21 points or less, it means that they value their lives and asset at low level.

22 points or more, it means that they value their lives and asset at high level.

The result of the research is that most of the target groups value their lives and asset at high level 74.7% and at low level 25.3%, The average scores are 25.2, the maximum is 30 and the minimum is 15.

Table 4.7 Level of valuing lives and asset

Level of valuing lives and asset	Percent	Number
Total	100.0	225
Low level (21 points or less)	25.3	57
High level (22 points or more)	74.7	168
X = 25.2, S.D. = 4.2, MAX = 30, MIN = 15		

4.8 Behavior to Prevent Motorcycle Accident

To study the behavior to prevent motorcycle accident, 13 multiple-choice question are used. (Table 4.8)

1. Wearing helmet while riding motorcycle: Most of the target groups wear the helmet every time 62.2%, frequently 22.2%, sometimes 10.2% and never 5.3%.

2. Check the type: Most of the target groups check the type sometimes 41.8%, frequently 31.1%, every time 21.8%, never 5.3%.

3. Check the brake system, brake pads and adjust the brake: Most of the target groups do frequently 38.7%, sometimes 28.4%, every time 24.9% and never 8.0%.

4. Check the motorcycle condition before riding: Most of the target groups do every time 45.8%, frequently 30.2%, sometimes 18.2% and never 5.8%.

5. Riding motorcycle daringly : It was found that most of target group that is 75.6% never ride motorcycle daringly, 12.0 %, which is the second, every times did , 8.9 % sometimes did and 3.6% often did, respectively.

6. Ride motorcycle with 60 km-per-hour speed in community area : It was found that most of sample group that is 50.7% did so very times, 24.4%, which is the second, often did, 15.6 % sometimes did and never did 9.3 %.

7. Get over the others by left : It was found that most of sample group never do so 48.4%, the second, 23.6% sometimes did, 14.2% often did and every times did 13.8%.

8. Give light signal before turn left or right : It was found that most of sample group did so every times 50.7%, the second often did 31.1%, sometimes did 12.4% and never did so 5.8%, respectively.

9. There were more than 2 people on your vehicle while riding (more than 2 included rider) : It was found that most of sample group never did so 46.2%, the second, 24.0% sometimes did, 18.2% every times did and 11.6% often did so, respectively.

10. Give a signal before stop the vehicle or while the vehile stop : It was found that most of sample group 44.0% did so every times, 28.9 % often did, 21.8% sometimes did, 5.3% never did, respectively.

11. Used to ride the vehicle while your body had not get enough rest over 1 night : It was found that most of sample group 36.0% did so sometimes similar to never did 36.0%, the second 14.2 %often did, and 13.8% every times did.

12. Violate traffic signs while riding in hurry hours : It was found that most of sample group never did so 50.7%, 24.4% sometimes did, 13.3% often did and 11.6 % every times did.

13. Riding motorcycle in specialised way or in the same way : It was found that most of sample group did so every times 57.8% , the second is often did 20.9%, sometimes did 15.6%, and never sis so 5.7%, respectively.

Table 4.8 The behavior of preventing accidents on riding motorcycles

Number	Everytimes	Often	Sometimes	Never	Percantage
1. Wear a helmet while riding	62.2	22.2	10.2	5.3	100.0
2. Check wheel's air	21.8	31.1	41.8	5.3	100.0
3. Check brake's system and deprecation. Set to the suitable level.	24.9	38.7	28.4	8.0	100.0
4. Before riding, check the condition of the vehicle	45.8	30.2	18.2	5.8	100.0
5. * Ride motorcycle daringly	12.0	3.6	8.9	75.6	100.0
6. Ride motorcycle with 60 km-per-hour speed in community area	50.7	24.4	15.6	9.3	100.0
7. *Get over the others by left	13.8	14.2	23.6	48.4	100.0
8. Give light signal before turn left or right	50.7	31.1	12.4	5.8	100.0
9. *There were more than 2 people on your vehicle while riding (more than 2 included rider)	18.2	11.6	24.0	46.2	100.0
10. Violate traffic signs while riding in hurry hours	44.0	28.9	21.8	5.3	100.0

Table 4.8 The behavior of preventing accidents on riding motorcycles (Continue)

Number	Everytimes	Often	Sometimes	Never	Percantage
11. *Used to ride the vehicle while your body had not get enough rest over 1 night	13.8	14.2	36.0	36.0	100.0
12. *Violate traffic signs while riding in hurry hours	11.6	13.3	24.4	50.7	100.0
13. Riding motorcycle in specialised way or in the same way	57.8	20.9	15.6	5.7	100.0

Note * negative messages

4.9 The Levels of Behavior on Preventing Motorcycle Accidents

To standardize the levels of behavior on preventing motorcycle accidents, I combine the behavior points all together. The points of sample groups will be considered by calculating from mean, standard deviate value and collective percentage. The sample group which gain :

13 points and less, indicate that the level of preventing behavior is low

14 - 20 points , indicate that the level of preventing behavior is medium

21 and above , indicate that the level of preventing behavior id high

The results are most of sample groups are in medium level that is 70.3 %. The second are 16.4 % in high level and in low level at 13.3%, in chronological. Mean is 17.0 points, the highest point is 30 and the lowest is 0

Table 4.9 The levels of behavior on preventing motorcycle accidents

The level of preventing behavior	Percentage	Number
Total 100.0 225		
Low Level (13 points and less)	13.3	30
Medium Level (14 - 20 points)	70.3	158
High Level (21 points and above)	16.4	37
X =17.0, S.D.=.1, MAX =30, MIN =0		

Part 2 The relation test of independent variance and variable variance is the behavior on preventing motorcycle accidents of non-commissioned police which use the difference of more than 2 of sample groups mean by using the One Way Analysis of Variance for testing.

4.10 The Test of Relation of Personal Factors and Social Factors and Relation of Stimulate Factors and Behavior on Preventing Motorcycle Accidents of Non-commissioned Police by One Way Analysis of Variance

One Way Analysis of Variance is the test of the relation between variables that measure in group more than 2 groups and dependent variable that measure in range by using F-test which show the result in the level of statistic. The result of the test is to find whether the different between groups of independent variables make any different for dependent variables or not. Moreover, the test also shows the scores of each dependent variable in the group of independent variable so the result of

independent variables in each group that effects the dependent variable can be read and explain as follows:

According to the table 4.10, the target groups who is 30-46 years old are more careful to prevent motorcycle accident than age groups of 29 years old or less that is more careful than the age group of 47 years old or more respectively. From the statistic test, it was found that the target groups with different age have different behavior to prevent motorcycle accident without any level of statistic (P-Value = 0.133).

The number of years working as a police officer: It was found that the target groups who have been working as police officers for 7-21 years are more careful to prevent motorcycle accident than the police officers who have been working for 6 years or less that is more careful than the police officers who have been working 22 years or more respectively. The target groups with different number of years working as a police officer have different behavior to prevent motorcycle accident at the level of 0.01 in statistic (P-Value = 0.008).

Rank: It was found that the target groups who are lance corporals, corporals, and sergeants are more careful to prevent motorcycle accident than petty officer, police officer and general respectively. From the statistic test, The target groups with different rank have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value = 0.028).

Type of work: It was found that the target groups, who work in prevention and elimination sections, are more careful to prevent motorcycle accident than those who work in traffic control, administration, investigation and interrogation respectively. From the statistic test, The target groups with different type of work have

different behavior to prevent motorcycle accident at the level of 0.001 in statistic (P-Value = 0.010).

Education Level: It was found that the target groups who completed their high school are more careful to prevent motorcycle accident than those who completed their bachelor degree or comparable, diploma or comparable and certificate respectively. From the statistic test, The target groups with different level of education have different behavior to prevent motorcycle accident without any level of statistic (P-Value = 0.104).

Average monthly income: It was found that the target groups who earn 10,000 baht or less are more careful to prevent motorcycle accident than those who earn 10,000-15,000 baht, 15,001-20,000 baht and 20,001 or more respectively. From the statistic test, The target groups with different amount of average monthly income have different behavior to prevent motorcycle accident without any level of statistic (P-Value = 0.0868).

Type of Driver license: the target groups who hold Marriage status: It was found that the target groups who are married are more careful to prevent motorcycle accident than those who are single, widow and divorce respectively. From the statistic test, The target groups with different marriage status have different behavior to prevent motorcycle accident without any level of statistic (P-Value = 0.110).

The number of years of riding a motorcycle: It was found that the target groups who have been riding the motorcycle for 5-20 years are more careful to prevent motorcycle accident than those who have been riding the motorcycle for 4 years or less and 21 years or more respectively. The average number of years of riding a motorcycle is 10 years. From the statistic test, The target groups with different number of years of

riding a motorcycle have different behavior to prevent motorcycle accident without any level of statistic (P-Value = 0.940).

The average speed in riding motorcycle: It was found that the target groups who ride with the average 80 km per hour or slower are more careful to prevent motorcycle accident than those who ride at the speed of 81-100 km per hour, 101-120 km per hour and 121 km per hour or faster respectively. From the statistic test, The target groups with different average speed in riding motorcycle have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value = 0.005).

The frequency of riding a motorcycle per week: It was found that the target groups who ride a motorcycle 10 times or more per week are more careful to prevent motorcycle accident than those who ride a motorcycle 7-9 times per week, 4-6 times per week and 3 times or less respectively. From the statistic test, The target groups with different frequency of riding a motorcycle per week have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value = 0.048).

Accident Experience: It was found that the target groups who have had 2 accidents are more careful to prevent motorcycle accident than those who have never had any accident, 3 accidents or more, one accident and the riders who have never ride a motorcycle respectively. From the statistic test, The target groups with different accident experience have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value = 0.133).

Acknowledging the information about how to prevent accident: It was found that the target groups who acknowledge the information about how to prevent accident at middle level are more careful to prevent motorcycle accident than those who acknowledge the information at low level and at high level respectively. From the

statistic test, The target groups with different level of acknowledging the information about how to prevent accident have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value = 0.05).

Knowledge about the information how to prevent accident: It was found that the target groups who have the knowledge about the information how to prevent accident at middle level are more careful to prevent motorcycle accident than those who have the knowledge about the information at high level and at low level respectively. From the statistic test, The target groups with different level of knowledge about the information how to prevent accident have different behavior to prevent motorcycle accident at the level of 0.01 in statistic (P-Value = 0.000).

Valuing lives and asset: It was found that the target groups who value lives and asset at high level are more careful to prevent motorcycle accident than those who value lives and asset at low level. From the statistic test, The target groups with different level of valuing lives and asset have different behavior to prevent motorcycle accident at the level of 0.01 in statistic (P-Value = 0.000).

Table 4.10 The test of the relation between personal and society factors and factor effected the behavior to prevent motorcycle accident of warrant officers bye One-way Analysis of Variance

N=225

Variable and subgroup	N	X	S.D.	Sig.of F
Age				*0.133
29 years old or less	47	16.89	3.81	
30-46 years old	133	16.78	4.14	
47 years old or more	45	18.20	4.47	
Number of years working as police officer				**0.008
6 years of less	42	16.76	4.21	
7-21 years old	141	16.65	3.79	
22 years old or more	42	18.88	4.87	
Rank				*0.028
General	22	15.14	1.91	
Lance corporals, corporals, and sergeants	94	16.87	4.24	
Petty officer	66	17.24	4.17	
Police officer	43	18.33	4.48	
Type of work				**0.010
Administration	37	16.86	3.61	
Prevention and elimination sections	83	16.34	3.41	
Investigation	34	17.82	5.92	

Table 4.10 The test of the relation between personal and society factors and factor effected the behavior to prevent motorcycle accident of warrant officers bye One-way Analysis of Variance (Continue)

N=225

Variable and subgroup	N	X	S.D.	Sig.of F
Interrogation	32	16.25	2.68	
Traffic control	39	18.95	4.74	
Education Leve				1 0.104
Certificate	16	15.31	3.11	
Diploma or comparable	28	16.86	4.41	
Bachelor degree or comparable	47	18.15	5.00	
High school or comparable	134	16.98	3.83	
Average monthly income				
10,000 baht or less	107	17.01	4.33	
10,001-15,000baht	84	16.96	3.65	
15,001-20,000 baht	32	17.66	4.99	
20,001 baht or more	2	17.50	2.12	
Type of Driver license				
None				
Temporary license				
Permanent license				

Table 4.10 The test of the relation between personal and society factors and factor effected the behavior to prevent motorcycle accident of warrant officers bye One-way Analysis of Variance (Continue)

N=225

Variable and subgroup	N	X	S.D.	Sig.of F
Marriage status				
Single	54	16.81	3.16	
Married	154	17.39	4.38	
Widowed/divorced/separate	17	15.24	4.56	
The number of years of riding a motorcycle				
4 years or less	46	16.96	4.08	
5-20 years	156	17.15	4.34	
21 years or more	23	16.91	3.10	
The Average speed in riding motorcycle				
Never ride a motorcycle	24	17.88	4.48	
80 kilometers per hour or less	91	18.01	3.94	
81-100 kilometers per hour	83	16.40	3.88	
101-120 kilometers per hour	22	16.00	3.85	
121 kilometers or more	5	12.80	7.40	
The frequency of riding a motorcycle per week				*0.048
Never ride a motorcycle	24	17.88	4.48	
3 times or less	29	18.03	4.93	
4-6 times per week	42	16.31	3.96	
7-9 times per week	62	16.08	2.31	
10 times or more per week	68	17.75	5.01	

Table 4.10 The test of the relation between personal and society factors and factor effected the behavior to prevent motorcycle accident of warrant officers bye One-way Analysis of Variance (Continue)

N=225

Variable and subgroup	N	X	S.D.	Sig.of F
Accident Experience				
Never ride a motorcycle	24	17.88	4.48	
Never have an accident	51	16.53	4.00	
1 accident	44	16.68	3.98	
2 accidents	57	16.56	2.66	
3 accidents or more	49	18.27	5.43	
Acknowledging the information about how to prevent accident				
Low level	37	1.89	0.46	
Middle level	153	2.03	0.53	
High level	35	2.20	0.68	
Knowledge about the information how to prevent accident low level				*0.000
Low level	46	1.87	0.54	
Middle level	130	1.98	0.46	
High level	49	2.33	0.66	
Valuing lives and asset				
low level	57	1.72	0.45	
high level	168	2.14	0.54	

Note** P-Value <0.001, P-Value <0.01

Part 3 the problems, obstacles and suggestions of the motorcycle accident protection of police warrant officer

4.11 The Problems, Obstacle and Suggestions Regarding Motorcycle Accident Protection.

According to the study of the motorcycle accident of police warrant officer, researcher gathered questionnaire of the problems, obstacles and suggestions following as

4.11.1 Problems and obstacle

1) People have no knowledge about the traffic signs.
2) The condition of motorcycle is not ready for being used.
3) The condition of road and weather.
4) The carelessness of drivers such as driving too fast.
5) Riding motorcycle while drivers were sick, drunk or had no a rest enough.
6) The breach and violation of traffic laws because of heedlessness.
7) Teenagers drive carelessly on Fridays, Saturdays and Sundays.
8) Polices neglect their duty.

4.11.2 solving the problems and obstacles.

1) Giving the knowledge of traffic laws before receiving license.
2) Having checking motorcycle to ready for riding.
3) Avoiding to drive the route risking at accident while raining.

4) Polices should do their duty seriously for the purpose of reducing the traffic accident.

5) Trainfing teenagers about traffic laws and motorcycle accident protection.

6) There are the serious punishments of people who break the traffic laws such as increasing the fine.

7) Giving the information of traffic protection to people more.

4.11.3 Suggestions

The suggestions of the questionnaire are following as:

1) Polices should do their duty seriously.

2) To improve the condition of the route, post lamps and the traffic signs along the roads.

3) To improve the surface of road.

4) To separate the traffic line apparently.

5) Government department should give information about the traffic accident protection.

6) Driver should follow the traffic laws.

7) Drivers should be high-spirited to follow the traffic laws.

8) To improve traffic light and the traffic signs in Kanjanaburce such as green light and red light. It should be have the signs to turn left and right.

9) To improve parking and the traffic, especially flesh market.

CHAPTER 5

THE DESCRIPTION OF THE RESEARCH RESULTS

According to the study of motorcycle accident protection of police warrant officer. The aims of the research was concluded as following:

5.1 The First Objective of Research is that Studying the Level of the Motorcycle Accident Protection of Police Warrant Officer.

Hypothesis 1.1 The different stimulating factors of police warrant officers lead to the way to protect the motorcycle accident differently

According to the study, the way to protect the motorcycle accident of police warrant officers is mid level as follow the hypothesis. It is because that the traffic accident is one of the important problems of Thailand.It makes Thailand lose various properties and human resources. The national office of police department realizes the problem and measures seriously the punishment of breaking the traffic laws, especially teenagers on account of driving carelessly and have no the knowledge of traffic laws enough. If people have known the knowledge of the traffic laws enough, especially teenagers, it makes traffic accident reduced.

5.2 The Second Objective is that Studying the Factors Leading to the Motorcycle Accident of Police Warrant Officers

The hypothesis of researchers are as following:

Hypothesis 2.1 The different age of drivers affects to the way to protect the traffic accident differently

According to the study, the different age of drivers affecting to the way to protect the traffic accident differently was neither found the hypothesis nor the study of Phakit Promayon said that the different age of drivers affecting to the way to protect the traffic accident differently is 0.001 of the statistic. It is because that the way to protect the motorcycle accident depend on each but not the age of person.

Hypothesis 2.2 How long police warrant officers have worked affects to the way to protect the traffic accident differently

According to the study, how long police warrant officers have worked affecting to the way to protect the traffic accident differently is 0.008 of the statistic as follow the hypothesis but conflict to the study of Pirada Rogchiwin(1996:97) Moreover researchers found that using the equipment to protect the dust of polices was not involved in how long they have worked .

Hypothesis 2.3 The tittle of police warrant officers affect to the way to protect the motorcycle differently

According to the study, the tiltle of police warrant officers affecting to the way to protect the motorcycle differently was 0.028 as follow the hypothesis. It might be because that the different tiltle of police warrant officers have their different duties.

Hypothesis 2.4 The field of work of police warrant officers affects to the way to protect the traffic accident differently

According to the study, the field of work of police warrant officers affecting to the way to protect the traffic accident differently is 0.05 of the statistic (P-Value=0.010) as follow to hypothesis because some field of work don't have to use motorcycle.

Hypothesis 2.5 The education of police warrant officers affects to the way to protect the motorcycle accident differently

According to the study, the different education of the police warrant officers was neither found the statistic nor the study of Vira Kasarat(1992:106) said that the education affecting to using seat belt equal to 0.05 of the statistic.

Hypothesis 2.6 The different salary of police warrant officers affects to the way to protect the motorcycle accident differently

According to the study, the different salary of police warrant officers affecting to the way to protect the motorcycle accident differently was neither found the statistic nor the study of Upa Hongwachin(1997:50) said that the salary affecting to wearing safety cap of driver was 0.001 of the statistic.

Hypothesis 2.7 The different kind of license of police warrant officers affects to the way to protect the motorcycle accident differently

According to the study, the different kind of license of police warrant officers affects to the way to protect the motorcycle accident differently.

Hypothesis 2.8 The martial atatus of each police warrant officers affects to the way to protect the motorcycle accident differently

According to the study, police warrant officers affecting to the way to protect the motorcycle accident differently was neither found the statistic nor the study of Pakit Prommayon(1987:67) said that the marriage status of each affects to the way to protect the motorcycle accident equal to 0.001 of the statistic. This is because the target groups live and work in the same area, surrounding with the same society and environment, have equal chance to acknowledge the information, so they do not have different behavior to prevent motorcycle accident.

Hypothesis 2.9 The Warrant Office riding the motorcycle for different years have different behavior of motorcycle-accident prevention

From the study, that the Warrant Office riding the motorcycle for different years have different behavior in motorcycle prevention is not statistically significant. That is not as the hypothesis formed before and contradicts the study of Pakij Prommayon (1993:67). (His study found that it is statistical significance of 0.001.) The samples ride in the same area, and under the same law. That make they have no different behavior of motorcycle-accident prevention.

Hypothesis 2.10 The Warrant Office riding with different speed have different behavior of motorcycle-accident prevention

From the study, that the Warrant Office riding with different speed have different behavior of motorcycle-accident prevention is statistical significance of 0.005 as the hypothesis formed before and in accordance with the study of Accident

Research Team of nursing group, Somdej Prayupparaj Dejudom Hospital (1999: Abstract.) From the study, that the speed an hour has an influence on knowledge and way to prevent the accident is statistical significant of 0.01. That means different speed make different behavior of accident prevention.

Hypothesis 2.11 The warrant police officers who have different frequency of riding a motorcycle have different behavior to prevent motorcycle accident

According to the study, the warrant police officers who have different frequency of riding a motorcycle have different behavior to prevent motorcycle accident at the level of 0.048 in statistic. This result is the same as the hypothesis and the study of Virasinee Wongprasert (1986:60) that the rider who have different frequency of riding a motorcycle per week have different behavior to wear helmet at the level of 0.05 in statistic. This is because of the fact that they use the motorcycle often, have many experience and riding skill. Therefore, the target groups who have different frequency of riding a motorcycle have different behavior to prevent motorcycle accident.

Hypothesis 2.12 The warrant police officers who have different accident experience have different behavior to prevent motorcycle accident

According to the study, the warrant police officers that have different accident experience have different behavior to prevent motorcycle accident without any level of statistic. This is not accurate to the hypothesis and disagrees with the result of the study of Yupa Hongvachin (1999:Brief) that accident experience is

related to wearing helmet behavior at the level of 0.05 in statistic. This is because of the fact that the riders think that accident happens because of fortune and bad luck not because of their behavior. Therefore, the target groups that have different accident experience do not have different behavior to prevent motorcycle accident.

Hypothesis 2.13 The warrant police officers who acknowledge different information about how to prevent accident, have different behavior to prevent motorcycle accident

According to the study, the warrant police officers who acknowledge different information about how to prevent accident, have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value=0.050). This is the same as the hypothesis. This is because of the fact that they have different kind of job, so they do not have equal time to rest and acknowledge the information. Moreover, this depends on their alertness to acknowledge the information. Therefore, the warrant police officers that acknowledge different information about how to prevent accident have different behavior to prevent motorcycle accident.

Hypothesis 2.14 The warrant police officers who have different knowledge about the information how to prevent accident, have different behavior to prevent motorcycle accident

According to the study, the warrant polices officers who have different knowledge about the information how to prevent accident, have different behaviors to prevent motorcycle accident at the level of 0.05 in statistic (P-Value=0.000). This is the same as the hypothesis. This is because of the fact that the warrant polices officers

have different kind of field of knowledge, so they have different knowledge to prevent motorcycle accident. Therefore, the warrant polices officers who have different knowledge about the information how to prevent accident, have different behaviors to prevent motorcycle accident.

Hypothesis 2.15 The warrant polices officers who value lives and asset differently has different behavior to prevent motorcycle accident

According to the study, the warrant polices officers who value lives and asset differently have different behavior to prevent motorcycle accident at the level of 0.05 in statistic (P-Value=0.000). This is the same as the hypothesis. This is because of the fact that valuing lives and asset of oneself and other people depends on many factors such as experience, family background, and neighborhood and the most important thing is morality. Therefore, the warrant polices officers who value lives and asset differently has different behavior to prevent motorcycle accident.

5.3 Objective 3 Study the Problem, Obstacle and Suggestion in Preventing Motorcycle Accident of the Warrant Police Officers

Problem and obstacle

According to the study, most of the target groups think that problems in preventing motorcycle accidents are ignoring the law, careless, not having any knowledge about traffic law, driving when drunk, low experience in driving, bad condition vehicle, driving when ill, out of order traffic lights, bad condition road, heavy rain and obstacle.

Suggestion and resolution

According to the study, most of the target groups suggest that there should be a seminar to teach people about traffic law, promoting more information about safe driving, arresting the riders who do not follow the law strictly, giving more punishment than present, maintaining the roads and traffic lights by mainly aware the safety of people.

Suggestion

1. Having more promotion about how to prevent motorcycle accidents
2. Before issuing a driver license, make sure that the riders really understand the traffic laws.
3. Enact special law to use only in each area because the environments of each area are different; in the same time all the local low should be under the federal law.
4. Promoting more traffic information.

CHAPTER 6

THE RESEARCH CONCLUSION

Studying about the warrant officer's behavior of motorcycle-accident prevention aims for studying about the way they behave to prevent the motorcycle-accident, the factors having influent on the behavior, problems and obstacles, and suggestions. That is for using as a proper way to plan and set a measure of motorcycle-accident prevention. How to collect is to survey by questionnaire and interview 225 samples. The result is as follows:

6.1 Research Conclusion

6.1.1 Characteristic of Samples

59.1% of samples are 30-46 years old. 62.7% have been policemen for 7-21 years. 41.8% are sergeants. 36.9% take charge of protection and subjugation line. 59.6% have graduated from high school. 76.4% earn monthly 10,000 baht and below and have for life driving lenience. 68.4% got married. 69.3% have ridden motorcycle for 5-20 years. 40.4% ride with speed of 80 km. or less an hour. 29.8% take a motorcycle 10 times or more a week. 25.3% have motorcycle accident 2 times.

About the stimulating factors, it was found that 68%have sufficiently received the information about accident prevention, 79.6% have good knowledge of accident prevention and74.7% highly value life and property.

6.1.2 Behavior level of motorcycle –accident prevention

70.3% have a moderate level.

6.1.3 Analysis of variance factor influent on the warrant office's behavior of motorcycle-accident prevention (Analysis of Variance: ANOVA)

From the study about the factor, that the number of working years, rank, line, riding speed, frequency of using motorcycle, receiving the information about accident prevention, the knowledge level of accident prevention and valuing life and property are influent on the police's behavior is statistical significance of 0.05. In the hand, age, graduation, average earning a month, marital status, number of years they use motorcycle and experience in motorcycle has no effect on the behavior.

6.2 The Suggestion

After studying the behavior, the researcher viewed that the result from the study and can be used as a way to improve the efficiency of prevention and solving motorcycle-accident problems. It is also useful for all agencies of National Police Office and other agencies, especially as a way to improve traffic law, rule and regulation and to campaign the good behavior of motorcycle riding. The researcher suggests as follows:

1. There should be a train about traffic-accident prevention, safety on the road and initial knowledge about motorcycle.

2. The police should take charge with honest for who breaks the law.

3. There should continuously be more campaign and public relation of realization about safety on the road.

6.3 The Suggestion for Next Research

1. There should be quantitative study about teenager's behavior of motorcycle-accident prevention and risk behavior that easily meets with an accident because of alcohol drinking.

2. You should study about the efficiency of spreading knowledge about traffic-accident prevention both in theory and practice.

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APPENDIX

Questionnaire

Topic Factors effected the behavior of police warrant officers to prevent motorcycle accident: Policemen in Muang district, Kanjanaburi Province Case Study

Part 1 Personal and society factors information

Direction Please fill in the space or answer these questions by checking √ in the □ which is most based on the truth.

1. You are now ..... years old (More than 6 months is rounded to 1 year)
2. You have been working as a police officer for .....years. (More than 6 months is rounded to 1 year)
3. Your rank is

□ 1) General

□ 2) Lance corporal, corporal, and sergeant

□ 3) Petty officer

□ 4) Police officer

4. You work in

□ 1) Administration

□ 2) Prevention and elimination sections

□ 3) Interrogation

□ 4) Investigation

□ 5) Traffic control

5. Your highest education.

☐ 1) Certificate

☐ 2) Diploma or comparable

☐ 3) Bachelor degree or comparable

☐ 4) Other (Please identify).....

6. Average income

☐ 1) 10,000 baht or less

☐ 2) 10,001-15,000 baht

☐ 3) 15,001-20,000 baht

☐ 4) 20,001 or more

7. Your driver license is

☐ 1) None

☐ 2) Temporary license

☐ 3) Permanent license

8. Marriage status

☐ 1) Single

☐ 2) Married

☐ 3) Widowed/divorced/separate

If you do not use motorcycle, you do not have to answer question 9-12.

9. You have been using a motorcycle for .....years (More than 6 months is rounded to 1 year)

10. Average speed you ride you motorcycle

☐ 1) About 80 km per hour or slower

☐ 2) About 81-100 km per hour

☐ 3) About 101-120 km per hour

☐ 4) About 121 km per hour or faster

11. Frequency of using a motorcycle per week

☐ 1) 3 times or less

☐ 2) 4-6 times per week

☐ 3) 7-9 times per week

☐ 4) 10 times or more per week

12. Motorcycle accident experience

☐ 1) Never have an accident

☐ 2) 1 accident

☐ 3) 2 accidents

☐ 4) 3 accidents or more

Part 2 Acknowledging the information about how to prevent accident

Direction Please check √ in the □ which is most based on the truth.

13. Have you ever acknowledged any information about how to prevent accident?

□ 0) Never □ 1) Yes

14. If yes, from which sources you have acknowledged the information/ how often as follows:

Sources / Frequency	More than 5 times/week	3-4 times/week	Sometimes(1-2 times/week)	Never
1. Television				
2. Radio				
3. Newspaper				
4. Journal, magazine, and brochure of the Royal Police Office				
5. Conference, training, seminar				
6. Discussing with the superior				
7. Discussing with the colleagues				

15. Whether the promotion of the information about how to prevent accident is enough or not?

☐ 0) Not enough ☐ 1) Enough

16. In case of not enough, from which sources do you want to acknowledge the information the most?

☐ 1) The mass communication sources (Television, radio, newspaper and so on)

☐ 2) The government or involving sections

☐ 3) The Royal Police Office

☐ 4) Conference, training, seminar

☐ 5) Other (Please identify).....

Part 3 Knowledge about the information how to prevent accident

Direction: Please check √ at the end of the question accordance with your opinion.

Question	Yes	No
1.When there is a yellow light flashing, the drivers should slow down and drive carefully.		
2.Traffic signs on the highway can be classified into reminding sign and obligation sign. Driving on the left lane or right lane sign is a reminding sign.		
3.Law limits that the drivers can not have more than 60 milligram-percent alcohol in the blood.		
4.If the drivers want to turn left but there is no turning left lane, the driver should drive in the left lane.		
5.The drivers can not overtake other vehicles 50 meters ahead to the crosswalk, circle, traffic island or railway.		

Question	Yes	No
6.In any situation, nobody can change the traffic right or traffic signs.		
7.According to the law, horn should be heard not least than 80 meters.		
8.It is a prohibition to make a U-turn at safety zone, heavy traffic, on a bridge, or 50 meters from the bridge.		
9.According to the law, the motorcycle riders can ride not faster than 100 kilometers per hours, except in Bangkok, Pattaya or municipality, the speed limit is 80 meters per hour.		
10.The only kind of helmet can be used is the one that over the whole head.		

Part 4 Valuing lives and asset

Direction: Please check √ at the end of the question accordance with your opinion.

Question	Agree	Disagree	Not sure
1.The motorcycle riders should be more careful when raining or windy.			
2.The riders should wear blight color clothes at night.			
3.The riders should get some information about preventing accident.			
4.The riders should wear helmet certified by the government section.			
5.The riders should follow the speed limit.			
6.The riders should not ride motorbike at night.			
7.The riders should have insurance.			
8.The noise of the motor should not be louder than 80 decibel.			
9.Motorcycles cause most of the noise and air pollution.			
10.Motorcycle are important for police.			

Part 5 Behavior to prevent motorcycle accident

Direction: Please check √ at the end of the question accordance with your behavior.

Question	Every time	Frequently	Sometimes	Never
1.Wearing helmet while riding motorcycle.				
2.Check the type.				
3.Check the brake system, brake pads and adjust the brake.				
4.Check the motorcycle condition before riding.				
5. Riding motorcycle daringly.				
6. Ride motorcycle with 60 km-per-hour speed in community area.				
7. Get over the others by left.				
8. Give light signal before turn left or right				
9. There were more than 2 people on your vehicle while riding (more than 2 included rider).				
10. Give a signal before stop the vehicle or while the vehicle stop.				
11. Used to ride the vehicle while your body had not get enough rest over 1 night.				
12. Violate traffic signs while riding in hurry hours.				
13. Riding motorcycle in specialised way or in the same way				

Part 6 The problems, obstacles and suggestions

1. In your opinion, what are the problems and obstacles in preventing motorcycle accident?

2. In your opinion, how can we solve those problems and obstacles?

3. Do you have any suggestion about traffic in Kanjanaburi Province?

BIOGRAPHY

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