UNIVERSITI PUTRA MALAYSIA

PREVALENCE OF PROPER SEAT BELT USAGE AND ITS DETERMINANTS AMONG PREGNANT STAFFS IN UNIVERSITI PUTRA MALAYSIA

BY
SITI SYAHIZA NOORINNISAQ BINTI A. RAZAK

ACKNOWLEDGEMENT

BismillahAr-RahmanAr-Rahim. Praise be to ALLAH S.W.T., the Most Compassionate and Most Merciful, whose blessings have helped me throughout my life.

Firstly, I would like to acknowledge and express my sincere appreciation to my project supervisor, Dr. Kulanthayan KC Mani for his strong guidance, support, encouragement and advices in my project. I am very grateful and lucky being able to learn his insight that had helps me to complete my work.

I also would like to thank Dr. Saliza Mohd Elias, the coordinator for our final year project that had helped me a lot in this project. Apart from that, I would like to express my gratitude to all lectures and staffs of Environmental and Occupational Health Department who had contribute directly or indirectly in making this study a success.

Finally, I would like to thank my family especially my parents and my younger sister, Siti Quistina Noorain Binti A. Razak, for their invaluable encouragement and endless moral support throughout this project. I also would like to express my sincere appreciation to my course mates and beloved friends for their helping and company, especially Mohd Ezwan Wahid, Hafizah Hashim, Atikah Ibrahim and Mohd Afiq Ismail. Thank you.

ABSTRACT

PREVALENCE OF PROPER USAGE OF SEAT BELTAND ITS DETERMINANTS AMONG PREGNANT STAFFS IN UNIVERSITI PUTRA MALAYSIA

SITI SYAHIZA NOORINNISAQ BINTI A. RAZAK

Introduction: During pregnancy, most women are particularly concerned about avoiding anything that may damage or harm the future baby at all costs. However, many pregnant women are unaware of proper usage of seat belt as the safest behavior and real risks of not using it. Therefore, this study is aimed to determine the prevalence and the determinants of proper usage of seat belt among pregnant staffs of Universiti Putra Malaysia. **Methodology:** A cross sectional study was conducted among 100 pregnant staffs. The data were collected through observation and questionnaire. Observation of the pregnant car occupants at the time they came to work or after work. The observed pregnant staff were aproached and interviewed to fill up the questionnaire. The data were analyzed by SPSS 19.0. **Results:** 77% of the respondents were wearing seat belt and 39% were wearing seat belts properly according to the NHTSA 2000. Four variables were recognized as the determinants towards Proper Usage of Seat Beltamong pregnant staff in UPM; socio-demographic background, sitting position, knowledge of effectiveness of the seat belt and perception on comfortableness. **Conclusion:** This study showed there is lack of information and a lot of doubts from respondents towards the usage of seat belt during pregnancy thus prevent them in using proper seat belt as a safety measure on the road.

Keywords: Seat Belt, Pregnant Staff, Observation.

ABSTRAK

PREVALENS DAN FAKTOR-FAKTOR PENGGUNAAN TALI PINGGANG KELEDAR DENGAN BETUL DI KALANGAN STAFF UNIVERSITI PUTRA MALAYSIA YANG HAMIL

SITI SYAHIZA NOORINNISAQ BINTI A. RAZAK

Pengenalan: Semasa hamil, kebanyakan wanita mengambil berat untuk mengelakkan apa-apa yang boleh mencederakan atau memudaratkan bayi yang dikandungi dari segala aspek. Walau bagaimanapun, ramai wanita mengandung tidak menyedari bahawa penggunaan tali pinggang keledar merupakan tingkah laku yang paling selamat dan risiko sebenar tidak menggunakannya. Oleh itu, kajian ini bertujuan untuk menentukan kekerapan penggunaan tali pinggang keledar dan faktor-faktor penggunaan tali pinggang keledar di kalangan kakitangan Universiti Putra Malaysia yang hamil. **Metodologi:** Satu kajian keratan rentas telah dijalankan dan 100 kakitangan yang hamil mengambil bahagian di dalam kajian ini. Data dikumpulkan melalui pemerhatian dan soal selidik. Pemerhatian ke atas pengguna kereta yang hamil dilakukan ketika mereka datang ke kerja atau sebelum pulang dari kerja. Kakitangan yang hamil diperhatikan dan ditemuduga untuk mengisi borang soal selidik. Data dianalisis menggunakan perisian SPSS 19.0. **Keputusan:** Tujuh puluh tujuh peratus responden memakai tali pinggang keledar dan 39% mamakainya dengan betul mengikut format NHTSA 2000. Empat pemboleh ubah telah dikenal pasti sebagai penentu terhadap penggunaan tali pinggang keledar di kalangan kakitangan yang sedang hamil di UPM; latar belakang sosio-demografi, kedudukan tempat duduk, persepsi terhadap keselesaan dan pengetahuan am tentang penggunaan tali pinggang keledar. **Kesimpulan:** Kajian ini menunjukkan kekurangan maklumat dan ketidakselesaan terhadap penggunaan tali pinggang keledar semasa hamil. Dengan sebab tersebut, ia menghalang mereka dari menggunakan tali pinggang keldar dengan betul sebagai langkah keselamatan di jalan raya.

Kata kunci: Tali Pinggang Keledar, Wanita Hamil, Pemerhatian.

TABLE OF CONTENT

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATION

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIX

LIST OF ACRONYMS AND ABBREVIATIONS

SPSS	Statistical Package for the Social Science
NHTSA	National Highway Traffic Safety Administration
%	Percentage
N	Sample size
=	Equal to
S.E.	Standard error

CHAPTER 1

INTRODUCTION

1.1 Introduction

Globally, road crashes are the ninth largest cause of death and disability; by 2020, they are expected to be the third largest cause (WHO, 1996). Private vehicles are the most (71%) common mode of transportation involved in traffic crash in Malaysia reported in 2010 (PDRM, 2011). In terms of fatal road crash, car drivers constitute about 20.7% fatalities (PDRM, 2011). According to the Statistical Report Road Accident Malaysia (2011) by Royal Malaysia Police, the major cause of car occupants' fatality in year 2010 was head injuries, which contribute more than half (55.9%) of the fatalities. Thus, restraining of the head and body, the initial position is the most important injury control measure for car users. The use of seatbelt was deemed one of the most effective ways to reduce road crash fatalities in Malaysia and consequently the mandatory seat belt law was enforced in early seventies (Kulanthayan et al., 2003).

Records from the National Highway Traffic Safety Administration (NHTSA) show that motor–vehicle crashes were the eighth leading cause of death in the United States in 2003 (Subramanian, 2006). However, crashes were ranked first for every age from 3 through 33 years. Death as a result of ejection of unrestrained occupants from the vehicle is the major cause of fatalities in motor–vehicle crashes. Crash records indicate that in 2005, in the United States, about 75% of unrestrained occupants involved in motor–vehicle crashes were ejected and killed (NHTSA, 2005).

Seat belts reduce the severity of injuries suffered by car occupants involved in crashes by retaining them in their seats and preventing them from hitting objects around them and from being ejected through the windows. Wearing seatbelts is considered a very effective safety measure. Many studies have shown that using seat belts significantly reduces the number of road crash injuries or minimizes the extent of these injuries (Cooper, 1994; Evans, 1996; Koushki et al., 2002). A report published in 1999 by the National Safety Council in USA has indicated that 9553 lives could have been saved annually in the United States had seat belts been used by these people (National Safety Council, 1999).

Over time, there has been an increase in the number of women with driver's licenses. More women now work outside the home than did 30 years ago, and societal acceptance of travel during pregnancy has resulted in increased numbers of pregnant women in automobile and airline seats (Pearlman et al., 2000). In addition,

roads, motor vehicles, rail travel and airlines have become more sophisticated, allowing for faster speeds and potentially more severe crashes, and the numbers of vehicles, commuter lines and flights have also soared in the past decade.

During pregnancy, all pregnant women are concerned about avoiding anything that may harm their babies. Naturally, all women want to see the baby they are expecting to be delivered safely. However, in a modern society, most of the mother-to-be are career women and they cannot stay at home during pregnancy. As long as it is comfortable and safe, they can get into a car right up until the end of pregnancy. The study in the UK by Acar et al. (2003) reported that only 13% of pregnant women wear their seatbelt in the correct position as prescribed by the National Highway Traffic Safety Administration (NHTSA) guidance.

About 2 –3% of pregnant women experience crashes during pregnancy (Hyde et al. 2003). In 1971, Crosby and Costiloe reported that the major cause of fetal death in a crash was maternal death and this was significantly reduced by wearing a seatbelt. Evidence has continued to accumulate over the years supporting the use of a properly positioned safety belt during pregnancy (Crosby and Costiloe 1971; Wolf et al. 1993; Hyde et al. 2003). Clinic-based surveys conducted in 1993, 1997, and 2001 reported that 45% to 86% of pregnant women in the United States always wear safety belts (Pearlman and Phillips 1996; Tyroch et al. 1999; McGwin et al. 2004). In addition, approximately 25% to 50% of pregnant women are not aware of the proper

positioning of safety belts during pregnancy (Tyroch et al. 1999; Johnson and Pring 2000; McGwin et al. 2004).

Failure to correctly employ seat belts during pregnancy can result in significant harm to both mother and fetus in the event of a motor vehicle collision. Seatbelts are designed to prevent passengers from colliding with interior structures of the vehicle, to prevent sudden ejection, and to dissipate the force of an impact (Shoenfeld et al. 1987). According to a study done by Crosby and Costiloe 1971, major cause of fetal death following motor vehicle collisions is to be maternal death. Seatbelt use decreases the risk of maternal death; however, lap belt restraints can be associated with uterine, placental, and fetal injuries (Crosby et al. 1972; Shoenfeld et al. 1987; Astarita and Feldmen 1997). These injuries are less likely when a three-point restraint system is employed, as it prevents forward flexion of the mother's body (Crosby et al. 1972).

1.2 Problem Statement

In today's society, travelling by car is a common and a necessary activity (Montoro, 1997). The benefits of motor vehicles are well known and included: rapid movement of people and merchandise, convenience, the range of potential destinations, relatively low cost, etc. However, motor vehicle use also has a number of undesirable consequences, such as pollution, noise and traffic crashes (Munoz, 1995). Women drivers also increase from time to time. A woman's greatest risk for

motor vehicle injury occurs during this life stage (CDC, 2002). Because of greater number of women drivers and car occupants, they may have higher potential for risk injuries from a motor vehicle crash.

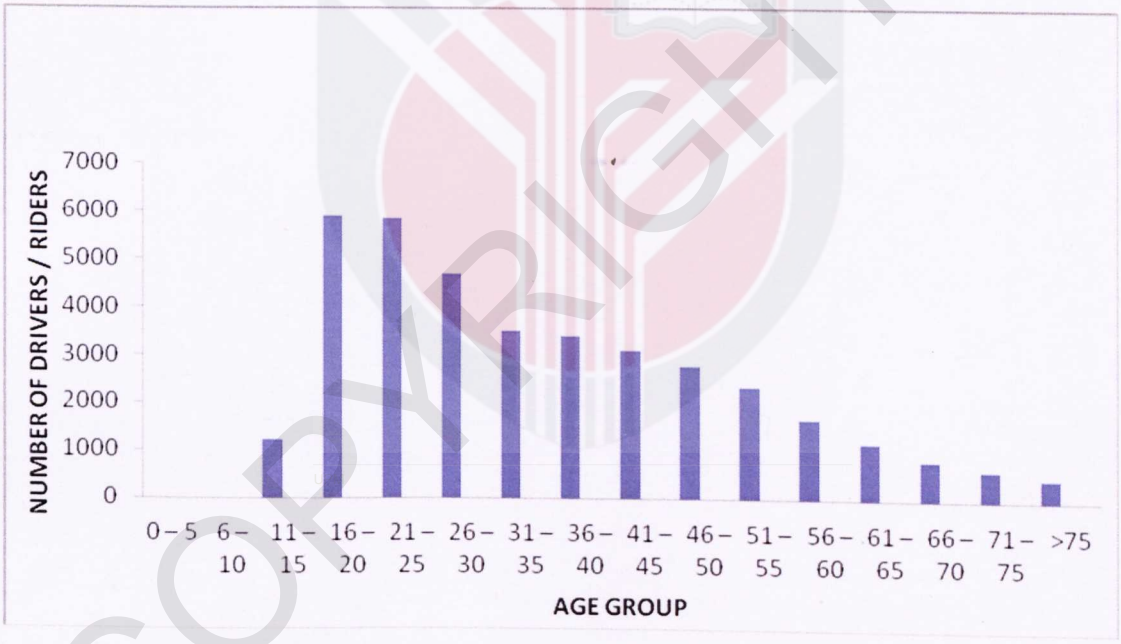
Table 1.0: Road Accident by State from 2006 – 2010 in Malaysia

STATE	2006	2007	2008	2009	2010
PERLIS	1,160	1,364	1,417	1,633	1,548
KEDAH	15,505	16,172	16,520	17.701	17,966
PULAU PINANG	32,573	33,881	34,049	33,719	34,306
PERAK	27,432	29,203	30,539	32,327	32,027
SELANGOR	92,632	99,157	100,380	107,429	115,565
KUALA LUMPUR	46,254	49,454	48,671	51,942	53,493
NEGERI SEMBILAN	15,197	16,079	17,362	18,369	19,407
MELAKA	10,707	11,720	12,105	13,275	14,110
JOHOR	43,757	46,584	48,667	51,747	55,381
PAHANG	13,242	13,982	15,629	17,068	17,315
TERENGGANU	7,337	8,116	8,842	9,549	10,106
KELANTAN	7,098	8,155	8,814	10,118	9,707
SARAWAK	13,550	14,256	14,588	15,789	16,192
SABAH	14,808	15,196	15,488	16,655	17,253
JUMLAH	341,252	363,319	373,071	397,330	414,421

Source: Royal Malaysian Police Traffic Accident Statistic (2011)

Eighty-five percent of pregnancies occur during the age of 15 to 34, and motor vehicle crashes are the leading cause of death for women in this age group (CDC 2002; Ventura et al. 2004). There are also risks for the fetus involved in a motor vehicle crash. In recent years, the burden of crash related fetal loss has been described at a population level. Weiss (2001) reviewed fetal death certificates in 16 states and found that motor vehicle crashes caused more than 80% of the injury-related fetal deaths.

Table 1.1: Number of Drivers/Riders Involve in Road Accident by Age Group in 2010



Source: Royal Malaysian Police Traffic Accident Statistic (2011)

A study conducted on the seat belt use among car users in Malaysia showed that 76.6% of the observed car drivers wear seat belt (Kulanthayan et al., 2003). However, few data exist about safety belt use during pregnancy. Clinic-based surveys conducted in 1993, 1997, and 2001 reported that 45% to 86% of pregnant women in the United States always wear safety belts (Pearlman and Phillips 1996; Tyroch et al. 1999; McGwin et al. 2004). In addition, approximatcly 25% to 50% of pregnant women are not aware of the proper positioning of safety belts during pregnancy (Tyroch et al. 1999; Johnson and Pring 2000; McGwin et al. 2004).

There are no published studies done in this field in Malaysia. Pregnant women are still in doubt if a seat belt is helpful in a traffic crash or if it might injure the unborn baby in some way. Misconceptions about the effects of restraint use on the developing fetus and a lack of specific instruction by health care providers contribute to fear and lack of knowledge experienced by pregnant women (Phillips, 1993; Tyroch, Kaups, Rohan, Song, and Beingesser, 1999; Hyde et al., 2003). They are unaware of the safest behaviour as drivers or passengers in terms of seatbelt use, and the real risks of not using this basic protection system. A study conducted by Nakahara (2007) from Japan on the content of maternity and baby magazines shows that the amount of information on seatbelt use during pregnancy was low. The information gap might be the reasons of misunderstanding on the importance of seatbelt use during pregnancy.

1.3 Study Justification

Economic losses and lost productivity as a result of fatalities and injuries involving unrestrained occupants are very high. Although more than 90% of all trauma sustained during pregnancy is relatively minor, it is estimated that l-3% of all minor trauma will result in fetal loss (Pearlman et al. 1996; Goodwin and Breen 1990; William et al. 1990). So much awareness and educations must be implemented toward the pregnant divers and car occupants so this will reduce economic load, protect our future intellectual properties and thus our future leaders towards developing our country.

1.4 Conceptual Framework

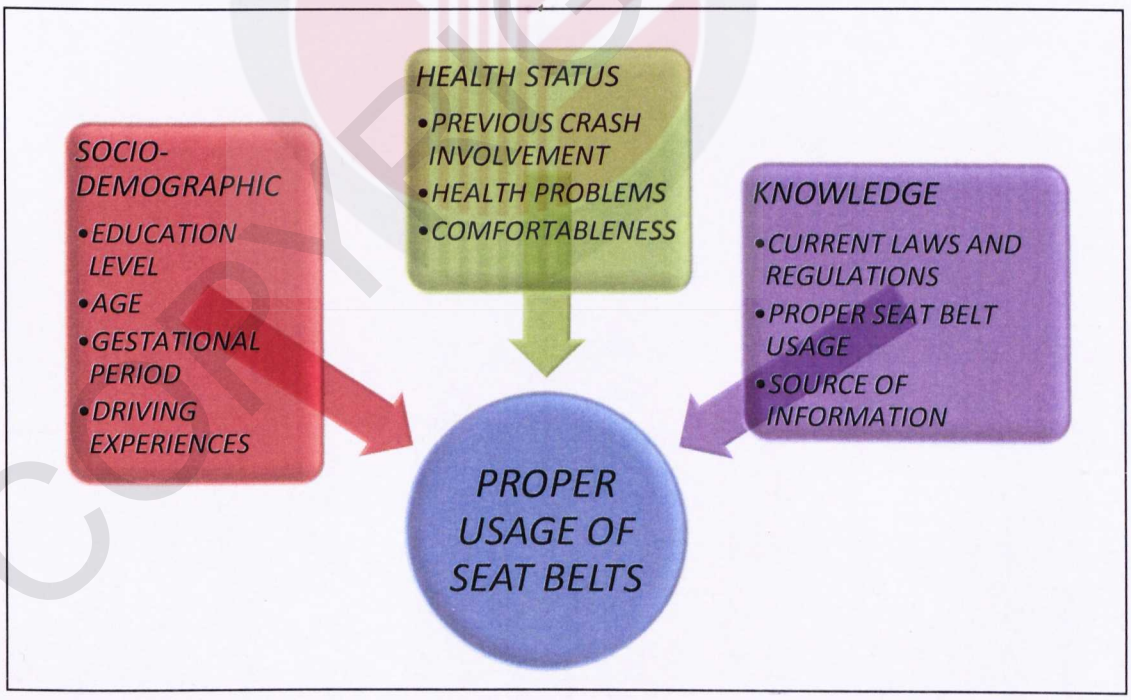


Figure 1.0: Conceptual Framework

1.5 Study Objectives

1.5.1 General Objective

To determine the prevalence and the determinants of proper usage of seat belt among pregnant drivers and car occupants of Universiti Putra Malaysia's staffs.

1.5.2 Specific Objectives

i. To determine the distribution of socio-demographic characteristics among respondents.

ii. To determine the prevalence of usage of seat belt among pregnant drivers and occupants.

iii. To determine the prevalence of proper usage of seat belt among pregnant drivers and occupants.

iv. To determine the association between the socio-demographic characteristics (age, education level, gestation period, type of driving license, driving experience and period of travelling) and proper usage of seat belts among respondents.

v. To determine the association between the previous involvement in traffic crashes and proper usage of seat belts among respondents.

vi. To determine the association between the distance of travelling and proper usage of seat belt among respondents.

vii. To determine the association of the sitting position and proper usage of seatbelt.

viii. To determine the association between the information obtained and proper usage of seat belt.

ix. To determine the association between the perception about the comfortableness and proper usage of seat belt among pregnant staffs.

1.5.3 Study Hypothesis

i. There is significant association between socio-demographic background (age, education level, gestation period, type of driving license, driving experience and period of travelling) and proper usage of seat belts.

ii. There is significant association between previous involvement in traffic crashes and proper usage of seat belts among pregnant staffs.

iii. These is significant association between distance of travelling and proper proper usage of seat belt among pregnant staffs.

iv. There is significant association between sitting position and proper usage of seat belt.

v. There is a significant association between the information obtained and proper usage of seat belt.

vi. There is significant association between the perception about the comfortableness and proper proper usage of seat belt among pregnant staffs.

1.6 Definition of Terms

1.6.1 Conceptual Definitions

i. Pregnant Drivers and Car Occupants

Pregnancy can be divided into three trimesters, each three months long. The first trimester is from the last period to the 13th week, the second trimester is from the 14th to 27th week, and the third trimester is from the 28th week through the 40th week. These days there are growing numbers of pregnant drivers and car occupants in travelling via motor vehicles.

ii. Seat Belt

Seat belt, sometimes called safety belt, is a harness design to hold the occupant of a car or other vehicle in place if a collision occurs or, more commonly, if stop suddenly. Seat belts are invented to reduce injury by stopping wearer from hitting hard interior elements of the vehicle or from being thrown from the vehicle.

iii. Proper Usage of Seatbelt for Pregnant Women

Proper placement of the 3-point restraint system includes positioning the lap belt across the top of the thighs and under the bulge of the gravid abdomen with the shoulder strap lying comfortably between the breasts.

Figure 1.1: Proper Usage of Seat Belt on Pregnant Woman

Source: National Highway Traffic Safety Administration (NHTSA), 2002

Table 1.2: The Proper Usage of Seat Belt

Seat Belt	Proper Usage of Seat Belt	Non-Proper Usage of Seat Belt
Usage of Lap Belt	 Below belly, above thigh	 Above uterus  Above belly
Usage of Shoulder Belt	 Across breast, above belly	 Below arm  Across breast, above belly  Behind of the body

1.6.2 Operational Definition

i. Pregnant Driver and Occupant

The pregnant woman who drives or occupies a car.

ii. Seat Belt Use

In this study, the seat belt is considered to be in use when it is observed to be fastened across the front of pelvis, chest and shoulder.

iii. Proper Usage of Seatbelt

In this study, proper usage of seat belts means when 3-point restraint system were fastened correctly and firmly adjusted.

CHAPTER 2

LITERATURE REVIEW

2.1 Car Driving

In today's society, travelling by car is a common and a necessary activity (Montoro, 1997). The benefits of motor vehicles are well known and included: rapid movement of people and merchandise, convenience, the range of potential destinations, relatively low cost, etc. However, motor vehicle use also has a number of undesirable consequences, such as pollution, noise and traffic crashes (Muñoz, 1995). Traffic crashes are one of the main public health problems facing modern society (Jorge et al., 1996; Parada et al., 2001). More women now work outside the home than did 30 years ago, and societal acceptance of travel during pregnancy has resulted in increased numbers of pregnant women in automobile and airline seats (Klinich et al., 2000).

2.2 Seat Belt

It is generally accepted that the wearing of seat belts greatly reduces vehicle occupant's chances of being injured in a traffic crash (Rininger and Boak, 1976). Seat belts are the single most effective means of reducing deaths in motor vehicle crashes, with estimates of effectiveness ranging from 45 to 60% (National Highway Traffic Safety Administration, NHTSA, 2002). The safety belt has been identified as one of the most effective means available for protecting drivers and passengers from the effects of motor-vehicle crashes. Substantial evidence is available that seat belts are effective in reducing deaths and injuries resulting from motor vehicle crashes (Hodson-Walker, 1970; Campbell, Fhankr and Hane, 1973; Preston and Shortridge, 1973; O'Neill and Tingley, 1974). Death as a result of ejection of unrestrained occupants from the vehicle is the major cause of fatalities in motor–vehicle crashes. Crash records indicate that in 2005, in the United States, about 75% of unrestrained occupants involved in motor–vehicle crashes were ejected and killed (NHTSA, 2005).

2.3 Proper Usage of Seat Belt

Evans (1987) illustrated that unbelted driver involvement rates in fatal crashes were 28% to 86% higher than those for belted drivers for seven types of traffic crashes. Wardle et al. (2002) described proper usage of seat belt as one of the most effective methods of reducing injury in motor– vehicle crashes. Lee and

Schofer (2003) identified that use of seat belts would reduce the risk of fatal motor–vehicle crash injuries to front–seat occupants by 45% and the risk of moderate–to–critical injuries by 50%. Bendak (2005) showed that the probability of certain types of injuries decreases considerably with increases in proper usage of seat belt rates. Larsen (2004) analyzed details of crashes for different types of crashes (e.g., head–on collisions, crashes with left–turning vehicles, truck crashes, and single–vehicle crashes) and concluded that for all these types of crashes, proper usage of seat belt by drivers/occupants proved to be a critical factor in the severity of injuries from these crashes. There have been numerous studies during the past 15 year which have examined various factors influencing the use of seat belts (Morgan, 1967; Russell, 1971; Bragg, 1973; Knapper et al., 1976; Fhan and Hane, 1979; Von Buseck, 1980).

There are many researchers reporting on the importance of seatbelt use among reproductive aged women. Crosby in 1971 showed the significance of using seatbelt while travelling for pregnant women. In his study, he stated that "the mortality rate in pregnant women not wearing a seatbelt is double that of those not using one" (Crosby et al. 1971). The following year, the American Medical Association had recommended pregnant women to use seatbelt every time they get in a motor vehicle (JAMA 1972). The American College of Obstetricians and Gynecologists in 1991 had outlined the right way for pregnant women to use seatbelts (ACOG 1991). The same advice had been emphasised in the recent study by Pearlman et al. 2008 in thier study concerning maternal restraints and foetal injuries.

2.4 Determinants of Proper Usage of Seat Belt

2.4.1 Social Demographic Background

Fethi and Mark (2002) reported that decision making and seat belt use are mainly influenced by driver's demographic background. This study compared the impact of situational factors such as type of road and demographic background. Social demographic background information of respondents includes their age, status and educational level. Koushki, Bustan, and Kartama (2003) showed that the proper usage of seat belt rates were highly correlated with gender, age, and education levels of motorists. Vasudevan and Nambisan (2005) showed that the proper usage of seat belt patterns also depend on vehicle type (e.g., sedans, minivans/SUVs, or pickup trucks) and area type (rural or urban). Chliaoutakis et al. (2000) found environmental and traffic conditions (e.g. bad road and weather conditions, dense traffic), imitation, self-protection, fear, experience, financial issues and legality as the main factors influencing young Greek drivers' seat belt use.

Age

A study done in New York on charachteristic of belted and unbelted drivers reveals that the driversunder age of 30 are more prone not to wear seat belt (Preusser et al.). Research has shown that certain subsets of individuals are less likely than others to comply with seat belt laws. For example, younger drivers are less likely to

buckle-up (and are involved in a disproportionately high number of crashes), men have lower safety belt use than women (Preusser et al., 1991; Calisir and Lehto, 2002), pickup truck drivers have lower belt use than car drivers (Solomon, 2002), and lower income individuals have lower belt use than higher income individuals (Shin, Hong and Waldron, 1999). In a study conducted in North America which reported that drivers had failed to use seat belt are most common among young people (Jonah, 1997).

Education Level

A study done in New Zealand on seat belt usage and related behaviours among young adult reported car users with higher education level are more likely to seat belt (Dorothy and John, 2000). There are also evidence showed that those who do not use seat belts have lower academic qualifications, engage in other risky driving behaviour such as speeding and alcohol-impaired driving, and more likely to have previous traffic convictions (Preusser et al., 1991).

Driving Distance

A British stud conducted on the situational characteristic of safety belt had reported that 34.7% of the observed non-users who claimed regular use habits admitted that they would probably not wearing belts on short trips compare to 16.6% of observerd, regular users (Sylvia and Peter, 1989).

Previous Crash Involvement

Experience factor included having been involved in a crash in the past, knowing a relative or a friend who had been in a crash, and witnessing a crash. Hitosugi and Takatsu (2000) illustrated from forensic autopsies of 50 persons who had died in motor–vehicle crashes that proper usage of seat belt significantly decreased the severity of drivers' chest and abdominal injuries.

2.4.2 Perception of Comfortableness and Proper Usage of Seat Belt

In 1997 study of safety belt use during pregnancy by Pearlman, discomfort was given as a reason by 48.5% (n=33) of the subject who rarely or never used seat belt. This result suggests that there may be a need to design a restraint system that can be used comfortably throughout pregnancy by women of all body type. As of year 2012, there are various types of seat belt adjuster for pregnancy have been used widely in other developed countries and this can be proposed to obligate usage of seat belt adjuster among pregnant women in Malaysia. Studies on perception of comfortableness on proper usage of seat belt are very much limitation.

2.4.3 Enforcement and Proper Usage of Seat Belt

The literature has shown that both belt users and nonusers have favourable attitudes toward seat belts (Fhaner and Hane, 1974), that belt usage increases with legislation on usage (Robertson, 1978) but falls short of 100% usage depending upon the degree of enforcement and magnitude of punishment as well as other situational variables in the driving context (Fhaner and Hane, 1979). Financial issues factor included the risk of financial loss due to a crash, while legality factor included avoidance of punishments and compliance with traffic regulations and state rules (Chliaoutakis et al., 2000). Similarly, Fockler and Cooper (1990) reported the suspicion of police presence, being a passenger in someone else's car, driving with family members, high speed and dangerous road conditions as the situational factors increasing seat belt use. Reviews of research conclude that seat belt laws are effective at getting vehicle occupants to buckle up and that primary enforcement statutes are more effective at doing so (Rivara et al., 1999; Dinh-Zarr et al., 2001; Shults et al., 2004).

CHAPTER 3

METHODOLOGY

3.1 Study Design

A cross sectional study design was used to study the determinants of proper proper usage of seat belt among pregnant staffs in Universiti Putra Malaysia.

3.2 Study Location

This study was done in Universiti Putra Malaysia campus. UPM is situated in Selangor which is also recorded as the highest of crash in 2010 (PDRM, 2011).

3.3 Study Population

The study population are pregnant drivers and pregnant car occupants of UPM staffs. Motor-vehicles injuries are the leading cause of death and hospitalized trauma during pregnancy (Connoly et al., 1997).

3.4 Study Sample

3.4.1 Sampling Frame

In this study, data was collected by observation and interview. The type of sampling used was non-probability sampling. The respondents from every department of UPM were approached. The selection criteria of the respondents are any UPM staffs who were pregnant from December 2010 until April 2010, who drives or occupies a car provided with proper seat belt. Respondent are selected at the parking spot in UPM campus area. Pregnant car occupant who observed to fasten her seat belts properly is classified as complying with proper usage of seat belt, while respondents who are not properly fastened or not fastened their seat belt at all are classified as violent usage of seat belts. The respondents then were interviewed with the questionnaire on the same day in order to get the detail of the respondents. At first, a proper introduction of oneself is given to the respondent. Next is the objective and the procedure of the study were inform. Any respondent who agreed to proceed with the study need to sign a consent letter as an approval of willingness to participate in this study. At the end of the session, all respondents were taught the proper way of using seat belt during pregnancy by the researcher.

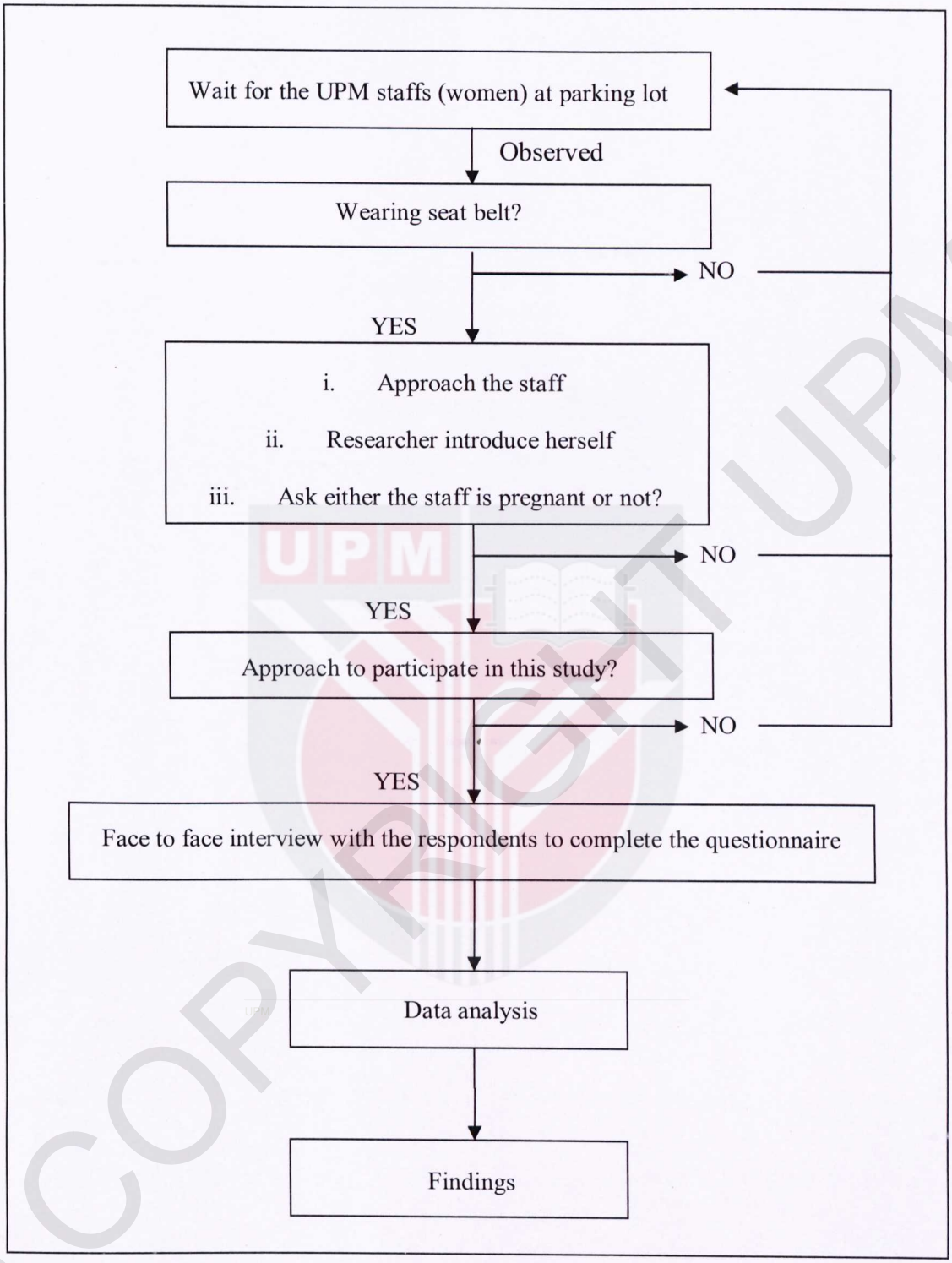


Figure 3.1: Flow Chart of Study Approach

3.4.2 Sample Size

A study conducted on the seat belt use among car users in Malaysia showed that 76.6% of the observed car drivers wear seat belt (Kulanthayan et al., 2003) with SE 0.349 and α <0.05. Therefore the sample size can be calculated using formula Kirkwood (1998).

Sample Size for the study;

$$N = p(1-p) / e^2$$

$$= 0.766 (1-0.766) / 0.05^2$$

$$= 72 \text{ respondents}$$

About 40% more respondent were added to the sample size so the total respondent are 100. Pearlman and Phillips (1996) on their study to evaluate the importance of prenatal education on the proper usage of seat belt during pregnancy reported that they have 20% of dropout. To handle the dropout problem, it was decided to add up more sample to 405 more (twice the previous study dropout).

3.5 Method and Instrumentation

3.5.1 Questionnaire

The interview was held with the respondent using questionnaire. The questionnaire consists of four parts; Part A: researcher observation, Part B: socio-demographic background, Part C: medical history and Part D: general information on proper usage of seat belt. The questionnaire consists of 40 questions. A pre-test was done on 10% of the total sample size on pregnant drivers and car occupants around Selangor who visited clinic for prenatal checkups.

3.5.2 Data Analysis

All the data collected was analyzed using SPSS V.19 (Statistical Package for Social Science). Chi Square tests were done to obtain the relationship between proper usage of seat belt and its determinants. To determine the socio-demographic factors, prevalence of seat belt usage and proper usage of seat belt, univariate was done for both categorical and continuous data. For bivariate analysis, Chi-square was used to determine the association between proper usage of seat belt and socio-demographic factors and other determinants.

3.6 Quality Control

3.6.1 Pre-testing Questionnaire

A pre-testing questionnaire was conducted to ensure the reliability and validity of the questionnaire used in this study. Ten percent of the sample size was taken to test the questionnaire to ensure that questions were easy to understand and relevant to the field of the study.

3.6.2 Ethical Issue

This study has obtain ethical clearance from the Medical Research Ethics Committee, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia. A written consent has also been obtained from all respondents and the confidentiality was maintained throughout the study (refer Appendix 4).

CHAPTER 4

RESULTS

4.1 Response Rate

A total of 110 pregnant staffs were approached and observed by the researcher, however only 100 of the staffs had completed the questionnaire giving a response rate of this study is 90.9%. There were also a few staffs that initially agreed to participate but were refuse to complete the whole process. The reasons why they refuse to participate in this study are no time, did not want to complete the questionnaire

4.2 Descriptive Data

4.2.1 Socio-demographic Information of the Respondents

Tables 4.1 and 4.2 show the distribution of the respondents according to age, gestation period, driving experiences, days of travelling, average mileage per day, ethnicity, education background, driving or not, type of license, frequency as passenger and sitting position. Table 4.2 shows that all the respondents are Malay (100%) as the researcher did not find any other races that are pregnant at that moment. The respondent age is from 24 to 35 years old. Majority (65%) of the respondents are between 24-29 years old. Gestation period were taken by weeks. Majority (80%) of the respondents were at the second and third trimester of pregnancy. The university education level represented majority (67%) of the total respondents. None of the respondents do not have driving license and most (78%) of them had experiences over five years of driving. A total of 92% of respondents drive to go to work. There are 86% of the respondents travel by car almost everyday (5-7 days) and the majority of the average milage is 8-32 kilometres (61%). Those who occupy the car as passengers are majority chose to sit next to the driver (94%).

Table 4.1: Distribution of Socio-demographic Characteristics among Respondents (N=100)

Socio-demographic characteristics	Mean ± SD	n (%)
Age	28.63 years old ± 3.047	
Young (<30 years old)		65 (65)
Elder (≥30 years old)		35 (35)
Gestation Period	28.00 weeks ± 4.621	
Second trimester and below (1-28 weeks)		51 (51)
Third trimester (29–40 weeks)		49 (49)
Driving experiences	8.88 years ± 3.019	
Inexperience (≤5 years)		15 (15)
Experience (>5 years)		85 (85)
Days of travelling in a week	5.10 days ± 1.425	
Short (2-4 days)		14(14)
Long (5-7 days)		86 (86)
Average milage per day	34.69 km ± 23.485	
Short distance (≤50 km)		72 (72)
Long distance (>50 km)		28 (28)

Table 4.2: Distribution of Socio-demographic Characteristics among Respondents (N=100)

Socio-demographic characteristic	n (%)
Ethnicity	
Malay	100 (100)
Educational Background	
Never	0 (0)
Primary school	0 (0)
Secondary school	8 (8)
Pre university	25 (25)
Tertiary level	67 (67)
Driving	
Yes	92 (92)
No	8 (8)
Type of licence	
No license	0 (0)
Probation License	1 (1)
Full License	99 (99)
Occupy the car as a passenger	
Never	6 (6)
Few days in month	52 (52)
Few days in week	25 (25)
Everyday	17 (17)
Sitting position	
Front passanger	94 (94)
Rear right	1 (1)
Rear left	5 (5)
Rear middle	0 (0)

4.2.2 Prevalence of Proper usage of seat belt

Among the one hundred respondents, 77% were observed to be using the seat belt when occupying a car while 23% violated seat belt use. From 77 % of the respondents that using seat belt, there were 39% that using seat belt properly. None of the respondents observed were using seat belt with seat belt adjuster.

Table 4.3: Prevalence of Proper Usage of Seat Belt among Respondents (N=100)

Seat Belt	Total	(%)
Compliance	77	77
Violation	23	23
Total	100	100

Table 4.4: Prevalence of Proper Usage of Seat Belt among Respondents (N=77)

Seat Belt	Total	(%)
Proper Usage	39	51
Non-proper Usage	38	49
Total	77	100

4.2.3 Distribution of Respondents According to Reasons Wearing and Not Wearing Seat Belt

From the questionnaire, we manage to observe and analyze the perceptions of the respondents towards proper usage of seat belt. These perceptions represent the level of knowledge of the respondents. Table 4.5 show the distribution of respondents according to reasons why they are wearing the seatbelt when occupying a car. Most (73%) of the respondents wearing seat belts because of it is their routine.

Table 4.5: Distribution of Respondents According to Reasons Wearing Seat Belt (N = 100)

Reasons Wearing Seat Belt	Frequency (%)
Law	4 (4%)
Prevent injury to myself	3 (3%)
Prevent injury to the fetus	11 (11%)
Availability of the seat belts	9 (9%)
Routine	73 (73%)
Other	0 (0%)
Total	100 (100%)

Table 4.6 show the distribution of respondents according to reasons why they are not wearing the seatbelt when occupying a car.

Table 4.6: Distribution of Respondents According to Reasons Not Wearing Seat Belt (N = 100)

Reasons Not Wearing Seat Belt	Frequency (%)
Routine	18 (18%)
Not comfortable	9 (9%)
Not suitable	27 (27%)
Risk of injury to myself	13 (13%)
Risk of injury to fetus	13 (13%)
Forget	2 (2%)
Not available	2 (2%)
Do not know how to adjust	6 (6%)
No benefit	10 (10%)
Short distance	0 (0%)
Other	0 (0%)
Total	100 (100%)

Figure 4.1 below shows source of information about proper usage of seat belt among respondents. The information from doctor or nurses is the higher (44%) source while 39% of the respondents did not get any information on proper usage of seat belt during pregnancy.

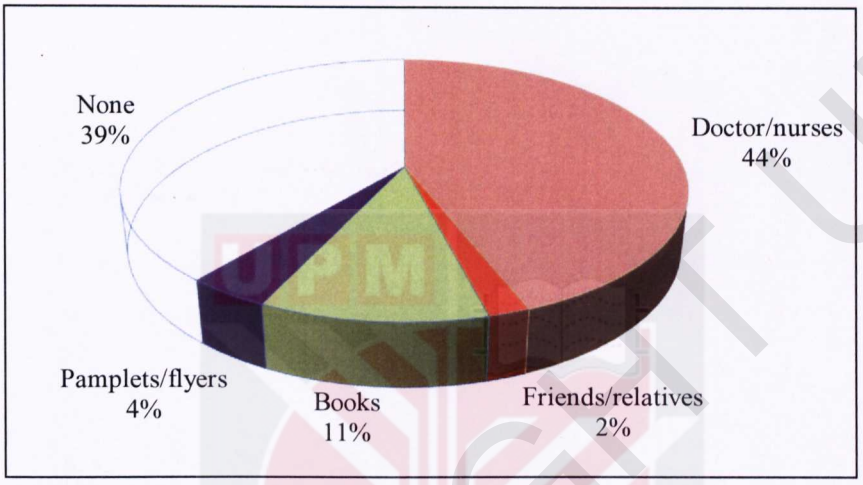


Figure 4.1: Source of information

4.3 Statistical Data

4.3.1 Proper usage of seat belt by the Respondents Social Demographic Background

The social demographic backgrounds of the respondents refer to the age, education level, gestation period, type of license, driving experiences and period of travelling by car. Respondents are divided into two categories; Pre-University and below, and Tertiary level according to their educational background. Gestation

period is the length of pregnancy taken by week. Type of license shows the type of license the respondents have either probationary driving license (P), competent driving license (D) or they do not have any license. Driving experiences were measured with how many years the respondents have drive. Period of travelling is measured by how many days they travel in a week.

Table 4.7 shows there is significant relationship between younger age and the proper usage of seat belt (χ^2=5.898, p=0.018). Thus age is the determinant of proper usage of seat belt among pregnant staffs in UPM.

Table 4.7: Proper Usage of Seat Belt by Age (N=100)

Age	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Young (<30)	31 (31%)	34 (34%)	5.898	*<0.018
Elder (≥30)	8 (8%)	27 (27%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

Table 4.8 show relationship between proper usage of seat belt and education level of the respondents.

Table 4.8: Proper Usage of Seat Belt by Education Level (N = 100)

Education Level	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Pre-university and below	3 (3%)	30 (30%)	18.520	*<0.000
Tertiary level	36 (38%)	31(54%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

Table 4.9 shows there is significant relationship between gestation period of pregnancy and proper usage of seat belt (χ^2=8.503, p=0.003). Most of the respondents who are pregnant at second trimester and below were using seat belt properly.

Table 4.9: Proper Usage of Seat Belt by Gestation Period (N = 100)

Gestation Period	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Second trimester and below (≤28 weeks)	27 (27%)	24 (24%)	8.503	*<0.003
Third trimester (>28 weeks)	12 (12%)	37 (37%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

Driving experiences are observed by how many years the respondents have been actively driving. Table 4.10 shows that there is significant relationship between proper usage of seat belt and driving experience among respondents.

Table 4.10: Proper Usage of Seat Belt by Driving Experience (N = 100)

Driving Experience	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Inexperience (≤5 years)	4 (4%)	18 (18%)	5.138	*<0.019
Experience (>5 years)	35 (35%)	43 (43%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at $p<0.05$

Table below shows the association between period of travelling and proper usage of seat belt. Period of travelling was measured by how many days in a week do respondents travel by car. Table 4.11 shows no significant relationship between period of travelling and the usage of seat belt.

Table 4.11: Proper Seat Belt Usage by Period of Travelling (N = 100)

Period of Travelling	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Short (2-4 days)	3 (3%)	11 (11%)	2.113	<0.122
Long (5-7 days)	36 (36%)	50 (50%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at $p<0.05$

4.3.2 Proper Usage of Seat Belt by Traffic Crash Involvement of Respondent

The result from Chi Square Tests below shows that there is no significant relationship between proper usage of seat belt with the involvement of the respondents in traffic crash before whether they were pregnant or not. This shows that previous traffic crash is not a determinant of proper usage of seat belt among pregnant staffs in UPM.

Table 4.12: Proper Usage of Seat Belt by Traffic Crash Involvement (N = 100)

Traffic Crash Involvement	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Never	35 (35%)	48 (48%)	2.061	0.121
Yes	4 (4%)	13 (13%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at $p<0.05$

4.3.3 Proper Usage of Seat Belt by Travelling Distance

The results show the relationship between usage of seat belt and distance of travelling. The question in have been repeated with rephrasing the structure but it still shows no significant relationship between them. Only 44% from a hundred of respondents wear seat belt even for short distance. Table 4.13 shows that there is significant relationship between not using proper seat belt and travelling distance.

Table 4.13: Proper Usage of Seat Belt by Travelling Distance

Travelling Distance	Proper Usage of Seat Bel		χ^2 value	P- value
	Yes	No		
Short (≤50km)	11 (11%)	50 (50%)	28.904	*<0.000
Long (>50km)	28 (28%)	11 (11%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

* Significant at p<0.05

4.3.4 Seat Belt Usage by Sitting Position

Table 4.14 show the relationship between seat belt usage and sitting position for the respondents whether they sit at the front or at the back. As shown in table 4.15, there was no significant relationship between proper seat belt usage and sitting position (χ^2=0.086, p=0.566).

Table 4.14: Proper Seat Belt Usage by Sitting Position (N = 100)

Sitting Position	Proper Seat Belt Usage		χ^2 value	P- value
	Yes	No		
Front seat	37 (37%)	57 (57%)	0.086	<0.566
Rear seat	2 (2%)	4 (4%)		
Total	39 (39%)	61 (61%)		

Fisher's Exact Test

*Significant at p<0.05

4.3.5 Proper Usage of Seat Belt by Seat Belt Information Obtained

Table 4.15 below show the relationship between proper usage of seat belt and information obtained by the respondents. There are significant relationships between proper usage of seat belt and information obtained by the respondents on proper usage of seat belt.

Table 4.15: Proper Usage of Seat Belt by Seat Belt Information Obtained (N = 100)

Seat Belt Information Obtained	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Yes	12 (12%)	60 (60%)	53.912	*<0.000
No	27 (27%)	1 (1%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

4.3.6 Proper Usage of Seat Belt by Comfortableness

To test the association of proper usage of seat belt and comfortableness, there are eight aspects of comfortableness were given to the respondents and they can choose any aspects that related to their violation of proper usage of seat belt. The eight aspects that were asked are the health problems that are usually complaint during pregnancy, which are if they have any health problem, back pain, thigh pain, uncomfortable, disturbance in movement, too tight, difficulty in breathing and other while wearing seat belts. From all of these aspects, there are only one did not show any significant relationship which is thigh pain. None of the respondents give any reason than stated (other). There are significant relationship between proper usage of seat belt and health problem, back pain, discomfort, tightness and difficulty in breathing among respondents. Table 4.16 shows the relationship between proper usage of seat belt and the comfortableness. There is significant relationship between proper usage of seat belt and comfortableness. Table 4.17 shows the relationship between usage of seat belt and health problem. There is significant relationship between proper usage of seat belt and health problem (χ^2=7.429, p=0.010).

Table 4.16: Proper Usage of Seat Belt by Comfortableness (N = 100)

Comfortableness	Proper usage of seat belt		χ^2 value	P- value
	Yes	No		
Yes	25 (25%)	13 (13%)	9.18.490	*<0.000
No	14 (14%)	48 (48%)		
Total	39 (39%)	61 (61%)		

Fisher's Exact Test

*Significant at p<0.05

Table 4.17: Proper Usage of Seat Belt by Health Problem (N = 100)

Health Problem	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
No	9 (9%)	3 (3%)	7.429	*<0.010
Yes	30 (30%)	58 (58%)		
Total	39 (39%)	61 (61%)		

Fisher's Exact Test

*Significant at p<0.05

Table 4.18 shows the relationship between proper usage of seat belt and back pain. There is significant relationship between proper usage of seat belt and back pain (p=0.000).

Table 4.18: Proper Usage of Seat Belt by Back Pain (N = 100)

Back Pain	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Yes	30 (30%)	61 (61%)	15.469	*<0.000
No	9 (9%)	0 (0%)		
Total	39 (39%)	61 (61%)		

Fisher's Exact Test

*Significant at p<0.05

Table 4.19: Proper Usage of Seat Belt by Thigh Pain (N = 100)

Thigh Pain	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Yes	18 (18%)	34 (34%)	0.875	<0.414
No	21 (21%)	27 (27%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

Table 4.20: Proper Usage of Seat Belt by Movement Disturbance (N = 100)

Movement Disturbance	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Yes	7 (7%)	30 (30%)	9.955	*<0.000
No	32 (32%)	31 (31%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

Table 4.21: Proper Usage of Seat Belt by Tightness (N = 100)

Tightness	Proper Usage of Seat Belt		χ^2 value	P- value
	Yes	No		
Yes	25 (25%)	59 (59%)	18.833	*<0.000
No	14 (14%)	2 (2%)		
Total	39 (39%)	61 (61%)		

Chi Square Test

*Significant at p<0.05

Table 4.22: Proper Seat Belt Usage by Difficulty in Breathing (N = 100)

Difficulty in Breathing	Proper Seat Belt Usage		χ^2 value	P- value
	Yes	No		
Yes	1 (1%)	5 (5%)	1.338	<0.400
No	38 (38%)	56 (56%)		
Total	39 (39%)	61 (61%)		

Fisher's Exact Test

*Significant at $p<0.05$

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

5.1.1 Introduction

This research was carried out to investigate the determinants or the factors that contribute to the usage of seat belt among pregnant staffs in UPM. During pregnancy, most future mothers are particularly concerned about avoiding anything that may damage and harm the future baby at all costs. However in relation to the car, many pregnant women are unaware of the safest behavior as drivers or passengers, particularly in terms of the seat belt and the real risks of not using the basic protection system, despite most of them being habitual users of private vehicles. This chapter reviews and discusses the prevalence and factors of seat belt use among pregnant staffs in UPM.

5.1.2 Socio-demographic Background of the Respondents

This study shows that all the respondents are Malay as the researcher did not find any other races that are pregnant at that moment. The respondents age are from 24 to 35 years old, which shows the peak reproductive years (ages 15-35) according to NCIPC 2007. Majority of the respondents are young. Pregnancy can be divided by three trimesters. For this research, gestation period are taken by weeks. Majority of the respondents are at the second trimester and below of pregnancy. Most of the respondents have tertiary level of education. None of the respondents do not have driving license and most of them are experienced drivers. Most of the respondents travel by car almost everyday and the majority of them travel in short distance. This could be because most of the respondents live nearby campus area. More women now work outside the home than did 30 years ago, and societal acceptance of travel during pregnancy has resulted in increased numbers of pregnant women in automobile and airline seats (Pearlman et al., 2000).

5.1.3 Prevalence of Proper Usage of Seat Belt among Respondents

Most of the respondents were observed using the seat belt but most of them wear seat belt wrongly. None of the respondents are observed using seat belt with seat belt adjuster. Taylor et al. (2005) reported that more than 88% private practice patience of Alabama, United States of America reported always wearing seat belt prior to the pregnancy and 83.3% patients reporting correct placement of both lap and shoulder belts. This is contrary with this study result may be due to lack of information on proper usage of seat belt towards pregnant women.

5.1.4 Distribution of Respondents According to Reasons Wearing and Not Wearing Seat Belt

The failure to properly use automobile restraints during pregnancy is a significant contributor to both maternal and fetal injury and death (Sandra, 2007). From this study, the researcher found out that most respondents wearing seat belt because of routine. There are also eleven percent of them use seat belt to prevent injury to fetus while only three percent from respondent who really use seat belt to protect themselves. From this result it can be seen that only three respondents out of a hundred really know the function of proper usage of seat belt during pregnancy.

The understandable fear that seat belts implement excessive pressure against the abdomen during collision that damages the fetus or even causes a subsequent miscarriage has no scientific evidence to support it. Although it is true that the seat

belt may increase the pressure on the amniotic sac at the time of impact, the fetus is actually remains at most risk when the mother suffers injuries or dies and the seat belt clearly helps to prevent this possibility (RACE Reports, 2003).

This study also shows that some respondents not using seat belts because of they think that it is not suitable for pregnant women. Misconceptions about the effects of restraints use on the developing fetus and a lack of specific instructions by health care providers contribute to fear and lack of knowledge experienced by pregnant women (Phillips, 1993; Tyroch, et al., 1999; Hyde et al., 2003). This most likely because the health care providers in Malaysia is still lack of concern in distributing and conveying the knowledge towards pregnant car occupants.

This research has came out with the prevalence of source of information obtained by the respondents. Most of the respondents got the information on proper usage of seat belt during pregnancy through doctors or nurses during prenatal visits. While the rest of them did not get any information at all.

5.1.5 Association between Proper Usage of Seat Belt and the Respondents Socio-demographic Background

To test the association between the proper usage of seat belt and socio-demographic of the respondents, six socio-demographic data were collected. These information included the age, education level, gestation period, type of driving license, driving experiences and period of weekly travelling.

The Chi Square test was used to test the association between proper usage of seat belt and socio-demographic data. The results show that there is no significant relationship between proper usage of seat belt and respondent's type of driving license and driving experiences.

Age

The result from this research showed that there is a significant association between proper usage of seat belt and age of the respondents. The findings indicate that the hypothesis is accepted. Glasbrenner (2005) summarized the 2004 National Occupant Protection Use Survey, which is conducted annually by National Highway Traffic Safety (NHTSA), and found out that, in general, seat belt use is improving. However, teens and young adults 16 to 24 years of age are the least likely to wear seatbelts. Inconsistently, this results show young respondents are more likely to wear seat belts properly and this is most likely because of younger people are more aware

on safety and strong enforcement of law in Malaysia. Sirin et al. (2006) stated that women who were 30 or older and had a greater than high school education were more likely to report always wearing seat belt in the last trimester and on average. This was inconsistent with this study as the older respondents are more likely violated the proper usage of seat belt.

Education Level

Education level of the respondents is divided into two category; pre-university and below, and tertiary level. The result from this research showed that there is significant association between proper use of seat belt and level education of the respondents. The findings indicate that the hypothesis is accepted. Laurie et al. (2004) found out that women with a high school or less than high school education were slightly less likely to wear seat belts than women with more than a high school education. Schiff (2005) showed that pregnant women involved in motor vehicle crashes are more likely to be younger and less educated. Seat belt use rate are higher among those car occupants with higher education level (Kulanthayan et al., 2003). This is consistent with the finding of this study which is respondents who get tertiary education are more likely to use seat belt properly. This more likely because lower educated person only know about the importance of using seat belt to ensure safety, meanwhile higher educated person know why it is important to wear seat belt to ensure safety. This group is more aware with the role of the seat belt to reduce the impact of inertia.

Gestation Period

Gestation period of pregnancy can be divided into three trimesters. For the respondents, there is significant association between proper usage of seat belt and gestation period. The findings indicate that the hypothesis is accepted. Pearlman and Phillips (1996) found that 68% of women between 28 and 32 weeks of gestational age wear seat belt correctly, a finding that inconsistent with our results which shows more respondents who wear seat belt properly are at second trimester and below. This situation is most likely happened because of respondent might alter the position of lap belt or shoulder belt as increasing of stomach size in order to get comfortable. A survey by the University of Halmstad in Sweden in 2002 aimed at 139 pregnant women showed that some admitted using the seat belt les often during the last stage of gestation. This is concurrent with this study where respondents who are at the third trimester were more likely to violate the proper use of seat belt.

Driving Experience

Driving experiences ware measured by how many years the respondents have been actively driving. Based on this study, there is significant association between proper usage of seat belt and driving experience. The findings indicate that the hypothesis is accepted. Gras et al. (2007) in their study stated that subjects, which are Spanish drivers, with less experience used seat belt more frequently than more experienced drivers. This is contradictory with this study as the result shows that

experienced drivers are more likely to use seat belt properly. This may be because as driving experience increases the perception of risk decreases and the drivers reduce their engagement in some kind of preventive behavior.

5.1.6 Association between Proper Usage of Seat Belt and Traffic Crash Involvement of Respondent

Based on this research, there is no significant relationship between proper usage of seat belt and the previous traffic involvement of the respondents. The findings indicate that the hypothesis is rejected. Previous study had shows that previous crash involvement is a factor that will affect the seat belt wearing among car users. Drivers who were more likely to be involved in injury crashes were least likely to wear their seat belts (Preusser et al., 1991). Schiff et al. (1992) stated that nearly half (49%) of the women who received prenatal care through the University of New Mexico Hospital had been in a motor vehicle crash in the past and 53% of these were not wearing seat belt, forty seven percent who had worn a seat belt were also more likely to wear seat belt during pregnancy. The reason why this study showed no significant relationship between proper usage of seat belt and previous traffic crash involvement is probably because most of the respondents who had experiences traffic crashes do not cause any serious injury. Most of the respondents had only encountered minor injury thus those crashes unable to show them the important of proper usage of seat belt.

5.1.7 Association between Proper Usage of Seat Belt and Travelling Distance

From the study, the researcher found out that there is significant relationship between proper usage of seat belt and the distance of travelling. The findings indicate that the hypothesis is accepted. Respondents a more likely to use seat belt properly when travel in long distance. The 2003 Motor Vehicle Occupant Safety Survey (MVOSS) report presents the survey findings of 56% of approximately 6000 sample give that they were only driving a short distance as the reason of non-using seat belt. Sylvia and Peter (1989) reported that short trip drives were one of the most common situations for seat belt violation which is consistent from our findings. This is most likely due to the perception of the respondents that there are no risks of traffic crash during short trip.

5.1.8 Association between Proper Usage of Seat Belt and Seat Belt Information Obtained

This study shows that there is significant relationship between proper usage of seat belt and seat belt information obtained by the respondents. The findings indicate that the hypothesis is accepted. McGwin (2004) reported that many pregnant women are uncertainty about the safety and use of seat belt during pregnancy and lack of information regarding proper usage of seat belt and its role in protecting the fetus that preventing them to use seat belt properly. Pearlman and Phillips (1996) stated that 26 out of 34 women who received information during pregnancy stated that they use seat belt, compared with only 4 of 24 who did not received information

during pregnancy. This is contrary to this study as the result showed that most of the respondents wearing seat belt properly when they were not obtaining information on proper seat belt usage during pregnancy. This is more likely due to they have not received the proper information on wearing seat belt properly during pregnancy. The tools to deliver the information can be improvised by showing the pictures and the flow chart on using seat belt properly during pregnancy.

5.1.9 Association between Proper Usage of Seat Belt and Comfortableness

If the car occupants feel uncomfortable wearing seat belt than they are more likely violate the proper usage of seat belt. The most common reason given for not wearing seatbelt is discomfort, was similar to previous researches (Hammond et al., 1990, Pearlman, 1996). Similarly to the result, respondent were more likely to use proper seat belt when they feel comfortable. This may be due to the respondents have nothing uncomfortable that prevent them to violate the proper usage of seat belt thus they remain using the seat belt during pregnancy.

Most of the respondents who reported have health problems were using seat belt properly. This may be due to the reason that they do not want to risk on another problems that will give more burden to them. From the result, respondent are more likely to use seat belt properly when having back pain. This may be because of by using seat belt properly there will be not much of movement. Back pain will increase as movement is increased. So the reason most of the respondent wear seat belt

properly while having back pain is probably to reduce movement while occupying a car.

According to Hammond et al. (1990), car occupants are more likely to violate the proper usage of seat belt if they feel discomfort. This is consistent with this finding as respondents are more likely to violate seat belt usage when they have thigh pain. This may be due to the uncomfortable feeling of the placement of the lap belt as the pregnant women are always get blisters on their thighs as the increasing size of their thighs thus lead to more skin chafed. From the result we can see that movement disturbance is a reason for most of the respondents did not use seat belt properly. This may be because of the increasing size of their abdominal restrict them to move freely as before and by using seat belt is just adding the difficulties to them.

As from the result, it can be seen that most of the respondents use seat belt properly as they reported the seat belt is too tight to them. This is may be because of most of the respondents using seat belt as their routine so the violation of it will then induce to uncomfortable feeling. The tightness may stimulate them feel more secure while occupying a car.

5.2 Conclusion

This study investigates the proper usage of seat belt among pregnant staffs in UPM and the determinants of using it. Proper usage of seat belt among pregnant staffs in UPM is only 39% and still low. There are several factors that associate with proper usage of seat belt which are tested in this research. These factors are

respondents' socio-demographic background, previous crash involvement, travelling distance, seat belt information obtained and level of comfortableness using seat belt.

5.3 Recommendation

Based on the findings of this study, it is recommended that the information and education of proper usage of seat belt among pregnant women must be given at all women at all age. The most important thing is to raise awareness among expectant mothers. This can be achieved by giving education to pregnant women as early as possible in pregnancy by well informed health professionals. This can be incorporated into antenatal classes and information leaflets and posters can be increased in antenatal clinics. This is to prevent any misunderstanding of the proper usage of seat belt and eliminate all the doubts in all pregnant women in Malaysia. Nationwide awareness programs for the health professionals and publications targeting pregnant women are also recommended.

The importance of wearing seat belt in every trip regardless the driving distance should be educated to the pregnant women. More enforcement activities regarding seat belt use should be conducted.

Lastly, it is recommended that the company of seat belt provider should focus on developing more comfort seat belt and more strict criteria for manufacturing of

the cars should be in practice. Usage of seat belt adjuster may be recommended to pregnant women in order to make they feel more comfort using seat belt properly.

REFERENCES

Allison et al. (2005). Seatbelt Use During Pregnancy: A Comparisonof Women in Two Prenatal Care Settings. *Maternal and Child Health Journal,* Vol. 9, No. 2.

American Academy of Pediatrics Committee on Fetus and Newborn (2002), The American College of Obstetricians and Gynecologists (ACOG) Committee on Obstetric Practice. Guidelines for Perinatal Care. 5th edn. Washington, DC: ACOG.
April Reign (2008). *Saving lives...creating criminals?* Accessed on 16 January 2011, from www.breadnroses.ca/birthpangs

Astarita DC, Feldman B (1997). Seat belt placement resulting in uterine rupture. *J Trauma* ;42(4):738–40.

Connolly AM, et al (1997). Trauma and Pregnancy. *Am J Perinatol;* 14(6):331-6.
Cooper, P.J. (1994). Estimating over involvement of seat belt non-wearers increases and the effect of lap/shoulder restraint use in different crash severity consequences. *Accident Analysis and Prevention;* 22(6), 475-482.

Cristian MS (1975). Non-fatal injuries sustained by back seat passengers. *BMJ*; 1: 320-322.

Crosby, W., and Costiloe, J. (1971). Safety of lap-belt restraint for pregnant victims of automobile collisions. *New England Journal of Medicine, 284,* 632–636.
Crosby, W., King, A., and Stout, L. (1972). Fetal survival following impact: Improvement with shoulder harness restraint. *American Journal of Obstetrics and Gynecology, 112,* 1101–1106

Department of Transport UK (1991). The new law on seat belt wearing for adults. Belt up in the back. (leaflet).

Dorothy J.Begg and John D. Langley (2000). Seat belt and behaviours among young adults. *Journal of Safety Research.* 31(4), 211-220.

Duma et. al (2003). Computational model of the pregnant occupant: Predicting the risk of injury in automobile crashes. *Am J Obstet Gynecol;* 540-544.

Fethi Calisir, Mark R. Letho (2002). Young drivers' decision making and safety belt use. *Accident Analysis and Prevention.* 34, 793-805.

Glassbrenner, D. (2005). *Safety belt use in 2004—Demographic results.* National Highway Traffi c Safety Administration Research Note, DOT HS 809 848. Washington, DC: U.S. Department Of Transportation.

Goodwin TM, Breen MT (1990). Pregnancy outcome and fetomaternal hemorrhage after non-catastrophic trauma. *Am J Obstet Gynecol*;162:665-71.

Hammond TL, Mickens-Powers BF, Strickland K, Hankins GD (1990). The use of automobile safety restraint system during pregnancy. *J Obtet Gynecol Neonatal Nurs;* 19:339-343.

Gras et al. (2007). Predictors of seat belt usage amongst Spanish drivers. *Transportation Research Part F.* 10: 263-269.

Hitosugi, M, Kido, M, Maegawa, M, Nagai, T and Tokudome, S (2007). *The benefits of seatbelt use in pregnant women drivers.* Forensic Science International, 169: 247–275.

Hyde, L., Cook, L., Olson, L., Weiss, H., and Dean, J. (2003). Effect of motor vehicle crashes on adverse fetal outcomes. *Obstetrics and Gynecology, 102,* 279–286.

Jain et. al (2005). Awareness of correct use of a seatbelt among pregnant women and health professionals: A multicentric survey. *Journal of Obstetrics and Gynaecology*; 25(6): 550 – 553.

Jamjute, P., Eedarapalli, P. And Jain, S. (2005). Awareness of correct use of a seat belt among pregnant women and health professionals: A multi centric survey. *Journal of Obstrecian and Gynaecology.* 25(6): 550-553.

Johnson, H., and Pring, D. (2000). Car seatbelts in pregnancy: The practice and knowledge of pregnant women remain causes for concern. *British Journal of Obstetrics and Gynaecology, 107,* 644–647.

Jonah, B.A. (1997). Sensation seeking and risky driving: A review and synthesis of the literature. *Accident, Analysis and Prevention.* 29,651-665.

Karbakhsh et al. (2010). Seat belt use during pregnancy in Iran: attitudes and practices. *Chinese Journal of Traumatology;* 13(5):275-278.

Klinich KD, Flannagan CA, Rupp JD, et al.(2008). Fetal outcome in motor-vehicle crashes: effects of crash characteristics and maternal restraint. *Am J Obstet Gynecol*;198(4):450.

Klinich, K., Schneider, L., Moore, J., and Pearlman, M. (2000). Investigations of crashes involving pregnant occupants. *Annual Proceedings of the Association for the Advancement of Automotive Medicine, 44,* 37–55.

Koushki et al. (1998). Seat belt Use Trend in Kuwait. *Department of Civil Engineering, Kuwait University, Research Report CE-499.* Kuwait.

Kulanthayan S., Raha A.R., Law T.H., Umar R.S. (2003). *Seat Belt Use Among Car Users in Malaysia.*

McGwin, G., Willey, P., Ware, A., Kohler, C., Kirby, T., & Rue, L. (2004). A focused educational intervention can promote the proper application of seatbelts during pregnancy. *Journal of Trauma: Injury, Infection, and Critical Care, 56,* 1016–1021.

MIROS Review Report (2010). *Review on Safety of Pregnant Occupant Travelling With or Without Restraint in a Passenger Vehicle.*

Nakahara et.al (2007). Magazine information on safety belt use for pregnant women and young children. *Accident Analysis and Prevention 39;* 356–363

National Highway Traffic Safety Administration (NHTSA) (1992). Sudden Impact. *US Department of Transportation. NHTSA.*

National Safety Council (1999). *International Accident Facts.* Chicago,IL.
NICE. 2003. Antenatal care: NICE guideline.

Pearlman, M. (1997). Motor vehicle crashes, pregnancy loss, and preterm labor. *International Journal of Gynaecology and Obstetrics, 57,* 127–132.

Pearlman, M., and Phillips, M. (1996). Safety belt use during pregnancy. *Obstetrics and Gynecology, 88,* 1026–1029.

Pearlman, M., and Viano, D. (1996). Automobile crash simulation with the fi rst pregnant crash test dummy. *American Journal of Obstetrics and Gynecology, 175*(Pt 1), 977–981.

Pearlman, M., Klinich, K., Schneider, L., Rupp, J., Moss, S., and Ashton-Miller, J. (2000). A comprehensive program to improve safety for pregnant women and fetuses in motor vehicle crashes: a preliminary report. *American Journal of Obstetrics and Gynecology, 182,* 1554-1564.

Preusser, D.F., Wlliams, A.F., and Lund, A.K. (1991). Characteristic of belted and unbelted drivers. *Accident, Analysis and Prevention.* 23, 475-482.

RACE report (2003). *Pregnancy and seatbelts.* RACE Road Safety Department, Spain.

Royal Malaysian Polis (PDRM) (2010). Statistical Chart.

Sandra K. Cesario, (2007). History, Misconception and the Need of Education. *Nursing for Women's Health.*

Schiff MA, Holt VL (2005). Pregnancy outcomes following hospitalization for mototr vehicle crashes in Washington State from 1989 to 2001. *Am J Epidemiol*; 16: 503–10.

Schiff M, Kasnic T, Reiff K, Pathak D (1992). Seat belt use during pregnancy. *West J Med;* Jun; 156: 655 – 657.

Schoenfeld A, *et al.* (1987). Seat belts in pregnancy and the obstetrician. *Obstet Gynecol Survey* ;42(5):275–82.

Sirin, H., Weiss, H, Saube-Schatz, E., and Dunning, K. (2007). Seat belt use, counselling and motor vehicle injury during pregnancy: Results from a multi-state population-based survey. *Matern Child Health J.* 11: 505-510

Sylvia, K.F. Fockler and Peter J. Cooper (1989). Situational characteristic of safety belt use. *Accident, Analysis and Prevention.* 22, 109-118.

Taylor et al. (2005). Seat belt use during pregnancy: A comparison of women in two perinatal care setting. *Maternal and Child Health Journal.* Volume 9, No. 2.

Thackray, L., and Blackketter, D. (2002). Three-point seatbelt maternal comfort and fetal safety. Proceedings of the Institution of Mechanical Engineers. *Journal of Automobile Engineering, 216,* 173–180.

Tyroch, A., Kaups, K., Rohan, J., Song, S., and Beingesser, K. (1999). Pregnant women and car restraints: Beliefs and practices. *Journal of Trauma: Injury, Infection, and Critical Care, 46,* 241–245.

Weiss, H. (2001). The epidemiology of traumatic injury-related fetal mortality in Pennsylvania, 1995-1997: The role of motor vehicle crashes. *Accident Analysis and Prevention, 33,* 449–454.

Williams JK, McClain L, Rosemurgy AS, Colorado NM. (1990). Evaluation of blunt abdominal trauma in the third trimester of pregnancy: *Maternal and fetal considerations, Obstet Gynecol*;75:33-7.

Wolf, M., Alexander, B., Rivara, F., Hickok, D., Maier, R., and Starzyk, P. (1993). A retrospective cohort study of seatbelt use and pregnancy outcome after a motor vehicle crash. *Journal of Trauma: Injury, Infection, and Critical Care, 34,* 116–119.

APPENDIX 1

INFORMATION SHEET

PENERANGAN KEPADA PESERTA

TAJUK KAJIAN : PEMAKAIAN TALI PINGGANG KELEDAR DI KALANGAN STAFF UPM YANG HAMIL

Terima kasih kerana membantu kami di dalam kajian ini.

Apakah kajian ini?

Kemalangan kenderaan boleh menyebabkan kecederaan kepada pemandu dan penumpang kenderaan disebabkan oleh situasi yang tidak dijangka. Dalam kemalangan kenderaan, pemandu yang tidak memakai tali pinggang keledar boleh tertolak ke bahagian hadapan kenderaan akibat impuls dan mengetuk kuat permukaan stereng, tingkap ataupun bahagian hadapan yang lain dan juga mempunyai risiko untuk tertolak keluar lalu menyebabkan kecederaan yang serius. Pemakaian tali pinggang keledar dengan efisyen dapat menghalang pemandu daripada impuls yang tinggi dengan menetapkan kedudukan lalu mengurangkan kecederaan ketika kemalangan. Kajian ini dijalankan untuk mengenalpasti sikap dan juga pengetahuan serta aplikasi penggunaan tali pinggang keledar di kalangan pengguna kereta yang hamil di Malaysia. Maklumat dan keputusan yang diperolehi daripada kajian ini diharap dapat membantu agensi kerajaan mahupun bukan kerajaan untuk melaksanakan program atau menggubal polisi untuk mengatasi masalah ini.

Apakah tujuan kajian ini?

Kajian ini dijalankan bertujuan untuk menentukan sejauh mana pengetahuan dan sikap serta aplikasi penggunaan tali pinggang keledar di kalangan staff UPM yang menggunakan kereta.

Berapa ramai responden yang terpilih?

Responden akan dipilih dari kalangan staff UPM yang menggunakan kereta. Seramai 100 orang pemandu akan dipilih untuk kajian ini.

Apakah jenis ujian yang dijalankan?

Semua responden akan diberikan borang soal-selidik oleh pengkaji.

Adakah bayaran dikenakan?

Tiada sebarang bayaran dikenakan ke atas setiap responden. Pengkaji akan menanggung segala pembiayaan ujian yang dijalankan.

Adakah maklumat responden dijamin sulit?

Semua maklumat yang diberikan oleh responden dijamin sulit. Tiada sebarang huraian individu akan dibuat pada mana-mana bahagian di dalam kajian atau penerbitan.

Apakah hak anda sebagai responden?

Kajian ini adalah kajian secara sukarela. Setiap peserta mempunyai hak untuk menarik diri dari menyertai kajian ini pada bila-bila masa sekiranya peserta berasa tidak selesa untuk memberi maklumat kepada pengkaji.

Apakah yang anda akan dapat?

Kajian ini menjelaskan sejauh mana pengetahuan, sikap serta amalan penggunaan tali pinggang keledar di kalangan pemandu kereta. Penyertaan anda dapat menyumbang ke arah peningkatan penggunaan tali pinggang keledar dengan

penggubalan dan perlaksanaan polisi untuk meningkatkan kadar penggunaan tali pinggang keledar yang betul di kalangan pemandu hamil.

Apakah yang harus anda lakukan?

Anda dikehendaki untuk menandatangani borang penyertaan responden yang menyatakan keinginan anda untuk menyertai kajian ini. Ianya boleh dilakukan setelah anda membaca dan memahami isi kandungan borang penerangan ini. Borang penyertaan responden haruslah dikembalikan kepada pengkaji sebelum temubual dijalankan. Sekiranya anda mempunyai sebarang kemusykilan, pengkaji akan membantu anda untuk memberi maklumat yang selanjutnya.

Terima kasih di atas kerjasama dan bantuan anda.

SITI SYAHIZA NOORINNISAQ BT. A. RAZAK

Penyelidik

Unit Kesihatan Persekitaran dan Pekerjaan,

Jabatan Kesihatan Komuniti

Fakulti Perubatan dan Sains Kesihatan,

Universiti Putra Malaysia

No.Tel : 012-5580566

Email: syalala_syahiza@yahoo.com

APPENDIX 2

CONSENT FORM

FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCES
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

BORANG PENYERTAAN PESERTA

1. Saya, ... No. K/P ..... bersetuju untuk menyertai kajian bertajuk "Pemakaian Tali Pinggang Keledar di Kalangan Staff UPM yang Hamil".
2. Saya telah membaca dan memahami isi kandungan kajian berdasarkan apa yang telah dinyatakan di dalam "**PENERANGAN KEPADA PESERTA**" yang telah dilampirkan bersama surat kebenaran ini dan penerangan tambahan daripada penyelidik.
3. Saya faham bahawa kajian ini dijalankan untuk menentukan pengetahuan dan penggunaan tali pinggang keledar di kalangan staff UPM yang hamil di Selangor.
4. Saya faham segala maklumat yang diberikan dan segala keputusan yang saya perolehi adalah sulit dan hanya akan digunakan untuk tujuan penyelidikan dan rujukan penyelidik sahaja.
5. Saya juga faham bahawa maklumat bahawa maklumat ini boleh digunakan untuk penerbitan tetapi setiap individu tidak akan dinyatakan identitinya.
6. Saya faham bahawa saya mempunyai hak untuk menarik diri dan juga hak untuk menarik semula keizinan pada bila-bila masa sekiranya perlu apabila merasa tidak selesa pada mana-mana ujian atau aktiviti yang dijalankan oleh penyelidik semasa kajian dijalankan dan tiada sebarang tindakan boleh dikenakan ke atas saya di atas penarikan diri tersebut.

.....

(Tandatangan Peserta)

Nama : .....

No K/P : .....

Tarikh : .....

APPENDIX 3

QUESTIONNAIRE

SULIT ID RESPONDEN: _____ DATE:_____

FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCES
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG
SELANGOR, MALAYSIA

BORANG SOAL SELIDIK

PEMAKAIAN TALI PINGGANG KELEDAR DI KALANGAN STAFF UPM YANG HAMIL

Sukacita dimaklumkan bahawa soal selidik ini merupakan sebahagian daripada langkah ke arah mengurangkan kadar kecederaan dan kemalangan jalan raya. Oleh itu, pihak saya amat berbesar hati sekiranya tuan/puan dapat memberi kerjasama dengan seikhlas hati menjawab soalan-soalan berikut. Segala kerjasama yang diberikan oleh anda adalah amat bermakna dan saya dahulukan dengan ucapan terima kasih.

BAHAGIAN A : PEMERHATIAN PENYELIDIK

Dilengkapkan oleh penyelidik.

PEMERHATIAN	YA	TIDAK
Responden menggunakan tali pinggang keledar.		
Responden menggunakan tali pinggang keledar dengan betul.		
Responden menggunakan tali pinggang keledar tanpa alat bantuan.		

BAHAGIAN B : DATA SOSIO-DEMOGRAFI RESPONDEN

Arahan : Sila tandakan [/] pada jawapan yang bersesuaian atau isikan jawapan pada ruang kosong yang disediakan.

Bahagian I : Data Sosiodemografi Responden

1. BangsaMelayu _____ Cina _____
   India _____ Lain-lain (nyatakan) _____
2. Umur _____

3. Tahap pendidikan tertinggi yang dicapai
   Tidak pernah bersekolah _____
   Sekolah Rendah (UPSR) _____
   Sekolah Menengah (SRP/PMR/SPM/STPM) _____
   Sijil/Diploma _____
   Institusi Pengajian Tinggi _____

4. Berapa umur kandungan anda?
   _____ bulan _____minggu

Bahagian II : Pengalaman Memandu

1. Adakah anda memandu untuk ke tempat kerja?

   Ya ___

   Tidak ___

2. Sudah berapa lamakah anda memandu?

   _____ tahun

3. Jenis lesen memandu yang dimiliki

   Tiada Lesen ___

   Lesen Percubaan (P) ___

   Lesen Penuh (D) ___

4. Berapa hari anda menggunakan kereta dalam seminggu?

   ____ hari

5. Purata jarak menggunakan kereta dalam sehari?

   ____ km

6. Berapa kerap anda menaiki kereta sebagai penumpang?

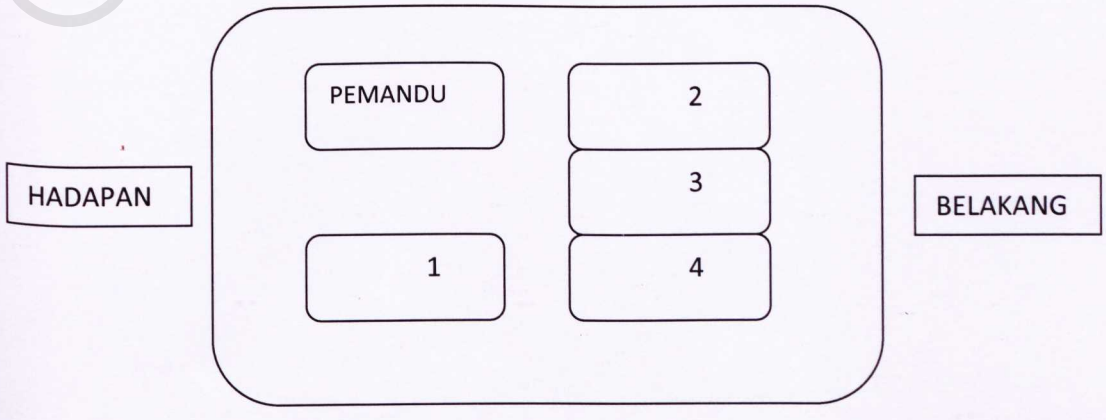
   Tidak pernah ___

   Beberapa hari dalam sebulan ___

   Beberapa hari dalam seminggu ___

   Setiap hari atau hampir setiap hari ___

7. Tandakan [X] pada lokasi anda jika anda menaiki kereta sebagai penumpang semasa hamil.



BAHAGIAN C : DATA KESIHATAN RESPONDEN

1. Pernahkan anda terlibat di dalam kemalangan jalan raya?

   Ya ☐
   Tidak ☐
   Jika Ya, berapa kali? ☐

2. Pernahkah anda terlibat di dalam kemalangan jalan raya semasa hamil?

   Ya ☐
   Tidak ☐
   Jika Ya, berapa kali? ☐

3. Jenis kecederaan yang dialami dalam kemalangan terakhir?

   Tidak cedera ☐
   Cedera ringan ☐
   Dirawat sebagai pesakit luar ☐
   Cedera parah (masuk wad) ☐

4. Adakah anda menghadapi masalah kesihatan ketika menggunakan tali pinggang keledar?

   Ya ☐ Tidak ☐

   Jika Ya, nyatakan masalah tersebut;

   Sakit belakang ☐
   Sakit pinggang ☐
   Sakit di bahagian peha ☐
   Mengganggu keselesaan ☐
   Mengganggu pergerakan ☐
   Tali pinggang keledar terlalu ketat ☐
   Sukar bernafas ☐
   Lain-lain (*nyatakan*) :

   _____

5. Adakah anda pernah mendapatkan nasihat daripada doktor tentang penggunaan tali pinggang keledar ketika hamil?

   Ya ☐ Tidak ☐

6. Jika 'Ya', nyatakan sebab.

   _____

BAHAGIAN D : DATA PENGETAHUAN, KESELESAAN DAN PENGGUNAAN TALI PINGGANG KELEDAR DENGAN BETUL

Arahan : Sila tandakan (/) pada jawapan yang bersesuaian atau isikan jawapan pada ruang kosong yang disediakan.

7. Seberapa kerap anda gunakan tali pinggang keledar SEBELUM kehamilan ini?
   - Sentiasa (100% dari masa) ☐
   - Biasanya (lebih dari 75% dari masa) ☐
   - Kadang-kadang (50-74% dari masa) ☐
   - Jarang (25-49% dari masa) ☐
   - Tidak pernah (kurang dari 25% dari masa) ☐

8. Apa alasan anda untuk SELALU TIDAK menggunakan tali pinggang keledar anda?
   - Saya tidak pernah menggunakan tali pinggang keledar. ☐
   - Pemakaian tali pinggang keledar tidak menyelesakan. ☐
   - Tali pinggang keledar tidak sesuai. ☐
   - Tali pinggang keledar tersebut boleh menyebabkan kecederaan pada diri sendiri. ☐
   - Tali pinggang keledar tersebut boleh menyebabkan kecederaan pada bayi. ☐
   - Saya selalu terlupa memakainya. ☐
   - Tidak ada tali pinggang keledar di dalam kenderaan. ☐
   - Saya tidak tahu bagaimana menyesuaikan pemakaian tali pinggang keledar. ☐
   - Tali pinggang keledar tidak berguna. ☐
   - Saya tidak menggunakan mereka untuk perjalanan yang singkat. ☐
   - Lain-lain _____

9. Apakah alasan anda menggunakan tali pinggang keledar?
   - Hal ini diperlukan oleh undang-undang. ☐
   - Untuk mengelakkan kecederaan pada diri sendiri. ☐
   - Untuk mengelakkan kecederaan pada bayi. ☐
   - Kenderaan saya menyediakan tali pinggang keledar . ☐
   - Ini kebiasaan. ☐
   - Lain-lain _____

10. Adakah penggunaan tali pinggang keledar anda berubah mengikut tempat duduk kenderaan anda?

- Tidak (Sila ke soalan 11) ☐
- Ya (Sila jawab soalan 10) ☐

11. Bilakah anda KURANG menggunakan tali pinggang keledar? Nyatakan alasan anda.

- Di kerusi pemandu ☐ Alasan : _____
- Di kerusi penumpang depan ☐ Alasan : _____
- Di kerusi penumpang belakang tepi ☐ Alasan : _____
- Di kerusi penumpang belakang tengah ☐ Alasan : _____

12. Apakah jarak perjalanan kereta merubah penggunaan tali pinggang keledar anda?

- Tidak (Sila ke soalan 12) ☐
- Ya, saya menggunakan tali pinggang keledar pada perjalanan dekat lebih daripada perjalanan jauh. ☐
- Ya, saya menggunakan tali pinggang keledar pada perjalanan jauh lebih daripada perjalanan dekat. ☐

13. Pada ketika ini, di manakah anda menempatkan tali pinggang keledar bahagian bawah (lap belt)?

- Di atas rahim ☐

- Di atas perut ☐

- Di bawah perut di atas peha ☐

- Saya tidak menggunakan tali pinggang keledar ☐

- Lain-lain (*nyatakan*)
  _____

14. Mengapa anda meletakkan tali pinggang keledar bahagian bawah dengan cara seperti di atas?

- Selesa. ☐
- Ini adalah satu-satunya cara sesuai. ☐
- Saya tidak mahu mencederakan diri sendiri. ☐
- Saya tidak mahu menyakiti bayi. ☐
- Saya telah diberitahu untuk memakainya dengan cara itu. ☐
- Lain-lain (*nyatakan*) _____

15. Pada ketika ini, di manakah anda meletakkan tali pinggang keledar bahagian atas (shoulder belt)?

- Di bawah lengan. ☐

- Saya meletakkannya melintasi payudara, di atas perut saya. ☐

- Saya meletakkannya melintasi payudara, melintasi perut saya. ☐

- Saya meletakkannya di belakang saya. ☐

- Saya tidak menggunakan tali pinggang keledar. ☐

- Lain-lain (*nyatakan*)
  _____

16. Mengapa anda meletakkan tali bahu dengan cara seperti di atas?

- Selesa. ☐
- Ini adalah satu-satunya cara sesuai. ☐
- Saya tidak mahu mencederakan diri sendiri. ☐

• Saya tidak mahu mencederakan bayi saya.

• Saya telah diberitahu untuk memakainya dengan cara itu.

Lain-lain (*nyatakan*) _____

17. Sepanjang kehamilan ini, adakah frekuensi penggunaan tali pinggang keledar anda berubah?

• Tidak (*Sila ke soalan 20*) ☐

• Ya (*Sila jawab soalan 18 dan 19*) ☐

18. Sepanjang kehamilan ini, adakah anda MEMPERTINGKATKAN frekuensi penggunaan tali pinggang keledar anda?

• Tidak (*Sila ke soalan 20*) ☐

• Ya (*Alasan*)_____

19. Sepanjang kehamilan ini, adakah frekuensi penggunaan tali pinggang keledar anda MENURUN?

• ☐ Tidak

• Ya (*Alasan*)_____

20. Adakah anda pernah hamil sebelum ini?

• Tidak (*Sila ke soalan 22*) ☐

• Ya (*Sila jawab soalan 21*) ☐

21. Seberapa kerap anda menggunakan tali pinggang keledar sepanjang kehamilan sebelum ini?

• Sentiasa (100% dari masa) ☐

• Biasanya (lebih dari 75% dari masa) ☐

• Kadang-kadang (50-74% dari masa) ☐

• Jarang (25-49% dari masa) ☐

• Tidak pernah (kurang dari 25% dari masa)

22. Pada pendapat anda, apakah kesan penggunaan tali pinggang keledar terhadap anda jika anda terlibat dalam kemalangan sekiranya anda TIDAK HAMIL?
    - Ini akan mempunyai kesan positif atau menyelamatkan hidup saya. ☐
    - Ini akan mempunyai kesan negatif atau menyebabkan saya cedera. ☐
    - Saya tidak tahu. ☐

23. Pada pendapat anda, apakah kesan penggunaan tali pinggang keledar terhadap anda jika anda terlibat dalam kemalangan sekiranya anda HAMIL?
    - Ini akan mempunyai kesan positif atau menyelamatkan hidup saya. ☐
    - Ini akan mempunyai kesan negatif atau menyebabkan saya cedera. ☐
    - Saya tidak tahu. ☐

24. Pada pendapat anda, apakah kesan penggunaan tali pinggang keledar terhadap BAYI anda jika anda terlibat dalam kemalangan?
    - Ini akan mempunyai kesan positif atau menyelamatkan hidup bayi saya. ☐
    - Ini akan mempunyai kesan negatif atau menyebabkan bayi saya terluka. ☐
    - Saya tidak tahu. ☐

25. Adakah anda pernah menerima maklumat mengenai penggunaan tali pinggang keledar yang betul semasa hamil?
    - Tidak (*Sila ke soalan 28*) ☐
    - Ya (*Sila jawab soalan 26* ☐

26. Dari mana anda mendapatkan maklumat mengenai penggunaan tali pinggang keledar selama kehamilan?

- Doktor atau jururawat. ☐
- Rakan-rakan atau saudara. ☐
- Buku tentang kehamilan. ☐
- Risalah yang diberikan oleh doktor atau jururawat. ☐
- Radio atau televisyen. ☐
- Lain-lain _____

27. Berdasarkan maklumat di atas, adakah anda mengubah cara anda memakai tali pinggang keledar?

- Saya selalu mengenakan tali pinggang keledar saya sepanjang masa ☐
- Ya, sekarang saya memakainya sepanjang masa ☐
- Ya, sekarang saya memakainya beberapa kali ☐
- Tidak, saya masih tidak memakai tali pinggang keledar ☐

28. Adakah suami anda mengenakan tali pinggang keledar?

- Sentiasa (100% dari masa) ☐
- Biasanya (lebih dari 75% dari masa) ☐
- Kadang-kadang (50-74% dari masa) ☐
- Jarang (25-49% dari masa) ☐
- Tidak pernah (kurang dari 25% dari masa) ☐
- Saya tidak tahu. ☐
- Soalan ini tiada kaitan untuk saya. ☐

29. Alasan anda mula mengenakan tali pinggang keledar adalah kerana?

- Saya tidak memakainya sebelum ini ☐
- Saya telah menyedari pentingnya mengenakan tali pinggang keledar selama kehamilan ☐
- Saya telah belajar cara memakai tali pinggang keledar dengan betul ☐
- Sebelum ini saya beranggapan bahawa pemakaian tali pinggang keledar akan mencederakan bayi ☐
- Saya memutuskan keselamatan yang lebih penting daripada keselesaan ☐
- Lain-lain (*Nyatakan*) _____

Manakah daripada yang berikut ini sangat membantu dalam mendapatkan anda untuk menggunakan tali pinggang keledar anda?

- Maklumat daripada doktor / jururawat ☐
- Risalah / Majalah ☐
- Poster ☐
- Rantai kunci ☐
- Tidak ada di atas ☐

TERIMA KASIH

APPENDIX 4

ETHIC APPROVAL LETTER

UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCES

QUALITY SYSTEM SIRIM
STANDARDS MALAYSIA MS ISO / IEC GUIDE 62:1999 QS 02121999 CB 01
MS ISO 9001 : 2000 REG. NO. AR 4256

Rujukan: UPM/FPSK/600-3/1/6
Tarikh: 15 Mac 2011

Pengerusi,
Jawatankuasa Etika Penyelidikan Perubatan,
Universiti Putra Malaysia,
43400 Serdang,
Selangor Darul Ehsan

Professor,

MEMAKLUMKAN PENGUBAHSUAIAN TAJUK CADANGAN PROJEK PENYELIDIKAN TAHUN AKHIR BAGI KURSUS EOH3999 (PROJEK ILMIAH TAHUN AKHIR)

Dengan segala hormatnya perkara di atas adalah dirujuk.

Adalah dimaklumkan bahawa pelajar berikut, Siti Syahiza Noorinnisaq Bt. A. Razak (No. Matrik: 141614 / No. Kad Pengenalan: 881027-26-5336) merupakan pelajar Tahun Akhir Program Bacelor Sains (Kesihatan Persekitaran dan Pekerjaan), telah mengubahsuai tajuk projek penyelidikan tahun akhirnya.

Pelajar tersebut hanya menukar beberapa perkataan dari tajuk asalnya. Kerangka kenseptual kajian, objektif, hipotesis kajian dan metodologi kajian tersebut tidak melibatkan perubahan. Pengubahsuaian cadangan projek penyelidikan adalah seperti berikut:

Tajuk kajian lama:
Prevalence of Proper Use Of Seat Belt and Its Determinants Among Pregnant Drivers in Selangor

Tajuk kajian baru:
Prevalence of Proper Use of Seat Belt and Its Determinants Among Pregnant Car Occupants among Universiti Putra Malaysia Staff

Untuk sebarang pertanyaan, pihak tuan boleh menghubungi penyelia projek penyelidikan pelajar tersebut iaitu **Dr. Kulanthayan K. C. Mani** di Jabatan Kesihatan Komuniti, Fakulti Perubatan dan Sains Kesihatan di talian 03-89472398 / 013-3822000 atau melalui email kulan@medic.upm.edu.my.

Segala kerjasama yang diberikan adalah amat dihargai dan diucapkan terima kasih.

Sekian.

"BERILMU BERBAKTI"

Yang benar,

DR. KULANTHAYAN K.C. MANI
Penyelia Projek Penyelidikan Pelajar