



UNIVERSITI PUTRA MALAYSIA

***KNOWLEDGE ON PERINATAL OUTCOME SECONDARY TO
PASSIVE SMOKING AND SMOKING HABITS AMONG HUSBAND
WHO ACCOMPANY THEIR WIVES FOR VISITS AT ANTENATAL
CLINIC 2013***

**TAI SIU CHUN
MUHAMMAD AZIZI BIN ZAIRANI**

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KNOWLEDGE ON PERINATAL OUTCOME SECONDARY TO SMOKING AND SMOKING HABITS AMONG HUSBANDS WHO ACCOMPANY THEIR WIVES FOR VISITS AT ANTENATAL CLINIC 2013 (25th MARCH - 4th SEPTEMBER 2013)

Tai SC¹, Muhammad Azizi Bin Zairani¹, Zulida Binti Rejali², Mohammad Rafae Bin Tamby²

¹ Second Year Medical Student

² Department of Obstetrics and Gynecology, Faculty of Medicine & Health Sciences, Universiti Putra Malaysia

ABSTRACT

Introduction

Cigarette smoke exposure among pregnant women may lead to poor perinatal outcomes. Effects of passive smoking on perinatal outcome include sudden infant death syndrome, low birth weight, small-for-gestation baby, preterm delivery, congenital anomaly and reduced lung function. The objective of this study was to determine the knowledge on perinatal outcome secondary to smoking among husbands who accompany their wives for visits at the antenatal clinics in Hospital Serdang and Klinik Kesihatan Seri Kembangan 2013.

Methods

A cross sectional study was conducted among husbands who accompanied their wives for visits at antenatal clinics during 1st July until 31st July 2013. A pretested questionnaire detailing sociodemographic characteristics and knowledge on perinatal outcomes caused by passive smoking was given to respondents. The associations were analysed by using Chi Square Test and Fisher's Exact Test.

Results

Malays ($\chi^2 = 4.424$, $p = 0.035$) were more likely to smoke than non-malays. Husbands from low income family ($\chi^2 = 9.249$, $p = 0.002$) showed the higher chance to smoke. However, age, religion, educational level, and residential area were not significantly associated with smoking status of the husbands. There was significant association between knowledge on perinatal outcomes caused by passive smoking with smoking status of the husbands ($\chi^2 = 5.215$, $p = 0.022$). The higher the score on effects of perinatal outcomes due to passive smoking obtained by husbands, the less likely they smoke.

Conclusion

This study indicated that there was association between knowledge on perinatal outcomes caused by passive smoking with smoking status of the husbands.

Keywords: Knowledge, perinatal outcome, secondary, smoking, smoking habits, husbands, accompany, wives, antenatal clinic

**PENGETAHUAN MENGENAI HASIL PERINATAL KESAN DARIPADA
KEGIATAN MEROKOK PASIF DAN TABIAT MEROKOK ANTARA SUAMI
YANG MEGIRINGI ISTERI MEREKA UNTUK LAWATAN DI KLINIK
ANTENATAL PADA TAHUN 2013
(25 MAC - 4 SEPTEMBER 2013)**

Tai SC¹, Muhammad Azizi Bin Zairani¹, Zulida Binti Rejali², Mohammad Rafae Bin Tamby²

¹ *Pelajar Perubatan Tahun 2*

² *Jabatan Obstetrik and Ginekologi, Fakulti Perubatan Dan Sains Kesihatan,
Universiti Putra Malaysia*

ABSTRAK

Latar Belakang

Pendedahan terhadap asap rokok dalam kalangan wanita yang mengandung boleh membawa kepada hasil perinatal yang teruk. Kesan asap rokok terhadap hasil perinatal termasuk sindrom kematian bayi secara tiba-tiba, berat lahir rendah, bayi kecil untuk kehamilan, kelahiran pramatang, anomali kongenital dan fungsi paru-paru berkurangan.

Kaedah

Satu kajian silang rentas telah dijalankan dalam kalangan suami yang mengiringi isteri mereka untuk lawatan di klinik antenatal pada 1 Julai sehingga 31 Julai 2013. Satu borang soal selidik yang mengandungi ciri-ciri sosiodemografi dan pengetahuan mengenai hasil perinatal disebabkan oleh kegiatan merokok pasif telah diberi kepada responden. Hubungan antara 2 pemboleh ubah dianalisis dengan menggunakan Test Chi Square dan Test Fisher Exact.

Keputusan

Melayu ($\chi^2 = 4,424$, $p = 0.035$) adalah lebih cenderung untuk merokok daripada bukan Melayu. Suami dari keluarga berpendapatan rendah ($\chi^2 = 9,249$, $p = 0.002$) mempunyai peluang yang lebih tinggi untuk merokok. Walau bagaimanapun, usia, agama, tahap pendidikan, dan kawasan perumahan tidak mempunyai hubungan yang nyata dengan status merokok di kalangan suami. Terdapat hubungan yang signifikan antara pengetahuan mengenai hasil perinatal yang disebabkan oleh asap rokok, dengan status merokok dalam kalangan suami ($\chi^2 = 5.215$, $p = 0.022$). Semakin tinggi skor pada kesan-kesan hasil perinatal yang disebabkan oleh asap merokok diperolehi oleh suami, kurang besar kemungkinan mereka merokok.

Kesimpulan

Kajian ini menunjukkan bahawa terdapat hubungan antara pengetahuan mengenai hasil perinatal yang disebabkan oleh asap rokok dengan status merokok dalam kalangan suami.

Kata-kata Kunci: *Pengetahuan, hasil perinatal, merokok pasif, tabiat merokok, suami, mengiringi, isteri, klinik antenatal*

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LIST OF ABBREVIATIONS

1. CI : Confident Interval
2. COPD : Chronic Obstructive Pulmonary Disorder
3. ETS : Enviromental Tobacco Smoke
4. FA : Foreign Antigen
5. GATS : Global Adult Tobacco Survey
6. IUGR : Intrauterine Growth Retardation
7. LBW : Low Birth Weight
8. NRT : Nicotine Replacement Therapy
9. OR : Odds Ratio
10. SGA : Small-for-gestational-age
11. SHS : Second-hand Smoke
12. SIDS : Sudden Infant Death Syndrome
13. WHO : World Health Organization

Chapter 1: Introduction

Nowadays, smoking has become major public health problem as it will cause many serious health conditions. Diseases caused by tobacco smoke not only affect the smoker, but also affect secondary smoker. In definition, smoker is defined as someone who has smoked for more than 100 cigarettes in a lifetime and has smoked within past month (Oxford, 2013) while secondary smoker is defined as someone who exposed to second-hand smoke or environmental tobacco smoke (ETS) which contains a mixture of the side stream smoke given off by burning end of cigarette, pipe or cigar and mainstream smoke, the smoke exhaled from the lung of smokers (Al- Batanony, Salim, Dawood, & Kasim, 2008).

According to statistic provided by World Health Organization (WHO), every year, tobacco kills six million people with five million are users and ex-users and it kills more than 600, 000 per year non-smokers who were exposed to second-hand smoke (SHS). Women and children are groups of people who are expose the most, to secondary tobacco smoke. It's stated that, from 600, 000 people who died, 165, 000 of them are children (WHO, 2011).

Exposure to second-hand smoke causes worldwide burden of diseases. The most common diseases caused by second-hand smoke are ischemic heart diseases, lower respiratory tract infection, asthmas and lung cancer. WHO stated that the highest death rates from secondary smoking is caused by ischemic heart disease with 379, 000 death. It is followed by lower respiratory tract infection with 165, 000 death. Tobacco smoke which contains more than 4,000 chemicals, with at least 250 are known to be harmful and more than 50 which can lead to cancer, also causes hundred thousand premature deaths every year (WHO, 2011). Moreover, passive

smoking among pregnant women is considered as an important risk factor for intrauterine growth retardation and perinatal mortality (Habek D.; et al., 2002). Furthermore, cigarette smoking increases the risk of premature rupture of membranes (Kyrklund-Blomberg NB.; et al, 2005), placenta previa (TikKanen M.; et al, 2006) and preterm delivery as well as spontaneous abortion (Ng S. P. and Zelikoff J. T.; 2006).

There are two primary approaches to smoking cessation, behavioral interventions and pharmacological interventions (Jeanne, 2010). According to Associate Professor Dr M. Haniki Nik Mohamed, the chief coordinator of CSCSP, cognitive behavioral therapy is directed on the way of how smokers think, feel and behave whereas pharmacological approaches include nicotine replacement therapy (NRT) or medication (Shaza Dzulkifly, 2010). Among the interventions on smoking cessation are nicotine replacement therapy, warning labels, advertisement, counseling, "SAY NO TO SMOKING" campaign, smoke free policies, increased in price and taxation.

In Malaysia, the survey done by Ministry of Health (MOH) through Global Adult Tobacco Survey (GATS) found that, 2.3 millions of Malaysians adult exposed to second-hand smoke at work while 7.6 millions of them exposed to second-hand smoke at home. Compared to other countries, the prevalence of maternal smoking in Malaysia is relatively low thus exposure of children in Malaysia to secondary smoke may be lower compared to other countries (Abidin E. Z., Semple, Omar Rahman, Turner, & Ayres, 2011).

1.2 Problem Statement

Tobacco smoke contains dangerous chemicals and toxics. It is carcinogenic. The contents of tobacco smoke include formaldehyde, benzene, benzo [a] pyrene, vinyl chloride, arsenic, ammonia, and hydrogen cyanide. These chemicals can cause many kinds of diseases and conditions such as respiratory diseases, cardiovascular diseases and cancer. The side effect became worse especially on fetus such as premature birth and death (*The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, 2006, p. iii, 30).

Through the survey that was done before, smoking brings many harmful effects as stated above. If it's not treated, it could lead to serious consequence such as death. But the facts that many of us don't realize that smoking also bring harmful effect toward other people who exposed and inhaled the smoke especially pregnant mothers. This group of people we called as secondary smoker. Secondary smokers have same chances to get disease as smoker get. In some extend, the chances for them to get tobacco smoke related disease even greater compared to smoker.

It is proved by previous study that people have good knowledge regarding smoking and its harmful effect toward person health but what about our Malaysian community? Do they know about effect of smoking on perinatal outcome? Even if they know, the knowledge and awareness are different between individual and greatly influenced by individual social-demographic status such as occupation and education status. Hence, with that question we decided to carry out this study in order to find out the knowledge on perinatal outcome secondary to passive smoking among husband during their wife's gestational period.

1.3 Objectives

1.3.1 General Objectives

To determine the knowledge on perinatal outcome secondary to smoking among husbands who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan

1.3.2 Specific Objective

- i. To determine the prevalence of smoking among husbands who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan
- ii. To determine the sociodemographic characteristics among husbands who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan.
- iii. To determine the smoking behavior among husbands who accompany their wives for visits at antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan.
- iv. To identify the percentage of husband that is taking actions to stop smoking during their wife's gestational period.

- v. To identify the knowledge on therapies to stop smoking among husbands who accompany their wives for visits at antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan.
- vi. To determine the association between sociodemographic characteristics with smoking status among husband who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik kesihatan Seri Kembangan.
- vii. To determine the level of knowledge on perinatal outcome secondary to smoking with smoking status among husbands who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan.

1.4 Research hypothesis

- There is no association between sociodemographic characteristics with smoking status among husbands who accompany their wives for visits at antenatal clinic. (Null Hypothesis)
- There is no association between knowledge on perinatal outcome secondary to smoking with smoking status among husbands who attend to antenatal clinic during their wife's gestational period. (Null Hypothesis)

Chapter 2 : Literature review

2.1 Passive Smoking

Environmental tobacco smoke (ETS) or secondhand smoke (SHS) is the mixture of side stream smoke (the smoke given off by the burning end of a tobacco product) and mainstream smoke (the smoke exhaled by the smoker)(National Cancer Institute, 2004)(Lyon, 2002)(Rockville, 2006).The ETS contains more than 7000 chemicals. 250 are known to be harmful and 50 of these are carcinogenic (World Health Organization, 1999). Some examples of the chemicals are formaldehyde, carbon monoxide, nicotine, cyanide, ammonia, arsenic, benzene, beryllium, cadmium, chromium, ethylene oxide, nickel, polonium-210 and vinyl chloride (National Cancer Institute, 2004).

Although passive smoking (exposure to ETS) is different from active smoking, the effects on the perinatal outcome is similar (Gatske-Kopp, Lisa, & Theodore, 2007).

Based on a survey at a Turkish women's hospital, passive exposure to tobacco smoke among pregnant women was seen in 69.2% (Karcaaltincaba, et al., 2009) whereas in Polish, the passive smoking among pregnant women was only 30.6% (Katedra, 2004). The research conducted at HKL, Malaysia 2004, shows the exposure to ETS among pregnant women was 77% (Liyana, 2004).

2.2 Prevalence of cigarette smoking among males in Malaysia

According to the latest statistic, the prevalence of cigarette smoking among adult males in Malaysia was 46.5% (95 % CI: 45.5-47.4%)(Lim, et al., 2013). Mean age of smoking initiation was 18.3 years old whereas mean number of cigarettes smoked daily was 11.3 (Lim, et al., 2013). The socio-demographic characteristics such as level of education, occupation, marital status, residential area, age group and monthly household income play the significant roles on the smoking habits among the adult males in Malaysia (Lim, et al., 2013).

The highest prevalence of smoking was among the Malays (55.9%) and those aged 21 until 30 years (59.3%). Besides, smoking was significantly associated with level of education, for example, those who never receive any education showed the highest prevalence of smoking (OR 2.09; 95% CI: 1.67-2.60). For marital status, OR for divorced group is 1.67 (95% CI: 1.22-2.28, with married as the reference group). The study showed that divorced adult males were more likely to smoke. Residents of rural area were more prone to smoking as compared to urban area (OR 1.12, 95% CI: 1.03-1.22) (Lim, et al., 2013).

There was association between levels of knowledge and attitudes about being sensitive to smoking-related health risks (Clark E, et al., 2004). Based on the study by Lim *et al.*, the higher the level of an individual's education level, the less likely the individual was a current smoker. Those who were better educated would be more

concerned about their health and therefore the lesser the likelihood to smoke. On the other hand, individuals with low education had less access to adequate health care information and faced financial difficulties that increased their stress levels, making them more susceptible to adopt unhealthy lifestyle or health risks such as smoking (Lim, et al., 2013).

2.3 Prevalence of cigarette smoking among husbands of pregnant women

From the survey conducted in Tokyo, 55.2% of husbands were smoking before pregnancy, 53.4% during pregnancy and 51.8% after delivery (Nihon, 1991). The proportion of smokers decreased by only 1.8% during pregnancy (Nihon, 1991).

Young couples, under 24 years of age, those with low educational backgrounds, and self-employed husbands showed the highest proportion of smokers (Nihon, 1991). On the other hand, majority of the husbands who decreased or stopped smoking during the pregnancy were in the 30-34 year old category, university graduates, and those whose wife was having their first baby (Nihon, 1991).

A cross-sectional survey on 1449 never-smoking pregnant women in Guangzhou, China was being carried out during 1996-1997. The results showed 60.2% (95 CI: 57.5%-62.7%) of the never-smoking pregnant women had a husband who currently smoked. Women with smoking husbands (n=872) were more exposed to ETS than those with non-

smoking husbands (n=577) at home (71% vs. 33%), in public places (77% vs. 66%) and at work (60% vs. 50% of working women). They took less action against passive smoking in public places (Alice, et al., 2000).

Since there is lack of data on the percentage of husbands who are actually smoke during pregnancy of their wives in Malaysia, so we are going to conduct this survey among husbands who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan.

2.4 Effects of passive smoking on perinatal outcome

a) Sudden infant death syndrome (SIDS)

SIDS is the sudden, unexplained, unexpected death of an infant in the first year of life. SIDS is the leading cause of death in otherwise healthy infants (American Academy of Pediatrics, 2005). Secondhand smoke increases the risk for SIDS in both perinatal and infants who are exposed to secondhand smoke after birth (U.S. Department of Health and Human Services, 2006).

Jae *et al.* investigated the association of passive smoking and tobacco smoke on SIDS. Conditional logistic regression resulted in overall adjusted odds ratios (ORs) for SIDS associated with passive smoke from mother of 2.28, the father of 3.46, other live-in adults of 2.18, and all sources of 3.50 (95% confidence interval, 1.81 to 6.75)(Jae, et al.,

2004). H R Anderson *et al*'s study also revealed that of the three studies reporting on the risk of paternal smoking on SIDS where the mother was a non-smoker, two found significant effects while one found no effect (H R Anderson, et al., 1997).

Chemicals in second hand smoke appear to affect the brain in ways that interfere with its regulation of infants' breathing (U.S. Department of Health and Human Services, 2006). Infants who die from SIDS have higher concentrations of nicotine (biological marker for second hand smoke exposure) in their lungs than infants who die from other causes (U.S. Department of Health and Human Services, 2006).

b) Low birth weight

Low birth weight (LBW) is defined as birth weight less than 2.50kg (P Goel, et al., 2004). The differences in the birth weight among infants born to ETS exposed and ETS non-exposed mothers vary from 5g to 200g (Rubin, et al., 1986) (Campbell, Lewry,&Wailoo, 1988). Besides, male babies tend to be born with lower birth weight due to this exposure compared to female babies (Gatzke-Kopp, et al., 2007).

In a study from Vellore, India, passive smoking among pregnant mother was associated with a reduction of 63g (95% CI 12-114g) in birth weight after adjusting for other variables affecting birth weight (Mathai, et al.,1992). They were more prone to give

birth to low weight baby, with small differences in body length and did not affect the head circumference measurement (Butler & Goldstein, 1973).

500 consecutive Danish women who had full-term babies were interviewed on the third or fourth day postpartum and asked about smoking habits among the family members. Passive exposure to smoking by the father contributed 66% to reduce the birth weight of infants. On average, the birth weight was reduced by 120g per pack of cigarettes smoked per day by the father (David, et al., 1986).

However, a few studies have shown that there is no adverse effect on infant's birth weight due to passive smoking among pregnant mother (Butler & Goldstein, 1973). For example, a study that was carried out on a cohort of 1593 women living in Johannesburg and Soweto in 1990 showing that exposure to environmental tobacco smoke did not result in significant effects on the birth weight of their infants (Steyn, et al., 2006).

Low birth weight in infants could be due to the presence of carbon monoxide in the smoke. The carbon monoxide in the smoke combines with hemoglobin, leading to fetal hypoxia (P Goel, et al., 2004). Nicotine in the smoke could further aggravate fetal hypoxia by causing vasoconstriction (P Goel, et al., 2004). Besides, it has also been proposed that nicotinic effects may be due to the consequences of inappropriate stimulation nicotine cholinergic receptors and its neuroteratogenicity (Roy, et al., 1998).

c) Small-for-gestational-age (SGA) baby

A small-for-gestational-age baby is defined as birth weight less than 10th percentile of weight for that gestational age (P Goel, et al., 2004). Exposure to ETS during pregnancy may be related to a modest increase in the risk of delivering a SGA infant (Isabel, Sylvie, & Jacques, 1992-1993). For example, women whose partner smoked were at higher risk of having a child with growth retardation (Horta, et al., 1997).

Based on the study by P Goelet *al*, there was significantly higher incidence of SGA babies (31.9% vs 17.2%; $p<0.001$) in the mothers exposed to ETS as compared to unexposed mothers. There was also significant increase in the risk of SGA baby with each category rise in the exposure index from no exposure to highest exposure (OR=1.31; CI: 1.13-1.52)(P Goel, et al., 2004).

A case-control study found an association of intrauterine growth retardation (IUGR) with detectable nicotine level in mothers' hair samples. Nicotine concentrations of hair in the non-smoking women were in the lowest quartile as the reference group, the odds ratio (OR) for SGA birth was increased among women with concentrations in the upper and two middle quartiles (ORs=2.1, 95% CI=0.4-10.1 and 3.4 , 95% CI=1.3-8.6 respectively (Nafstad, et al., 1998). There are some studies utilized urinary cotinine levels as a biomarker of exposure and found a higher risk of IUGR in babies born to mothers exposed to ETS (Haddow, et al., 1998) (Eskenzi, Prehn, & Christianson, 1995).

d) Preterm delivery

Preterm delivery is defined as the delivery of a newborn of at least 20 weeks of gestation (>140 days) but less than 36 complete weeks of gestation (252 days), as measured from the first day of the last menstrual period (Windham, et al., 2000). Gestational age is based on the last menstrual period and ultrasonographic examination (Windham, et al., 2000). Preterm delivery accounts for a large proportion of early neonatal deaths (Kramer, et al., 2000) (Hofhuis, et al., 2003).

According to Dr. Winickoff, pregnant smokers has a 20% to 34% increase risk of having a stillborn compared to women who don't smoke whereas for the non-smokers exposed to second hand smoke have 23% of increasing risk (Leslie, 2011). A study by P Goel *et al.* showed that there was significant increase in the risk of pre-term birth with each category rise in the exposure index from no exposure to highest exposure (OR=1.22; 95% CI: 1.05-1.43)(P Goel, et al., 2004).

e) Congenital anomaly

For the pregnant women who are around smokers, they will have 13% increase chance of giving birth to babies with birth defects (Leslie, 2011). The babies exposed to passive smoke are more likely to be born with major deformities of the feet, testes, or not have a brain (Leslie, 2011).

This condition may be caused by disruption of oxygen delivery to cells at very key moments in development. If the cells are deprived of oxygen, they can't proliferate as they should and the infant can have limb deformities. Finger and toe deformities are among the most common birth defects, for an instance, about 1 in 600 babies are born with an extra finger or toe. Such defects seldom occur in families with no past history of such birth defects, so experts think that environmental factors may be the cause (Creasy, Gummer, & Liggins, 1980).

f) Neurobehavioral toxicity

Second-hand smoke exposure during pregnancy can have an impact on a child's attention, behavior, ability to reason and understand speech and language skills, visual or spatial abilities, and intelligence (Makin, Fried, & Watkinson, 1991). In a study conducted by Makin *et al*, ninety-one children between the ages of six and nine years were tested using a comprehensive neuropsychological test battery. The performance of children of passive smokers was found to be between that of the active smoking and non-smoking groups (Makin, Fried, & Watkinson, 1991).

Besides that, from the Jintan China Cohort Study, 37% of mothers reported ETS during pregnancy (Liu, et al., 2012). Children of mothers exposed to ETS during pregnancy had higher scores of externalizing and total behavior problems, with 25% of children whose mothers were exposed to ETS compared to 16% of children of unexposed mothers (Liu, et al., 2012). After adjusting for potential confounders, ETS exposure was associated with a higher risk of externalizing behavior problems in offspring of exposed mothers (OR=2.08, 95% confidence interval=1.27-3.43) (Liu, et al., 2012). Long-term exposure to the second-hand smoke may be the

risk for a pattern of negative developmental outcomes on the children of passive smokers (Makin, Fried, & Watkinson, 1991).

g) Reduced lung function

A study by Stocks J *et al.* showed that long-termed prenatal and postnatal exposure to tobacco smoke is the risk factor of reduced lung function and developing COPD in the early life (Stocks & Sonnappa, 2013). Suboptimal conditons in utero result in abberrations of lung development. Affected individuals are born with reduced lung function, which tends to remain diminished throughout the life. This will increase the risk both of wheezing disorders during childhood and subsequent COPD in genetically susceptible individuals. For example, there is increasing evidence that COPD is not simply a disease of old age that is largely restricted to heavy smokers, but may be associated with insults to the developing lung during fetal life and the first few years of postnatal life, when lung growth and development are rapid (Stocks & Sonnappa, 2013).

Improvements in antenatal and neonatal care as well as reduce prenatal and postnatal exposures to passive tobacco smoke are essential to minimize risks to the developing lung in fetus (Stocks & Sonnappa, 2013). In order to protect their children from serious health consequences in the future, we must encourage the husbands to cut down the tobacco consumption, better care concerning passive smokers and increase consciousness of parents smoking home environment (Kalucka, 2007).

- h) 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL) level in the first urine of newborn

Based on the Laboratory of Experimental Research, Department of Toxicology, University of Medical Sciences, Poznan, Poland, the cotinine and NNAL mean concentration were 23.1 ng/mg creatinine and 26.4 pg/mg creatinine among mothers exposed to second-hand smoke (SHS). Whereas in the newborns of SHS exposed mothers during pregnancy, the mean concentration of NNAL was 34.1pg/mg creatinine respectively. This study was carried out to determine the prenatal exposure to tobacco-specific carcinogenic N-nitrosamines on the basis of measurements of NNAL in urine of smoking and second-hand smoke (SHS) exposed women and in the first urine of their newborns. Maternal concentrations of cotinine and NNAL were measured in urine of the mother and the first urine of her newborn infant by liquid chromatography tandem mass spectrometry (LC/MS/MS)(Florek, et al., 2011).

Passive exposure to smoking during pregnancy is an important source of tobacco specific N-nitrosamines to the fetus. This substance is carcinogenic and may harm the fetus. Determination of NNAL in maternal urine samples is a useful biomarker of prenatal exposure of newborn to carcinogenic nitrosamines (Florek, et al., 2011).

i) Susceptibility to viral and secondary bacterial infections

A study by Claude JA *et al.* showed perinatal exposure to environmental tobacco smoke (ETS) enhances the susceptibility to viral and secondary bacterial infections. Claude JA *et al.* used mice as sample of the research. Timed-pregnant female Balb/c mice were exposed to either

ETS for 6h/day, 7d/week beginning on gestation day 14 and continuing with the neonates to 6 weeks of age. Whereas control animals were exposed to filtered air (FA)(Claude, et al., 2012).

The results showed viral infection significantly increases the number of neutrophils entering the lungs following bacterial challenge with either FA or ETS exposure, while the influx of lymphocytes and monocytes is significantly enhanced only by perinatal ETS exposure. From the data collected, exposure to ETS alters the response of neonates to the timing and severity of infection as well as the pattern of inflammation and cellular influx into the lungs due to viral and bacterial infection (Claude, et al., 2012).

2.5 Interventions On Smoking Cessation

There are two primary approaches to smoking cessation, behavioral interventions and pharmacological interventions (Jeanne, 2010). According to Associate Professor Dr M. Haniki Nik Mohamed, the chief coordinator of CSCSP, cognitive behavioral therapy is directed on the way of how smokers think, feel and behave whereas pharmacological approaches include nicotine replacement therapy (NRT) or medication (Shaza Dzulkifly, 2010).

Nicotine Replacement Therapy (NRT) is one of the ways to help in smoking cessation. It is available in many forms, such as gum, transdermal patch, nasal spray, inhaler and sublingual tablets. NRT works by replacing the nicotine from cigarettes to reduce withdrawal symptoms associated with smoking cessation. According to the study carried out by C Silagy et al., NRT

increased the odds of quitting smoking approximately 1 to 2 folds (OR 1.77, 95% CI: 1.66-1.88) (C Silagy, et al., 2007).

Graphic tobacco health warnings have a significant effect on smoking prevalence and quit attempts. From the research that had been done in Canada, the graphic warnings decreased the odds of being a smoker (OR 0.875, 95% CI: 0.821-0.932) and increased the odds of making a quit attempt (OR 1.330, 95% CI: 1.187-1.490) (Sunday & Mesbah, 2012). A set of six rotating pictorial health warning labels were required to print in both Malay and English text that read: “Amaran Kerajaan Malaysia: Merokok Membahayakan Kesihatan” and “Warning by the Malaysian Government: Smoking is hazardous to health” by Malaysia’s Control of Tobacco Product Regulations 2008, covering 40% of the front and 60% of the back of all cigarettes packs (ITC Malaysia National Report Tobacco Advertising, 2012).

Anti-smoking advertisement appears to have more positive effects on the pre-adolescence or early adolescence (Flynn et al., 1997). From the previous survey, almost half (42%) of the youth were reported noticing tobacco advertising in shops or stores. Approximately one third (32%) of the youth noticed tobacco advertising in coffee shops, and on or around vendors. Approximately one-quarter (23%) of youth who were 20 years or older noticed tobacco advertising in discos, karaoke bars and other entertainment centers (ITC Malaysia National Report Tobacco Advertising, 2012).

In order to curb smoking in Malaysia, the government launched a nationwide anti-smoking campaign in 2004, Tak Nak which targets the younger generation. The main purpose of organizing this programme is to train health professionals to help smokers quit by using behavioral and pharmacological approaches (Shaza Dzulkifly, 2010). The campaign used mass and print media channels to deliver accurate information about the dangers of smoking to individual and society (ITC Malaysia National Report Tobacco Advertising, 2012).

Another approach that had been done by our government is by creating smoke-free environments in our country through smoke free policies. The purpose of this intervention is to protect people from tobacco smoke. Melaka World Heritage City, Melaka Raya, Melaka International Trade Centre, Alor Gajah and Jasin town centres were designated by the Melaka State Government as smoke-free zones in 2011 (ITC Malaysia National Report Tobacco Advertising, 2012).

Studies had shown that increasing taxes on tobacco products is one of the effective ways to curb smoking, especially among young people. In Ukraine, a relatively small raise of tax up to 50% of the retail price could reduce the number of smokers by 50,000 (Ross et al., 2009). In 2007, exercise tax duty in Malaysia was increased by 25% and in 2010, tax constitutes about 54% of the retail price of popular brand cigarettes. Cigarettes are set at a minimum price of RM6.40 per pack and price promotion has been banned by government (ITC Malaysia National Report Tobacco Advertising, 2012).

One of the pharmacological interventions is counseling. Minimal clinical interventions normally involve brief cessation advice which is less than 5 minutes from health care providers, delivered in the context of routine consultations, whether or not patients have actively sought advice on quitting. On the other hand, for the intensive clinical interventions, they also rely on the behavioral method to facilitate quitting but are usually delivered over a period of time. Intensive clinical interventions included individual behavioral counseling by a usual health care provider or a cessation specialist, proactive phone counseling, group behavior sessions and aversion therapy (Miller et al., 2004).

As cigarette smoke causes a lot of harms to humans, several ways have been taken by government and society to curb smoking in Malaysia. The aim of the efforts is to provide a healthy lifestyle to our citizens.

2.6 Conceptual Framework

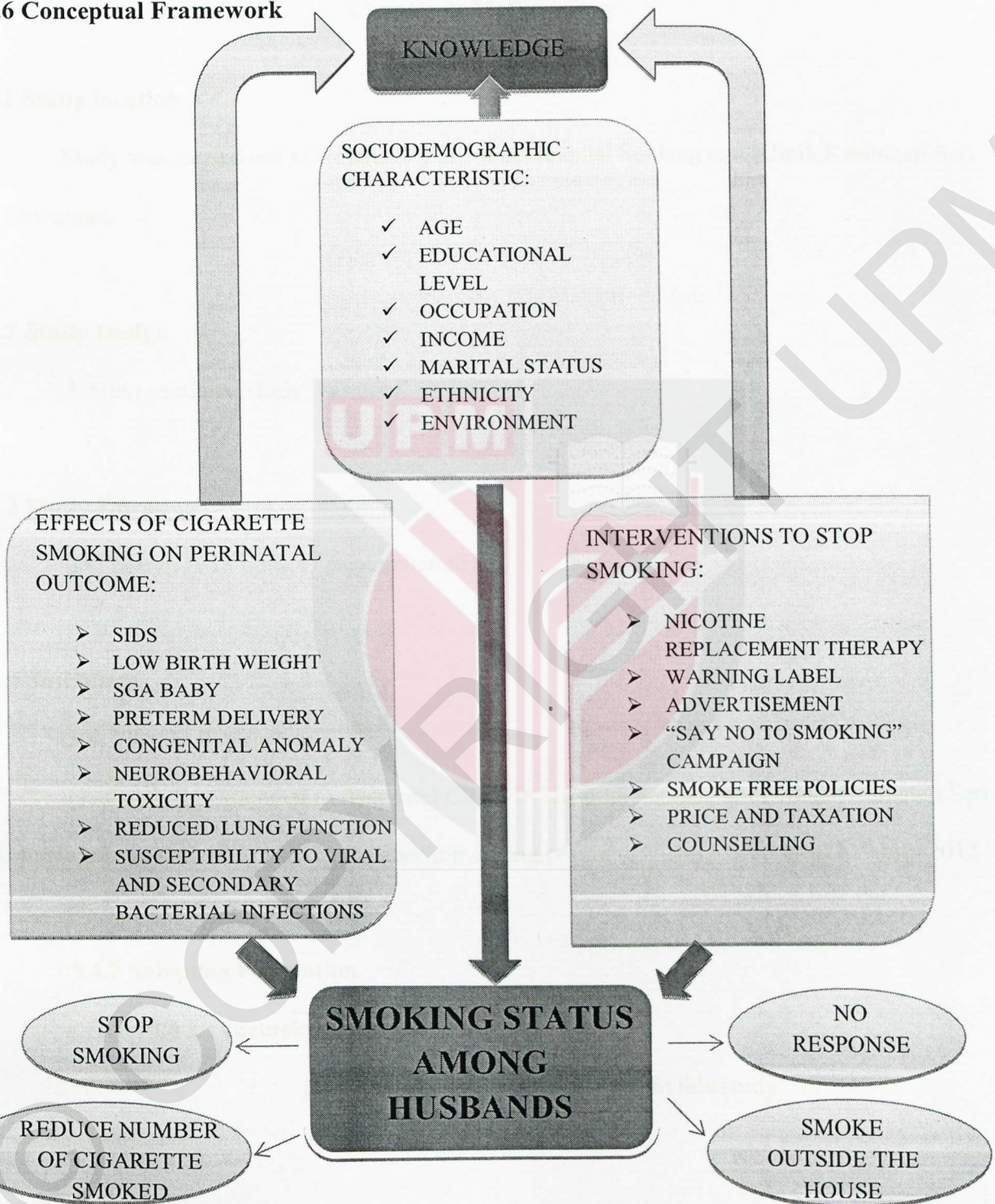


Figure 1: Association between socio-demographic characteristic, knowledge on perinatal outcomes secondary to smoking and interventions to stop smoking with smoking status among husbands who accompany their wives for visits at antenatal clinic

Chapter 3: Methodology

3.1 Study location

Study was carried out at Antenatal Clinics in Hospital Serdang and Klinik Kesihatan Seri Kembangan.

3.2 Study Design

A cross-sectional study was used.

3.3 Study Duration

25th March 2013 until 4th September 2013

3.4 Sampling

3.4.1 Study Population

Husbands that attended to Antenatal Clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan for their wife's antenatal checkup during period of 1st July 2013 until 31st July 2013.

3.4.2 Sampling Population

3.4.2.1 Inclusion Criteria

- i. Husband who agree to participate in this study

3.4.2.2 Exclusion Criteria

- i. Husband who has medical problems which causes communication disability
- ii. Husband who cannot communicate in Malay or English
- iii. Husband that is less than 16 years old

3.4.3 Sampling Unit

A selected husband presented at Antenatal Clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan

3.4.4 Sampling Method

Convenience Sampling was used.

3.4.5 Sample Size

The sample size was being calculated by :

$$\frac{\left\{ Z \left(1 - \frac{\alpha}{2} \right) \sqrt{2\bar{P}(1 - \bar{P})} + Z(1 - \beta) \sqrt{P1(1 - P1) + P2(1 - P2)} \right\}^2}{(P1 - P2)^2}$$

Comparison between no educational level with tertiary educational level :

$$\begin{aligned} &= \frac{\left\{ 1.96 \sqrt{2(0.4)(0.6)} + 0.842 \sqrt{(0.54)(0.45) + (0.49)(0.61)} \right\}^2}{(0.05)^2} \\ &= 115 \end{aligned}$$

Since the number of husband who accompany their wives to antenatal clinic and health clinic was rare and hard to find, then we took 115 as our minimum sample size.

Thus, The total sample size = $n + 10\%n$.

$$= 115 + 10\% (115)$$

$$= 126$$

Total minimum size of sample in this study was 126 subjects. About 10% respondent of sample size was added to avoid non-response bias.

P1 and P2 were obtained from Lim et al., 2013. (Epidemiology of smoking among Malaysian adult males)

3.5 Instrument and Data Collection

3.5.1 Instruments/Questionnaire

Study instrument for this research was pretested questionnaire. The questionnaire consisted of both open and closed ended questions. There had 4 sections which were section A, B, C and D. Section A was particularly designed to ask respondents about their social-demographic characteristics such as gender, race, age, religion, occupation, educational level and total family income while section B was designed to get information about social-demographic characteristics of their wives. Section C was specifically designed to obtain data regarding cigarette exposure status of respondents and knowledge on technique to stop smoking. Section D was being set to obtain data about the knowledge of respondents regarding perinatal outcome secondary to smoking among husbands who attend to antenatal clinic.

3.5.2 Data Collection Technique

Pretested questionnaire was used in this study. Respondent who agreed to participate in the study was required to sign the Informed Consent given. Set of questionnaire was distributed to selected respondent and collected after 15 minutes.

3.5.3 Quality Control

The questionnaire was pretested on 12 patients visiting Antenatal Clinic in Hospital Serdang (10% of sample size) to assess their understanding and the feedback was obtained after pre-tested session. The questionnaire was modified according to feedback given. Besides, to reduce the non-response bias, respondents were informed on the importance of the study and particulars provided by respondents were kept confidential.

3.6 Data Analysis

The data collected was entered manually and measured using Statistical Package for the Social Sciences (SPSS version 20). Descriptive study was used for socio-demographic characteristics to determine the means, standard deviation and its percentages. Test of normality was used to determine the distribution of the data. To examine the association between knowledge on perinatal outcome secondary to smoking, Chi square test was used. Chi Square Test was also being used to examine the association between socio-demographic characteristics with smoking status among husbands. The level of significance for all statistics was set as $\alpha=0.05$.

3.7 Study Ethics

Ethical clearance and approval letter were obtained from Medical Research Ethics Committee of FMHS, UPM. Research proposal was submitted to Dean of Faculty and the Ethical Committee of UPM. Permission from director of Hospital Serdang, director of Klinik Kesihatan Seri Kembangan and Head of Department of Gynecology and Obstetrics had been obtained as well to collect data. A written consent form was obtained from respondent before data collection started. The particulars provided by the respondent will be kept confidential.

3.8 Variables

Variable was defined as characteristics of an entity of a person, organism, object or phenomenon that the researcher measure, control or manipulate. Thus, regarding our research topic, several variables had been noted.

3.8.1 Dependent Variable

Smoking status among husbands who attend antenatal clinic

3.8.2 Independent variable

- i. Socio-demographic characteristics of husband who attend antenatal clinic
- ii. Knowledge on perinatal outcome secondary to smoking among husband who attend antenatal clinic

3.9 Definition of terms

1. Antenatal : Before birth or during the pregnancy period (prenatal).
2. Perinatal : Period usually a number of weeks, immediately before and after birth.
3. Obstetric : The branch of medicine dealing with pregnancy, labor and puerperium.
4. Gynecology : The branch of medicine dealing with genital tract in woman.
5. Socioeconomic : Social science that study the effect of social activity on economic process.
6. Socio-demographic : Combination between sociological and demographic characteristics.
7. Prevalence : The number of cases of specific disease presence in a given population at certain time.
8. Stroke : Condition in which the brain cells suddenly die because of a lack of oxygen.
9. COPD : Constriction of the airways and difficulty or discomfort in breathing.
10. Periodontal Disease : A disease that attacks the gum and bone and around the teeth.
11. Pneumonia : A disease caused by lung inflammation as result of bacterial or viral infection.
12. Ischemic Heart Disease : A disease characterized by reduced blood supply to heart as result of hardening or blockage in coronary arteries.

13. Placenta Previa : An abnormal implantation of placenta. The placenta inserted partially or entirely into lower uterine segment.
14. Preterm Delivery : Onset of labor after the sensation of viability (24th Week depending on definition) and before 37 complete week or 259 days of pregnancy
15. Bias : Bias is the systematic error in design, conduct or analysis of study that result in a mistaken estimate of exposure's effect on the risk of disease.
16. Confounding : The mixing of effect of supposedly casual variable (an exposure under study with risk factor of disease) or with extraneous variable.
17. Selection Bias : It is error that arise from systemic difference in selecting and following the study group.
18. Non-response Bias : It is an error due to difference in characteristics between those who take part in the study and who do not.
19. Berksonian Bias : It is an error due to selective factor of admission to hospital
20. Information Biased : It is a distortion in the estimate of effect due to measurement error or misclassification of subject to one or more variables.
21. Recall Biased : It is a bias that results from differential ability of subject to remember previous exposure.
22. Misclassification Bias : It is an error in classification of the exposure or disease.
23. Passive Smoking : Exposure to the environmental tobacco smoke (ETS).

24. Sudden Infant Death Syndrome : Sudden, unexplained, unexpected death of an infant in the first year of life.
25. Low Birth Weight : Birth weight less than 2.50kg.
26. Normal Birth Weight : Birth weight in the range of 2.50kg to 4.0kg.
27. Heavy Birth Weight : Birth weight greater than 4.0kg.
28. Small-for-gestational-age Baby : Birth weight less than 10th percentile of weight for the gestational age.
29. Congenital Anomaly : Intrauterine development of an organ or structure that is abnormal in form, structure, or position.
30. Neurobehavioral toxicity : Alterations in attention, concentration, coordination, mood, muscle activity, neurological development, or sensation resulting from exposure to a poisonous chemical, drug or physical agent.

Chapter 4 : Data Analysis

4.1 Response Rate

Data was collected from 130 husbands who accompanied their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan from 1st July until 31st July 2013. Out of 130, 126 respondents completed and returned the questionnaire and the other 4 were non-response giving response rate of 96.92%. Only husband that fit the required information and criteria were selected for the study of specific objectives.

4.2 Prevalence of Smoking Among Husbands

Table I shows the number of husbands who were smoking. The total number of respondents was 126. Based on our findings, there were 60 husbands who were current smoker out of 126 husbands. Hence, the prevalence of smoking among husbands who accompany their wives for visits at the antenatal clinic in Hospital Serdang and Klinik Kesihatan Seri Kembangan was 47.6 %.

Table I: Prevalence of Smoking Husband

Smoking Status	Frequency	Percentage (%)
Yes	60	47.6
No	66	52.4
Total	126	100.0

4.3 Sociodemographic Characteristics of Husbands

4.3.1 Age

Table II shows the distribution of smoker and non-smoker husbands according to their respective age. From the table, we can see that most of the husbands involved in this study are between 31-40 years old which was 69 husbands (54.8%), followed by 21-30 years old with 53 husbands (42.1%), 41-50 years old with 3 husbands (2.4%) and lastly 16-20 years old which was 1 husband (0.8%). As we compared the prevalence of smoking among husband within each age, it is found that husband who at age of 16-20 recorded the highest number of smokers which was 100% while husbands at the age of 40-45 recorded the lowest with 33.3% smokers.

Table II: Distribution of respondents by age

Age	Smoking Status		Total (%)
	Yes (%)	No (%)	
16-20	1 (100)	0 (0)	1 (0.8)
21-30	26 (49.1)	27 (50.9)	53 (42.1)
31-40	32 (46.4)	37 (53.6)	69 (54.8)
41-50	1 (33.3)	2 (66.7)	3 (2.4)
Total	60 (47.6%)	66 (52.4%)	126 (100%)

4.3.2 Race

Table III shows the distribution of smoker and non-smoker husbands according to races namely Malay, Chinese, Indian and others. From the table, we can see that most of the husbands involved in this study was Malay with 104 husbands (82.5%), followed by Chinese with 14 husbands (11.1%), others with 7 husbands (5.5%) and lastly Indian with 1 husband (0.79%). As we compared the prevalence of smoking among husbands within each race, it was found that Malay recorded the highest number of smoking husband which was about 51.9%. Both Indian and other races recorded the lowest with 0% husband smoking.

Table III: Distribution of respondents by race

Race	Smoking Status		Total (%)
	Yes (%)	No (%)	
Malay	54 (51.9%)	50 (48.1%)	104 (82.5%)
Chinese	6 (42.9%)	8 (57.1%)	14 (11.1%)
Indian	0 (0%)	1 (100%)	1 (0.8%)
Others	0 (0%)	7 (100%)	7 (5.6%)
Total	60 (47.6%)	66 (52.4%)	126 (100%)

4.3.3 Religion

Table IV shows the distribution of respondents according to religions which are Islam, Buddhist, Hindu, Christian and Others. From the table, we can see that most of the husbands involved in this study was Islam with 108 husbands (85.7%), followed by Buddhist with 12 husbands (9.5%), Christian with 3 husbands (2.4%) , others with 2 husbands (1.6%) and lastly Hindu with 1 husband (0.79%). As we compared the prevalence of smoking among husbands within each religion, it was found that both Islam and others religions recorded the highest number of smoking husband which were about 50%. Both Hindu and Christian religion recorded the lowest with 0% husband smoking.

Table IV: Distribution of respondents by religion

Religion	Smoking Status		Total (%)
	Yes (%)	No (%)	
Islam	54 (50%)	54 (50%)	108 (85.7%)
Buddhist	5 (41.7%)	7 (58.3%)	12 (9.5%)
Hindu	0 (0%)	1 (100%)	1 (0.8%)
Christian	0 (0%)	3 (100%)	3 (2.4%)
Others	1 (50%)	1 (50%)	2 (1.6%)
Total	60 (47.6%)	66 (52.4%)	126 (100%)

4.3.4 Family Income

Table V shows the distribution of respondents according to family incomes per month. There were 5 classes of family incomes starting from below RM 1000 per month until more than RM 5000 per month. From the table, we can see that majorities of the husbands involved in this study were having family income of RM2000-2999 per month which was about 34 husbands (27%). Minorities of husbands involved were having family income of less than RM1000 per month with 7 husbands altogether (5.6%). As we compared the prevalence of smoking among husbands within each group of family income, it was found that group of family income RM1000-1999 per month recorded the highest number of smoking husband with 69.6% while group of family income of more than RM5000 per month recorded the lowest with 25.0%.

Table V: Distribution of respondents by family incomes per month

Family Income (RM per month)	Smoking Status		Total (%)
	Yes (%)	No (%)	
<1000	4 (57.1%)	3 (42.9%)	7 (5.6%)
1000-1999	16 (69.6%)	7 (30.4%)	23 (18.3%)
2000-2999	19 (55.9%)	15 (44.1%)	34 (27.0%)
3000-3999	9 (34.6%)	17 (65.4%)	26 (20.6%)
4000-4999	6 (50%)	6 (50%)	12 (9.5%)
>5000	6 (25.0%)	18 (75.0%)	24 (19%)
Total	60 (47.6%)	66 (52.4%)	126 (100%)

4.3.5 Educational Level

Table VI shows the distribution of respondents according to their respective educational level. There are 4 classes of educational level which are no education, primary, secondary and tertiary education. From the table, we can see that most of the husbands involved in this study were in tertiary education group with 69 husbands (54.7%), followed by secondary education with 51 husbands (40.5%), primary education with 4 husbands (3.2%) and lastly no educational group with 2 husbands (1.6%). As we compared the prevalence of smoking among husbands within each group of educational background, it was found that primary education background recorded the highest number of smoking husband which was about 51.9% while husband with tertiary education recorded the lowest with 33.3%.

Table VI: Distribution of respondents by educational level

Educational background	Smoking Status		Total (%)
	Yes (%)	No (%)	
No education	1 (50%)	1 (50%)	2 (1.6%)
Primary	4 (100%)	0 (0%)	4 (3.2%)
Secondary	32 (62.7%)	19 (26.7%)	51 (40.5%)
Tertiary	23 (33.3%)	46 (66.7%)	69 (54.7%)
Total	60 (47.6%)	66 (52.4%)	126 (100%)

4.3.6 Residential Area

Table VII shows the distribution of respondents according to their respective residential area which are rural and urban. From the table, we can see that most of the husbands involved in this study lived in urban area which was about 105 husbands (83.3%) while the number of husbands that lived in rural area was 21 husbands (16.7%) altogether. As we compared the prevalence of smoking among husbands within each residential area, it was found that rural area recorded the highest number of smoking husband which was about 66.7%.

Table VII: Distribution of respondents by residential area

Residential Area	Smoking Status		Total (%)
	Yes (%)	No (%)	
Rural	14 (66.7%)	7 (33.3%)	21 (16.7%)
Urban	46 (43.8%)	59 (56.2%)	105 (83.3%)
Total	60 (47.6%)	66 (52.4%)	126 (100%)

4.4 Smoking Behavior of Husbands

4.4.1 Initial Age of Smoking

Table VIII shows the smoking behaviour of respondents according to their initial age of smoking. Out of 126 respondents, 60 of them were current smokers. From the table, we can see that respondents started smoking in the age of less than 10 years old were 6.7% (n=4), 11 to 20 years old were 63.3% (n=38) and lastly 21 to 30 years old were 30% (n=18).

Table VIII: Smoking behaviour of respondents by initial age of smoking

Initial age of Smoking	Frequency (n)	Percentage (%)
<10 years old	4	6.7
11-20 years old	38	63.3
21-30 years old	18	30.0
Total	60	100.0

4.4.2 Duration of Smoking

Table IX shows the smoking behaviour of respondents according to their duration of smoking. Total respondents that smoke were 60 people. From the table, we can see that majority of respondents smoked for 11 to 15 years, which contributed to 35.0% (n=21) followed by 6 to 10 years, which contributed to 31.7% (n=19). There was 16.7% (n=10) of the respondents who

smoked for 16 to 20 years. Minority of them smoked for less than 5 years ($n=5$, 8.3%) and more than 20 years ($n=5$, 8.3%).

Table IX: Smoking behaviour of respondents by duration of smoking

Duration of smoking	Frequency (n)	Percentage (%)
< 5 years	5	8.3
6-10 years	19	31.7
11-15 years	21	35.0
16-20 years	10	16.7
>20 years	5	8.3
Total	60	100.0

4.4.3 Number of Cigarettes Smoked By Respondents Per Day During Wife's Pregnancy

Table X shows the smoking behaviour of respondents by number of cigarettes smoked per day during their wife's gestational period. From the table, we can see that majority of them smoked more than 20 cigarettes per day which were 23.3% ($n=14$). For the respondents who smoked 5-9 cigarettes, 10-14 cigarettes and 15-19 cigarettes per day, each of them contributed 20% ($n=12$). Minority of them smoked less than 5 cigarettes per day which were only about 16.7% ($n=10$).

Table X: Smoking behaviour of respondents by number of cigarettes smoked per day

Number of cigarettes smoked per day	Frequency (n)	Percentage (%)
<5 cigarettes	10	16.7
5-9 cigarettes	12	20.0
10-14 cigarettes	12	20.0
15-19 Cigarettes	12	20.0
>20 cigarettes	14	23.3
Total	60	100.0

4.4.4 Number of Cigarettes Smoked By Respondents Per Day Before Wife’s Pregnancy

Table XI shows smoking behaviour of respondents by number of cigarettes smoked per day before their wife’s pregnancy. From the table, we can see that majority of respondents smoked 5-9 cigarettes per day, which were 31.7% (n=19). For respondents who smoked less than 5 cigarettes and 10-14 cigarettes, each contributed 16.7% (n=100). Meanwhile 20% (n=12) of the husbands smoked 15-19 cigarettes per day. Minority of them smoked more than 20 cigarettes per day, which were only about 15% (n=9).

Table XI: Smoking behaviour of respondents by number of cigarettes smoked per day before wife’s pregnancy

Number of cigarettes smoked per day before wife’s pregnancy	Frequency (n)	Percentage (%)
<5 cigarettes	10	16.7
5-9 cigarettes	19	31.7
10-14 cigarettes	10	16.7
15-20 Cigarettes	12	20.0
>20 cigarettes	9	15.0
Total	60	100.0

4.4.5 Number of Husbands who are Smoking In the House

Table XII shows the number of respondents who were smoking in the house. From the table, we can see that out of 60 respondents who were smoking, 20 (33.3%) of them smoked in living house.

Table XII: Smoking behaviour of respondents by house smoker status

House Smoker	Frequency (n)	Percentage (%)
Yes	20	33.3
No	40	66.7
Total	60	100.0

4.5 Percentage of Husbands that Are Taking Actions To Stop Smoking During Wife’s Pregnancy

Table XIII shows distribution of respondents that are taking action to stop smoking during wife’s pregnancy. From the table, we found that 20% (n=12) of husbands will take action to stop smoking during their wife’s gestational period while 16.7% (n=10) of them will remain smoking. About 63.3% (n=38) of husbands will try to stop smoking for their wife’s subsequent pregnancy.

Table XIII: Percentage of husbands that stop smoking during wife’s gestational period

Number of husband that stop smoking during wife’s gestational period	Frequency (n)	Percentage (%)
Yes	12	20.0
No	10	16.7
Try	38	63.3
Total	60	100.0

4.6 Therapies to Stop Smoking

4.6.1 Knowledge on Interventions to Stop Smoking Among Husbands

Table XIV shows the prevalence of husbands who knew the interventions that help to stop smoking. From the table below, 86.5% (n=109) of husbands did expose to the interventions to stop smoking before, whereas 13.5% (n=17) of husbands never know there are some ways which can help to stop smoking.

Table XIV: Knowledge on Interventions to Stop Smoking Among Husbands

Knowledge on Interventions to		
Stop Smoking	Frequency (n)	Percentage (%)
Yes	109	86.5
No	17	13.5
Total	126	100.0

4.6.2 Knowledge on Different Interventions to Stop Smoking

Table XV shows the prevalence of husbands who know the strategies to stop smoking by different ways. From the table, we can see that 34.9% (n=44) of husbands knew nicotine patches as one of the interventions to stop smoking. On the other hand, 46.8% (n=59) of them had seen the warning labels on the cigarette boxes before and 50.0% (n=63) of them had seen the anti-smoking advertisements along the roadside or showing in the television programmer. 33.3%

(n=42) of the husbands knew the counselling method, 57.9% (n=73) of them knew “SAY NO TO SMOKING” campaign and 26.2% (n=33) of them knew the smoke free policies launched by government. There are 46.8% (n=59) of husbands knew increasing price and taxation of cigarettes as one of the ways to curb smoking.

Table XV: Knowledge on Different Interventions to Stop Smoking

Types of Interventions To Stop Smoking	Frequency (n)	Percentage (%)
Nicotine patches / nicotine gum		
Yes	44	34.9
No	82	65.1
Warning Label		
Yes	59	46.8
No	67	53.2
Advertisement		
Yes	63	50.0
No	63	50.0
Counseling		
Yes	42	33.3
No	84	66.7
“SAY NO TO SMOKING” Campaign		
Yes	73	57.9
No	53	42.1
Smoke free policies		
Yes	33	26.2
No	93	73.8
Increased in price and taxation of cigarettes		
Yes	59	46.8
No	67	53.2

4.7 Association between Sociodemographic Characteristics with Smoking Status Among Husbands

For the association between sociodemographic characteristics with smoking status among the husbands, we found that malays ($\chi^2 = 4.424$, $p = 0.035$) and low income family ($\chi^2 = 9.249$, $p = 0.002$) were more likely to smoke. Age, religion, educational level, and residential area were not significantly associated with smoking status of the husbands.

Table XVI: Association Between Sociodemographic Characteristics with Smoking Status Among Husbands

SOCIODEMOGRAPHIC CHARACTERISTICS	SMOKING STATUS		Test
	Yes n (%)	No n (%)	
AGE			$\chi^2 = 0.215$
a) Less than or 30 years old	27 (50.0)	27 (50.0)	df = 1
b) More than 30 years old	33 (45.8)	39 (54.2)	p = 0.643
RACE			$\chi^2 = 4.424$
a) Malays	54 (51.9)	50 (48.1)	df = 1
b) Non-Malays	6 (27.3)	16 (72.7)	p = 0.035*
RELIGION			$\chi^2 = 1.718$
a) Islam	54 (50.0)	54 (50.0)	df = 1
b) Non-Islam	6 (33.3)	12 (66.7)	p = 0.190
EDUCATIONAL LEVEL			Fisher's Exact Test
a) Low educational level	5 (83.3)	1 (16.7)	df = 1
b) High educational level	55 (45.8)	65 (54.2)	p = 0.102
FAMILY INCOME			$\chi^2 = 9.249$
a) Less than RM3000	39 (60.9)	25 (39.1)	df = 1
b) RM3000 and more	21 (33.9)	41 (66.1)	p = 0.002*

RESIDENTIAL AREA			$\chi^2 = 3.665$
a) Rural	14(66.7)	7 (33.3)	df = 1
b) Urban	46 (43.8)	59 (56.2)	p = 0.056

Note: * Significant at

4.8 Perinatal Outcomes

4.8.1 Awareness of Adverse Perinatal Outcomes Due to Passive Smoking Among Husbands

Table XVII shows the knowledge on adverse perinatal outcomes caused by passive smoking among husbands. From the table, we can see that 54.8% (n=69) of the husbands agreed that secondhand smoke may cause sudden death of baby. Meanwhile 73.0% (n=92) of them agreed that cigarette smoking by husbands during wife's pregnancy may cause low birth weight of baby, 64.3% (n=81) for preterm delivery of baby and 75.4% (n=95) for birth anomaly of baby. 73.0% (n=92) of the husbands agreed that secondhand smoke may weaken the immune system of baby and 64.3% (n=81) of them agreed to born with abnormal or unhealthy baby. There were high percentage of husbands agreed that secondhand smoke may give birth to SGA baby (81.7% ; n=103) and reduce the lung function of baby (81.7% ; n=103). However, only 47.6% (n=60) of the husbands agreed passive smoking may changes the behaviour of the baby.

Table XVII : Awareness of Adverse Perinatal Outcomes due to Passive Smoking Among Husbands

Perinatal Outcomes	Frequency (n)	Percentage (%)
Sudden infant death syndrome (SIDS)		
Yes	69	54.8
No	57	45.2
Low birth weight		
Yes	92	73.0
No	34	27.0
Small-for-gestational-age (SGA) baby		
Yes	103	81.7
No	23	18.3
Preterm delivery		
Yes	81	64.3
No	45	35.7
Congenital anomaly		
Yes	95	75.4
No	31	24.6
Neurobehavioral toxicity		
Yes	60	47.6
No	66	52.4
Reduced lung function		
Yes	103	81.7
No	23	18.3
Weaken the immune system		
Yes	92	73.0
No	34	27.0
Abnormal / Unhealthy		
Yes	81	64.3
No	45	35.7

4.8.2 Normality Test

Distribution of continuous variable was determined using normality test such as Kolmogorov-Smirnov normality test. In our research, only the variable total knowledge score was considered as continuous data. A variable was considered as normally distributed if the value of p (*kolmogorov-smirnov*) was greater than 0.05 and the skewness and kurtosis values were approximate to zero. Table XVIII shows the values of Kolmogorov-Smirnov test and its skewness and kurtosis. In this study, the total knowledge score was normally distributed since the p value was 0.000 and the null hypothesis (H_0 = total knowledge score was normally distributed) was not rejected.

Table XVIII : Normality for Continuous Variable

Variable	Kolmogorov-Smirnov	Skewness	Kurtosis
Total Knowledge Score	0.000	-0.858	-0.321

Figure 2 shows histogram of distribution of total knowledge score on perinatal outcomes caused by passive smoking among husbands. The median total knowledge score was 7.0 and the modest total knowledge score was 9.0.

Histogram

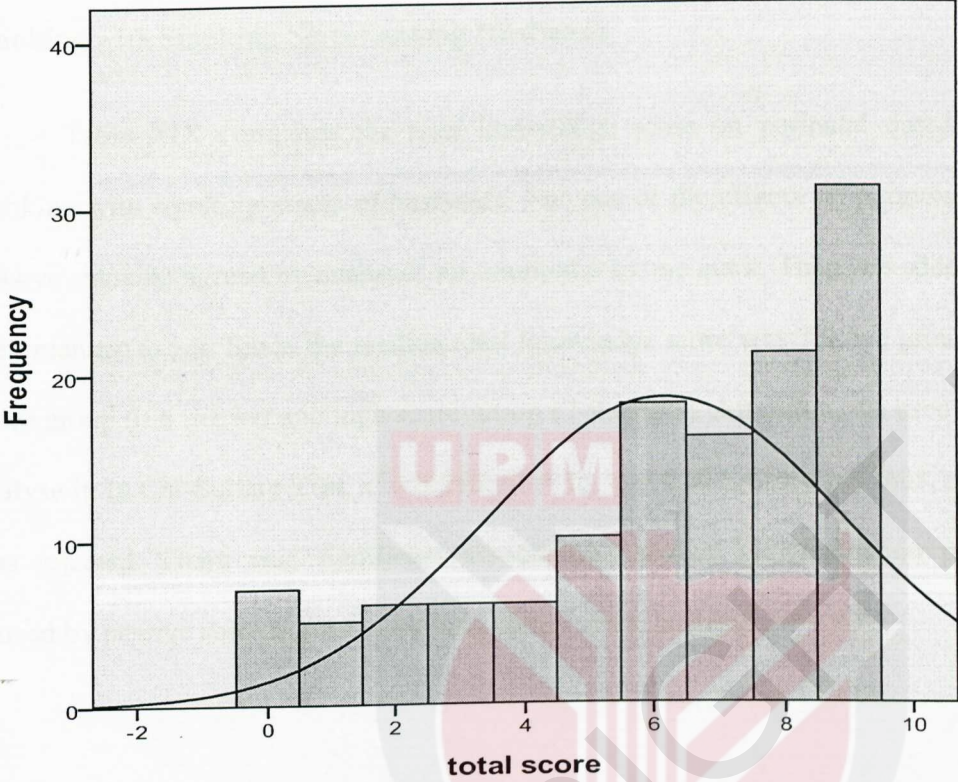


Figure 2: Distribution of Total Knowledge Score on Perinatal Outcomes Caused by Passive Smoking among Husbands

4.8.3 Association between Total Knowledge Score on Perinatal Outcomes due to Passive Smoking with Smoking Status among Husbands

Table XIX compares the total knowledge score on perinatal outcomes secondary to smoking with smoking status of husbands. For one of the effects on perinatal outcomes due to passive smoking agreed by husband, we counted it as one mark. Then, we added up all the scores they manage to get. Since the median total knowledge score was 7.0, we grouped them into low score group (0-6 marks) and high score group (7-9 marks). After that, we used Chi-Square test to analyse it. In Chi-Square Test, $\chi^2 = 5.215$; $df = 1$; $p = 0.022$. Since $p < 0.05$, null hypothesis (H_0) was rejected. There was significant association between knowledge on perinatal outcomes caused by passive smoking with smoking status of the husbands.

Table XIX: Total Knowledge Score on Perinatal Outcome Secondary to Smoking with Smoking Status among Husbands

TOTAL SCORE	SMOKING STATUS	
	Yes n (%)	No n (%)
0	6 (85.7)	1 (14.3)
1	4 (80.0)	1 (20.0)
2	5 (83.3)	1 (16.7)
3	4 (66.7)	2 (33.3)
4	4 (66.7)	2 (33.3)
5	4 (40.0)	6 (60.0)
6	7 (38.9)	11 (61.1)
7	4 (25.0)	12 (75.0)
8	10 (47.6)	11 (52.4)
9	12 (38.7)	19 (61.3)
Total	60 (47.6)	66 (52.4)

Table XX: Association between Total Knowledge Score on Perinatal Outcome Secondary to Smoking with Smoking Status among Husbands

Total Knowledge Score	Smoking Status	
	Yes n (%)	No n (%)
Low	34 (58.6)	24 (41.4)
High	26 (38.2)	42 (61.8)
Total	60 (47.6)	66 (52.4)

Chapter 5: Discussions and Conclusions

5.1 Discussions

5.1.1 Prevalence of smoking among husbands

Based on our findings, the prevalence of smoking among husbands that accompanied their wife's for antenatal visit was 47.6%. Lim *et al* revealed that approximately 46.5% (95% CI: 45.5-47.4%) of male adults are smoking through the Third National Health and Morbidity Survey conducted in 2006. As our research was restricted to husbands instead of male adults in Malaysia, hence there is a slight difference with value of prevalence. In addition, from the survey conducted in Tokyo (Nihon, 1991), 55.2% of husbands in Japan were smoking before wife's pregnancy, 53.4% during pregnancy and 51.8% after delivery. Also, if to refer to the prevalence of smoking husband in Asian, there was a research done in China continent (Alice, et al., 2000) which showed a high prevalence which is 60.2% (95 CI: 57.5%-62.7%) of the never-smoking pregnant women had a husband who currently smoked.

5.1.2 Sociodemographic Characteristics of Husbands

5.1.2.1 Age

We can see that most of the husbands involved in this study were between 31-40 years old which was 69 husbands (54.8%), followed by 21-30 years old with 53 husbands (42.1%), 41-50 years old with 3 husbands (2.4%) and lastly 18-20 years old which was 1 husband (0.8%).

As we compared the prevalence of smoking among husbands within each age, it was found that husband who at age of 18-20 recorded the highest number of smokers which was 100%. In contradictory, previous study conducted by Lim et al (2013) found that adult males who at age of 21-30 years old had the highest percentage which was 59.3%. This difference is mainly due to distribution of the respondent in our study. Since there was only 1 respondent who at age of 18-20 years old, thus 100% in this case does not represent the highest percentage of husband who actually smoked within the class interval.

5.1.2.2 Race

In this study, we found that most of the husbands involved were Malays with 104 husbands (82.5%), followed by Chinese with 14 husbands (11.1%), others with 7 husbands (5.5%) and lastly Indian with 1 husband (0.79%). Our study recorded Malay as the highest percentage because they were the biggest population who had been referred to Hospital Serdang and Klinik Kesihatan Seri Kembangan.

As we compared the prevalence of smoking among husbands within each race, it was found that Malays recorded the highest number of smoking husband which about 51.9%. Our results are being supported by study that had been conducted by Lim, *et al* (2013) found that majorities of male adults that smoked were Malays which was 55.9%.

Besides, our study also revealed that Indian and others races recorded the lowest with 0% husband smoking. This result is partially supported by research conducted by Lim, *et al* (2013) found that Indian had the lowest prevalence of smoking among male adults which was about 35.0% but in contradictory, other races had a high prevalence with 55%. This huge difference within others races is due to distribution of the respondents and admission bias in our research. Since distributions of our respondents in other races were little, thus the 0% is not directly representing the true number of husband that actually smoked.

5.1.2.3 Religion

Based on our findings, we found that most of the husbands involved in this study were Muslims with 108 husbands (85.7%), followed by Buddhist with 12 husbands (9.5%), Christian with 3 husbands (2.4%)*, others with 2 husbands (1.6%) and lastly Hindu with 1 husband (0.79%).

As we compared the prevalence of smoking among husbands within each religion, it was found that both Islam and other religions recorded the highest number of smoking husband which about 50%. Muslim husbands were at highest percentage of smoking because majority of husbands that participate in our study were Malays. With our best effort, we could not find any reference and article regarding this particular topic. Thus, our result cannot be compared with previous study to show whether it is same pattern or vice versa instead.

5.1.2.4 Educational Background

From our findings, most of the husbands involved in this study were from tertiary education group which was 69 husbands (54.7%), followed by secondary education were 51 husbands (40.5%), primary education were 4 husbands (3.2%) and lastly no educational group was 2 husbands (1.6%). Our study recorded tertiary education group among the husbands as a highest percentage because Hospital Serdang and Klinik Kesihatan Seri Kembangan are located in urban area and comprises of many well educated population.

As we compared the prevalence of smoking among husbands within each group of educational background, it was found that percentage of husband smoking was highest with primary educational background which about 51.9%. Our result is supported by *Anjum et al (1996)* found that prevalence of smoking among male adults in Kuwaiti was highest within group of primary education which was 50%. However, a current study conducted by *Lim, et al (2013)* was contradicted with our findings. The study found that prevalence of smoking among male adults was highest with secondary education which was 53.8%. This difference is mainly due to decrease awareness of adults regarding smoking during past secondary school and poor knowledge and attitude toward it.

In addition, we also found that husbands with tertiary education were recorded the lowest prevalence of smoking with 33.3%. Our finding is supported from the studies of *Anjum et al* and *Lim et al* that prevalence of smoking was lowest in adults with tertiary education which were 28.6% and 31.4% respectively.

5.1.2.5 Family Income

From our findings, majority of the husbands involved in this study were having family income of RM2000-2999 per month with 34 husbands (27%). Minority of husbands involved were having family income of less than RM1000 per month with 7 husbands altogether (5.6%).

As we compared the prevalence of smoking among husbands within each group of family income, it was found that group of family income RM1000-1999 per month recorded the highest number of smoking husband with 69.6% respectively. Previous study conducted by Lim et al (2013) found that husband with family income less than RM 2000 per month had highest percentage which was 53%. Since both findings did not have a same class interval, we can conclude that our finding is partially supported by the previous study mentioned.

In the other hand, we also found that husband belonged to group of family income of more than RM5000 per month recorded the lowest prevalence of smoking which was 25.0%. Our finding is same as previous study that showed husband with family income of more than RM 3000 had lowest prevalence of smoking which was 39.2%.

5.1.2.6 Residential Area

From our findings, we found out most of the husbands involved in this study lived in urban area which was about 105 husbands (83.3%) while the number of husband that lived in rural area was 21 husbands (16.7%) altogether. Because of our study locations, Hospital Serdang and Klinik Kesihatan Seri Kembangan are located in urban area, the participation of husband in this study is at high percentage.

As we compared the prevalence of smoking among husbands within each residential area, it was found that rural area recorded the highest number of smoking husband which was about 66.7%. Our finding is supported by previous study conducted by Lim et al (2013) that showed husband lived in rural area had highest prevalence of smoking which was 56.9%.

5.1.3 Behaviour of smoking among husbands

5.1.3.1 Initial age of smoking

From our findings, we found that majority of respondents started smoking in the age of 11 to 20 years old which was 63.3%. By looking at the previous study conducted by *Anjum et al* (1996), majority of adult males started smoking at around age of 15-19 which was 56.5%. In addition, research done by *Naomi et al* (1996) stated that most of the adults started smoking at the age of 14-16 years old which was about 43.2%. Because of variation of class interval used, we can conclude that our result is almost the same with the outcome of previous study.

5.1.3.2 Duration of smoking

From our findings, majority of husbands smoked for 11 to 15 years, which contributed to 35.0% followed by 6 to 10 years, which contributed to 31.7%. There was 16.7% of the respondents who smoked for 16 to 20 years. Minority of them smoked for less than 5 years (8.3%) and more than 20 years (8.3%). Husbands that smoked for 11 to 15 years were at highest percentage because most of them started smoking during primary and secondary school age. Since majority age group of husband was between 31-40 years old, we can say that most of husbands smoked during their previous school age time. With the best of our effort, we cannot find any source and reference from previous studies to support our findings.

5.1.3.3 Number of Cigarettes Smoked By Respondents Per Day Before and During Wife's Pregnancy

From our findings, we found that majority of respondents smoked 5-9 cigarettes per day before wife's pregnancy, which was 31.7% and smoked more than 20 cigarettes during wife's pregnancy which was 23.3%. By looking at these 2 results, we can see that husbands smoked more cigarettes during wife's pregnancy as compared to before pregnancy. This is mainly due to stress developed while taking care of wives during their gestational period. Study conducted by Buchmann *et al* (2008) showed that acute psychosocial stress and differences in nicotine dependence increased smoking desire among male adults. However, with our best effort, we could not find any source and reference from previous studies to support that husbands smoked more cigarettes during wife's pregnancy as compared to before pregnancy.

5.1.3.4 Number of Husbands who are Smoking In the House

From our findings, we found out that most of husbands smoked outside living house which was 66.7% and another 33.3% of them smoked in the house. Our result is supported by a study conducted by Pua *et al* (2010) found that majority of husbands smoked outside the house by 74.8%. Husbands who smoked in the house will increase the smoke exposure among pregnant women thus lead to adverse effects on newborn development and to the mother itself.

5.1.4 Percentage of Husbands that Are Taking Actions To Stop Smoking During Wife's Pregnancy

From our findings, we found that 20% of husbands will take action to stop smoking during their wife's gestational period while 16.7% of them will remain smoking. About 63.3% of husbands will try to stop smoking for their wife's subsequent pregnancy. With our best effort, we could not find any reference and article regarding this particular topic. Thus, our result cannot be compared with previous study to show whether it is same pattern or vice versa instead.

5.1.5 Therapies to Stop Smoking

5.1.5.1 Knowledge on Interventions to Stop Smoking Among Husbands

In the study, 86.5% of husbands did expose to the interventions to stop smoking before. This could be due to successfulness of government to launch various programmes to create awareness on harmful effects of smoking among Malaysians. However, there were minority (13.5%) of husbands never know there are some ways which can help to stop smoking. They may have limited access to various mass media, so that they are being quarantined from the related information.

5.1.5.2 Knowledge on Different Interventions to Stop Smoking

According to the study, more than half (57.9%) of the husbands knew “SAY NO TO SMOKING” campaign launched by our government. This can be explained by the effectiveness of our Ministry of Health to launch a five-year national anti-smoking campaign with the slogan ‘Tak Nak’ that reached more than 92% of the population (MOH, 2012). The campaign succeeded in delivering accurate information about the dangers of smoking to individual and society (ITC Malaysia National Report Tobacco Advertising, 2012).

Besides, there was 50.0% of husbands had seen the anti-smoking advertisements along the roadside or showing in the television programmer. This is comparable to the previous survey showing that approximately one-quarter (23%) of the youth who were 20 years or older noticed tobacco advertising in entertainment centres and almost half (42%) in shops and stores (ITC Malaysia National Report Tobacco Advertising, 2012).

Same percentage of husbands had seen the warning labels on the cigarette boxes and knew the increasing price and taxation of cigarettes by government as ways to curb smoking in Malaysia, each showed 46.8%. Pictorial health warning labels were introduced on cigarettes boxes in 2009 by Malaysian government. The percentage of people who try to give up smoking at least once due to reading on those health warning labels increased from 24.1% to 45.4% (MOH, 2012). Besides, cigarette prices in the country have risen as an effect of high tobacco taxes. However, there is only 36% of Malaysian smokers feel that smoking brings financial burden to them compared to about 49% in Mauritius (MOH, 2013)(Mauritius Institute of Health, 2012).

On the other hand, 34.9% of husbands knew nicotine patches as one of the interventions to stop smoking. Based on the study carried out by C Silagy et al., NRT increased the odds of quitting smoking approximately 1 to 2 folds (OR 1.77, 95% CI: 1.66-1.88) (C Silagy, et al., 2007). Only one-third of husbands (33.3%) knew that there is counselling method which can help to consult the smokers to stop smoking and 26.2% of them knew the smoke free policies. Smoke free policies are public-sector regulations and private-sector rules that inhibit smoking in indoor spaces and designated public areas to reduce inhalation of second hand smoke (Callinan, et.al., 2010). According to International Tobacco Control Southeast Asia Survey (ITC-SEA), only 40% of Malaysians were reported total smoking bans in indoor air-conditioned places such as restaurants, coffee shops, and karaoke lounges as compared to 57% in Thailand (Yong, et.al., 2010).

5.1.6 Association between Sociodemographic Characteristics with Smoking Status Among Husbands

In the study, race and monthly family income showed significant association with smoking status among husbands who accompany their wives for visits at antenatal clinics in Hospital Serdang and Klinik Kesihatan Seri Kembangan. Malays and low income family were more likely to smoke.

More than half (51.9%) of the Malays were current smokers. Similar proportions have been observed in the previous NHMS surveys and Lim *et al.*'s study (MOH,1997) (Lim, et al., 2013). There are many potential factors contributing to the smoking habits among Malays and deserve further investigation. (Lim, et al., 2013).

Meanwhile husbands from low monthly household income showed higher chance to smoke compared to them who earn more. The higher the level of an individual's income, the less likely that individual is to be a current smoker. According to the studies by Gilmore *et al.* and Huisman *et al.*, higher monthly income is a protective factor for smoking among adult males (Gilmore, et al., 2000) (Huisman, et al., 2005). There were several surveys also showed that the likelihood of smoking was higher among those from lower income bracket (Aekplakorn, et al., 2008) (Cho, et al., 2008) (Lim, et al, 2010).

However, our study showed no association between age, religion, educational level and residential area with smoking status among husbands. Global Adult Tobacco Survey (GATS) reported that in Malaysia, the proportion of current smokers was higher among the 25-44 years old age group (54.9%) (GATS, 2011). A possible explanation for our finding is the age for most of the respondents in our study are within this age group, so we are unable to compare them with other age group.

The lower the level of an individual's educational level, the higher the chance that individual will smoke. According to study by Khang and Cho, the likelihood of smoking was higher among those from low educational level (Khang & Cho, 2006). This pattern is similar to most of the countries. This could be explained by individuals with low educational level have less opportunity to access to adequate health care information (Lim, et al., 2013).

Male respondents in urban areas were less likely to be smokers compared to them living in rural areas (Adjusted Odds Ratio 1.12, 95% CI: 1.03-1.22) (Lim, et al., 2013). The possible explanation is urban residents are more often exposed to various programmes of smoking cessation, such as anti-smoking campaign, advertisements and posters (Lim, et al., 2013). Targeted marketing by the tobacco industry towards the rural residents is another possible contributing factor for high prevalence of smoking in rural areas (Woobaidullah ASM, 2011)

5.1.7 Perinatal Outcomes

5.1.7.1 Awareness of Adverse Perinatal Outcomes due to Passive Smoking Among Husbands

According to the study, there was high percentage of husbands agreed that secondhand smoke may give birth to SGA baby and reduce the lung function of baby, each showed 81.7%. A study by P Goel *et al.* showed that there was significantly higher chance of ETS-exposed mother to give birth to SGA babies compared to unexposed mothers (31.9% vs 17.2%; $p < 0.001$) (P Goel, et al., 2004). Based on the study by Stocks J *et al.*, long-termed prenatal exposure to tobacco smoke is one of the risk factor of reduced lung function and developing COPD in the early life (Stocks & Sonnappa, 2013).

Meanwhile 75.4% of them agreed that cigarette smoking by husbands during wife's pregnancy may cause birth anomaly of baby and 54.8% for sudden death of baby. There was study found out that exposure of pregnant women to ETS increases the risk congenital anomalies on baby (OR 1.17; 95% CI 1.03-1.34) (Salmasi, et al., 2010). The baby are more likely to be born with major deformities of the feets and testes (Leslie, 2011). Jae et al. investigated the association of passive smoking on SIDS. Conditional logistic regression resulted in overall adjusted odds ratio for SIDS associated with passive smoke from father of 3.46 (95% CI:1.81-6.75) (Jae, et al., 2004).

73.0% of the husbands agreed that secondhand smoke may cause low birth weight of baby and weaken the immune system of baby. There was previous study showed that passive smoking by husbands would give birth to LBW baby (RR 1.16; 95% CI 0.99-1.36) although the duration of gestation was similar with other healthy baby (Salmasi, et al., 2010). Besides, perinatal exposure to ETS enhances the susceptibility to viral and secondary bacterial infections and weaken the immune system of baby (Claude, et al., 2012).

In the study, 64.3% of them agreed that passive smoking may cause preterm delivery of baby and give birth to abnormal or unhealthy baby. According to Dr. Winickoff, pregnant women who exposed to secondhand smoke have 23% increase risk of having stillborn (Leslie, 2011). However, only 47.6% of the husbands agreed passive smoking may change the behaviour of the baby. 25% of children whose mothers exposed to ETS during pregnancy were being found out to have behavior problems compared to 16% of children of unexposed mothers (Liu, et al., 2012).

5.1.7.2 Association Between Total Knowledge Score on Perinatal Outcomes due to Passive Smoking with Smoking Status Among Husbands

According to the study, there was significant association between knowledge on perinatal outcomes caused by passive smoking with smoking status of the husbands. The higher the score obtained by husbands, the less likely the husbands smoke. This can be explained by the educational level of an individual. There was a previous study showed that the better educated one is, the more concerned one would be about health and therefore the lesser the likelihood to

smoke (Lim, et al., 2013). They are more exposed to various possible outcomes caused by smoking, including effects of ETS on perinatal outcomes. Therefore, they will become more alert and try not to smoke during their wives' gestational period.

5.2 Study Limitations

As the study was done in Hospital Serdang and Klinik Kesihatan Seri Kembangan, thus the results can only represent population in these locations and not all the population in Malaysia as a whole.

In assessing the smoking behaviour of respondents, some questions in the questionnaire required respondents to recall the frequency of smoking per day, how long do they smoke and when did they start smoking. This may lead to recall bias.

As this research used a self-administered questionnaire, the message in the questionnaire might be misunderstood and therefore, giving rise to information bias.

There were possibilities that respondents did not report themselves as smokers due to the negative perception on smokers among the population nowadays. This would affect the estimation of prevalence of smoking. Thus, there were possibilities that the respondents did not

participate or did not express their actual smoking history in the study and there was a possibility of smokers being missed in this study.

In addition, lack of reference and evidence from previous study were also one of our study limitations. Due to lack of references, most of our findings cannot be compared with previous study to show whether it is same pattern or vice versa instead. There was no research been done to determine the number of respondents smoked according to their respective religions.

5.3 Recommendations

Passive smoking by husbands brings a number of adverse effects on perinatal outcomes. There are needs to develop more effective programs to reduce environmental tobacco smoke exposure among pregnant women. For an instance, our government should launch more anti-smoking campaign to create the awareness of public on harmful effects of smoking. Besides, more smoke free areas should be set up to protect pregnant women from contacting with cigarette smoke. Other than that, the doctor should educate both the pregnant women and their husbands the possible perinatal outcomes due to passive smoking during their visits to antenatal clinic for antenatal check-up.

5.4 Conclusion

After excluding the exclusion criteria, prevalence of smoking among husbands that accompanied their wives for antenatal visit was 47.6%.

For sociodemographic characteristics, most of the husbands involved in this study were between 31-40 years old (54.8%), Malays and Muslims. Besides, most of the husbands involved in this study were in tertiary education group (54.7%), having family income of RM2000-2999 per month (27%) and lived in urban area (83.3%).

As we compared the prevalence of smoking within age, race, religion, educational background, family income and residential area of husband, the results showed highest percentage of smoking husbands who were at age of 18-20 (100%), Malays (51.9%), Muslims (50%), with primary educational background (51.9%), having family income of RM1000-1999 per month (69.6%) and lived in urban area (66.7%).

For smoking behaviour among husbands, majority of husbands started smoking in the age of 11 to 20 years old (63.3%), had smoke for 11 to 15 years (35.0%), smoked 5-9 cigarettes per day before wife's pregnancy (31.7%), smoked more than 20 cigarettes during wife's pregnancy (23.3%) and smoked outside living house.

In addition, about 20% of husbands will take action to stop smoking during their wife's gestational period while 16.7% of them will remain smoking and another 63.3% of them will try to stop smoking for their wife's subsequent pregnancy.

For interventions to stop smoking among husbands, about 86.5% of them did expose to the interventions to stop smoking before. Majorities of the husbands knew "SAY NO TO SMOKING" campaign (57.9%), had seen the anti-smoking advertisements (50%), had seen the warning labels on the cigarette boxes and knew the increasing price and taxation of cigarettes by government which were 46.8%. About 34.9% of husbands knew nicotine patches as one of the interventions to stop smoking.

For association between sociodemographic characteristics with smoking status among husbands, race and monthly family income showed significant association with smoking status among husbands whereas other independent variables like age, religion, educational level and residential area were not significantly associated with smoking status.

For knowledge of husband on perinatal outcomes, majorities of them agreed that secondhand smoke may give birth to SGA baby and reduce the lung function of baby (81.7%). Besides, most of them also agreed that cigarette smoking by husbands during wife's pregnancy may cause birth anomaly of baby (75.4%), sudden death of baby (54.8%), low birth weight of baby and weaken the immune system of baby (73.0%). About 64.3% of husbands agreed that

passive smoking may cause preterm delivery of baby and give birth to abnormal or unhealthy baby.

For association between total knowledge score on perinatal outcomes due to passive smoking with smoking status among husbands, there was significant association between knowledge on perinatal outcomes caused by passive smoking with smoking status of the husbands. The higher the score obtained by husbands, the less likely the husbands smoke.

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APPENDIX I:

Research Team

Group 22

- Main supervisor : Dr Zulida Binti Rejali
Obstetric and Gynecology Department of UPM
- Co-supervisor : Prof. Dr Mohammad Rafee Bin Tamby
Obstetric and Gynecology Department of UPM
- Group Leader : Tai Siu Chun (161425)
- Group member : Muhammad Azizi Bin Zairani (161750)

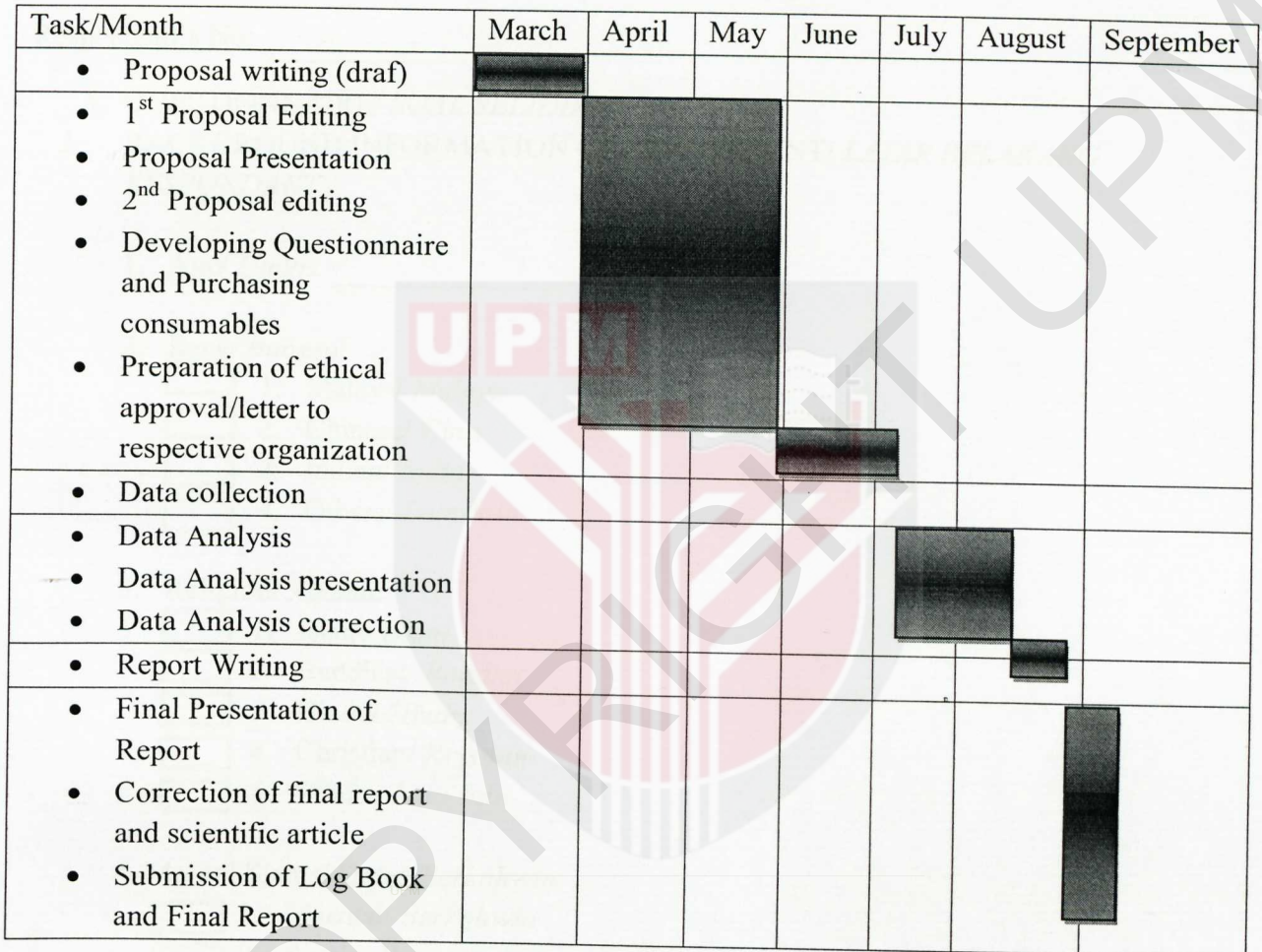
APPENDIX II:

Budget Planning

Detail	Expenses
Printing and Photocopy	RM 350.00
Binding	RM 15.00
Hard Cover	RM 40.00
Phone Calls and Messaging	RM 20.00
Total	RM 450.00

APPENDIX III:

Gantt Chart



Appendix IV: DATA COLLECTION FORM

Respondent's No: _____

A. QUESTIONNAIRE/ *SOAL SELIDIK*I. BACKGROUND INFORMATION OF RESPONDENT/ *LATAR BELAKANG RESPONDANT*1. Age/ *Umur*: _____2. Race/ *Bangsa*:☐1. Malays/ *Melayu*☐2. Chinese/ *Cina*☐3. Indian/ *India*☐4. Others/ *Lain-lain*3. Religion/ *Agama*:☐1. Islam/ *Islam*☐2. Buddhist/ *Buddha*☐3. Hindu/ *Hindu*☐4. Christian/ *Kristian*☐5. Others/ *Lain-lain*4. Marital Status/ *Status Berkahwin*☐1. Married/ *Berkahwin*☐2. Single/ *Bujang*5. Occupation/ *Pekerjaan*: _____6. Educational level/ *Tahap Pelajaran*☐No education/ *Tidak Bersekolah*☐2. Primary level/ *Sekolah Rendah*☐3. Secondary level/ *Sekolah Menengah*☐4. Tertiary level/ *Institut Pengajian Tinggi*

7. Family Income/ *Kewangan Keluarga*

- ☐ 1. Less than RM1000/ *Kurang daripada RM1000*
- ☐ 2. RM1000- RM1999/ *RM1000-RM1999*
- ☐ 3. RM2000- RM2999/ *RM2000- RM2999*
- ☐ 4. RM3000- RM3999/ *RM3000- RM3999*
- ☐ 5. RM4000- RM4999/ *RM4000- RM4999*
- ☐ 6. RM5000 and above/ *RM5000 dan ke atas*

8. Residential Area/ *Tempat Kediaman*

- ☐ Rural/ *Luar Bandar*
- ☐ Urban/ *Bandar*

9. Number of Children/ *Bilangan Anak*: _____II. BACKGROUND INFORMATION OF WIFE/ *LATAR BELAKANG ISTERI*10. Age/ *Umur*: _____11. Race/ *Bangsa*:

- ☐ 1. Malays/ *Melayu*
- ☐ 2. Chinese/ *Cina*
- ☐ 3. Indian/ *India*
- ☐ 4. Others/ *Lain-lain*

12. Religion/ *Agama*:

- ☐ 1. Islam/ *Islam*
- ☐ 2. Buddhist/ *Buddha*
- ☐ 3. Hindu/ *Hindu*
- ☐ 4. Christian/ *Kristian*
- ☐ 5. Others/ *Lain-lain*

13. Educational level/ *Tahap Pelajaran*

- ☐ 1. No education/ *Tidak Bersekolah*
- ☐ 2. Primary level/ *Sekolah Rendah*
- ☐ 3. Secondary level/ *Sekolah Menengah*
- ☐ 4. Tertiary level/ *Institut Pengajian Tinggi*

14. Occupation/ *Pekerjaan*: _____

III. CIGARETTE EXPOSURE STATUS OF RESPONDENT/ *TAHAP PENDEDAHAN RESPONDANT KEPADA ROKOK*

15. Are you a current smoker?/ *Adakah anda seorang perokok?*

- ☐ 1. Yes/ *Ya*
☐ 2. No/ *Tidak*

For those who are not a current smoker, please proceed to question 21./ *Bagi sesiapa yang bukan perokok, sila teruskan dengan soalan 21.*

16. If yes, when did you start smoking?/ *Kalau ya, bilakah anda bermula merokok?*

- ☐ 1. Less than 10 years old/ *Kurang daripada umur 10 tahun*
☐ 2. 11 years old- 20 years old/ *berumur 11 tahun- 20 tahun*
☐ 3. 21 years old- 30 years old/ *berumur 21 tahun- 30 tahun*
☐ 4. 31 years old- 40 years old/ *berumur 31 tahun- 40 tahun*
☐ 5. More than 40 years old/ *lebih daripada umur 40 tahun*

17. If yes, how long do you smoke?/ *Kalau ya, berapa lamakah anda merokok?*

- ☐ 1. Less than 5 years/ *Kurang daripada 5 tahun*
☐ 2. 6 years - 10 years/ *6 tahun- 10 tahun*
☐ 3. 11 years - 15 years/ *11 tahun- 15 tahun*
☐ 4. 16 years - 20 years/ *16 tahun- 20 tahun*
☐ 5. More than 20 years/ *lebih daripada 20 tahun*

18. If yes, how many cigarettes you smoke per day before your wife was pregnant? *Kalau ya, berapakah batang rokok yang anda hisap dalam sehari sebelum isteri anda mengandung?*

- ☐ 1. Less than 5 cigarettes/ *Kurang daripada 5 batang rokok*
☐ 2. 5-9 cigarettes/ *5-9 batang rokok*
☐ 3. 10-14 cigarettes/ *10-14 batang rokok*
☐ 4. 15-19 cigarettes/ *15-19 batang rokok*
☐ 5. 20 cigarettes and above/ *20 batang rokok dan ke atas*

19. If yes, how many cigarettes you smoke per day within this week?/ Kalau ya, berapakah batang rokok yang anda hisap dalam sehari sepanjang minggu ini?

- ☐ 1. Less than 5 cigarettes/ Kurang daripada 5 batang rokok
- ☐ 2. 5-9 cigarettes/ 5-9 batang rokok
- ☐ 3. 10-14 cigarettes/ 10-14 batang rokok
- ☐ 4. 15-19 cigarettes/ 15-19 batang rokok
- ☐ 5. 20 cigarettes and above/ 20 batang rokok dan ke atas

20. If yes, do you smoke in the house?/Kalau ya, adakah anda merokok di dalam rumah?

- ☐ 1. Yes/ Ya
- ☐ 2. No/ Tidak

21. Is your wife a smoker?/Adakah isteri anda seorang perokok?

- ☐ 1. Yes/ Ya
- ☐ 2. No/ Tidak

For the wife who is not a smoker, please proceed to question 25./ Bagi isteri yang bukan perokok, sila teruskan dengan soalan 25.

22. If yes, when does she smoke? Kalau ya, bilakah dia merokok?

- ☐ 1. Before pregnancy/ Sebelum Mengandung
- ☐ 2. During pregnancy/ Semasa Mengandung
- ☐ 3. Both/ Kedua-dua sekali

23. If yes, how many cigarettes does she smoke per day before pregnancy? Kalau ya, berapakah batang rokok yang dihisapnya dalam sehari sebelum mengandung?

- ☐ 1. Less than 5 cigarettes/ Kurang daripada 5 batang rokok
- ☐ 2. 5-9 cigarettes/ 5-9 batang rokok
- ☐ 3. 10-14 cigarettes/ 10-14 batang rokok
- ☐ 4. 15-19 cigarettes/ 15-19 batang rokok
- ☐ 5. 20 cigarettes and above/ 20 batang rokok dan ke atas

24. If yes, how many cigarettes does she smoke per day during pregnancy? Kalau ya, berapakah batang rokok yang dihisapnya dalam sehari semasa mengandung?

- ☐ 1. Less than 5 cigarettes/ Kurang daripada 5 batang rokok
- ☐ 2. 5-9 cigarettes/ 5-9 batang rokok
- ☐ 3. 10-14 cigarettes/ 10-14 batang rokok
- ☐ 4. 15-19 cigarettes/ 15-19 batang rokok
- ☐ 5. 20 cigarettes and above/ 20 batang rokok dan ke atas

25. How many smokers in your house excluding your wife?/*Berapakah perokok di dalam rumah anda tidak termasuk isteri anda?*

- ☐ 1. None/ *Tiada*
☐ 2. One/ *Satu*
☐ 3. Two or more/ *Dua atau lebih*

26. Do you know there are some interventions which can help to stop smoking?/*Adakah anda mengetahui tentang cara-cara untuk berhenti merokok?*

- ☐ 1. Yes/ *Ya*
☐ 2. No/ *Tidak*

27. If yes, please tick on the ways you know./ *Jika ya, sila tandakan pada cara-cara yang anda tahu. (boleh tanda lebih dari satu kenyataan)*

- ☐ 1. Nicotine patches or nicotine gum/ *Plaster nikotin*
☐ 2. Warning label/ *Label amaran*
☐ 3. Advertisement/ *Iklan*
☐ 4. Counseling/ *Kaunseling*
☐ 5. "SAY NO TO SMOKING" Campaign/ *Kempen "TAK NAK"*
☐ 6. Smoke free policies/ *Dasar bebas daripada asap*
☐ 7. Increased in price and taxation of cigarette/ *Kenaikan harga dan cukai rokok*

28. If you are a smoker, will you stop smoking once your wife is pregnant?/ *Kalau anda adalah seorang perokok, adakah anda akan berhenti merokok sekiranya isteri anda mengandung?*

- ☐ 1. Yes/ *Ya*
☐ 2. No/ *Tidak*
☐ 3. Try/ *Cuba*

IV. KNOWLEDGE ON EFFECTS OF PASSIVE SMOKING ON PERINATAL OUTCOME AMONG HUSBANDS/ *TAHAP PENGETAHUAN SUAMI TENTANG KESAN-KESAN TERTINGGAL KEPADA BAYI AKIBAT PEROKOK PASIF*

29. Cigarette smoking by husband may cause sudden death of baby./*Suami yang merokok akan menyebabkan kematian bayi.*

- ☐ 1. Yes/ *Ya*
☐ 2. No/ *Tidak*

30. Cigarette smoking by husband may cause baby born with low birth weight./Suami yang merokok akan menyebabkan kekurangan berat badan bayi.

☐

1. Yes/ Ya

☐

2. No/ Tidak

31. Cigarette smoking by husband may cause growth retardation of baby./Suami yang merokok akan menyebabkan kerencatan pertumbuhan bayi.

☐

1. Yes/ Ya

☐

2. No/ Tidak

32. Cigarette smoking may cause premature delivery of baby (delivery of baby at the date earlier than the actual date)./Suami yang merokok akan menyebabkan kelahiran bayi yang lebih awal daripada tarikh yang sepatutnya.

☐

1. Yes/ Ya

☐

2. No/ Tidak

33. Cigarette smoking by husband may cause birth defects of baby./Suami yang merokok akan menyebabkan kecacatan bayi.

☐

1. Yes/ Ya

☐

2. No/ Tidak

34. Cigarette smoking by husband may change the behavior of baby./Suami yang merokok akan menyebabkan perubahan tingkah laku dan perangai bayi.

☐

1. Yes/ Ya

☐

2. No/ Tidak

35. Cigarette smoking by husband may recude lung function of baby./Suami yang merokok akan mengurangkan fungsi paru-paru bayi.

☐

1. Yes/ Ya

☐

2. No/ Tidak

36. Cigarette smoking by husband may weaken the immune system of baby./Suami yang merokok akan melemahkan system saraf badan bayi.

☐

1. Yes/ Ya

☐

2. No/ Tidak

37. Cigarette smoking by husband will give birth to an abnormal and unhealthy baby./
*Suami yang merokok akan melahirkan seorang anak yang tidak normal dan kurang
 sihat.*

- ☐ 1. Yes/ Ya
☐ 2. No/ Tidak

Thank you for your cooperation. / Terima kasih atas kerjasama anda.





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

RESPONDENT'S INFORMATION SHEET

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

STUDY TITLE

KNOWLEDGE ON PERINATAL OUTCOME SECONDARY TO PASSIVE SMOKING AND SMOKING HABITS AMONG HUSBANDS WHO ACCOMPANY THEIR WIVES FOR VISITS AT ANTENATAL CLINIC IN 2013

INTRODUCTION

Tobacco use is one of the most important worldwide public health problems particularly for developing countries. Several factors were associated with smoking among adults including socioeconomic factors, peer pressure and mass media exposure. Besides, smoking-related diseases have remained as the main causes of death in Malaysia for the last three decades. Cigarette smoking is the major cause of many chronic diseases, such as stroke, heart disease as well as intrauterine growth retardation, perinatal mortality and spontaneous abortion for the baby.

WHAT WILL YOU HAVE TO DO?

Please read this respondent's information sheet for further information on the study. If you agree to participate in this study, you will need to sign the informed consent as evidence of approval. The researcher will then give you a written questionnaire for you to answer.

WHO SHOULD NOT ENTER THE STUDY?

Husband who has medical problems which causes communication disability, cannot communicate in Malay or English and less than 18 years old.

WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

You will know the exposure to the effects of passive smoking on perinatal outcome and get to know other methods of smoking cessation taken by government.

b) TO THE INVESTIGATOR?

We will be able to determine relationship between knowledge on perinatal outcome and technique to stop smoking among husband with smoking status. Results of this study will determine how many husband are actually know about the effect of smoking and how many of them are taking actions to stop smoking.

WHAT ARE THE POSSIBLE RISKS?

The participation in this study is voluntary. If you prefer not to participate, you do not need to give reasons. You may also withdraw from the study at any point in time during the study without giving any reasons.

DO I HAVE TO TAKE PART IN THIS STUDY?

The participation in this study is voluntary. If you prefer not to participate, you do not need to give reasons. You may also withdraw from the study at any point in time during the study without giving any reasons. You will not need to pay nor is payment given to you for participating in this study.

WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

The results of the data obtained will be reported in a collected manner with no reference to a specific individual. Hence, data from each individual will remain confidential.

WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

You may contact us at :

Dr Zulida Binti Rejali

Obstetrics and Gynecology Department, Faculty of Medical and Health Sciences,

Universiti Putra Malaysia

Tel. No. : 0192742632



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FACULTY OF MEDICINE AND HEALTH SCIENCES
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

HELAIAN PENERANGAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

TAJUK KAJIAN

Pengetahuan mengenai kesan terhadap bayi disebabkan tabiat merokok dalam kalangan suami yang menemani isteri ke klinik antenatal 2013

PENGENALAN

Penggunaan tembakau adalah salah satu masalah kesihatan Komuniti di seluruh dunia terutamanya bagi negara-negara membangun. Beberapa faktor telah dikaitkan dengan tabiat merokok di kalangan orang dewasa termasuk faktor-faktor sosio-ekonomi, tekanan dari rakan sebaya dan pendedahan terbuka oleh media massa. Selain itu, penyakit-penyakit yang dikaitkan dengan penggunaan rokok kekal sebagai punca utama kematian di Malaysia untuk tiga dekad yang lalu. Rokok adalah punca utama pelbagai penyakit kronik seperti strok, penyakit jantung serta kerencatan pertumbuhan bayi, kematian dan pengguguran bayi.

APAKAH YANG PERLU ANDA LAKUKAN?

Sila baca helaian penerangan responden ini untuk mengetahui maklumat lanjut tentang kajian ini. Seterusnya, anda dikehendaki menandatangani borang persetujuan responden sebagai tanda persetujuan. Penyelidik akan memberikan anda soal selidik bertulis kepada anda untuk menjawab.

SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Suami yang mempunyai masalah kesihatan merangkumi ketidakupayaan bertutur, tidak boleh bertutur dalam Bahasa Melayu atau Inggeris, dan yang berumur kurang daripada 18 tahun.

APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Anda dapat mengetahui sedikit sebanyak tentang pendedahan mengenai kesan perokok pasif terhadap pertumbuhan bayi dan dapat mengetahui kaedah-kaedah berhenti merokok yang disarankan oleh kerajaan.

b) KEPADA PENYELIDIK?

Kami akan dapat mengenalpasti hubungan antara pengetahuan mengenai kesan terhadap bayi dan teknik untuk berhenti merokok dalam kalangan suami dengan status merokok. Hasil kajian ini akan menentukan berapa ramai suami yang benar-benar tahu tentang kesan merokok dan berapa ramai daripada mereka mengambil tindakan untuk berhenti merokok.

ADAKAH IA BERISIKO?

Tiada risiko tambahan oleh kerana penyelidikan ini tidak melibatkan prosedur tambahan dan prosedur yang dilakukan adalah sebahagian daripada rawatan piawaian.

ADAKAH PERLU UNTUK SAYA MENYERTAI PENYELIDIKAN INI?

Penglibatan dalam penyelidikan ini adalah secara sukarela. Sekiranya anda tidak bersetuju, anda tidak perlu memberikan apa-apa sebab. Anda juga boleh menarik diri pada bila-bilaa masa sahaja tanpa memberikan sebab yang kukuh. Anda juga tidak dikenakan sebarang bayaran dan anda juga tidak akan dibayar bagi penglibatan dalam penyelidikan ini.

ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Maklumat dan indentiti diri anda akan dirahsiakan. Selain itu, sebarang data yang digunakan daripada kajian ini untuk tujuan penerbitan adalah berpandukan data terkumpul semua responden. Keputusan yang diperolehi akan dimaklumkan secara keseluruhan (kolektif) dan tidak akan merujuk pada nama individu tersebut. Maklumat dan keputusan dari setiap individu adalah sulit. Sebagai responden, anda berhak mengetahui ujian anda sahaja.

SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Anda boleh menghubungi kami di :

Dr Zulida Binti Rejali
Jabatan Obstetrik and Ginekologi, Fakulti Perubatan dan Sains Kesihatan,
Universiti Putra Malaysia
Tel. No. : 0192742632



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BORANG PERSETUJUAN RESPONDEN

TAJUK PENYELIDIKAN : Pengetahuan mengenai kesan terhadap bayi disebabkan tabiat merokok dalam kalangan suami yang menemani isteri ke klinik antenatal 2013

PENYELIDIK : 1. TAI SIU CHUN

2. MUHAMMAD AZIZI BIN ZAIRANI

Saya..... No Kad Pengenalan.
 beralamat.....
dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam pengajian soal selidik seperti yang disebut di atas.

Saya telah diberi penjelasan secara menyeluruh mengenai dasar penyelidikan klinikal dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang dijalankan ke atas sampel yang diambil dari saya.

*potong yang tidak berkenaan

Tandatangan
 (Responden)

Tandatangan
 (Saksi)

Tarikh :

Nama :

No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada responden sifat dan tujuan penyelidikan klinikal tersebut di atas.

Tarikh

Tandatangan
 (Penyelidik)



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CONSENT FORM (RESPONDENT)

RESEARCH TITLE : KNOWLEDGE ON PERINATAL OUTCOME SECONDARY TO PASSIVE SMOKING AND SMOKING HABITS AMONG HUSBANDS WHO ACCOMPANY THEIR WIVES FOR VISITS AT ANTENATAL CLINIC IN 2013

RESEARCHER : 1. TAI SIU CHUN
2. MUHAMMAD AZIZI BIN ZAIRANI

I Identity Card No.
address.....
.....hereby voluntarily agree to take part in the
questionnaire study specified above.

I have been informed about the nature of the clinical research in terms of methodology, possible adverse effects and complications (as written in the Respondent Information Sheet). I understand that I have the right to withdraw from this clinical research at any time without assigning any reason whatsoever. I also understand that this study is confidential and all information provided with regards to my identity will remain private and confidential.

I* wish / do not wish to know the results of the tests performed on any samples taken from me.

* cross out where necessary

Signature
(Respondent)

Signature
(Witness)

Date :

Name :

I/C No. :

I confirm that I have explained to the respondent the nature and purpose of the above –mentioned clinical research.

Date

Signature
(Researcher)

JKEUPM Ref No. : FPSK_Mei (13)42(undergraduate)

Members of the JKEUPM who reviewed the documents:

Prof. Dr. Lim Thiam Aun

Date of approval: 28/5/2013

Endorsed at JKEUPM Meeting on 7/6/2013, attended by:

NAME	DESIGNATION	GENDER	TICK IF PRESENT
Prof. Dr. Norlijah Othman	Paediatrics& Dean, Faculty of Medicine and Health Sciences	Female	√
Prof. DrZamberiSekawi	Medical Microbiologist & Deputy Dean of Research and Internationalization, Faculty of Medicine and Health Sciences	Male	
Prof. Dato' Dr. Lye Munn Sann	Medical Statistician, Dept of Community Health, Faculty of Medicine and Health Sciences	Male	√
Prof. Dr. TengkuAizanAbd Hamid	Gerontologist & Director, Institute of Gerontology	Female	
Prof. Dr. LekhrajRampal	Medical Statistician, Dept of Community Health, Faculty of Medicine and Health Sciences	Male	√
Prof. Dr. Elizabeth George	Pathologist, Dept of Pathology, Faculty of Medicine and Health Sciences	Female	
Prof. Dr. Lim ThiamAun	Anesthesiologist, Dept of Surgery, Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Wan Omar Abdullah	Medical Parasitologist, Dept of Medical Microbiology and Parasitology, Faculty of Medicine and Health Sciences	Male	√
Prof. Dr. Patimah Ismail	Professor of Biomedicine, Dept of Biomedical Sciences, Faculty of Medicine and Health Sciences	Female	√
Prof. Dr. Azali Mohamed	Professor of Macroeconomics, Dept of Economics, Faculty of Economics and Management	Female	
Assoc. Prof. Dr. Johnson Stanslas	Pharmacologist, Dept of Medicine, Faculty of Medicine and Health Sciences	Male	√
Assoc. Prof Dr. Mansor Abu Talib	Assoc. Professor of Guidance and Counselling, Dept of Human Development and Family Studies, Faculty of Human Ecology	Male	
Assoc. Prof. Dr. Noritah Omar (Lay Person)	Assoc. Professor of English Language, Dept of English Language, Faculty of Communication and Modern Languages	Female	√
Dr. RojanahKahar (Lay Person)	Lecturer of Dept of Human Development and Family Studies, Faculty of Human Ecology	Female	√
Tan Sri Dato' Napsiah Omar (Lay Person)	Chairman, National Population and Family Development Board	Female	√