



**UNIVERSITI PUTRA MALAYSIA**

***DETERMINANTS OF SMOKING AMONG ADULT RESIDENTS OF FELDA  
IN NEGERI SEMBILAN, MALAYSIA***

**RUBIAH AJAN**

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**DETERMINANTS OF SMOKING AMONG ADULT RESIDENTS OF FELDA  
IN NEGERI SEMBILAN, MALAYSIA**

By

**RUBIAH ANAK AJAN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in  
Fulfilment of the Requirements for the Degree of Master of Science**

**December 2015**

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

## **DETERMINANTS OF SMOKING AMONG ADULT RESIDENTS OF FELDA IN NEGERI SEMBILAN, MALAYSIA**

By

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**December 2015**

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**Introduction:** Smoking is the single most important cause of death. The use of tobacco in cigarettes among smokers is the leading cause of premature mortality and morbidity. In Malaysia itself, the main cause of mortality with 10,000 deaths reported are smoking-related diseases.

**Objective:** The objective of the study is to determine socioeconomic determinants of smoking among adult residents of FELDA in Negeri Sembilan, Malaysia.

**Methods:** The target population were adults from the state of Negeri Sembilan. Two FELDA areas were chosen randomly out of 38 FELDA scheme. A multistage sampling method was used to obtain the sample size. Simple random sampling was then used to select the list of house. Face to face interview was performed by using structured questionnaires. Data was collected from 1,136 respondents. The data included demographic information (age, marital status, level of education, household income), practices and economic aspects of smokers, the influence of friends and family and knowledge. Univariate, bivariate, and multivariate analysis were performed using Statistical Package for Social Sciences (SPSS) version 22.0.

**Result:** A total of 998 respondents answered the questionnaire with a response rate 87.9%. The majority of respondents are males older than 25 years, Malay and Muslim. The findings showed that high income adults were 7.89 times more likely to exhibit smoking than low income. The higher the advertisement, the more likely it leads to increase in smoking. In addition, those who are married are 2.8 times more likely to smoke compared with those who are not married. Knowledge of smoking is one of the factors affecting smoking. Adults who are more educated are 0.57 times less likely to smoke than less educated. Married adults are more likely to smoke than the unmarried. Friends and family smokers were more likely to affect the person to smoke. Poor knowledge related to smoking may lead to smoking. The findings also showed that the higher the knowledge about smoking, the less the likelihood that they smoke.

**Conclusion:** In conclusion, socioeconomic determinants have influenced smoking participation in Malaysia. The findings showed that 45.3% of the respondents are smoker. The prevalence of smoking among men is significantly higher compared to women. The findings also showed that there are many social determinants that could affect smoker such as friends and family members, education, employment, and knowledge. The economic determinants of smoking were advertisement and income. The social determinants were found more important and significant indicators of smoking compared with economic determinants. Based on these empirical findings, several policy implications are suggested.

**Keywords:** Smoking, Socioeconomic, Peer's influence, FELDA, Malaysia,



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**PENENTU MEROKOK DI KALANGAN PENDUDUK DEWASA FELDA  
NEGERI SEMBILAN, MALAYSIA**

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**Pendahuluan:** Merokok adalah penyebab utama kepada punca kematian. Penggunaan tembakau dalam rokok di kalangan perokok adalah punca utama kematian pra-matang dan morbiditi. Di Malaysia sendiri, punca utama kematian dengan 10,000 kematian dilaporkan adalah penyakit berkaitan merokok.

**Objektif:** Objektif kajian ini adalah untuk mengenalpasti faktor sosioekonomi merokok di kalangan dewasa di FELDA Negeri Sembilan, Malaysia.

**Kaedah:** Populasi sasaran adalah penduduk dewasa dari Negeri Sembilan. Dua kawasan FELDA telah dipilih secara rawak daripada 38 skim FELDA. Kaedah sampling multi berperingkat telah digunakan untuk mendapatkan saiz sampel. Persampelan rawak mudah telah digunakan untuk memilih senarai rumah. Data termasuklah ciri-ciri sosiodemografi (umur, status perkahwinan, tahap pendidikan, pendapatan isi rumah), amalan dan aspek ekonomi perokok, pengaruh rakan dan keluarga dan pengetahuan. Data dikumpulkan daripada 1,136 responden. Univariat, bivariat dan multivariat dianalisis dengan menggunakan perisian Statistical Package for Social Sciences (SPSS) versi 22.0.

**Keputusan:** Seramai 998 responden telah menjawab borang soal selidik yang menjadikan kadar respon adalah 87.9%. Majoriti responden adalah lelaki yang berumur lebih 25 tahun dan mereka adalah berbangsa Melayu dan beragama Islam. Dapatan kajian menunjukkan bahawa orang dewasa yang berpendapatan tinggi ialah 7.89 kali lebih cenderung untuk merokok daripada yang berpendapatan rendah. Semakin tinggi iklan, peningkatan dalam merokok juga semakin tinggi. Di samping itu, mereka yang telah berkahwin adalah 2.8 kali lebih berkemungkinan untuk merokok berbanding dengan mereka yang belum berkahwin. Pengetahuan merokok adalah salah satu faktor yang memberi kesan merokok. Orang dewasa yang berpendidikan tinggi adalah 0.57 kali kurang berkemungkinan untuk merokok daripada kurang berpendidikan. Berkahwin lebih cenderung untuk merokok daripada yang belum berkahwin. Manakala, rakan dan keluarga perokok lebih cenderung untuk memberi kesan kepada orang untuk

merokok. Responden yang mempunyai pengetahuan kurang berkaitan merokok boleh membawa kepada keinginan untuk merokok. Dapatan kajian juga menunjukkan bahawa dewasa yang mempunyai pengetahuan yang tinggi mengenai kesan merokok, semakin kurang kemungkinan untuk mereka terlibat merokok.

**Kesimpulan:** Kesimpulannya, penentu sosioekonomi mempunyai pengaruh ke atas penyertaan merokok di Malaysia. Dapatan kajian menunjukkan bahawa 45.3% daripada responden adalah perokok. Prevalens merokok di kalangan lelaki adalah lebih tinggi berbanding wanita. Dapatan kajian juga menunjukkan bahawa terdapat banyak penentu sosial boleh memberi kesan kepada perokok seperti rakan-rakan dan ahli keluarga, pendidikan, pekerjaan, dan juga pengetahuan. Penentu ekonomi merokok adalah iklan dan pendapatan. Penentu sosial didapati lebih penting dan petunjuk ketara merokok berbanding dengan penentu ekonomi. Berdasarkan kepada penemuan empirikal, beberapa implikasi dasar yang telah disyorkan.

**Kata kunci:** Merokok, Sosioekonomi, Pengaruh Rakan, FELDA, Malaysia.

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## LIST OF ABBREVIATIONS

COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular Disease
DIP	Desquamative Interstitial Pneumonia
EC	Electronic Cigarette
ETS	Environment Tobacco Smoke
FDA	Food and Drug Administration
FELDA	Federal Land Development Authority
GATS	Global Atlas Tobacco Survey
ILDs	Interstitial Lung Diseases
IPF	Interstitial Pulmonary Fibrosis
LDCT	Low Dose Computed Tomography
NRT	Nicotine Replacement Therapy
PLCH	Pulmonary Langerhans Cell Histiocytosis
RB-ILD	Respiratory Bronchiolitis (RB)-Associated ILD
SES	Socioeconomic Status
SFC	Smoke Free Class
SHS	Secondhand Smoker
SIDS	Sudden Infant death Syndrome
WP	Water Pipe
WHO	World Health Organization

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

According to World Health Organization (1995) smoking is the single most important cause of death globally. Globally, the amount of mortality is around 6 million each year due to tobacco consumption (Cheah & Naidu, 2012). The use of tobacco in cigarettes among smokers is the leading cause of premature mortality and morbidity in United States (Fernander et al., 2010). In Asian and African countries, the smoking prevalence is significantly higher in men compared to women. Researches show 80% of non-communicable diseases occur in low and middle income countries and increasingly affect the developed countries as opposed to a developed nation (Hosseinpoor et al., 2012).

The occurrence of smoking varies based on socio economic status and level of education of individual (Tombor et al., 2013). Smoking is placed as an economic burden worldwide. In the USA, pack of cigarettes consume by kids each year is 800 million packs which is roughly 6.52 billion Ringgit Malaysia per year in sales revenue. In USA, 19% of adults are smokers, which is equivalent to 43.8 million of the population. It is about 21.6% in males and 16.5% in females, respectively. The total annual public and private health care expenditures caused by smoking is RM 312.9 billion. Furthermore; the annual federal and state government smoking-related Medicaid payments cost RM 100.7 billion. Other federal government tobacco-caused health care cost RM 31.3 billion. In addition, the annual health care expenditures solely from secondhand smoke exposure cost RM 16.23 billion. Besides being hazardous, smoking leads to productivity losses worth RM 316.22 billion. The yearly taxation for the federal and state has cost the governments' expenditure up to RM 230.5 billion. This is stemmed from the average retail price per cigarette pack in the USA including the tax of RM 17.25 (USA Toll of Tobacco, 2013).

In Malaysia, smoking brings about approximately 20% of all deaths annually, which accounting for almost 10,000 deaths (Cheah & Naidu, 2012). According to surveys conducted, Malaysian males treat smoking as a style and a normal behaviour. In other previous researches, smokers stated smoking as a habit that is sophisticated and cool (Paul et al., 2010). The Tobacco Atlas showed that 36.6% of schoolboys smoke cigarettes; making Malaysia as one of top countries in the world with highest percentages of smoking rate among male teenagers with the age range of 13 to 15 years old. Low annual cigarette consumption showed that Malaysians smoke an average of 539 sticks a year. Malaysia's direct cost of tobacco use is 3 billion Ringgit Malaysia in 2008. The amount is spent on treating the illness caused by tobacco consumption such as lung cancer, ischemic heart disease and chronic obstructive pulmonary disease (COPD) (Tobacco Atlas, 2008; Al-Naggar, Jawad, & Bobryshev, 2012).

Previous studies have focused on patterns of smoking behaviour (Hammond et al., 2008), knowledge on smoking behaviour (Minhat et al., 2015), prohibition of smoking from Islamic point view (Juni, 2014), and practices regarding secondhand smoking (Suriani et al., 2015). Few studies in the literature have focused on the social and economic determinants of smoking.

It can be summarized that smokers of early age are influenced by family members who smoke, friends, or peer pressure to fit in. The number of smokers is higher among males compared to females. This is because of the socioeconomic factor. The smoking habit of smoker does not changed much (Liu et al., 2013). The use of tobacco is strongly associated with low socioeconomic status. According to the previous research, the prevalence of current smokers is greater in the lower educated, low income and unemployed adults compared to adults with higher class jobs. This low socioeconomic status (SES) category of residents is more prone to smoking. There are also a few types of problems that may cause the occurrence of smoking. Problems involved could be weak financial status, crime involvement, social relationships, and broken families. The obvious issues detected among teenagers are usually problems relating to negative disciplinary culture and lack of religious faith (Hisham, 2010).

## **1.2 Problem Statement**

### **1.2.1 Magnitude of the Problem**

Cigarette smoking is the main cause of mortality worldwide that has resulted to approximately 6 million deaths every year (Jha and Peto, 2014; Cheah and Naidu, 2012; Minhat et al., 2015). In Malaysia alone, there are around 10,000 deaths annually (Lim et al., 2009; Tan et al., 2009). Adults in the country who currently smoke tobacco cover 23.1% which is equivalent to 4.7 million adults (WHO, 2013). Moreover, the prevalence of smoking among men is high in Malaysia. Herein, as the number of current smokers in Malaysia increase, the risk of getting smoking related disease is high as well. Malaysian government is spending more than RM 3 billion yearly for the treatment cost due to smoking related disease (Cheah and Naidu, 2012; Al-Naggar et al. 2012).

Whereas, FELDA is also currently facing problems on smoking which are related to knowledge (Minhat et al. 2015) and socioeconomic determinants (Cano & Wetter, 2014). Several factors that influence the smoking habit are household income, parent's attitudes, religion, education, negative environmental influences and failure of social welfare program. However, there are just a few studies done regarding social problems. The information of socioeconomic determinants associated with smoking in FELDA is very limited in terms of scientific researches. Social problems occur in FELDA are drug addiction, juvenile delinquencies, non-formal education, broken families and unemployment among youths. The economic aspect is measured as low income, no income, no fixed job but supporting a large household.

Based on the above, there is a knowledge gap related to the association between social and economic determinants and smoking in Malaysia. This study may benefit and aid the society in solving the problem of smoking behaviour. This study might help to develop effective strategies and interventions to curb this social problem in Malaysia specifically in FELDA. In a long term view, there is an urgent need on public health interventions to be able to give special attention to the determinants of smoking behaviour that may affect the health of smokers as well as the socioeconomic development of the country. Since the tobacco smoke is hazardous to the person who inhales it, prevention programs could help reduce the exposure and increase the awareness of smokers.

### **1.3 Significance of the Study**

In Malaysia, previous studies did not pay attention to the economic and social determinants of smoking. Majority of the study focused on the patterns of smoking among adults (Hammond et al. 2008; Cheah and Naidu, 2012), knowledge on smoking behaviour (Lim et al. 2009; Lim et al. 2013; Minhat et al. 2015), prohibition of smoking from Islamic point view (Wee et al., 2011; Juni, 2014), and practices regarding secondhand smoking (Suriani et al. 2015). There are only few studies in the literature that focused on the social and economic determinants of smoking. Moreover, only a few number of researches related to socioeconomics of smoking in Malaysia particularly in FELDA settlements were conducted.

This study is significant because it contributes to the identification of factors that influence smoking from economic perspectives. Malaysian government has spent RM 3 billion for public health issues caused by smoking. The study also contributes to increase the awareness among the Malaysian citizens about smoking and its relationship to the social and economic determinants. Citizens could benefit from the study by being aware of the danger of smoking and its effects from social and economic perspectives. Decision makers can also utilize the findings to formulate policies and decisions that would help in the cessation and quitting of smoking among citizens. From theoretical perspective, the study fills the gap related to the social and economic determinants of smoking and compares the impact of both determinants. Moreover, the study could contribute to the research field because there is a lack of studies related to the social and economic determinants of smoking that has been conducted.

### **1.4 Research Questions**

The research questions of this study are:

- i) What is the prevalence of smoking among adult residents of FELDA in Negeri Sembilan?
- ii) What is the association between social determinants and smoking among adult residents of FELDA in Negeri Sembilan?

- iii) What is the association between economic determinants and smoking among adult residents of FELDA in Negeri Sembilan?
- iv) What is the relationship between social and economic determinants with smoking among adult residents of FELDA in Negeri Sembilan?
- v) What are the predictors of smoking among adult residents of FELDA in Negeri Sembilan?

## **1.5 Research Objectives**

### **1.5.1 General Objective**

The main objective of this study is to determine socioeconomic determinants of smoking among adult residents of FELDA in Negeri Sembilan.

### **1.5.2 Specific Objectives**

The specific objectives of this study are as follow:

- i) To determine prevalence of smoking among adult residents of FELDA in Negeri Sembilan.
- ii) To determine social determinants (Age, gender, employment status, religion, ethnicity, education level, marital status, household income, family and friend's influences and knowledge) associated with smoking among adult residents of FELDA in Negeri Sembilan.
- iii) To determine economic determinants (Income, price of cigarette, branding and advertisement) associated with smoking among adult residents of FELDA in Negeri Sembilan.
- iv) To determine relationship between social and economic determinants with smoking among adult residents of FELDA in Negeri Sembilan.
- v) To determine the predictors of smoking among adult residents of FELDA in Negeri Sembilan.

## **1.6 Hypothesis**

Based on the literature review and the conceptual framework of this study, the following are the alternative hypotheses of this study.

*H1:* There is a significant association between social determinants (Age, gender, employment status, religion, ethnicity, education level, marital status, household income, family and friend's influences and knowledge) and smoking among adult residents of FELDA in Negeri Sembilan.

*H2*: There is a significant association between economic determinants (Income, price of cigarette, branding and advertisement) and smoking among adult residents of FELDA in Negeri Sembilan.

## **1.7 Definition of Terms**

### **1.7.1 Smoking Status Classification**

Respondents were classified as current, former, or never smokers according to World Health Organization classifications. Current smokers were defined as those individuals who had smoked at least 6 months during their lifetime and were smoking tobacco products at the time of the survey. Former smokers were defined as those individuals who had smoked at least 6 months during their lifetime but no longer currently smoke. Never smokers were defined as those individuals who had never smoked or had smoked less than 6 months during their lifetime. Heavy daily smokers were defined as current daily smokers who smoked on average at least one pack a day (WHO, 1983). As defined by the Centres for Disease Control and Prevention, secondhand smoke (SHS) is a mixture of gases and fine particles that includes smoke from a burning cigarette, cigar, or pipe tip; and smoke that has been exhaled by the smoker (CDC, 2013).

### **1.7.2 Social Determinant**

Social determinant is a social measure based on employment status, type of occupation, and income (Howe et al., 2012). In this study, the social determinants refer to demographic background and the social related activities.

### **1.7.3 Economic Determinant**

Four measures of socio-economic status were used: educational achievement, household income status and employment status (Barbeau, Krieger, & Soobader, 2004). However, in this study, the focuses on the economic determinants include income, price of cigarette, branding and advertisement.



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