# Intention to quit smoking among male smokers in Yangon, Myanmar: Theory of Planned Behavior Approach

Mr. Hein Koko



A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Public Health
College of Public Health Sciences
Chulalongkorn University
Academic Year 2015

# ความตั้งใจในการเลิกบุหรี่ของผู้สูบบุหรี่ชายในย่างกุ้ง ประเทศเมียนมาร์: โดยใช้ทฤษฎีพฤติกรรมตามแผน

นายเหียน โกโก



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
สาขาวิชาสาธารณสุขศาสตร์
วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย
ปีการศึกษา 2558

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|---|---|
| Thesis Title | Intention to quit smoking among male smokers in Yangon, Myanmar: Theory of Planned Behavior Approach |
| By | Mr. Hein Koko |
| Field of Study | Public Health |
| Thesis Advisor | Tepanata Pumpaibool, Ph.D. |

Accepted by the College of Public Health Sciences, Chulalongkorn University in Partial Fulfillment of the Requirements for the Master's Degree

.....Dean of the College of Public Health Sciences
(Professor Sathirakorn Pongpanich, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Associate Professor Ratana Somrongthong, Ph.D.)
.....Thesis Advisor
(Tepanata Pumpaibool, Ph.D.)
.....Examiner
(Assistant Professor Usaneya Perngparn, Ph.D.)
.....External Examiner
(Associate Professor Sompoch Iamsupasit, Ph.D.)

เหียน โกโก : ความตั้งใจในการเลิกบุหรี่ของผู้สูบบุหรี่ชายในย่างกุ้ง ประเทศเมียนมาร์: โดยใช้ทฤษฎีพฤติกรรมตามแผน (Intention to quit smoking among male smokers in Yangon, Myanmar: Theory of Planned Behavior Approach) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: อ. ดร. เทพนาฏ พุ่มไพบูลย์, 104 หน้า.

บทคัดย่อ

การสูบบุหรี่เป็นสาเหตุของการตายและเจ็บป่วยด้วยโรคที่ป้องกันได้ของประชากรมาเป็นเวลานาน วัตถุประสงค์ของการศึกษานี้ คือเพื่อทดสอบว่าปัจจัยทางคุณลักษณะประชากร พฤติกรรมการสูบบุหรี่ในปัจจุบัน การเสพติดฤทธิ์ของสารนิโคติน ความพยายามในการเลิกบุหรี่ และตัวแปรตามทฤษฎีพฤติกรรมตามแผน อันได้แก่ เจตคติ การรับรู้บรรทัดฐานทางสังคม และการรับรู้ความสามารถของตนเอง ปัจจัยใดมีความสัมพันธ์กับความตั้งใจในการเลิกบุหรี่ของชายชาวเมียนมา

การศึกษาแบบภาคตัดขวางนี้ดำเนินการใน 4 เขตการปกครองท้องถิ่นในเมืองย่างกุ้ง ประเทศเมียนมา ระหว่างเดือนเมษายนถึงเดือนมิถุนายน 2559 ผู้สูบบุหรี่ชายอายุตั้งแต่ 18 ปีขึ้นไป จำนวน 339 คนเข้าร่วมการศึกษาเพื่อสอบถามถึงความตั้งใจในการเลิกบุหรี่

ในกลุ่มผู้สูบบุหรี่ชายจำนวน 128 คนพบว่าไม่มีความตั้งใจในการเลิกบุหรี่ ในจำนวนนี้ 124 คนมีความตั้งใจในระดับต่ำและ 87 คนมีความตั้งใจในระดับสูงในการเลิกบุหรี่ ปัจจัยที่มีความสัมพันธ์กับความตั้งใจในการเลิกบุหรี่ของชายชาวเมียนมา คือ อายุ ($p = 0.019$) การห้ามสูบบุหรี่ในที่ทำงาน ($p = 0.016$) จำนวนบุหรี่ที่สูบเฉลี่ยต่อวัน ($p = 0.001$) ความพยายามในการเลิกบุหรี่ที่ผ่านมา ($p < 0.001$) ความถี่ของความพยายามในการเลิกบุหรี่ในปีที่ผ่านมา ($p < 0.001$) เจตคติต่อการเลิกบุหรี่ ($p = 0.004$) การรับรู้บรรทัดฐานของสังคมต่อการเลิกบุหรี่ ($p = 0.050$) และการรับรู้ความสามารถของตนเองในการเลิกบุหรี่ ($p = 0.019$)

จากผลที่ได้ โปรแกรมการเลิกบุหรี่ในประเทศพม่าควรจัดให้มีความเหมาะสมตามกลุ่มอายุของผู้สูบ นอกจากนั้นควรส่งเสริมให้ผู้สูบมีความพยายามมากขึ้นในการเลิกบุหรี่ และโปรแกรมการเลิกบุหรี่ควรให้สมาชิกในครอบครัวและเพื่อนเข้ามามีส่วนร่วม

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2558 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

# # 5878831253 : MAJOR PUBLIC HEALTH
KEYWORDS: BEHAVIOR INTENTION, CIGARETTE SMOKING

HEIN KOKO: Intention to quit smoking among male smokers in Yangon, Myanmar: Theory of Planned Behavior Approach. ADVISOR: TEPANATA PUMPAIBOOL, Ph.D., 104 pp.

Cigarette smoking has been the causes for preventable deaths and various diseases for people for a long time. The purpose of this study is to examine which socio-demographic factors, current smoking practice, nicotine dependence, past smoking quit attempts, and variables of theory of planned behavior were associated with the intention to quit smoking among Myanmar male smokers.

A cross sectional study was conducted in four townships of Yangon, Myanmar in May and June, 2016. Total respondents of 339 male smokers of 18 years and above were involved in the study and were assessed their intention to quit smoking.

In the study, 128 male smokers reported that they had no intention to quit smoking. Among them, 124 smokers reported having weak intention to quit smoking and 87 of them reported having strong intention to quit smoking. The factors associated with the intention to quit smoking of Myanmar male smokers were age (p value = 0.019), smoking ban in workplace (p value = 0.016), average amount of cigarette consumed per day (p value = 0.001), last year smoking quit attempts (p value <0.001), frequency of last year quit attempts (p value <0.001), attitudes towards smoking cessation (p value = 0.004), perceived social norms towards smoking cessation (p value = 0.050) and self-efficacy towards smoking cessation (p value = 0.019).

Given the findings, the smoking cessation program in Myanmar should be focused on different age groups of male smokers. In addition to that, they should be encouraged to attempt the quitting smoking frequently. Smoking cessation program should involve family members and friends should be implemented.

Field of Study: Public Health Student's Signature .....

Academic Year: 2015 Advisor's Signature .....

# ACKNOWLEDGEMENTS

I am deeply indebted and very grateful to Tepanata Pumpaibool, Ph.D., my advisor for her guidance, invaluable supports and experiences that help me throughout this study.

Most importantly, I would like to express my sincere appreciation and deep gratitude to Associate Professor Ratana Somrongthong, Ph.D., for her kindness, invaluable suggestion, and comment throughout the whole process of this study. I would like to express my sincere gratitude and appreciation to Asst. Prof. Usaneya Perngparn, Ph.D., my thesis examiner and Assoc. Prof. Sompoch Iamsupasit, Ph.D., my external thesis examiner for providing me valuable suggestions and comments on my proposal as well as thesis.

I would like to thank to the Dean and all my lecturers of the College of Public Health Sciences, Chulalongkorn University for their kind guidance. I also wish to thank to all staffs of MPH office for their friendliness and kindly support to all the students.

I would like to express a special thanks to all my MPH Students as well as Ph.D. Students for their experience, cooperation, kindness and friendship during this course.

Special appreciation and thanks to all the staffs from Population Services International/Myanmar especially Staffs of Research Department for providing assistant regarding data collection and required support for the study.

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| | | |
|---|---|---|
| COPD | - | Chronic obstructive pulmonary diseases |
| CVD | - | Cardio vascular disease |
| DALYs | - | Disability adjusted life years |
| HIV | - | Human Immunodeficiency Virus |
| HR | - | Hazard ratio |
| INGO | - | International non-governmental organization |
| TB | - | Tuberclosis |
| TPB | - | Theory of planned behavior |
| TRA | - | Theory of reasoned action |
| PSI/Myanmar | - | Population Services International/Myanmar |
| WHO | - | World Health Organization |

# CHAPTER I

## INTRODUCTION

1.1 Background

Cigarette smoking has been the one of the most common risk factors of many diseases for people for a long time. Tobacco use ranked second leading cause of preventable causes of death and disability (World Health Organization, 2009) Globally, smoking is responsible for the deaths of 5.6 million people including deaths from second hand smoking. The number of death tolls made by tobacco as a risk factor alone is more than the total deaths caused by Human Immunodeficiency Virus, tuberclosis and malaria combined (World Health Organization, 2012). The profound negative impact of tobacco at the present time and presenting in the future is one of the main reasons for controlling and monitoring of the tobacco epidemic. World Health Organization has also been encouraging the effective tobacco control in all of its fellow member countries so that they could reduce the morbidity and mortality caused by tobacco (World Health Organization, 2012). Although the prevalence of smoking in people is seemingly declining gradually, smoking is still major threatening risk factor for the lives of people all over the world including low income countries like Myanmar. Tobacco smoking is second leading risk factor of DALYs (Disability Adjusted Life Years) in 2010 in Myanmar (Institute of Health Metrics and Evaluation, 2010) responsible for the deaths of approximately 0.2 Million Myanmar citizens of age 30 years and above old (World Health Organization, 2012).

Previously, smoking was considered to be more prone in the high income countries but nowadays, around 80% which is more than 1 billion smokers are living in

low and middle income countries (World Health Organization, 2015a). In Myanmar, there were about 18.3% of smokers among general population of 15 years and above in both sexes in 2015 (World Health Organization, 2015b). According to World Health Organization, Myanmar is one of the high prevalence countries of tobacco smoking in South East Asia Region (World Health Organization, 2015c). Smoking is more common in males than females not only globally but also in Myanmar. In some low income countries, smoking is limited only to men and mortality resulting from smoking is profoundly higher than that of females (World Health Organization, 2012). This discrepancy between genders in prevalence of smoking and smoking related diseases and deaths can also be seen in Myanmar. The prevalence among people of 15 years and older was about 31.4% in males and 6.3% in females in 2015 (World Health Organization, 2015b) and the mortality related to smoking of age 30 years or older was about 403 deaths/100,000 population in males and about 289 deaths/100,000 population in females which was nearly two times higher in males (World Health Organization, 2012).



Smoking is associated with many negative health outcomes ranging from acute illnesses to chronic conditions and ultimately death. The wide range of smoking related diseases include cardiovascular disease (stroke, coronary heart disease, aortic aneurysm, and peripheral vascular diseases), chronic obstructive pulmonary disease (COPD), many forms of cancers in lung, pharynx, bladder, stomach and cervix and others such as infertility and infant death syndrome (Health & Services, 2004). In addition to the health impacts, smoking is also responsible for social and economic burdens. Poverty cycle of the families and social dislocation can be seen as a result of smoking (World Health Organization, 2012).

World Health Organization had developed a package of six tobacco control measures called MPOWER. It includes 1) monitoring tobacco use and preventive policies, 2) protecting people from tobacco smoke, 3) offering help to quit smoking, warning about the danger of tobacco, 4) enforcing bans on tobacco advertising, promotion and 6) sponsorship and raising taxes on tobacco (World Health Organization, 2015c). Government of Myanmar is also trying to control the tobacco epidemic in accordance with MPOWER measures (Ministry of Health, 2014), but more efforts on the detailed policy making, legislation and reinforcement are required. This may be due to the fact that smoking itself is a complex and influenced by many factors. Although many argued that the choice to smoke is the individual choice, the decision making associated with smoking is influenced by many social, economic and environmental factors. Neighborhood norms played an important role as predictors of negative health related behaviors such as smoking (Jitnarin et al., 2015).

It is imperative to prevent smoking in individuals, but it is also essential to encourage stopping smoking in current smokers. Cessation of smoking has benefits in different groups of people which have been proven by different literatures. If smokers quit smoking, there are significant reduction in the chance of smoking related mortality, cardio vascular diseases, and pulmonary diseases (Gometz, 2011). It was beneficial for any age group; smoking quitting is associated with reducing smoking related morbidity and mortality in people of age 60 years and above (Gellert et al., 2013). These benefits can also be seen in the young people (US Surgeon General, 1990), and also in healthy people (Weinberger, Mazure, & McKee, 2010). Although smoking is being regarded as one of the top national priority risk factors and encouraging people to quit smoking as a component of MPOWER, there is no research conducted in Myanmar about the

intention to quit smoking among current smokers. A study which was conducted in the United States showed that the implementation of effective smoking cessation strategies is associated with improvement of smoking related health status in the area (Gometz, 2011).This study try to investigate on factors associated with intention to quit smoking among current adult smokers in Myanmar based on the theory of planned behavior (Icek Ajzen, 1991). Findings from the study should be able to get a better understanding of factors influencing the intention to quit smoking among smoking population so that they may supplement to the policy makers in designing the smoking cessation strategies.

1.2 Rationale

As a part of the WHO membership country, Myanmar has been implementing tobacco control and prevention measures since 2007. Among those strategies, community based smoking quitting programs are fell in the category of smoking cessation of smokers strategy. Although the policy for providing assistance for smokers such as counseling and nicotine assistance tobacco quitting have been active since 2012 (Ministry of Health, 2014), tobacco is still one of the top public health problems in Myanmar. The fact had again proven by the fact that 18.3% (7.5 millions) among general population of age 15 years and above are smoking (World Health Organization, 2015b) and 19% of all deaths among 30 years or older were due to smoking (World Health Organization, 2012). These figures warrant for the need of in depth understanding of factors associated with intention to give up smoking among smokers in Myanmar to develop practical, and effective action plan regarding smoking quitting among smokers for Ministry of Health in Myanmar. The trend in the prevalence of

smoking in low and middle income countries has been relatively unchanged although the once highest prevalence high income countries are of downward trend (World Health Organization, 2015c). According to the global report on the prevalence of smoking by World Health Organization, Myanmar showed decreasing prevalence with 34.3% smoking prevalence among 15 years or above of general population in 2000 to 18.3% of smoking prevalence in the same population in 2015 (World Health Organization, 2015b), but the high smoker rates and high smoking related disease burdens warrants specific concerns for are required for the tobacco epidemics of Myanmar.

Quitting of Smoking is one of the health promoting behaviors that is influenced by multiple factors, therefore context specific researches are required to understand the behavior. Socio-demographic factors, for example, income, marital status and presence of children were proven to be associated with smoking cessation (Fagan et al., 2007), (Colman & Joyce, 2003) and (Godin & Kok, 1996). Even though smokers attempted to cease smoking, there was significant percentage of smokers who quit smoking relapsed to smoking. According to the study conducted in Turkey, nearly the half of the respondents who quitted smoking relapsed to smoking and the more they are nicotine dependence which is mostly due to the large amount of smoking, the more chance they will be resolved to relapses (Pekel et al., 2015).

Theory of planned behavior (TPB) was designed to predict the willingness of the individuals to perform the behavior under study and hence greatly promoting the individuals' chance to practice the particular behavior (Icek Ajzen, 1991). Many researches have been proven that the components of the theory of planned behavior can be applicable on predicting the behavior of various study populations in different

scenarios. Theory of Planned Behavior was tested in diverse study groups (Godin & Kok, 1996), Korean Women (Sun S Kim, Kim, Seward, Fortuna, & McKee, 2013), Arabic American Men (Athamneh, Essien, Sansgiry, & Abughosh, 2015) and Iranian Adolescents (Karimy, Niknami, Heidarnia, Hajizadeh, & Montazeri, 2013). However, it has never been used in Myanmar to access the intention of smokers to stop smoking.

According to the Theory of Planned Behavior, human behaviors are being influenced by three factors which are self-belief about the outcomes of behavior, expectations and influences of the others to comply with the behavior, and self-belief about factors that may favor and impede with the practice of the behavior and individual's perception to control them. Self-belief about the outcome of the behavior is influenced by positive and negative altitudes regarding the behavior. Expectations and influences of the others for the individuals to comply with the behavior are resulting from the perceived social pressures or subjective norms about the behavior. Lastly, self-perception of own ability to control the behavior influences the own perception regarding controlling the factors associated with the practice of behavior (Icek Ajzen, 1991). However, self-efficacy to perform the behavior is largely associated with perceived behavior control and some of the researchers argued that self-efficacy is a better indicator than perceived behavior control in examining of the intention to perform the behavior (Armitage & Conner, 2001).

In order to develop effective interventions to encourage quit smoking among smokers in Myanmar, it is important to assess what factors are indeed influencing the intention to quit smoking among smokers in the area. Smoking is a health behavior usually seen in adults and morbidity and mortality related to smoking are more severe in males, so that the study population were 18 years or older of males in commercial

city of Myanmar, Yangon. This study try to access the intention to quit smoking by using Theory of Planned Behavior (TPB) with attitudes, subjective norms and self-efficacy towards smoking among adult smokers of men in Myanmar. If the factors associated with the intention to stop smoking are studied, the requirements for Myanmar's smokers to stop smoking would be understood. From there, detailed and practical action plans for smoking cessation strategies can be developed.

1.3 Research Questions

1. What is the association between socio-demographic factors and intention to quit smoking among adult male smokers in Myanmar?

2. What is the association between current smoking practice and intention to quit smoking among adult male smokers in Myanmar?

3. What is the association between nicotine dependence and intention to quit smoking among adult male smokers in Myanmar?

4. What is the association between past smoking quit attempts in last year and intention to quit smoking among adult male smokers in Myanmar?

5. What is the association between attitudes towards smoking cessation and intention to quit smoking among adult male smokers in Myanmar?

6. What is the association between perceived social norms towards smoking cessation and intention to quit smoking among adult male smokers in Myanmar?

7. What is the association between self-efficacy to cease smoking and intention to quit smoking among adult male smokers in Myanmar?

1.4 Hypothesis

1. There is association between socio-demographic factors and intention to quit smoking among adult male smokers in Myanmar.
2. There is association between current smoking practice, nicotine dependence and past smoking quit attempts and intention to quit smoking among adult male smokers in Myanmar.
3. There is association between attitudes, perceived social norms and self-efficacy to cease smoking and intention to quit smoking among adult male smokers in Myanmar.

1.5 Objectives

**General objectives**

The purpose of the study is to find out the association between attitudes, perceived social norms and self-efficacy to cease smoking and intention to quit smoking among adult male smokers in Myanmar.

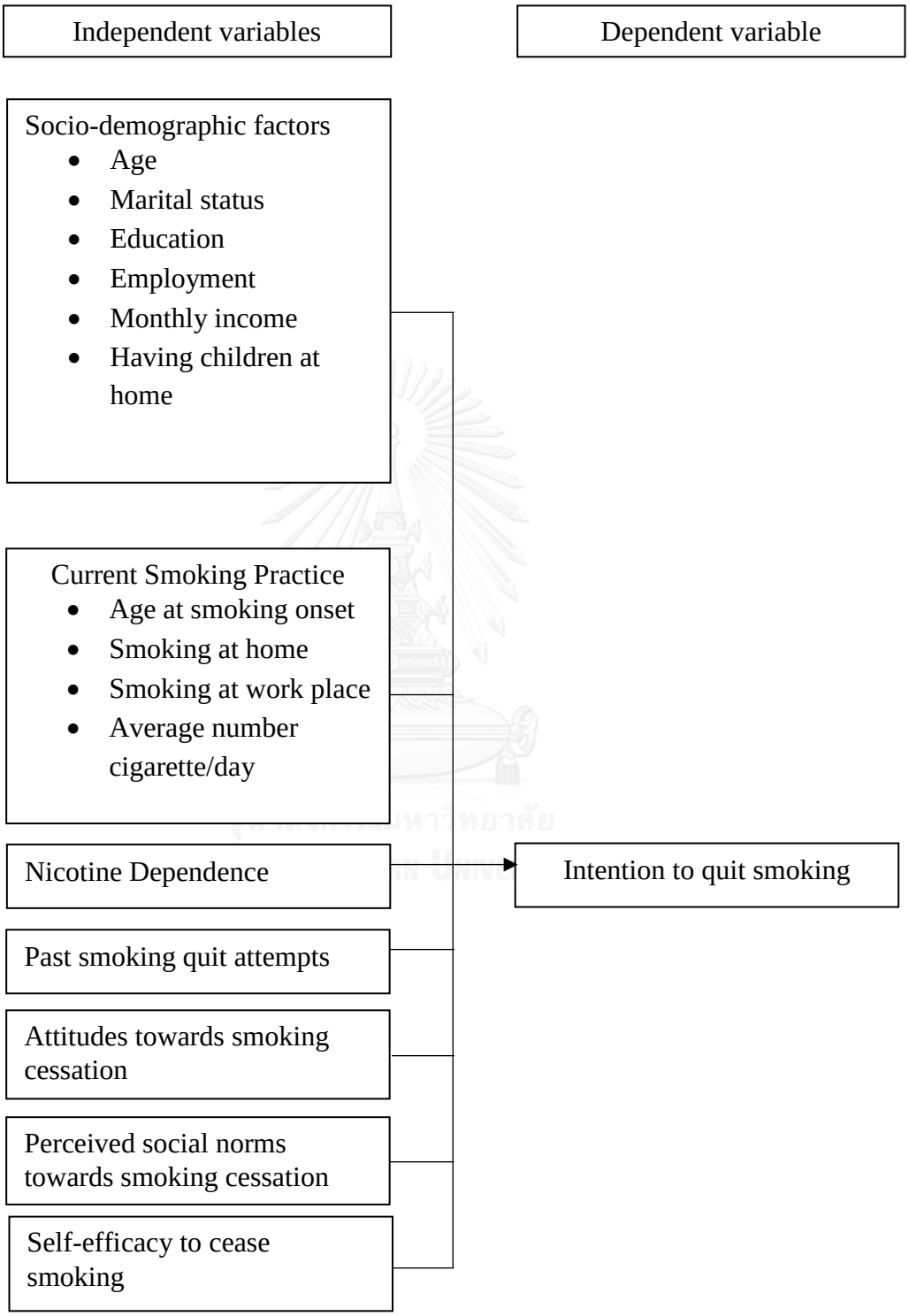


**Specific objectives**

1. To examine the association between socio-demographic factors and intention to quit smoking among adult male smokers in Myanmar.
2. To examine the association between current smoking status, nicotine dependence and past smoking quit attempts and intention to quit smoking among adult male smokers in Myanmar.

3. To examine the association between attitudes, perceived social norms and self-efficacy to cease smoking and intention to quit smoking among adult male smokers in Myanmar.

1.6 Conceptual framework



## 1.7 Operational Definitions

**1. Socio-demographic factors** covers age, marital status, education, employment, children living at home and monthly income.

**Age** refers to the age of the respondent at the time of the study and all respondents must be 18 years and above.

**Marital status** refers to the legal conjugal status of the respondents in accordance with Myanmar National legal or custom laws. The variable is categorized into 3 response - **never married**, **married**, or **divorced / separated / widower**.

**Education** refers to the level of education that the respondent have at the time of the study. The variable is categorized into 4 responses - **Primary education, Secondary education, High school education and Graduate / Post-graduate**.

**Employment** refers to the job status of the respondents at the time of the study. The variable is categorized into 4 responses - **unemployed, government sector, private sector,** and **self-employed**.

**Monthly income** refers to the amount of money in the currency of Myanmar earned by respondent in a month. It is categorized into 3 responses - **less than 108,000 Kyats, 108,000 Kyats – 540,000 Kyats,** and **more than 540,000 Kyats**.

**Children living at home** refer to the presence or absence of children of any number living together at the current residence.

**2. Current Smoking Practice** covers age at smoking onset, smoking at home, smoking during work and number of average cigarettes/day.

**Age at smoking onset** refers to the age of respondents that started smoking.

**Smoking at home** refers that whether the respondents smoke at home or not.

**Smoking during work** refers that whether the respondents smoke during working hours or not.

**Number of average cigarettes/day** refers to the average number of commercially available cigarettes that respondents smoke each day.

**3. Nicotine Dependence** refers to the addiction of nicotine containing tobacco products even though harmful effects to the body. The variable is categorized into 3 responses by the Fagerstrom test (Heatherton, Kozlowski, Frecker, & FAGERSTROM, 1991) – **low nicotine dependence, moderate nicotine dependence** and **high nicotine dependence**.

**4. Past smoking quit attempts** covers last year smoking quit attempts, and number of smoking quit attempts.

**Last year smoking quit attempts** refers to presence or absence of the attempts to quit smoking at least a month one year before the study period.

**Number of smoking quit attempts** refers to the number of the attempts to quit smoking at least a month one year before the study period.

**5. Attitudes towards smoking cessation** cover to the respondents' feelings about the idea of quitting the smoking (McKee, O'Malley, Salovey, Krishnan-Sarin, & Mazure, 2005).

Attitudes towards smoking cessation refer to the perceived benefits of quitting of smoking by the respondents. It is categorized into 3 responses – **low attitudes, neutral attitudes** and **high attitudes**.

**6. Perceived social norms towards smoking cessation** refers to the Perceived social norm towards Smoking cessation by family members and friends (I Ajzen, 2013). It is categorized into **strong perceived social norms toward smoking**

**cessation, moderate perceived social norms towards smoking cessation** and **weak perceived social norms towards smoking cessation.**

**7. Self-efficacy towards smoking cessation** refers to the ability of the respondents to resist the temptation of the smoking. It is categorized into **low self-efficacy, moderate self-efficacy** and **high self-efficacy toward smoking cessation**.

**8. Intention to quit smoking** refers to that whether the respondent have the intention to quit smoking or not. It is categorized into 3 categories with **no intention to quit smoking, weak intention to quit smoking and strong intention to quit smoking.**

# CHAPTER II

## LITERATURE REVIEW

### 2.1 Current Smoking status in Myanmar

Smoking is a health compromising behavior which can be characterized by the consumption of tobacco products. Tobacco is produced from the leaves of "*Nicotina tabacum*". There are many tobacco products available such as *Beedis*, cigarettes, cigars, and chewing tobacco. Among them, it is an universally known fact that cigarettes are the most common used tobacco products in most parts of the urban cities of Myanmar. Tobacco products contain many chemicals; nicotine, tar (a mixture of thousands of dangerous chemicals) and carbon monoxide as a result of smoking. Although all of the chemicals cause harmful effect to the human body, nicotine is responsible for the addictive behavior.

World Health Organization reported that there are about 7,534,900 smokers of both sexes in Myanmar and among them more than 6 million are male smokers (World Health Organization, 2015b). Currently, Ministry of Health in Myanmar considers smoking problem as a national health priority and is implementing smoking control strategy in accordance with MPOWER. Although the other part of the strategy is clearly defined, the strategy for "O = offering help for current smokers" is not specific and practical (Ministry of Health, 2014). In order to develop an intervention strategy for the 7.5 million (6 million male) smokers, the understanding of the complex nature of smokers' intention to stop smoking is required. This is universally accepted that smoking behavior is established in adolescents and can be present in the course of life.

That is the reason why most of the surveys for the smoking conducted for the age of 15 years.

2.2 Current smokers

There are many different definitions for the term “Current Smoker” according to different researches’ objectives. David Hammond and colleges defined the term in the research conducted in Thailand and Malaysia as the persons who had consumed more than 100 cigarettes in his life and practiced smoking minimal of a day in past month (Hammond et al., 2008). Some studies in the United States defined the term as the person who smoked one or more cigarettes everyday (Colman & Joyce, 2003), (Fagan et al., 2007), and (Sun S Kim et al., 2013). Even without literature approval, the smoking behavior is being practiced differently with different age groups in Myanmar. Young smokers especially who are students are usually not allowed to smoke in their homes, especially weekends. Therefore, there will be a possibility if the samples are selected as the persons who smoke one or more cigarette every day. There is another limitation to choose the participants to the ground of practicing smoking at least a day in the past month. The limitation is that the frequency of the smoking among the participants will be so diversified to reduce the chance of fair comparison. Therefore, the participants of the study are the smokers who smoke at least 5 days a week in last 30 days and have the history of smoking for more than one year.

2.3 Socio-demographic factors and intention to quit smoking

The review of literature on the socio-demographic variables with the intention to quit smoking is prioritized on the South-East Asia countries followed by some of the researches conducted in Asian countries and Western countries. A study conducted to assess the quitting intention of Cambodia smokers showed that young age (<37 years old), higher education and being employed were associated with the intention to stop smoking (Tonstad, Job, Batech, Yel, & Singh, 2012). According to Tonsted and collogues' study (Tonstad et al., 2012), Male smokers in Cambodia of aged 18 years to 25 years was associated with intention to quit smoking compared with those of aged more than 48 years. On the same multivariate regression analysis, the odds of having intention to quit smoking among higher educated Male Cambodians is 1.98 times higher than that of lower educated ones and the odds of having intention to quit smoking employed men is higher than those without jobs (OR = 2.30, CI = 1.09 – 4.86). The relationship between income and intention to stop smoking is not statistically significant in the study in Cambodia. However, the findings are contradicted by some of the researches done in different countries. Level of education is not associated with the intention to quit smoking in a prospective cohort study done in Netherland in 1997 (Droomers, Schrijvers, & Mackenbach, 2004). In that study, Droomers found out that the association between intention to quit smoking and 4 different education levels ranging from primary school education to university education were not statistically significant on logistic regression. The higher education level is also not an indicator for the quitting intention in a longitudinal study conducted in Thailand and Malaysia (Li et al., 2010). The quitting intention is the strongest in oldest age group with odd ratio of 1.75 (CI = 1.24 – 2.47) comparing with 18 to 24 years old group in the study.

In the United States, the association of demographic factors and intention to quit among male smokers of Medicaid recipients in next 6 months showed that lower age group males, higher education of university level, and unemployment males have more intention to quit smoking than their counterparts (Liu, 2010). In the same study, Liu found the marital status is not associated with the intention to quit smoking. In another smoking cessation study conducted in Malaysia stated that marital status and income have significant association (p value = 0.05) with the intention to quit smoking. Marital status of divorced people were more common to quit smoking that of married people with OR = 1.76 (CI = 1.30 to 2.38), and higher income groups showed more keen to quit smoking compared with lower income groups (Lim et al., 2013). The differences in association with socio-demographic factors are also supported by the systematic review done on the intention to stop smoking (Vangeli, Stapleton, Smit, Borland, & West, 2011). In the systemic review, the researchers reviewed 17 articles of eight studies of smoking cessation behavior among smokers. These studies were conducted at one from United Kingdom, one from Japan, one from China, one from Malaysia and Thailand, four from Multi-countries Western countries. The authors revealed that there was no association of quitting intention with marital status, age in five studies, education level in three studies and income in seven studies. Even among socio-demographic variables which showed the association, the direction of association were different. While only one study showed that the more educated respondents showed stronger intention to quit, the findings of the four studies contradicted the result. The inconsistency results can be also found in age variables with the results of 6 studies were that young smokers were more likely to quit while the results of two studies were the opposites. Higher income showed positive association with intention to quit only in

one study. The review of the literature shows that the association between socio-demographic factors and the intention to quit smoking are different in various studies and the variations are may be due to differences in spatial, study population or time of the study. Children living together at home of male smokers are positively associated with the intention to cease smoking in two of the literatures reviewed (Hagimoto, Nakamura, Morita, Masui, & Oshima, 2010; Tsoh et al., 2011). These findings showed that the socio-demographic variables of Myanmar male smokers' quit intentions will be unpredictable and will be of valuable to smoking cessation strategies in Myanmar.

## 2.4 Current Smoking Practice

Literature review on quitting intention of smoking showed that current smoking practice is also an important associated factor. A study revealed that the later onset of smoking behavior adopted after 25 years of life is associated with better intention to quit smoking than younger population (Tonstad et al., 2012). The concept was also proved in Machigan, showing that the older people had more intention to quit smoking in people comparing with people less than 18 years of age (HR = 2.0) (Breslau & Peterson, 1996). Not all of the researches on the intention to stop smoking studied on the age of onset of smoking variables. However, the understanding of the variables can get distribution of the age of onset in Myanmar, so that the policy makers can use this information to include in the smoking cessation strategies. In addition to that, association between the variable and the intention to stop smoking can help to prioritizing factors in implementing the tobacco control.

There are many studies examined about the average number of cigarettes consumed per day associated with the intention to stop smoking. The more the number

of average cigarettes smoked per day is associated with the less intention to quit smoking in Korean American males (Sun Seog Kim, 2008). The intention to quit among male smokers of Thailand and Malaysia also revealed that the smokers who smoked at least 15 cigarettes/day is less likely to have quit intention than who smoked at most 5 cigarettes/day (AOR = 0.58, CI = 0.46 – 0.72, p value <0.001) (Li et al., 2010). The similar negative association between heavy smokers and intention to quit smoking could be established in the systematic review of the articles except one study revealing that there is no association between number of cigarettes smoked and intention to stop smoking (Vangeli et al., 2011). The same systematic reviewed concluded that smoking ban at home is positively associated with the intention to stop smoking from one study that they reviewed, but there is no association between banning of smoking at work place and intention. The positive association of the quitting intention and home smoking ban was also established in the study of Male Vietnamese American Smokers (Tsoh et al., 2011) and Thailand and Malaysian smokers (Li et al., 2010). However, a study in Bangladesh showed that having no smoking restriction at workplace had 38% lower chance of having intention to stop smoking than those who do not smoke during work (OR=0.62, CI= 0.41 – 0.78) (Abdullah, Driezen, Quah, Nargis, & Fong, 2015) contradicting the findings of the systematic review.



## 2.5 Nicotine Dependence

Nicotine is a substance that is responsible for the addiction to tobacco products. The nicotine, also known as 3-(1 methyl-2-pyrrolidinyl) pyridine, is an alkaloid with the rate of absorption in the human body is dependent on body pH. The reason why nicotine can be absorbed rapidly and easily in pulmonary tissues is because of large

pulmonary alveolar surface area as well as the pulmonary pH favors the absorption of nicotine. No matter the route of administration, nicotine is absorbed into the systemic circulation and then it will reach to brain in a matter of seconds and will result in addiction if used repeatedly (US Department of Health Human Services, 2010). Nicotine dependence can be assessed by some peculiar symptoms suffered by the respondents. Fagerstrom Tolerance Questionnaires assessed the dependence of nicotine to smokers by using the ideas that how much exposure of nicotine in the smokers, control over smoking and urgency to use in certain situations (Heatherton et al., 1991). Since nicotine dependence is such an important aspect in smoking, many researches on intention to stop smoking explore the association. Low nicotine dependence on Fagerstrom scores is the predictor of intention to stop smoking in these researches (Ferguson et al., 2003; Hagimoto et al., 2010; Marques-Vidal et al., 2011). The locations of the study population were American smokers of Male Medicaid population for Ferguson's study, Japanese male smokers for Hagimoto's and smokers of both sexes in Switzerland in Melich-Cerveira's, so that it can be assumed that nicotine dependence is negatively associated with intention to quit smoking most places in the world. Moreover, the systematic review of 8 researches found out that higher dependence in Fagerstrom score is negatively associated with the intention to stop smoking (Vangeli et al., 2011).

2.6 Past smoking quit attempts

Vangeli reviewed that (Vangeli et al., 2011) life time quit attempts and history of quit attempts in the last year could be used to predict the individuals' intention to cease smoking. Pooled analysis of the eight studies showed that people with quit attempts are twice as likely to have quit intention as who do not have quit attempts (OR = 2.65, 95% CI = 1.76 to 4.06). One of the studies even had the result that increasing number of quit attempts have strong positive correlation with the intention to quit ($r = 0.71$, $p = 0.001$). There were many studies that reviewed the association between the intention to quit smoking and the history of quit attempts. Respondents without past quit attempts in the last year were 31% less likely to have quit intention than who had quit attempts in the study of Thailand and Malaysia of both sexes (OR = 0.69, 95% CI = 0.59 – 0.82, p value < 0.001) (Li et al., 2010). A study in China showed that only 29% of respondents who did not try quitting in last year had intention to stop smoking (OR = 0.29, 95% CI = 0.18 – 0.35, p value <0.001) (Li et al., 2011).



2.7 Theory of planned behavior

In the study of behavior health, many researchers and health care providers including public health professionals are trying to develop the theory and concept for the predictors of the particular behavior of interest. The intentions to perform the behavior have been considered as good predictors for a wide range of behaviors. Therefore, a lot of efforts have been put in to access the particular field of research, like theory of reasoned action (Fishbein, 1979), theory of planned behavior (Icek Ajzen, 2005), protective motivation theory (Rogers & Prentice-Dunn, 1997), and self-efficacy theory (Maddux, 1995). However, this study apply theory of planned behavior because

of its applicability and usefulness to predict the intentions of health related behaviors (Godin & Kok, 1996). In this review of literature for the applications of theory of planned behavior in public health fields and the authors stated that the model is useful as a tool for predicting the intention of the behavior. They reviewed 58 behavior related studies including 11 addiction related studies. Although there are some differences in the efficiency in predicting the behavior, there is a positive correlation with attitudes, perceived social norms and perceived behavior control with intention to perform the behavior in all different behaviors and is also significant in almost all of the studies with regression analysis. Among 11 addiction behavior related studies, only one study was conducted for smoking quitting behavior, and it was found out the significant relation with theory of planned behavior variables and intention to quit smoking in regression analysis (Devries & Backbier, 1994). Therefore, the correlation and relation between variables of theory of planned behavior and intention to perform the behavior had been established by the review of the literature.

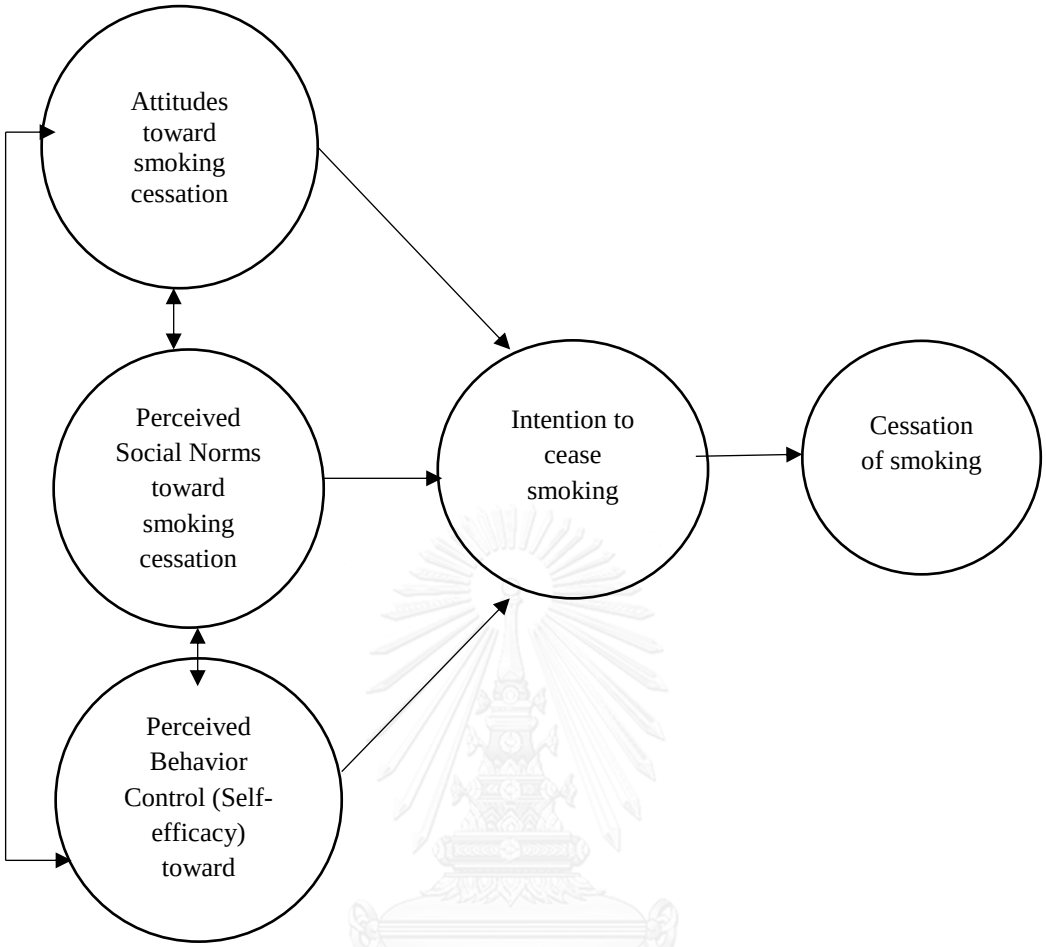



**Figure 1** Modified Theory of Planned Behavior for intention to stop smoking (Icek Ajzen, 2005)

Theory of planned behavior was used as a powerful model to access the intentions of various types of behaviors and had already been used in many researches and reviewed by meta-analyses ((Aizen, 2010), (Armitage & Conner, 2001) and (Rise, Kovac, Kraft, & Moan, 2008)). The intention to quit smoking has influences over and paves way for the actual behavior of quitting of smoking (Icek Ajzen, 2005). According to Ajzen's study, the correlation between the intention and actual performance of the intended behavior is high positive correlation.

**Table 1** Correlation of intention of behavior and actual practice (Icek Ajzen, 2005)

| *Behavior* | *Intention–behavior correlation* |
|---|---|
| Applying for shares in the British Electric Company (East 1993) | 0.82 |
| Using birth control pills (see Ajzen and Fishbein 1980: Ch. 11) | 0.85 |
| Breast vs. bottle feeding (Manstead et al. 1983) | 0.82 |
| Using ecstasy drugs (Orbell et al. 2001) | 0.75 |
| Having an abortion (Smetana and Adler 1980) | 0.96 |
| Complying with speed limits (Elliott et al. 2003) | 0.69 |
| Attending church (King 1975) | 0.90 |
| Donating blood (Giles and Cairns 1995) | 0.75 |
| Using homeopathic medicine (Furnham and Lovett 2001) | 0.75 |
| Voting choice in presidential election (see Ajzen and Fishbein 1980: Ch. 13) | 0.80 |

*Note*: All correlations are significant ($p < 0.05$).



The intention and the practice of actual behavior is highly positive correlated as described in the table 1 (Icek Ajzen, 2005). There are also other cohort studies testing the relation between the intention and actual practice. The longitudinal study with 4 months follow up interview was conducted in Oslo to examine the association between intention to quit smoking among smokers assessed by theory of planned behavior and actual quitting behaviors in the follow up questionnaires. Due to the follow up questionnaires, the study found out that all of the variables of TPB were positively correlated with actual practice at the statistical significance of p value is less than 0.05. Moreover, action planning to stop smoking variable had moderate positive correlation

($r = 0.59$, $p = <0.001$) (Rise et al., 2008). Theory of planned behavior showed significant positive correlation between intention to perform the behavior and actual performance of the intended behavior in many different behaviors and the correlation was also significant in the smoking cessation behaviors among smokers.

Theory of planned behavior assumes that the decisions made by people regarding behavior are under the control of the beliefs of the targeted behavior. The theory core idea is that the intention is a strong precursor for the action of the behavior which in turn is influenced by the beliefs about the expected outcomes of the particular behavior and consequences of the expected behavior. These beliefs are being guided by the attitudes toward the behavior and perceived social norms for the behavior. TPB assumes that if the perception of control over the behavior is being incorporated as an indicator, it is possible to predict the intention of the both volitional and non-volitional behaviors (Icek Ajzen, 1991).

However, Ajzen himself clarified that the perceived behavior control is also influenced by the self-efficacy and controllability of the behavior of interest. There is no correspondence of self-efficacy as internal control variables and controllability as external control variables, rather than that they both reflect internal as well as external control of individuals over the behavior. According to the literature, it can be assumed that self-efficacy plays an important role in predicting the intention of the behavior (Icek Ajzen, 1985). The importance of self-efficacy in prediction of the intention was again discussed by the other researchers. According to a meta-analysis, they argued that self-efficacy and perceived behavior control combined were more significant correlated with perceived behavior control alone. In addition to that, self-efficacy added more variance in the intention. The most prominent benefit is that while self-efficacy and

perceived behavior controls are useful indicators for prediction the intention, self-efficacy is more stronger indicator than perceived behavior control when measured separately and self-efficacy is more clearly defined and operationalized than that of perceived behavior control (Armitage & Conner, 2001). The variables in the theory of planned behavior for accessing the intention to cease smoking and cessation of smoking are shown in Figure 1.

Therefore, the paper examine the intention to quit smoking among Myanmar male smokers by using TPB where attitudes toward smoking, perceived social norms toward smoking and self-efficacy toward smoking cessation are the indicators. There are many other studies which used the self-efficacy alone instead of perceived behavior control as an indicator (Sun S Kim et al., 2013) (Niven, Nevill, Sayers, & Cullen, 2012) (Sun Seog Kim, 2008).

The difficulty with the literature review for the study is that although there are many studies using TPB to understand smoking behavior, objectives of the most of them is to predict the smoking behavior for non-smokers for prevention and health promotion purposes. There were limited studies using TPB to access the intention to quit smoking among current smokers. However, by using the limited knowledge on the field, the conceptual and operational definitions of the study were developed.



## 2.8 Intention to quit smoking

The intention of cessation of smoking behavior is accessed by different methods. Some of the studies defined the intention only with dichotomous response like “Do you plan to quit smoking or not?” (Fagan et al., 2007). Some of the researches access the intention using the self-reported questionnaires (Sun Seog Kim, 2008; Sun

S Kim et al., 2013). In the self-reported questionnaires, the intention was accessed by how the participants reported about the idea of quitting smoking.

Another approach is by using the stage of change model. Since the participants are all currently smoking, their stages in term of stage of change model are in one of the three stages; pre-contemplation, contemplation and preparation. If they are in preparation or pre-contemplation stage, it can be said that they have the intention to stop smoking or do not have the intention respectively (Lim et al., 2013; Ma, Tan, Toubbeh, & Su, 2003). But, the people who are in contemplation stages are hard to categorize. Therefore, the intention will be accessed by using both stage of change and the self-reported questionnaires in the study.

2.9 Variables of Theory of Planned Behavior

Ajzen stated that if the attitudes towards smoking cessation of a person can be measured, it is possible to access the intention to practice smoking cessation (Icek Ajzen, 2005). In the same study, the author showed that the correlation between the attitudes and behavior is moderate to high (r = 0.46 to 0.72). The concept is derived from the principle of compatibility. The concept is that human are being influenced by the force of habits most of the time and again the practice of the behavior is preceded by the actual performance of that behavior in the past. Therefore, if reliable measurement of the force of habit and temporal relation happened in the mind of the behavior, it is possible to predict the intention to perform that particular behavior.

Perceived social norms toward the behavior can be studied under the domain of normative belief. Normative beliefs are associated with perception of the individuals upon the smoking cessation behavior whether be approved or disapproved by groups

(Icek Ajzen, 1991). This can usually be achieved by asking how do individuals thinks the “importance others” of him or hers which are usually family members and friends will react when they know that he or she is conducting the behavior. The normative-behavior correlation in this study also showed that weak to strong significant positive correlation ($r = 0.37$ to $0.72$, p value = $<0.05$) (Icek Ajzen, 1991).

Self-efficacy in the context of TPB, Ajzen mentioned that it can be defined by how easy or difficult in performing the behavior. Although there are some confusion with original concept of controllability of the behavior such as overlapping, easier to validate, and reliability, self-efficacy itself is an important variable to measure the intention of individual to perform the behavior (Icek Ajzen, 1985). There is also some research measuring the correlation and validity of the self-efficacy in the context of TPB. It showed that self-efficacy is better predictor of intention over the perceived behavior control as an indicator ($r = 0.44$ against $r = 0.24$, p value = 0.01 and p value < 0.05) when the authors reviewed and reanalyzed 44 articles (Armitage & Conner, 2001).



The use of theory of planned behavior while including self-efficacy as a variable to study the behavior of intention to quit smoking is fairly limited but there are many articles using perceived behavior control. One study on the study of intention to stop smoking among Korean American men on TPB variables showed that attitudes and perceived social norms to cease smoking explained 28% and 31% explanatory power in intention to quit (p value = 0.01). The odds of having intention to stop smoking among respondents with high scores on attitudes about smoking cessation are 1.47 times higher than who have low scores. Respondents with high scores on perceived social norms toward smoking cessation are 33% more likely to have quit intention than

those with low scores (Sun Seog Kim, 2008). But, the association of self-efficacy to cease smoking with the intention to stop smoking is not statistically significant in the study. In one of the study done of both sexes on intention to stop smoking using theory of planned behavior, all the TPB variables are associated with intention to quit smoking and explain about 64% power in the intention model (Bledsoe, 2006). Although self-efficacy is not associated with intention to cease smoking in some of the studies, it is significantly associated with the intention to stop smoking in some of the studies when studied as not a part of TPB, one from Bangladesh and another from China, showing 75% and 74% more likely to have quit intention respectively in people (OR = 1.75 and 1.74, p value < 0.05).

2.10 Behavior interventions

If the understanding of what are the factors influencing the intention to quit smoking are identified, policy makers in Myanmar could be able to prioritize which factors to include in intervention package. In addition to that, unlike other variables, TPB variables give explanation power among them. If the population already has good perceptions of particular variables, government can prioritize with other variables by weighting the variables (Aizen, 2010).

# CHAPTER III

## RESEACH METHODOLOGY

### 3.1 Study Design

The study design was a cross-sectional analytical study of the intentions to quit smoking of the smokers of males aged 18 years and above in Yangon, Myanmar by using theory of planned behavior.

### 3.2 Study Area

There are total of 14 different States and Divisions in Myanmar. Among them, the study was conducted in the four townships of Yangon, the commercial city of Myanmar instead of the whole country (Figure 2). The decision to conduct in Yangon was that it is the commercial city with most urbanization from all over the countries with various strata of the people and it is by far the most congested and populated city according to Census, 2014 comprising about 20% of the whole country (Department of Population, 2014).

There are total of 46 townships in Yangon. The study was conducted in 4 townships with the highest number of male population in Yangon (Department of Population, 2014) : Hlinethaya (male population = 322,862), South Dagon (males population = 181,140), Shwepyithar (male population = 164,264) and North Okkalapa (male population = 156,340).

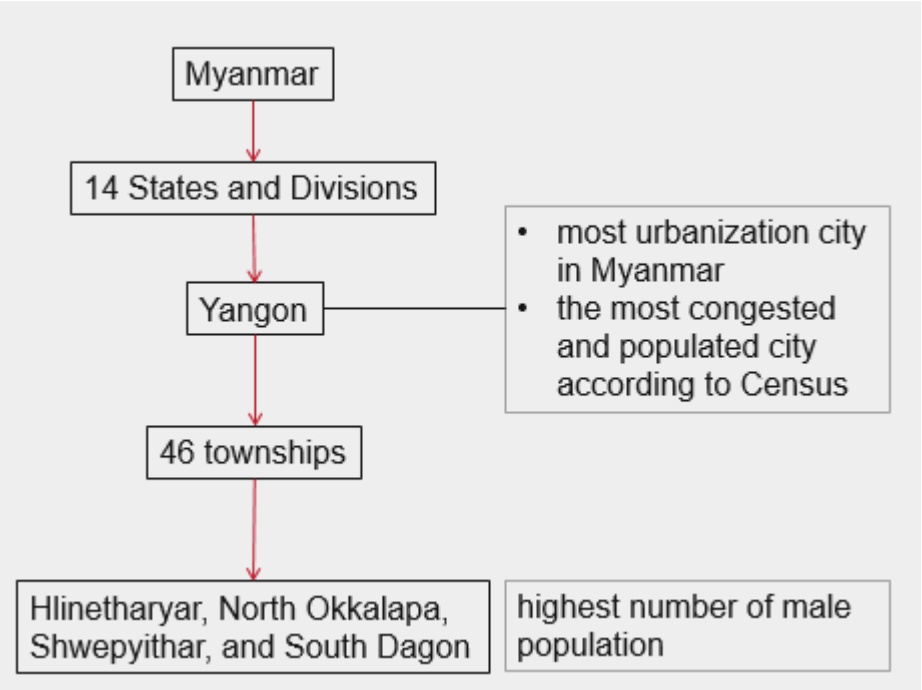



**Figure 2** Selection of place for the study (Department of Population, 2014)

3.3 Study Population

Total of 339 male smokers of 18 years or more were participated in the study. Since the legal age for giving consent in Myanmar is 18 years old, the minimum criteria to be included in the study was limited as 18 years. If the respondent is under the legal age, the guardian of the child must be present with him at the time of interview which could hinder and jeopardize with the findings of the study since the purpose of the study contains some behavior issues which might not be acceptable to the guardian. In addition to that the rate of smoking under 18 years old is relatively low compared with other age group.

3.4 Sampling Technique

Multistage sampling method will be used to select the subjects of the study.

Yangon City was selected among 14 States and Divisions because of Population Density and various types of Population due to urbanization. Hlinethaya, South Dagon, Shwepyithar and North Okkalapa in Yangon City were selected among 46 townships because of the highest numbers of male population in Yangon. Households were the primary units of the study (Hlinetharyar – 148,711 households, Shwepyithar – 73,775 households, North Okkalapa – 64,754 households, and South Dagon – 76,984 households) (Department of Population, 2014). The calculated sample size was 363 participants, but total of 339 participants were responded. The samples involved in the study were proportion to size with the number of males residing in the respective townships, 135 respondents participated in Hlinetharyar Township, 70 respondents participated in Shwepyithar Township, 66 respondents participated in North Okkalapa Township and 68 respondents participated in South Dagon Township (total of 339 respondents).

From each township, two wards were randomly selected by simple random sampling method by lottery method without replacement to avoid overlapping. From each ward of the randomly selected wards of 4 townships, the household units were randomly selected by systematic random sampling by using computer. Among randomly selected households, the number of household which were interviewed were 65 households in 4$^{th}$ ward for Hlinetharyar Township and 70 households in 6$^{th}$ ward for Hlinetharyar Township, 35 households per ward for 1$^{st}$ Ward and 5$^{th}$ Ward in Shwepyithar Township, 33 households per ward for 3$^{rd}$ Ward and 4$^{th}$ Ward for North Okkalapa Township and 34 households in 1$^{st}$ ward and 32 households in 3$^{rd}$ Ward for

South Dagon Township. The random adult (more than 18 years old of both sexes) residing and present in the chosen random household was asked whether there were any adult male smokers who fit the inclusion criteria were residing in the household or not. If there was male smoker, and also present, he was asked about willingness to participate in the study. If there was male smoker but he was not home during the approach, the research assistants double checked such households in the evening. There was no three time approaches for the household to avoid misunderstanding and inconvenience for the household residents. One participant per household method was recruited while collecting the data. If there were more than one male smoker in the household, alternative choosing between old and young participants was done starting with choosing of younger male smoker in the household followed by choosing of older male smoker in next household. The reason for prioritizing the choice for choosing the young smokers was that they might be working during data collection time. In order to get all the participants of different age group especially working age group, data collection was done not only weekdays but also weekends. The self-administered questionnaires took place in the households of the individual respondents on daytimes and evening of both weekdays and weekends. Before conducting the interview, the research assistants explained the respondents about the anonymity, confidentiality, free participation, freedom to withdrawal anytime, access to final report, not to use the data for other purposes and thanked for their times. The potential respondents who agreed to participate in the study were engaged in the interviewed after signing the informed consent forms.

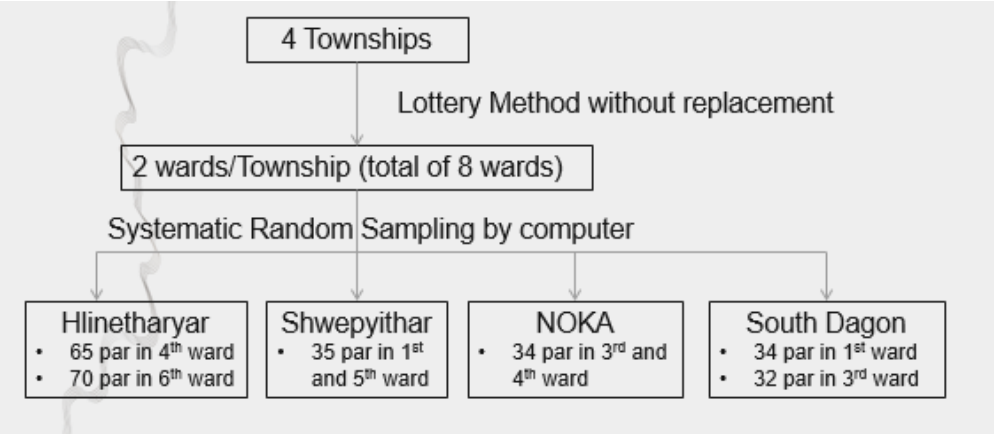



**Figure 3** Sample size distributions for the study

**Inclusion Criteria**

- Males of 18 years old and above living in the four townships (Hlinethaya, South Dagon, Shwepyithar, and North Okkalapa) of Yangon, Myanmar
- Smokers who smoked at least 5 days per week in previous month
- History of smoking for at least 1 years
- Willing to participate in the study

**Exclusion Criteria**

- Illiterate
- Cannot give consent to participate in the study
- Psychological problems
- Participants with ill health conditions who cannot complete the questionnaire

3.5 Sample Size

Since the total number of males in the townships where the study was conducted was not available, the following formula was used for the sample size calculation using the prevalence of the male smokers (Daniel & Wayne, 1995). The sample size calculation used the Formula, in which α is 0.005, prevalence of the smoking in males of 18 years or older is 31.4% (World Health Organization, 2015b), and 5% allowance of errors.

$$n = \frac{z^2 \times p \times (1 - p)}{d^2}$$



where,

n = calculated sample size

z = value from normal distribution associated with 95% confidence interval (α = 0.05)

p = prevalence of smoking in males of 18 years and older

d = error allowance

$$n = \frac{(1.96)^2 \times (0.314) \times (1 - 0.314)}{(0.05)^2}$$

$$= \frac{(3.8416) \times (0.314) \times (0.686)}{(0.0025)}$$

$$= 330$$

For missing data of the participants, 10% of 330 (33) participants were added. Therefore, the calculated sample size of the study was 363 participants. The actual obtained sample was 339 participants with complete data. It was within acceptable since the required sample size without adding 10% missing data was 330 respondents.

3.6 Data Collection

Data was collected through self-administered anonymous questionnaires. Data collection was done by 5 experienced research assistants from international non-governmental organization (Population Services International/Myanmar). If the respondents could not understand the questionnaires, research assistants made sure to understand just the nature of questionnaire. The questionnaires were checked for the completeness and pretested and make clarification were requested if necessary. Before data collection, the workshop of two days for detailed explanation of research project giving attention to objectives, benefits of the study and questionnaires was done for all the research assistants.

3.7 Variables

Independent variables were

1. Socio demographic factors
2. Current smoking practice
3. Nicotine dependence
4. Past smoking quit attempts
5. Attitudes towards smoking cessation
6. Perceived social norms towards smoking
7. Self-efficacy towards quitting of smoking

Dependent Variable was

8. Intention to stop smoking

3.8 Questionnaire development and data collection

The questionnaire for the survey was constructed from various research papers. The questionnaire contained 6 contents.

1. **Socio-demographic factors**: included age, marital status, education, employment, children living at home and individual monthly income.
2. **Current smoking practice** included age at smoking onset, smoking at home, smoking during work and number of average cigarettes/day.
3. **Nicotine dependence:** Nicotine dependence was accessed by using Fagerstrom test for nicotine dependence containing total of 6 questions (Heatherton et al., 1991). Categories based on the scores of the Dependence

scores: 1 to 4 = low dependence, 5 to 7 = moderate dependence and 8+ = high dependence.

4. **Past smoking quit attempts** included (last year smoking quit attempts, and number of smoking quit attempts).
5. **Attitudes towards smoking cessation**: It included attitudes towards smoking cessation.

   Attitudes towards smoking cessation was assessed by using a total of 39 questions for the benefits of quitting smoking (McKee et al., 2005).

   Sum of score is the scale score for attitudes:

   From question number 1 to question number 21 of the attitude questionnaires were the benefits toward smoking cessation.

   On 5 responses, the scores were given 1 = very unlikely, 2 = unlikely, 3 = moderate chance, 4 = likely, 5 = very likely for attitudes towards smoking cessation for question number 1 to question number 21.

   From question number 22 to question number 39 of the attitude questionnaires were the negative consequences of smoking cessation.

   On 5 responses, the scores were given 5 = very unlikely, 4 = unlikely, 3 = moderate chance, 2 = likely, 1 = very likely for attitudes towards smoking cessation for question number 22 to question number 39.

   Range of total scores was from 39 to 195 and if total score is that: less than – 1 SD of the total scores is low attitudes, between – 1 SD and + 1 SD of the total scores is neutral attitudes, and + 1 SD of the total scores is high attitudes (Droomers et al., 2004).

6. **Perceived Social Norms towards smoking**: this included perceived social norms towards smoking by family members and friends. Social norms towards smoking were accessed by using questionnaire containing 7 questions (I Ajzen, 2013).

   The scores were given 1 = strongly disagree, 2 = somewhat disagree, 3 = not sure, 4 = somewhat agree, 5 = strongly agree for perceived social norms towards smoking cessation.

   Total score for perceived social norms was ranging from 7 to 35: Category of total score is that: less than – 1 SD of the total scores is weak perceived social norms, between – 1 SD and + 1 SD of the total scores is moderate perceived social norms, and more than + 1 SD of the total scores is strong perceived social norms (Droomers et al., 2004).

7. Self-efficacy towards quitting of smoking: this included the confidence to avoid smoking in terms of ten different conditions of life and was accessed by questionnaire containing 10 questions modified from literature (Velicer et al., 2010).

   The scores were given 1 = complete unconfident, 2 = somewhat unconfident, 3 = not sure, 4 = somewhat confident, 5 = complete confident for Self Efficacy towards smoking cessation

   Total score of the scale score for Self-efficacy was ranging from 10 to 50: Category is if total score is that: less than – 1SD of the total scores is low self-efficacy, between – 1SD and + 1SD of the total scores is moderate self-efficacy, and more than + 1 SD of the total scores is high self-efficacy (Droomers et al., 2004).

8. **Intention to quit smoking**: this was accessed by questionnaire containing total of 3 questions developed from the pilot test which was conducted prior to the data collection. There were 3 categories with (i) no intention to quit smoking, (ii) weak intention to quit smoking and (iii) strong intention to quit smoking.

   No intention to quit smoking is categorized if the respondents answered "No" to question no. 75.

   Strong intention to quit smoking is categorized if respondents answered "Yes" to question no. 75, on answering question no. 76, will quit smoking in less than 30 days (near future), and answered at least 3 of the reasons for quitting smoking, (or) If respondents answered "Yes" to question no. 75, on answering question no. 76, will quit smoking between 30 days to 90 days (foreseeable future), and answered at least 5 of the reasons for quitting smoking.

   Weak intention to quit smoking is categorized if respondents answered "Yes" to question no. 75, on answering question no. 76, will quit smoking in less than 30 days (near future), and answered less than 3 of the reasons for quitting smoking, (or) If respondents answered "Yes" to question no. 75, on answering question no. 76, will quit smoking in between 30 days to 90 days (foreseeable future), and answered less than 5 of the reasons for quitting smoking (or) If respondents answered "Yes" to question no. 75, on answering question no. 76, and answered any number of reasons for quitting smoking but on answering question no. 76, will quit smoking in more than 90 days.

3.9 Validity and Reliability of the questionnaire

Validity of the questionnaires was done by one Expert from Thailand and 2 Experts from Myanmar and was constructed by reviewing previous literatures. The average IOC value of validity assessed by 3 experts was 0.79.

To establish the reliability, a pilot test was conducted before actual data collection on 30 male smokers in South Dagon Township, Yangon. The internal consistency scales of the questionnaires were tested with Cronbach's alpha scoring. Its values were 0.82 on attitudes towards smoking cessation, 0.83 on perceived social norms towards smoking cessation, and 0.95 on self-efficacy towards smoking cessation.

3.10 Data Analysis

The data were analyzed by using SPSS (Statistical Package for Social Sciences) version 16.

Descriptive analysis: The socio demographic factors, smoking status (current smoking status, nicotine dependence and past smoking quit attempts), attitudes towards smoking cessation, perceived social norms towards smoking and self-efficacy towards quitting of smoking were presented by frequency, percentage, median, and quartile distribution.

Inferential analysis:

- Chi Square analysis or Fisher Exact Test was used to test the association between independent variables except for attitudes, perceived social

norms and self-efficacy towards smoking cessation and dependent variables.

Eg. Education level (independent Variable) with Intention to quit smoking (dependent variable)

- The association between the continuous variables (eg. age and theoretical variables and intention to quit smoking was tested with One-way analysis of variance (ANOVA)

3.11 Ethical Consideration

The study was conducted after having an approval of Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University with COA Number. 110/2016. Before interviewing, the potential participants were explained about the purpose of the study and informed consent was obtained. If they were unwilling to cooperate at any time in the study period, they could withdraw from the study at any time. There was no recording for the names of the respondents and their shared information was kept confidential. The confidentiality issue was being considered the foremost thing in the context of this study.

3.12 Benefits of the study

- If the understanding of what are the factors influencing the intention to smoking are identified, policy makers in Myanmar could be able to prioritize which factors will be included in intervention package and health education program for male smokers in Yangon.
- Further study could be done according to the result of this study.

3.13 Study Period

The study took place in May and June, 2016

# Chapter IV

## Results

This chapter presents the findings from the data analysis of cross-sectional study.

4.1 Distribution of the variables

The univariate analysis includes the frequency, the percentage distribution of the respondents' socio-demographic factors, current smoking practice, nicotine dependence, past smoking quit attempts, attitudes towards smoking cessation (both good attitudes and bad attitudes), perceived social norms towards smoking cessation, self-efficacy towards smoking cessation and intention to quit smoking of the respondents.

4.1.1 Socio-demographic factors

Table 2 showed the socio-demographic factors of 339 respondents in Hlinetharyar, Shwepyithar, North Okkalapa Township and South Dagon Township in Yangon, Myanmar. More than 90% of the male smokers in the study were less than 55 years old. Majority of the respondents are married (60.8%) and there were very few respondents (3.6%) who were divorced, widower or separated. The number of male smokers (194 respondents, 57.2%) with children living together at home was higher than their counter part group (145 respondents, 42.8%). Most of (41.9%) them attained middle school education. Very few of the respondents were working in the government sector with 8.6% and the private workers were the largest group of the respondents with 40.7%. Nearly 34% of the respondents were below the individual monthly income of

lower than 108,000 Kyats and only 4.4% of them had the income more than monthly income of 540,000 Kyats.

**Table 2** Number and percentage distribution of respondents by socio-demographic factors (n = 339)

| Socio-demographic Factors | | Number | Percentage |
|---|---|---|---|
| Age | 18 to 24 years | 67 | 19.8 |
| | 25 to 34 years | 113 | 33.3 |
| | 35 to 44 years | 73 | 21.5 |
| | 45 to 54 years | 55 | 16.3 |
| | ≥ 55 years | 31 | 9.1 |
| | Mean (SD) = 35.38 (11.88) | | |
| Marital Status | Single | 121 | 35.6 |
| | Married | 206 | 60.8 |
| | Divorced/Widower/Separated | 12 | 3.6 |
| Children living together at home | | | |
| | Present | 194 | 57.2 |
| | Absent | 145 | 42.8 |
| Education | Primary School | 39 | 11.5 |
| | Middle School | 142 | 41.9 |
| | High School | 101 | 29.8 |
| | Graduate/Post Graduate | 57 | 16.8 |
| Employment | Unemployed | 50 | 14.7 |
| | Government Sector | 29 | 8.6 |
| | Private Sector | 138 | 40.7 |
| | Self-employed | 122 | 36.0 |
| Individual monthly income | | | |
| | < 108,000 Kyats | 114 | 33.6 |
| | 108,000 Kyats to 540,000 Kyats | 210 | 62.0 |
| | > 540,000 Kyats | 15 | 4.4 |

4.1.2 Current Smoking Practice of the respondents

Although some of the male smokers (37.2%) initiated smoking practice before 18 years of age, more than half (53.7%) of them started smoking between the age of 19 to 24 years of age. Majority of the male smokers can smoke freely in their own home which comprised 71.1% of the total respondents but less than half of the respondents (46.3%) were allowed to smoke in their workplaces. Over the half of them (56.3%) were smoking cigarettes at the maximum of 10 cigarettes per day and only 4 respondents (1.2%) were smoking at least 31 cigarettes per day as shown in Table 3.

**Table 3** Number and percentage distribution of the current smoking practice of the respondents (n = 339)

| Current Smoking Practice | Number | Percentage |
|---|---|---|
| Age of onset of smoking | | |
| ≤ 18 years old | 126 | 37.2 |
| 19 to 24 years old | 182 | 53.7 |
| ≥ 25 years old | 31 | 9.1 |
| Mean (SD) = 18.82 (4.74) | | |
| Allow to smoke at home | | |
| Yes | 241 | 71.1 |
| No | 98 | 28.9 |
| Allow to smoke at workplace | | |
| Yes | 157 | 46.3 |
| No | 182 | 53.7 |
| Average amount of Cigarettes per day | | |
| ≤ 10 cigarettes | 191 | 56.3 |
| 11 to 20 cigarettes | 111 | 32.8 |
| 21 to 30 cigarettes | 33 | 9.7 |
| ≥ 31 cigarettes | 4 | 1.2 |
| Mean (SD) = 9.95 (6.17) | | |

**4.1.3** Nicotine Dependence of the respondents

Nicotine dependence of the respondents involved in the study could be seen on Table 4. Majority of the male smokers involved in the study had low nicotine dependence with 231 smokers (68.1%) and moderate nicotine dependence with 107 smokers (31.6%) and high nicotine dependence with only 1 smoker (0.3%) in descending order.

Nearly 30% of the respondents consumed their first cigarette more than one hour after waking up in the morning while 71.1% of them smoke the first cigarette within one hour after getting up. The percentage of respondents who smoke first cigarette within one hour after getting up in the morning was nearly the same for every three groups with 21.8% for 31 minutes to one hour after waking up, 25.4% for 5 minutes to 30 minutes after waking up and 23.9% for within 5 minutes after waking up. Majority of the male smokers (61.9%) reported that they found that it was difficult to constraint themselves to avoid smoking in public smoking prohibited areas like bus stops or hospitals. Over the half of them (56.3%) smoke cigarettes at the maximum of 10 cigarettes per day in the study and only 4 respondents (1.2%) smoke at least 31 cigarettes per day. Almost half (47.8%) of the respondents reported that they usually smoke in the morning. Around sixty percent of the respondents were smoking even when they were ill and rest in the bed. Among the respondents, 82% of them found it that morning was the most difficult time to avoid smoking than other time of the day.

**Table 4** Number and percentage distribution of the current smoking practice of the respondents (n =339)

| Nicotine Dependence | Number | Percentage |
|---|---|---|
| Low nicotine dependence (0 to 4 scores) | 231 | 68.1 |
| Moderate nicotine dependence (5 to 7 scores) | 107 | 31.6 |
| High nicotine dependence (≥ 8 scores) | 1 | 0.3 |

| Nicotine Dependence | Number | Percentage |
|---|---|---|
| Time for first cigarette smoking after getting up in the morning | | |
| > 1 hour | 98 | 28.9 |
| 31 mins to 1 hr | 74 | 21.8 |
| 5 mins to 30 mins | 86 | 25.4 |
| Within 5 mins | 81 | 23.9 |
| Constrain in smoking prohibited places | | |
| Not difficult | 129 | 38.1 |
| Difficult | 210 | 61.9 |
| Average amount of cigarette per day | 191 | 56.3 |
| ≤ 10 cigarettes | 111 | 32.8 |
| 11 to 20 cigarettes | 33 | 9.7 |
| 21 to 30 cigarettes | 4 | 1.2 |
| ≥ 31 cigarettes | | |
| Respondents who usually smoke in the morning | | |
| No | 177 | 52.2 |
| Yes | 162 | 47.8 |
| Smoking when ill | | |
| No | 132 | 39.0 |
| Yes | 207 | 61.0 |
| Most difficult time to avoid smoking | | |
| In the morning | 278 | 82.0 |
| Other times | 61 | 18.0 |

4.1.4 Past smoking quit attempts of the respondents

Table 5 showed that the majority (72.6%) of the respondents did not have the history of abstinence from smoking at least 30 days during the last year. Among the remaining 27.4% who had the history of abstinence from smoking in above manner, 12.7% of them had one time abstinence, 9.4% of them had two times abstinence, and 5.3% of them had 3 times abstinence from smoking.

**Table 5** Number and percentage distribution of past smoking quit attempts of the respondents (n = 339)

| Past smoking quit attempts | Number | Percentage |
|---|---|---|
| Abstinence from smoking at least 30 days in last year | | |
| Present | 93 | 27.4 |
| Absent | 246 | 72.6 |
| Frequency of Abstinence from smoking at least 30 days in the last year | | |
| 0 time | 246 | 72.6 |
| 1 time | 43 | 12.7 |
| 2 times | 32 | 9.4 |
| 3 times | 18 | 5.3 |



4.1.5 Attitudes towards smoking cessation of the respondents

Table 6 showed the attitudes towards smoking cessation of the respondents. Out of total of 39 questions, the respondents with low attitudes scored 70 to 114. The neutral attitudes towards smoking cessation scored from 115 to 145 and lastly the high attitudes towards smoking cessation scored 146 to 173. The majority of respondents (70.8%) had neutral attitude on smoking cessation. The responses made by respondents for individual questions could be seen table 7. When they were asked what they would feel if they stopped smoking, only 11.3% of them said that quitting smoking would not

lower the chance of developing bronchitis. Their attitudes on quitting smoking could lower the chance of developing lung cancer is on the good side with more than 80% of respondents had good attitudes towards smoking cessation. In addition to that, nearly 80% of them have felt that quitting smoking will lower the chance of heart diseases. Almost 10% of them felt that quitting smoking would not result in avoidance of health problems in the future. Among them, 72% of the respondents responded that smoking cessation would result in longer life. In addition to that, 15.3% of them felt that quitting would not cause instant health benefit. About 73% of the male smokers responded that they would breathe easier if they quit smoking. Most of them (62%) responded that they would feel more energetic if they quitted smoking. Just over the 10% of them denied the facts that quitting smoking would result in healthier life and could feel proud by quitting of smoking. Just over the half of the respondents perceived that smoking cessation would result in more control over own life. A great proportion of the male smokers (64.3%) responded that quitting smoking would feel a sense of achievement. Less than 15% of them answered that quitting would result in a proof that they could abstain from cigarettes, they could save more money, smell cleaner, fresher breathe, and approval from people close to them. Over the half (53.4%) of the respondents believed that quitting smoking would gain the respects of the friends. Moreover, 61.1% of them answered that they could set a good example for others if they quitted. Nearly 10% of the respondents responded that others would not be offended due to smoking if they would quit smoking.

Some of them (32.2%) felt that smoking cessation and eating more were not related. Among the respondents, 27.4% of them thought that gaining weight could not result from smoking cessation. In addition to that, only 22.7% of them responded that

they could not lose weight as easily after quitting smoking. Among them, 36.4% of the respondents answered that they would become more irritable after quitting smoking. Nearly one third of the male smokers answered that they would be less able to deal with stress after quitting. Nearly half (46.6%) of the respondents answered that feeling less calm and quitting smoking were not related. Some of the respondents (37.3%) responded that they would unlikely to have shorter attention span if they had quitted smoking. The study found out that there were more respondents who responded negative side (very unlikely and unlikely) than who responded positive side (very likely and likely) in attitudes towards smoking cessation in the statement “less able to concentrate” with 42.4% of respondents, “less likely to focus the attention” with 54.9% of respondents, “their thoughts would more likely to wonder” with 53.1% of respondents, “become more inattentive” with 58.4% of respondents, and “be less welcome around the friends who smoke” with 51.6% of the respondents if they quitted smoking. However, there were more respondents who responded positive side (likely and very likely) were more than who answered negative side (unlikely and very unlikely) in following questions. They responded that “feel uncomfortable around smokers” with 54.6% of respondents, “miss the taste of cigarettes” with 52.5% of the respondents, “miss the pleasure got from the cigarettes” with 49.8% of the respondents, “would experience the intense craving for the cigarettes” with 57.8% of the respondents, “would have strong urges for the cigarettes” with 51.3% of the respondents, and “would desire a cigarette” with 50.2% of the respondents if they had quitted smoking.

**Table 6** Number and percentage distribution of attitudes towards smoking cessation of the respondents (n = 339)

| Attitudes level | Number | Percentage |
|---|---|---|
| Low attitudes | 46 | 13.6 |
| Neutral attitudes | 240 | 70.8 |
| High attitudes | 53 | 15.6 |
| Range = 70 to 173 | | |
| Mean = 130.19 | | |
| SD = 15.73 | | |

**Table 7** Percentage distribution of questions of Attitudes towards smoking cessation

| Attitudes | Very Unlikely (%) | Unlikely (%) | Moderate Chance (%) | Likely (%) | Very Likely (%) |
|---|---|---|---|---|---|
| I will lower my chance of developing bronchitis | 2.1 | 9.2 | 11.2 | 67.8 | 9.7 |
| I will lower my chance of developing lung cancer | 1.2 | 5.9 | 10.9 | 68.7 | 13.3 |
| I will lower my chance of developing heart disease | 2.1 | 8.6 | 10.2 | 67 | 12.1 |
| I will be able to avoid health problems in future | 2.1 | 7.4 | 13.6 | 61.3 | 15.6 |
| I will live longer | 2.7 | 8.3 | 17.1 | 54 | 18.0 |
| I will get instant health benefits | 2.9 | 12.1 | 23.0 | 50.0 | 12.0 |
| I will breathe easier | 3.8 | 9.1 | 14.2 | 60.5 | 12.4 |
| I will feel more energetic | 2.7 | 10.9 | 23.9 | 50.4 | 12.1 |
| I will be healthier | 2.1 | 9.4 | 18.9 | 56.3 | 13.3 |
| I will feel proud that I was able to quit smoking | 2.9 | 8.2 | 17.7 | 55.2 | 16.0 |
| I will be more in control of my own life | 3.2 | 18.0 | 24.2 | 48.1 | 6.5 |

| Attitudes | Very Unlikely (%) | Unlikely (%) | Moderate Chance (%) | Likely (%) | Very Likely (%) |
|---|---|---|---|---|---|
| I will feel a sense of achievement | 4.4 | 13.9 | 17.4 | 55.2 | 9.1 |
| I will prove that I can achieve abstinence | 3.3 | 10.6 | 17.4 | 58.4 | 10.3 |
| I will have more money for items besides cigarettes | 2.7 | 9.7 | 11.5 | 61.0 | 15.1 |
| I will be able to save more money | 3.0 | 10.3 | 21.5 | 53.4 | 11.8 |
| I will smell cleaner | 2.4 | 9.4 | 16.2 | 54.9 | 17.1 |
| My breathe will be fresher | 2.7 | 7.7 | 18.9 | 54.6 | 16.2 |
| People who care about me will approve | 4.1 | 6.5 | 23.6 | 56.3 | 9.4 |
| I will have the respects of my friends | 2.9 | 14.7 | 28 | 46.6 | 7.7 |
| I will set a good example for others | 2.9 | 9.4 | 26.6 | 51.9 | 9.2 |
| I will no longer offend others by smoking | 1.8 | 8.6 | 18.9 | 53.7 | 17.1 |
| I will eat more | 7.1 | 25.1 | 23.6 | 38.9 | 5.3 |
| I will gain weight | 3.2 | 24.2 | 25.4 | 43.4 | 3.8 |
| I will not be able to lose weight as easily | 4.1 | 52.5 | 20.6 | 18.9 | 3.8 |
| I will be more irritable | 2.9 | 39.2 | 21.5 | 29.5 | 6.8 |
| I will be less able to deal with stress | 5.6 | 39.2 | 18.9 | 32.4 | 3.8 |
| I will feel less calm | 4.7 | 41.9 | 18.6 | 31.3 | 3.5 |
| I will have shorter attention span | 4.4 | 32.7 | 20.9 | 35.4 | 6.5 |
| I will be less able to Concentrate | 3.8 | 38.6 | 16.8 | 35.7 | 5.0 |
| I will be less able to focus my attention | 7.4 | 47.5 | 14.2 | 27.4 | 3.5 |
| My thoughts will be more likely to wonder | 7.4 | 45.7 | 16.2 | 26.6 | 4.1 |
| I will be more inattentive | 10.6 | 47.8 | 19.8 | 20.1 | 1.8 |

| Attitudes | Very Unlikely (%) | Unlikely (%) | Moderate Chance (%) | Likely (%) | Very Likely (%) |
|---|---|---|---|---|---|
| I will be less welcome around my smoker friends | 8.8 | 42.8 | 10.0 | 31.6 | 6.8 |
| I will feel uncomfortable around smokers | 4.4 | 24.2 | 16.8 | 46.3 | 8.3 |
| I will miss the taste of cigarettes | 3.2 | 26 | 18.3 | 42.5 | 10.0 |
| I will miss the pleasure I got from cigarettes | 3.2 | 24.8 | 22.1 | 44.2 | 5.6 |
| I will experience intense craving for cigarettes | 3.5 | 19.5 | 19.2 | 46 | 11.8 |
| I will have strong urges for the cigarettes | 3.2 | 25.4 | 20.1 | 39.8 | 11.5 |
| I will desire a cigarette | 3.5 | 16.5 | 19.8 | 48.4 | 11.8 |

4.1.6 Perceived social norms towards smoking cessation

Table 8 showed the distribution of perceived social norms towards smoking cessation of the respondents. Out of 7 questions (35 total available scores), the weak perceived social norms towards smoking cessation group scored from 13 to 20, the moderate perceived norms scored from 21 to 28 and the high perceived social norms towards smoking cessation group scored at least 29 out of 35 questions. Majority of respondents (70.2%) had moderate perceived social norms only 15.3% of them had strong perceived social norms. Nearly 75% of the responded disagreed for the question that "important people for them think that smoking is inappropriate for them". For other 6 questions, the male smokers' responses agreed statement (somewhat agree and strongly agree) than disagreed statement (somewhat disagree and strongly disagree). Most of the respondents (68.5%) were on the agreed side when they were asked that

they were expected to quit smoking. Majority of them (82.9%) were also on the agreed side for the question “My parents think that I should quit smoking”. For the question of their perception of whether their wives or lovers would like them to quit smoking, more than 80% of them were on agreed side. In addition to that, 71.1% of the respondents responded that they agreed that their children would like them to quit smoking. More than half of the respondents (57.3%) answered that they agreed that their friends would like them to quit in table 9.

**Table 8** Number and percentage distribution of perceived social norms towards smoking cessation of the respondents (n = 339)

| Perceived social norms level | | | Number | Percentage |
|---|---|---|---|---|
| Weak perceived social norms | | | 49 | 14.5 |
| Moderate perceived social norms | | | 238 | 70.2 |
| Strong perceived social norms | | | 52 | 15.3 |
| Range | = | 13 to 32 | | |
| Mean | = | 24.71 | | |
| SD | = | 3.84 | | |

**Table 9** Percentage distribution of questionnaires of perceived social norms towards smoking cessation

| Perceived social norms | Strongly disagree (%) | Somewhat disagree (%) | Not sure (%) | Somewhat agree (%) | Strongly agree (%) |
|---|---|---|---|---|---|
| Most People who are important for me think that smoking is inappropriate for me | 24.8 | 48.4 | 4.7 | 16.8 | 5.3 |
| It is expected for me to quit smoking | 3.2 | 10.0 | 18.3 | 54.3 | 14.2 |
| My parents think that I should quit smoking | 1.5 | 3.5 | 12.1 | 56.6 | 26.3 |
| My Wife/ Lover thinks that I should quit smoking | 2.4 | 4.7 | 10.3 | 54 | 28.6 |
| My children think that I should quit smoking | 2.9 | 5.3 | 20.1 | 47.5 | 24.2 |
| My friends think that I should quit smoking | 2.4 | 15.3 | 25.1 | 49 | 8.3 |
| My classmates/colleges think that I should quit smoking | 3.8 | 15 | 25.7 | 47.8 | 7.7 |



4.1.7 Self-efficacy towards smoking cessation

Table 10 showed the distribution of self-efficacy towards smoking cessation of male smokers. The low self-efficacy toward smoking cessation group of them scored from 10 to 22 scores in questions for self-efficacy towards smoking cessation. The moderate self-efficacy toward smoking cessation group scored between 23 and 36. The high self-efficacy towards smoking cessation group scored at least 37 in the questions. When the respondents answered the questionnaire, 42.2% of the respondents were confident that they could restrain themselves from smoking with friends while partying or celebrating. Their responses of them to restrain smoking over tea or coffee was close

with 40.1% of them were confident and 38.9% of them were unconfident. More number of respondents was on confident side with 41.5% for the question to control smoking with close friends or wife who were smoking. Nearly half of the respondents were unconfident to avoid smoking while having a drink. The confidence (41%) to avoid smoking when they see someone and enjoying the smoking is just more than unconfident respondents (36%). More respondent were on the unconfident side to avoid smoking when they woke up on the morning after having a tough day with 35.4% of them, after having emotional crisis with 35.1% of them and when depressed with 35.1% of them were confident to avoid smoking. However, there were more respondents on the confident side to avoid smoking when they were anxious with 38.3% of them were confident to avoid smoking and 39.9% of them were confident to avoid smoking when they were arguments within the family. Moreover, the percentage of respondents who responded "not sure" about the questions were more than 20% of total respondents except for the question asking about how confident they were to avoid smoking when having a drink.



**Table 10** Number and percentage distribution of self-efficacy towards smoking cessation of the respondents (n = 339*)*

| Self-efficacy Level | Number | Percentage |
|---|---|---|
| Low self-efficacy | 63 | 18.6 |
| Moderate self-efficacy | 201 | 59.3 |
| High self-efficacy | 75 | 22.1 |
| Range = 10 to 50 | | |
| Mean = 29.91 | | |
| SD = 7.76 | | |

**Table 11** Percentage distribution questionnaires of self-efficacy towards smoking cessation

| Self-efficacy (Belief to be able to avoid smoking in) | Complete unconfident (%) | Somewhat unconfident (%) | Not sure (%) | Somewhat confident (%) | Complete confident (%) |
|---|---|---|---|---|---|
| With friends at party/ Celebration | 6.8 | 24.8 | 26.3 | 36.6 | 5.6 |
| Over tea or coffee while talking and relaxing | 5.6 | 33.3 | 20.9 | 36 | 4.1 |
| With my close friends or wife who is smoking | 6.8 | 23.9 | 27.7 | 35.1 | 6.5 |
| While having a drink | 13.3 | 35.1 | 19.5 | 28 | 4.1 |
| When I see someone smoking and enjoying it | 5.6 | 30.4 | 23.0 | 37.2 | 3.8 |
| When I woke up in the morning and had a tough day | 3.2 | 32.2 | 30.4 | 31.6 | 2.7 |
| When I experience an emotional crisis | 6.2 | 28.9 | 31 | 31.9 | 2.1 |
| When I am depressed | 8.3 | 26.8 | 32.2 | 31.6 | 1.2 |
| When I am anxious or frustrated about things in my life | 6.2 | 26.5 | 28.9 | 33.9 | 4.4 |
| When there are arguments within my family | 6.5 | 23.6 | 30.1 | 37.2 | 2.7 |

4.1.8 Intention to quit smoking

Among the respondents, 62.3% of the respondents reported to have intention to quit smoking in the study. Around a quarter of them reported to have strong intention to quit smoking. The intention to quit smoking was categorized by days planned to quit smoking and reasons to quit. However, none of the respondents with quitting intention were reported to plan to quit more than 30 days. Among 211 respondents with quitting intention, 17% reported that they planned to quit immediately and 83% reported that they planned to quit within next 30 days. About the reasons to quitting intention (which could be answered more than one reason), the reason to quitting intention for their children and wives or lovers asked them to quit were reported by almost equal number of respondents (29.4% for the children and 30.3% for wives or lovers asked to quit). In addition to that, 26.1% of the respondents reported that the reason to quitting intention for them was that family members (parents or siblings) asked them to quit smoking. General well-being of own health was the reason to quitting intention that majority of the respondents reported with 63% of them. The signs and symptoms suffered as the reason to quitting intention was also reported by 40.8% of them. Less than 20% of the respondents reported as their reason to quitting intention as their medical conditions (19.9%) and their close friends asked them to quit (15.2%).Nearly a quarter of them reported to have quitting intention because of job related smoking issues.

**Table 12** Number and percentage distribution intention to quit smoking of the respondents (n = 339)

| Intention to quit smoking | Number | Percentage |
|---|---|---|
| No intention to quit | 128 | 37.8 |
| Weak intention to quit * | 124 | 36.6 |
| Strong intention to quit ** | 87 | 25.7 |
| Intention to quit smoking | | |
| Present | 211 | 62.3 |
| Absent | 128 | 37.8 |
| Among respondents with intention to quit smoking (n = 211) Planned date to quit | | |
| 0 day | 36 | 17 |
| <30 days | 175 | 83 |
| Reasons to quitting intention | | |
| For the children | 62 | 29.4 |
| Wife or lover ask to quit | 64 | 30.3 |
| Family (Parents or siblings) asked to quit | 55 | 26.1 |
| For the health of the family members who live together | 75 | 35.5 |
| General well-being of own health | 133 | 63 |
| Signs and symptoms suffered | 86 | 40.8 |
| Current Medical Conditions | 42 | 19.9 |
| Close Friends asked to quit | 32 | 15.2 |
| Job related smoking issues | 50 | 23.7 |

* Weak intention to quite means planning to quit after >90 days with any number of reasons or< 30 days with < 3 reasons or 30 to 90 days with < 5 reasons

** Strong intention to quite means planning to quit <30 days with at least 3 reasons or 30 to 90 days with at least 5 reasons

**4.2** Association between independent variables and intention to quit smoking

4.2.1 Association between socio-demographic factors and intention to quit smoking of the respondents

Table 13 and table 14 described the association between socio-demographic factors and intention to quit smoking of the male smokers. Age of the respondents is significantly associated with the intention to quit smoking (p value = 0.019). However, the rest of the socio-demographic factors like marital Status, presence or absence of children living together at home, education level of the respondents, employment of the respondents, and monthly individual income of the respondents showed no association with intention to quit smoking.

**Table 13** Association between age and intention to quit Smoking of the respondents (n = 339)

| Variable | No intention Mean (SD) | Weak intention Mean (SD) | Strong intention Mean (SD) | F | p value |
|---|---|---|---|---|---|
| Age: | 34.7 (7.39) | 34.77 (7.68) | 36.28 (7.55) | 1.552 | **0.019*** |



***** Statistically significant at p value < 0.005

**Table 14** Association between socio-demographic factors and intention to quit smoking of the respondents (n = 339)

| Socio-demographic Factors | Intention to Quit Smoking | | | Total | Chi Square | p value |
|---|---|---|---|---|---|---|
| | No intention n (%) | Weak Intention n (%) | Strong Intention n (%) | | | |
| Marital Status: | | | | | | |
| Unmarried | 50 (37.6%) | 52 (39.1%) | 31 (23.3%) | 133 | 0.86 | 0.652 |
| Married | 78 (37.9%) | 72 (35.0%) | 56 (27.1%) | 206 | | |
| Children living together at home: | | | | | | |
| Present | 72 (37.1%) | 69 (35.6%) | 53 (27.3%) | 194 | 0.66 | 0.718 |
| Absent | 56 (38.6%) | 55 (37.9%) | 34 (23.4%) | 145 | | |
| Education: | | | | | | |
| Primary School | 14 (35.9%) | 14 (35.9%) | 11 (28.2%) | 39 | 8.17 | 0.226 |
| Middle School | 61 (43%) | 43 (30.2%) | 38 (26.8%) | 142 | | |
| High School | 38 (37.6%) | 38 (37.6%) | 25 (24.8%) | 101 | | |
| Graduate/ Post Graduate | 15 (26.3%) | 29 (50.9%) | 13 (22.8%) | 57 | | |
| Employment: | | | | | | |
| Unemployed | 24 (48.0%) | 21 (42.0%) | 5 (10.0%) | 50 | 8.72 | 0.19 |
| Government Sector | 9 (31.0%) | 11 (37.9%) | 9 (31.0%) | 29 | | |
| Private Sector | 51 (37%) | 51 (37%) | 36 (26%) | 138 | | |
| Self-employed | 44 (36.1%) | 41 (33.6%) | 37 (30.3%) | 122 | | |
| Individual income | | | | | | |
| < 108,000 Kyats | 41 (36%) | 45 (39.5%) | 28 (24.5%) | 114 | 4.24[n] | 0.373[n] |
| 108,000 Kyats to 540,000 Kyats | 79 (37.6%) | 77 (36.7%) | 54 (25.7%) | 210 | | |
| > 540,000 Kyats | 8 (53.3%) | 2 (13.3%) | 5 (33.3%) | 15 | | |

[n] analyzed with Fisher's exact test

4.2.2 Association between current smoking practice and intention to quit smoking of the respondents

Table 15 and table 16 showed the association between current smoking practice and intention to quit smoking among male smokers. Age of onset of smoking and allowance of home smoking were not associated with the intention to quit smoking. Allowance of workplace smoking was found to be significantly associated with the intention to quit smoking (p value = 0.016). In addition to that, the amount of cigarettes smoking per day was also highly associated with the intention to quit smoking (p value = 0.03).

**Table 15** Association between age of onset of smoking and average amount of cigarettes per day and intention to quit smoking of the respondents (n = 339)

| Variables | No intention Mean (SD) | Weak intention Mean (SD) | Strong intention Mean (SD) | F | p value |
|---|---|---|---|---|---|
| Age of onset of smoking : | 19.05 (8.13) | 18.76 (7.64) | 18.56 (8.16) | 0.294 | 0.746 |
| Average amount of cigarettes per day : | 10.50 (5.67) | 9.71 (6.03) | 10.91 (6.83) | 1.629 | **0.030*** |

* Statistically significant at p-value < 0.05

**Table 16** Association between current smoking practice and intention to quit smoking of the respondents (n = 339*)*

| Current Smoking Practice | Intention to Quit Smoking | | | Total | Chi Square | p value |
|---|---|---|---|---|---|---|
| | No intention n (%) | Weak intention n (%) | Strong intention n (%) | | | |
| Allow to Smoke at Home: | | | | | | |
| Yes | 96 (39.8%) | 79 (32.8%) | 66 (27.4%) | 241 | 5.2 | 0.074 |
| No | 32 (32.7%) | 45 (45.9%) | 21 (21.4%) | 98 | | |
| Allow to Smoke at Work Place: | | | | | | |
| Yes | 69 (43.9%) | 45 (28.7%) | 43 (27.4%) | 157 | 8.32 | **0.016*** |
| No | 59 (32.4%) | 79 (43.4%) | 44 (24.2%) | 182 | | |

* Statistically significant at p-value < 0.05

4.2.3 Association between nicotine dependence and intention to quit smoking of the respondents

Table 17 stated the association between nicotine dependence and intention to quit smoking of the male smokers. There was only one male smoker with high nicotine dependence so that it was inappropriate to make meaningful comparison. To make meaningful comparison, the respondents with the moderate nicotine dependence and high nicotine dependence were combined into moderate and high nicotine dependence category. There was no association between nicotine dependence of the respondents and the intention to quit smoking of the respondents (p value = 0.2).

**Table 17** Association between nicotine dependence and intention to quit smoking of the respondents

| Nicotine Dependence: | Intention to Quit Smoking | | | Total | Chi square | p value |
|---|---|---|---|---|---|---|
| | No intention n (%) | Weak Intention n (%) | Strong Intention n (%) | | | |
| Low Nicotine Dependence | 94 (40.7%) | 83 (35.9%) | 54 (23.4%) | 231 | 3.215 | 0.2 |
| Moderate and high Nicotine Dependence | 34 (31.5%) | 41 (38.0%) | 33 (30.5%) | 108 | | |

4.2.4 Association between past smoking quit attempts and the intention to quit smoking

Table 18 showed the association between past smoking quit attempts and the intention to quit smoking among the respondents. According to the available data, the frequency of past quit attempts ranged from 0 time to 3 times in the last year. Since there were more people without past year smoking quit attempts, to have a meaningful comparison, the frequency variable was categorized into respondents with those without last year quit attempts, those with one time quit attempt in last year and respondents with last year quit attempt at least 2 times. Both of the variables were significantly associated with the intention to quit smoking (p value < 0.001).

**Table 18** Association between past smoking quit attempts and the intention to quit smoking among the respondents

| Past smoking quit attempts | Intention to Quit Smoking | | | Chi Square | p value |
|---|---|---|---|---|---|
| | No intention | Weak Intention | Strong Intention | | |
| Last Year Quit Attempts: | | | | | |
| Present | 13 (14%) | 44 (47.3%) | 36 (38.7%) | 31.729 | **<0.001*** |
| Absent | 115 (46.7%) | 80 (32.5%) | 51 (20.7%) | | |
| Frequency of quit attempts: | | | | | |
| 0 time | 115 (46.9%) | 79 (32.2%) | 51 (20.8%) | 40.142 | **<0.001*** |
| 1 time | 6 (14%) | 15 (34.9%) | 22 (51.2%) | | |
| At least 2 times | 7 (14%) | 29 (58%) | 14 (28%) | | |

* Statistically significant at p-value < 0.05

4.2.5 Association between attitudes, perceived social norms and self-efficacy towards smoking cessation and intention to quit smoking of the respondents

Table 19 showed the association between variables of the theory of planned behavior (positive attitudes, negative attitudes, perceived social norms and self-efficacy towards smoking cessation) and intention to quit smoking The attitudes towards smoking cessation was strongly associated with the intention to quit smoking (p value = 0.004). There was significant association with perceived social norms towards smoking cessation and intention to quit smoking at the p value of 0.05. Self-efficacy towards smoking cessation was strongly associated intention to quit smoking (p value = 0.01)

**Table 19** Association between attitudes, perceived social norms and self-efficacy towards smoking cessation and intention to quit smoking of the respondents (n =339)

| Variables | No intention Mean (SD) | Weak intention Mean (SD) | Strong intention Mean (SD) | F | p value |
|---|---|---|---|---|---|
| Attitudes : | 123.87 (14.31) | 133.63 (15.40) | 134.61 (15.32) | 1.614 | **0.004*** |
| Perceived social norms : | 23.68 (4.14) | 25.29 (3.73) | 25.38 (3.19) | 1.553 | **0.050*** |
| Self-efficacy : | 27.02 (7.82) | 32.17 (7.01) | 30.94 (7.31) | 1.716 | **0.010*** |

* Statistically significant at p-value <0.05

# CHAPTER V

## DISCUSSION

### 5.1 Discussion

This study was designed to find out the association between independent variables (i.e. socio-demographic factors, current smoking practice, nicotine dependence, past smoking quit attempts in the last and variables of theory of planned behavior which comprised attitudes, perceived social norms and self-efficacy towards smoking cessation and dependent variable - intention to quit smoking of male smokers in Yangon, Myanmar. The data was collected by using self-administered questionnaire of 339 respondents.

#### 5.1.1 Socio-demographic factors

The majority of the respondents were 25 to 34 years old, married people, attained middle school education, working in private sectors and having income of 108,000 Kyats to 540,000 Kyats. However, the proportion of respondents who have children living together at home was about the same as those who do not have children living together at home.

The age distribution of the study was equally distributed in all of the age group and this finding was not very different from census data of Myanmar (Department of Population, 2014). The major difference can only be seen in the age group of male smokers who are at least 55 years old. The highlight from this study that were different from other study conducted in Asian countries were that most of the male respondents were age between 40 to 54 years of age, monthly income of more than 570,000 Kyats

(equivalent to 16,000 Bahts) (Li et al., 2010). Another study that was conducted on Cambodian males found that respondents were of 37 to 48 years of age (Tonstad et al., 2012). During the data collection for the study, some of the potential old aged participants could not participate in the study because of their health conditions.

The Japanese males had very few respondents with children living together in the households (Hagimoto et al., 2010) comparing with this study (21% in Japanese male and 57.2% in this study) and different proportion of married male smokers also showed in two studies. This difference in the percentage of male smokers living together with children in Japanese and Myanmar could be explained by the difference in birth rate of two countries. Crude birth rate of Japan in 2015 was 8 per 1,000 population (Hanley & Yamamura, 2015) whereas crude birth rate of Myanmar was 17 per 1,000 population (Latt et al., 2016). The greater number of dependent children in Myanmar could be the reason why Myanmar male smokers have more proportion of people living together with children at home. The similar findings from other studies were that majority of Malaysian smokers attained middle level of education (Li et al., 2010), Cambodian smokers were working in private sector and married (Tonstad et al., 2012). According to the census of Myanmar, the highest attained education of males in Yangon was similar in different level of education as middle school (Department of Population, 2014). However, the census of Myanmar represents the entire male population of Yangon, whereas the study only focused on the male population of Yangon who are currently smoking.

The study revealed that age of the respondents was statistically associated with the intention to quit smoking among male Myanmar at p value of 0.019. This finding was different from other studies in Thailand, Malaysia and Cambodia (Li et al., 2010;

Tonstad et al., 2012) in which there was no association between the age and the intention to quit smoking. However, other socio-demographic factors like marital status, education, employment, monthly individual income, and presence of children at home were not significant with the intention to quit smoking. These findings were also similar to the study of Hagimoto and colleagues (Hagimoto et al., 2010) in which these variables were also not statistically significant with intention to quit smoking. Comparing with other studies, this study showed that most of the Myanmar male smokers were younger age and age was statistically associated with intention to quit smoking. Presence of majority of the smokers being younger age was a highlighted fact for this study demanding attention of health promoting program related with smoking for young Myanmar male. Another important factor is that smoking from the younger age more likely to be addicted to the health compromising behavior than the older age (Orlando, Tucker, Ellickson, & Klein, 2004).

5.1.2 Current smoking practice

Most of the respondents in the study started smoking from 24 years or younger, were allowed to smoke at home, were not allowed to smoke in their workplaces and were smoking at the maximum of 10 cigarettes per day. This findings of age of onset of smoking and smoking of maximum of 10 cigarettes per day were also similar with findings study conducted by Hammond (Hammond et al., 2008). For the allowance to smoke at home, 50% of Thai male smokers were allowed to smoke at home comparing with 88% in Malaysian male smokers (Li et al., 2010) whereas 71.1% of Myanmar male smokers were allowed to smoke at home. These findings could be resulting from the fact that male dominance in households. In Bangladesh (Abdullah et al., 2015), there

was workplace smoking restriction in 74.5% of the respondents but in this study, there were only 53.7% of respondents had workplace smoking restriction. Workplaces are legally smoking restricted places in Myanmar yet nearly half of the respondents were smoking in their workplaces.

Workplace smoking allowance and average cigarettes smoked per day were statistically significant with intention to quit smoking at p value of 0.016 and 0.03 respectively. But, the age of onset for smoking and home smoking allowance were not significant in this study. The workplace smoking restriction and the average cigarettes per day were not associated with intention to quit of the smokers in Bangladesh (Abdullah et al., 2015) which were different from the findings of this study. Home smoking ban was also found to be not significant in Malaysian smokers (Li et al., 2010) supporting the findings of this study. The smoking is widely accepted in many South East Asia countries so that home smoking is not prohibited in most of the households. However, the workplace environment with smoking ban creates professionalism and accountability of individual smokers combining with rules and regulation of workplaces result in the male smokers to stay away from cigarettes. However, age of smoking initiation was also not significantly associated with quitting intention in the study conducted by Kim (Sun Seog Kim, 2008).

5.1.3 Nicotine dependence

More than half of the respondents had low nicotine dependence and there was only one person with high nicotine dependence was involved in the study. However, the study conducted for Korean smokers revealed that majority of Korean smokers had moderate nicotine dependence (Sun S Kim et al., 2013). The nicotine dependence was not significant at p value 0.2 with the intention to quit as a finding. This finding was coincide with the findings from other research like Kim and colleagues' study (Sun S Kim et al., 2013). This may be due to the fact that although Fagerstrom scores for Nicotine dependence was widely acceptable scoring system, it has never been validated in male Myanmar smokers. Even with content and construct validity tested together with reliability testing for 30 participants prior to data collection, Fagerstrom scores may not a valid measures to access nicotine dependence in male Myanmar. Similar situation was faced when testing for Korean Smokers' Nicotine dependence (Sun S Kim et al., 2013).

When responding to the questions of Fagerstrom Scores for nicotine dependence, some highlights questions were that amount of cigarettes per day, difficulty to constrain smoking in public smoking prohibited areas and smoking during illness questions. In this study, more than half of the participants were smoking at most 10 cigarettes per day. Although daily cigarette smoking was less than that of neighboring countries like Thailand, Cambodia, and Malaysia according to these studies (Li et al., 2010; Tonstad et al., 2012), higher proportion of participants responding that difficult to avoid smoking in public smoking prohibited areas (61.9% of the respondents) and history of smoking during illness (61% of the respondents) were the alarming findings of the study.

5.1.4 Past smoking quit attempts

The study included two variables in the past smoking quit attempts. One of them was if the respondents had experienced at least a month abstinence from cigarette smoking during last year. Another one is if such experience was presented, the frequency of such abstinences. Participants from the study reported that majority of them (72.6%) did not have history of quitting smoking for at least a month last year. Among the respondents who had the history of quitting, most of them only had a single occasion of such quitting practice in last year. These findings of majority of smokers who did not have quitting attempts were also similar to other studies (Abdullah et al., 2015; Fagan et al., 2007).

During this study, both of the variables of history of quit attempts and frequency of quit attempts were statistically significant with the intention to quit smoking at p value less than 0.001. History of smoking quit attempts was also associated with the intention to quit smoking in many other studies (Abdullah et al., 2015; Sun S Kim et al., 2013; Li et al., 2010). These findings were indicative of smokers without the quit attempts were simply did not ready to quit, so that they did not have the intention to quit. In addition to that, it is possible to assume that they might not try to quit smoking in the future.

5.1.5 Variables of theory of planned behavior

In this study, attitudes towards smoking cessation obtained high scores among the respondents This high values in attitudes scoring were also consistent with the findings of other studies from both Western countries (Droomers et al., 2004; Norman, Conner, & Bell, 1999) and Asian countries (Hu & Lanese, 1998; Sun Seog Kim, 2008). The high scores of attitudes scales towards smoking cessation could be caused by many factors. One of these factors could be that this study was conducted in Yangon, one of the commercial cities with most populated one; therefore citizens of Yangon are more informed with health education than other part of the country. This factor could result in good attitudes towards smoking cessation in Yangon male smokers. However, some smokers in the study showed low scores in attitude towards smoking cessation. These results may due to the fact that the respondents in the study were smokers with at least one year smoking history, therefore they enjoy smoking.

Male smokers in Yangon, Myanmar responded high scores in perceived social norms towards smoking cessation. In addition to that, the perceived self-efficacy towards smoking cessation was mostly moderate values in the study. Although higher perceived social norms towards smoking cessation was observed in other Asian countries (Hu & Lanese, 1998), self-efficacy towards smoking cessation had shown different distribution in Malaysian and Thai Smokers (Li et al., 2010) where smokers with lower self-efficacy towards smoking cessation were higher proportion. High scoring of the perceived social norms towards smoking cessation could be resulted from male smokers of Myanmar perceived that the society and family of them are encouraging them to quit smoking. More neutral scores on self-efficacy could be due

to the fact that lax legislation and enforcement on the smoking rules and regulation in Myanmar, so that smokers do not necessarily need to disengage smoking.

All of the theoretical variables, attitudes, perceived social norms and self-efficacy towards smoking cessation were significantly associated with the intention to quit smoking among male Myanmar smokers in this study. In general, more favorable the attitudes towards smoking cessation is the better indicator of having intention to quit but some studies (Sun Seog Kim, 2008; Sun S Kim et al., 2013) were failed to show that relation. However, the attitude towards quitting smoking was significantly associated with the intention to quit smoking ($p$ value $< 0.001$) in this study.

Addiction behavior has been known to be influenced by influence of peers and family members (Aizen, 2010). Nevertheless, there were some discrepancy in the establishing the relation between perceived social norms toward smoking cessation and intention to quit smoking. Study like Kim's (Sun S Kim et al., 2013) in which perceived social norms was not associated with the intention to quit smoking. But, other studies like Hu's, Droomers', Schrijvers' and Kim's (Droomers et al., 2004; Hu & Lanese, 1998; Sun Seog Kim, 2008) perceived social norm was found to be statistically significant with the intention to quit smoking. In this study, perceived social norm towards smoking cessation was found to be strongly associated with the intention to quit smoking.

The stronger ones perceived self-efficacy to quit smoking, the more likely the individuals would have the intention to quit and also more likely to actually quit smoking. Self-efficacy toward smoking cessation was statistically associated with the intention to quit smoking. This association was failed to establish in some studies (Droomers et al., 2004; Sun S Kim et al., 2013).

5.1.6 Intention to quit smoking

The main outcome of the study was the intention to quit smoking among the male smokers living in four townships of Yangon, Myanmar. In this study, 37.8% of the respondents reported not having the intention to quit smoking. Similar studies with male smokers who did not have the intention to quit smoking were 32.9% (Tonstad et al., 2012) and 31.4% (Marques-Vidal et al., 2011). However, the smokers of Bangladesh responded that 79.8% of them reported not having the quitting intention in the study conducted by Abdullah and colleagues (Abdullah et al., 2015). In the respondents with the intention to quit smoking, the number of smokers with weak intention to quit and strong intention to quit were not much different (weak intention to quit was 36.6% of respondents and strong intention to quit was 25.7% of respondents). Among the reasons for having the quitting intention, there were total of 9 reasons altogether from 339 male smokers of the study. Comparing with the other study (Abdullah et al., 2015), Myanmar male smokers did not report the reasons for having the intention to quit as financial burden due to smoking, cost-effective smoking cessation medication and warning labels on cigarette packs. These facts could be due to the fact that low taxation of cigarettes comparing with other countries, scarcity of smoking cessation medication or nicotine replacement alternative products, and lack of health warning labels on cigarette packages.

# CHAPTER VI

## CONCLUSION AND RECOMMENDATION

6.1 Conclusion and recommendation

To the researcher's knowledge, this was the first study investigating the intention to quit smoking among male smokers in Yangon, Myanmar. The results of the study showed that among the socio-demographic factors, age group of the respondents were statistically associated with the intention to quit smoking among male smokers of Yangon, Myanmar. These findings could guide any organization that are providing health promoting program relating with smoking cessation to consider this as a fact. None of the other socio-demographic factors were associated with the intention to quit smoking in the study. These findings were indicative of need to promote more information relating targeting socio-demographic factors relating smoking cessation in Yangon, Myanmar. For example, improving taxation on tobacco would enlist income as one of the factors to quit smoking, or more health information of second hand smoking in house would render male smokers with children at home to consider more about smoking.

In the current study, the smoking ban in workplaces was significantly associated with the intention to quit smoking. The widespread smoking bans in workplaces with appropriate penalty would effectively promote quitting intention in male smokers in Yangon. However, considering the fact that majority of male smokers were allowed to smoke at home combining with failure of this study to establish association between home smoking restriction and intention to quit smoking could be an important negative findings. Since smoking is hazardous for both smokers and people around them,

awareness and practice of home smoking restriction is extremely vital for reducing health hazards of second hand smoking. According to the findings of the current study, male Myanmar smokers are clearly required to promote behavioral practice relating to this aspect warranting the need to put more attention to promote home smoking restriction in Yangon. Average cigarettes that smokers consumed per day were also found to be statistically associated with the intention to quit smoking in this study. It is a common understanding that the smokers who smoke more are more likely to unable to quit smoking. Therefore, it is obvious that health education program targeted to smoking cessation of male smokers in Yangon should be included to reduce the amount of cigarettes they are smoking on daily basis which in turn will escalate to smoking cessation behavior.

Both the past year smoking quit attempts and frequency of past year quit attempts were significantly associated with the intention to quit smoking in Myanmar male smokers. Association between quit attempts and intention to quit is quite convincing findings since this suggests that differences in the smokers' readiness to quit. While smokers with history of quit attempts will try to quit again, hence they have the intention to quit smoking. However, those without the history of quit attempts may simply not ready to quit smoking yet, therefore do not have the intention to quit smoking. The more times that smokers tried to quit, the more likely they possess the intention to quit smoking. Combining these two findings from the current study, male smokers in Myanmar should receive health education encouraging them to make frequent quit attempts that should reinforce their confidence to quitting regardless of perceived chance of successful quitting.

Among the components of theory of planned behavior, all of the theoretical variables were associated with the intention to quit smoking. Attitude was found to be significantly associated with the intention to quit in this study. Attitudes like health gains, social gains, financial gains, and personal achievements after quitting smoking are important related factors for Myanmar male smokers' quitting intention. Perceived social norms toward smoking cessation were also significant associated factor for quitting intention. Therefore, opinion of smoking quitting by family members and close friends can put weighting on male Myanmar smokers quitting intention. Self-efficacy towards smoking cessation was also associated with the intention to quit smoking in the study. The male smokers' confidence to avoid smoking in smoking stimulated situations like going out with friends or family members who smoke, when celebrating or emotional crisis should be boosted to promote quitting intention.

If Non-Governmental Organizations or Ministry of Health in Myanmar is to develop smoking cessation program for Myanmar male smokers, the program should include age group specific, promote smoking bans in workplaces and message to reduce the amount of current cigarettes consumed every day. In addition to that, the program should encourage the male smokers to attempt quit attempts frequently. The male smokers should be informed about the benefits of quitting smoking and their perceived self-efficacy to avoid smoking should be reinforced. Another recommendation would be that the smoking quitting with the help of social environment such as peer education program should be effective for developing quitting intention.

Further studies to find out the direction of association of the variables with the intention to quitting should be done to understand more about the male Myanmar smokers intention to quit. Longitudinal study with follow up study would be more

informative in terms of finding out the correlation between intention and actual quitting practice. Other studies using carbon monoxide measurements for smoking would provide more reliable information on quitting practice. More quality studies like in depth interview for the variables of theory of planned behavior would provide more comprehensive understanding of intention to quit smoking in male Smokers in Yangon, Myanmar.

6.2 Limitation of the study

- The study limited to Yangon Region which could not be representative of Myanmar.
- The targeted participants were only males, so that the results could not reflect the females smokers
- Since one of the exclusion criteria of the study was illiteracy, so that the intention to quit smoking of illiterate smokers could not be accessed.
- Due to the limitation of the time and resources, the study could not utilize more reliable measures such as Carbon monoxide measuring.
- Only cognitive nature (intention) of the respondents was accessed without the practice of the behavior which required additional time and resources and different methodology such as longitudinal or prospective cohort study.

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# APPENDIX

Survey tool plan to use for data collection

The intention to stop smoking among males smokers in Yangon Division, Myanmar

Structured Survey Questionnaires

ID # ----------

A) Socio-demographic Factors

1. Age ----------
2. Marital Status

☐ Never Married ---------- 0

☐ Married ---------- 1

☐ Divorced / Separated / Widower -- 2

3. Children living together at home

☐ Presence ---------- 0

☐ Absence ---------- 1

4. Level of Education

☐ Primary Education ---------- 0

☐ Secondary Education ---------- 1

☐ High School Education ---------- 2

☐ Graduate / Post-graduate ---------- 3

5. **Employment**

☐ Unemployed ---------- 0

☐ Government Sector ---------- 1

☐ Private Sector ---------- 2

☐ Self-employed ---------- 3

6. **Monthly Income**

☐ Less than 108,000 Kyats ---------- 0

☐ 108,000 Kyats – 540,000 Kyats -- 1

☐ More than 540,000 Kyats --------- 2

B) Current Smoking Status

7. Age at smoking onset ----------

8. Smoking at home

☐ Yes ---------- 0

☐ No ---------- 1



9. Smoking during work

☐ Yes ---------- 0

☐ No ---------- 1

10. Number of average cigarettes/day ----------

C) Nicotine Dependence

11. How soon after waking up, do you smoke your first cigarette?

☐ More than one hour ---------- 0

☐ 31 minutes to one hour ---------- 1

☐ 5 minutes to 30 minutes ---------- 2

☐ Within 5 minutes ---------- 3

12. Do you usually feel difficult to constrain yourself in places where smoking is not allowed? Eg. Hospital, Public places like bus stop and buses

☐ Yes ---------- 0

☐ No ---------- 1

13. When would be more difficult for you to avoid smoking?

☐ First in the morning ---------- 0

☐ Others ---------- 1

14. How many cigarettes per day you usually smoke?

☐ 10 or less than 10 ---------- 0

☐ 11 – 20 ---------- 1

☐ 21 - 30 ---------- 2

☐ 31 or more ---------- 3

15. Do you usually smoke in the morning?

☐ Yes ---------- 1

☐ No ---------- 0

16. Do you smoke if you are sick in bed most of the day?

☐ Yes ---------- 1

☐ No ---------- 0

D) Past Smoking quit attempts

17. Did you abstain yourself from smoking for at least a month during last 12 months?

Yes ---------- 0

No ---------- 1

18. **I**f you answered yes to question no. 17,

Total episodes of quit attempts at least a month you tried last year ----------

E) Attitudes towards smoking cessation

Perceived negative consequences towards smoking cessation,

| Questions | Very Unlikely | Unlikely | Moderate chance | Likely | Very Likely |
|---|---|---|---|---|---|
| Weight gain | | | | | |
| 19. I will eat more | | | | | |
| 20. I will gain weight | | | | | |
| 21. I won't be able to lose weight as easily | | | | | |
| Negative affect | | | | | |
| 22. I will be more irritable | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 23. I will be less able to deal with stress | | | | | |
| 24. I will feel less calm | | | | | |
| Concentration | | | | | |
| 25. I will have shorter attention span | | | | | |
| 26. I will be less able to concentrate | | | | | |
| 27. I will be less able to focus my attention | | | | | |
| 28. My thoughts will be more likely to wonder | | | | | |
| 29. I will be more inattentive | | | | | |
| Social Ostracism | | | | | |
| 30. I will be less welcome around my friends who smoke | | | | | |
| 31. I will feel uncomfortable around smokers | | | | | |
| Loss of enjoyment | | | | | |
| 32. I will miss the taste of cigarettes | | | | | |
| 33. I will miss the pleasure I got from cigarettes | | | | | |
| Craving | | | | | |
| 34. I will experience intense craving for cigarettes | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 35. I will have strong urges for the cigarettes | | | | | |
| 36. I will desire a cigarette | | | | | |

Perceived benefits towards smoking cessation,

| Questions | Very Unlikely | Unlikely | Moderate chance | Likely | Very Likely |
|---|---|---|---|---|---|
| Health Benefits | | | | | |
| 37. I will lower my chance of developing bronchitis | | | | | |
| 38. I will lower my chance of developing lung cancer | | | | | |
| 39. I will lower my chance of developing heart diseases | | | | | |
| 40. I will able to avoid health problems in future | | | | | |
| 41. I will live longer | | | | | |
| General well being | | | | | |
| 42. I will get instant health benefits | | | | | |
| 43. I will breathe easier | | | | | |
| 44. I will feel more energetic | | | | | |
| 45. I will be healthier | | | | | |
| Self esteem | | | | | |
| 46. I will feel proud that I was able to quit smoking | | | | | |
| 47. I will be more in control of my own life | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 48. I will feel a sense of achievement | | | | | |
| 49. I will prove I can achieve abstinence from cigarettes | | | | | |
| Finances | | | | | |
| 50. I will have more money for items besides cigarettes | | | | | |
| 51. I will be able to save more money | | | | | |
| Physical appeal | | | | | |
| 52. I will smell cleaner | | | | | |
| 53. My breathe will be fresher | | | | | |
| Social approval | | | | | |
| 54. People who care about me will approve | | | | | |
| 55. I will have the respect of my friends | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 56. I will set a good example for others | | | | | |
| 57. I will no longer offend others by smoking | | | | | |

Perceived Social Norms towards Smoking cessation,

| Questions | Strongly disagree | Somewhat Disagree | Not sure | Somewhat Agree | Strongly agree |
|---|---|---|---|---|---|
| 58. Most people who are important to me think that smoking is appropriate for me | | | | | |
| 59. It is expected of me to quit smoking | | | | | |
| 60. My parents think that I should quit smoking | | | | | |
| 61. My wife/girlfriend thinks that I should quit smoking | | | | | |
| 62. My children (if present) think that I should quit smoking | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 63. My friends think that I should quit smoking | | | | | |
| 64. My colleges/classmates think that I should quit smoking | | | | | |

F) Self-efficacy towards smoking cessation

I can avoid smoking in,

| Questions | Complete unconfident | Somewhat unconfident | Not sure | Somewhat confident | Complete confident |
|---|---|---|---|---|---|
| 65. With friends at party/celebration | | | | | |
| 66. Over tea/coffee while talking and relaxing | | | | | |
| 67. With my wife or close friend who is smoking | | | | | |
| 68. While having a drink | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 69. When I see someone smoking and enjoying it | | | | | |
| 70. When I woke up in the morning and had a tough day | | | | | |
| 71. When I experience an emotional crisis | | | | | |
| 72. When I am depressed | | | | | |
| 73. When I am anxious or frustrated about things in my life | | | | | |
| 74. When there were arguments within my family | | | | | |

G) Intention to quit smoking,



(75) Do you have intention to quit smoking?

☐ Yes ☐ No

(76) If you have intention to quit smoking, when do you intend to quit smoking?

---------- Days

(77) The reasons for quitting of smoking (Could be more than one reason)

| Reasons for quitting intention | Yes | No | Detailed description for the intention |
|---|---|---|---|
| For the children | | | |
| Lovers or wife asked to quit | | | |
| Family Members (Parents or siblings asked to quit) | | | |
| For the health of the family members who live together | | | |
| General well-being of own health | | | |
| Signs and symptoms suffered (eg. Dyspnoea) | | | |

| | | | |
|---|---|---|---|
| Current Medical Coditions (eg. Diabetes)<br>Reasons for quitting intention | | | |
| Friends asked to quit smoking | | | |
| The job related smoking issues | | | |

AF 02-12

**The Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University**
Jamjuree 1 Building, 2nd Floor, Phyathai Rd., Patumwan district, Bangkok 10330, Thailand,
Tel/Fax: 0-2218-3202 E-mail: eccu@chula.ac.th

**COA No. 110/2016**

## Certificate of Approval

**Study Title** No. 074.1/59 : INTENTION TO QUIT SMOKING AMONG MALE SMOKERS IN YANGON, MYANMAR: THEORY OF PLANNED BEHAVIOR APPROACH

**Principal Investigator** : MR. HEIN KO KO

**Place of Proposed Study/Institution :** College of Public Health Sciences, Chulalongkorn University

The Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University, Thailand, has approved constituted in accordance with the International Conference on Harmonization – Good Clinical Practice (ICH-GCP).

Signature: Prida Tasanapradit Signature: Nuntaree Chaichanawongsaroj

(Associate Professor Prida Tasanapradit, M.D.) Chairman

(Assistant Professor Nuntaree Chaichanawongsaroj, Ph.D.) Secretary

Date of Approval : 1 June 2016 Approval Expire date : 31 May 2017

**The approval documents including**

1) Research proposal
2) Patient/Participant Information Sheet
3) Researcher
4) Questionnaire

Protocol No. 074.1/59
Date of Approval - 1 JUN 2016
Approval Expire Date 31 MAY 2017

*The approved investigator must comply with the following conditions:*

1. *The research/project activities must end on the approval expired date of the Research Ethics Review Committee for Research Involving Human Research. Participants, Health Sciences Group, Chulalongkorn University (RECCU). In case the research/project is unable to complete within that date, the project extension can be applied one month prior to the RECCU approval expired date.*
2. *Strictly conduct the research/project activities as written in the proposal.*
3. *Using only the documents that bearing the RECCU's seal of approval with the subjects/volunteers (including subject information sheet, consent form, invitation letter for project/research participation (if available).*
4. *Report to the RECCU for any serious adverse events within 5 working days*
5. *Report to the RECCU for any change of the research/project activities prior to conduct the activities.*
6. *Final report (AF 03-12) and abstract is required for a one year (or less) research/project and report within 30 days after the completion of the research/project. For thesis, abstract is required and report within 30 days after the completion of the research/project.*
7. *Annual progress report is needed for a two- year (or more) research/project and submit the progress report before the expire date of certificate. After the completion of the research/project processes as No. 6.*

# VITA

| | |
|---|---|
| Gender | Male |
| Marital status | Married |
| Date of birth | 23rd July 1987 |
| Age | 26 year |
| Race and Religion | Myanmar, Buddhist |
| Education | MBBS, University of Medicine (2) |
| Address | No (16),Anawyahadar Street, Ward 16, North Dagon. Yangon |
| Phone Number | +959 43070450 |