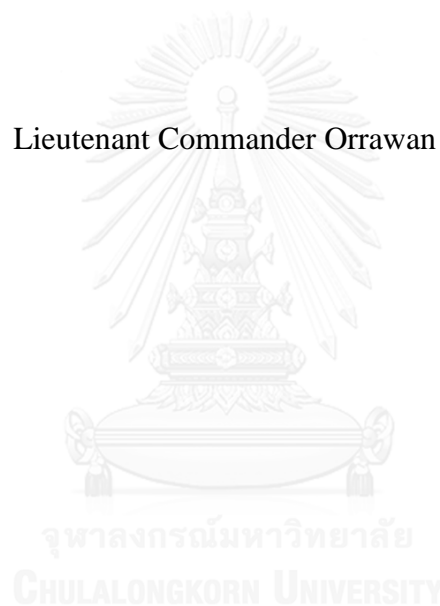


PREDICTING FACTORS OF QUIT ATTEMPT AND SMOKING STATUS IN
SCHIZOPHRENIC SMOKERS

Lieutenant Commander Orrawan Khongtor



บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
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ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรดุษฎีบัณฑิต

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คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

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By	Lieutenant Commander Orrawan Khongtor
Field of Study	Nursing Science
Thesis Advisor	Associate Professor Jintana Yunibhand, Ph.D.,APN
Thesis Co-Advisor	Assistant Professor Sunida Preechawong, Ph.D.,APN

Accepted by the Faculty of Nursing, Chulalongkorn University in Partial
Fulfillment of the Requirements for the Doctoral Degree

..... Dean of the Faculty of Nursing
(Associate Professor Sureeporn Thanasilp, D.N.S., APN)

THESIS COMMITTEE

..... Chairman
(Associate Professor Police Captain Yupin Aungsueroch, Ph.D.,RN.)

..... Thesis Advisor
(Associate Professor Jintana Yunibhand, Ph.D.,APN)

..... Thesis Co-Advisor
(Assistant Professor Sunida Preechawong, Ph.D.,APN)

..... Examiner
(Associate Professor Waraporn Chaiyawat, D.N.S.,APN)

..... Examiner
(Associate Professor Siripaarn Suwanmonkma, Ph.D.)

..... External Examiner
(Norrawee Phoomchan, M.D. FRCPsychT)

อรรถกร หนองค้อ : ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่ (PREDICTING FACTORS OF QUIT ATTEMPT AND SMOKING STATUS IN SCHIZOPHRENIC SMOKERS) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ. ดร.จินตนา ยูนิพันธุ์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: ผศ. ดร.สุนิศา ปรีชาวงษ์, 258 หน้า.

การศึกษาเชิงความสัมพันธ์นี้ มีวัตถุประสงค์เพื่อทดสอบอิทธิพลทางตรงและทางอ้อมของปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ในผู้ป่วยโรคจิตเภทที่สูบบุหรี่ โดยใช้การทบทวนวรรณกรรมเป็นกรอบแนวคิดในการคัดสรรตัวแปร กลุ่มตัวอย่างคือผู้ป่วยจิตเภทจำนวน 376 คน อายุระหว่าง 18-60 ปีและมีประวัติการสูบบุหรี่ในช่วงเดือนที่ผ่านมาก่อนรับไว้รักษาเป็นผู้ป่วยในของสถาบันและโรงพยาบาลจิตเวช กรมสุขภาพจิต กระทรวงสาธารณสุข จำนวน 6 แห่ง ทั่วทุกภาคของประเทศไทย คัดเลือกกลุ่มตัวอย่างแบบหลายขั้นตอน ดำเนินการเก็บรวบรวมข้อมูลในช่วงเดือนเมษายน-กันยายน 2557 โดยใช้แบบสอบถาม ซึ่งแบบสอบถามทุกชุดผ่านการตรวจความตรงตามเนื้อหาและความเที่ยง วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาและทดสอบเส้นทางอิทธิพลความสัมพันธ์ระหว่างตัวแปรโดยใช้โปรแกรม Lisrel 8.80

ผลการศึกษาพบว่า โมเดลที่สร้างขึ้นมีความสอดคล้องกับข้อมูลเชิงประจักษ์และสามารถอธิบายความผันแปรของความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ได้ 45% (Chi-square = 19.79, df = 30, p = 0.92, Chi-square/df = 0.66, CFI = 1.00, GIF = 0.99, RMSEA = 0.00, SRMR = 0.32, AGFI = 0.98) ตัวแปรปัจจัยทำนายมีอิทธิพลต่อความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 โดยความพร้อมในการเลิกบุหรี่มีอิทธิพลทางตรงด้านบวกต่อความพยายามเลิกบุหรี่ ($B = .58$) ระดับการติดนิโคตินมีอิทธิพลทางตรงด้านลบต่อความพยายามเลิกบุหรี่ ($B = -.24$) และมีอิทธิพลทางตรงด้านบวกต่อสถานภาพการสูบบุหรี่ ($B = .41$) ความเข้มข้นของการบำบัดเพื่อเลิกบุหรี่มีอิทธิพลทางตรงด้านบวกต่อความพยายามเลิกบุหรี่ ($B = .08$) และมีอิทธิพลทางอ้อมด้านบวกผ่านความพร้อมในการเลิกบุหรี่ ($B = .14$) นอกจากนี้ยังพบว่า ความพยายามเลิกบุหรี่มีอิทธิพลทางตรงด้านลบต่อสถานภาพการสูบบุหรี่ ($B = -.46$)

การศึกษานี้แสดงให้เห็นว่า ความพร้อมในการเลิกบุหรี่ ระดับการติดนิโคติน และความเข้มข้นของการบำบัดเพื่อเลิกบุหรี่ เป็นปัจจัยที่มีอิทธิพลต่อความพยายามเลิกบุหรี่ นอกจากนี้ ความพยายามเลิกบุหรี่ และระดับการติดนิโคติน เป็นปัจจัยที่มีอิทธิพลต่อสถานภาพการสูบบุหรี่ ดังนั้นการประเมินปัจจัยเหล่านี้จึงมีความสำคัญที่จะนำไปพัฒนาโปรแกรมการเลิกบุหรี่ที่มีประสิทธิภาพ เพื่อช่วยเหลือให้ผู้ป่วยจิตเภทเลิกบุหรี่ได้สำเร็จต่อไป

สาขาวิชา พยาบาลศาสตร์

ปีการศึกษา 2558

ลายมือชื่อนิพนธ์

ลายมือชื่อ อ.ที่ปรึกษาหลัก

ลายมือชื่อ อ.ที่ปรึกษาร่วม

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KEYWORDS: QUIT ATTEMPT / SMOKING STATUS / SCHIZOPHRENIC SMOKERS

ORRAWAN KHONGTOR: PREDICTING FACTORS OF QUIT ATTEMPT AND SMOKING STATUS IN SCHIZOPHRENIC SMOKERS. ADVISOR: ASSOC. PROF. JINTANA YUNIBHAND, Ph.D.,APN, CO-ADVISOR: ASST. PROF. SUNIDA PREECHAWONG, Ph.D.,APN, 258 pp.

This study was a correlational study aiming to examine the direct and indirect relationships of the predicting factors of quit attempt and smoking status in smokers with schizophrenia. The conceptual framework was developed based on literature review. Multi stage random sampling was used to recruit the sample from the Department of Mental Health, Ministry of Public Health of Thailand. Six tertiary psychiatric hospitals were randomly selected from all regions of Thailand, and 376 smokers with schizophrenia aged 18-60 years, and smoking before admission, were recruited. Data were collected from April to September of 2015 by using self-administered questionnaires. All questionnaires demonstrated acceptable content and construct validity, and reliability. Data were analyzed using descriptive statistics and linear structural relationship (LISREL 8.80) was used to test the relationships among variables.

The findings revealed that the hypothesized model fit the empirical data and could explain 45% ($R^2 = .45$) of the variance of quit attempt and smoking status (Chi-square = 19.79, $df = 30$, $p = 0.92$, Chi-square/ $df = 0.66$, CFI = 1.00, GIF = 0.99, RMSEA = 0.00, SRMR = 0.32, AGFI = 0.98). It was found that independent variables were significantly predicted quit attempt and smoking status at significance level .05. Readiness to quit had a significant positive direct effect ($\beta = .58$) on quit attempt. Nicotine dependence had a significant negative direct effect ($\beta = -.24$) on quit attempt, and had a significant positive direct effect ($\beta = .41$) on smoking status. Intensity of smoking cessation intervention had a significant positive direct effect ($\beta = .08$) on quit attempt, and had a significant positive indirect effect on quit attempt through readiness to quit ($\beta = .14$). In addition, it was found that quit attempt had a significant negative direct effect on smoking status ($\beta = -.46$).

The results demonstrated that readiness to quit, nicotine dependence and intensity of smoking cessation intervention were the important factors influencing quit attempt. In addition, quit attempt and nicotine dependence were the important factors influencing smoking status. Therefore, identifying these variables can be used to develop effective smoking cessation programs to help smokers with schizophrenia quit smoking.

Field of Study: Nursing Science

Academic Year: 2015

Student's Signature

Advisor's Signature

Co-Advisor's Signature

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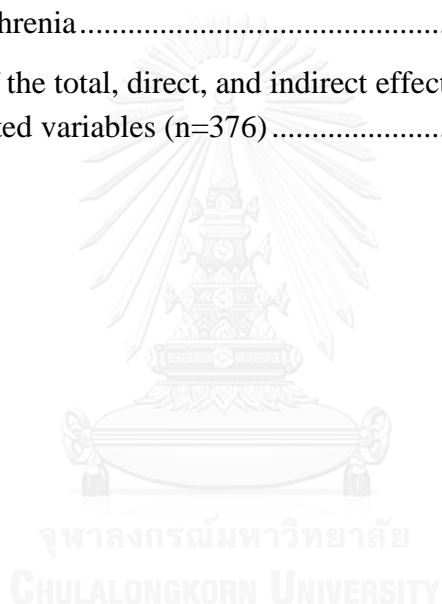
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CHAPTER 1

INTRODUCTION

Background and significance of the study

Cigarette smoking in persons with schizophrenia is particularly complex behaviors, with alarming higher rates of smoking. Although smoking rates are declining in the general population, schizophrenia is almost twice as likely to smoke (Poirier et al., 2002). Smoking prevalence rates among people with schizophrenia and mental disorder are two to four times higher than in the general population (Lising-Enriquez & George, 2009; Tidey, Rohsenow, Kaplan, Swift, & Ahnallen, 2013). In Western countries, smoking rate among psychiatric patients is up to three times higher than in the general population, with smoking prevalence between 40% and 85%, and also more dependent on nicotine (Lineberry, Allen, Nash, & Galardy, 2009 ; Solty, Crockford, White, & Currie, 2009; Ziaaddini, Kheradmand, & Vahabi, 2009). In Thailand, Chinga (2003) found that prevalence rate of smoking in schizophrenia inpatients in Somdet Choapraya Institute Psychiatric were 71.42% in male group and 18.18% in female group. In addition, Klongchai (2009) reported from files record in year 2008 that 68.02% of schizophrenia inpatients of Somdet Choapraya Institute Psychiatric were smokers.

Smoking in schizophrenia related with poor response to treatment (Culhane et al., 2008), higher level of non-compliance with drug regimens (Desai, Seabolt, & Jann, 2001). Nicotine also lowers the serum level of the psychotropic drug, therefore smokers with schizophrenia to be prescribed higher antipsychotics medication doses than non-smokers (Campion, Checinski, & Nurse, 2008; Hewitt, 2007). Smoking only

7-12 cigarettes a day can significantly increase metabolism of psychotropic drug metabolism (Haslemo, Eikeseth, Tanum, Molden, & Refsum, 2006). Furthermore, an association was found between tobacco use and greater attempted suicide rates in patients with schizophrenia (Altamura, Bassetti, Bignotti, Pioli, & Mundo, 2003). And more frequent admission with increased a great number of psychotic relapse (C. Kelly & McCreadie, 2000). To solve the aforementioned problems, smokers with schizophrenia need to be encouraged to quit smoking. It may not only improve overall health outcomes, but also prevent the effect on psychotropic medication failure and psychotic relapse.

Schizophrenia patients had begun smoking at an early age at about 18 years of age and had been daily smokers, and less likely thinking stop smoking (Amanda Baker et al., 2007) . Some evidence found that the age of onset for regular smoking was 20.8 ± 7.7 years (Hou et al., 2011). Comparison with the general population, schizophrenia smoke more cigarettes per day, are 10 times more likely to have ever smoked daily, and are more likely to be current smokers (de Leon & Diaz, 2005). Several researchers reported the smoking pattern in the smokes with schizophrenia and found that they usually smoked cigarettes about 1.5 to 2 packs per day (Mann-Wrobel, Bennett, Weiner, Buchanan, & Ball, 2011). Moreover, in one study showed that 68% of the smokers with schizophrenia were classified as heavy smoker (25 or more cigarettes daily) compared with only 11% of the general population smokers (C. Kelly & McCreadie, 2000).

In addition, nicotine decrease the disease symptoms and most patients use cigarettes as a form of self-medication to correct for sensory and cognitive deficits (Kumari & Postma, 2005; J. J. Prochaska, Hall, & Bero, 2008). Because of the

complex of cognitive function, addiction on high level of nicotine, and self-medication, so it is harder for smokers with schizophrenia to quit smoking. The possible way to increase for success in quit smoking is to encourage smokers with schizophrenia to make a quit attempt, which the precursor of quitting (Etter, Mohr, Garin, & Etter, 2004; MacFarlane, Paynter, Arroll, & Youdan, 2011).

Quit attempt is the one of the process of quitting (Hyland et al., 2006; West, McEwen, Bolling, & Owen, 2001), and important predictors of successful smoking cessation (Caponnetto & Polosa, 2008) . Quit attempt is often defined as number of times that smokers stopped smoking for at least 1 day or 24 hours (Bailey, Bryson, & Killen, 2011; Hughes & Callas, 2010).

Smokers with schizophrenia who made any quit attempt that lasted longer than 24 hours were more likely to succeed in quitting smoking and long term abstinence than those who had not making quit attempt, for example, achieving stop smoking for 24 hours on the quit date increased the odds of 6 month abstinence 10 fold (Westman, Behm, Simel, & Rose, 1997). The previous evidences have shown that the smokers with schizophrenia frequently trying to quit smoking, and almost half of them make a quit attempt every year (Ferron et al., 2011). Also, they reported having made only a relatively small number of quit attempts in their lifetime (Amanda Baker et al., 2007). Furthermore, the study of Green and Clarke (2005) found that smokers with schizophrenia had making a quit attempt at least once in a year. Unfortunately, almost 85% of participants still smoked.

After the smokers with schizophrenia making the quit attempt, the assessment of smoking status is crucial for monitoring smoking prevalence and assessing the effectiveness of smoking cessation interventions. Questions about lifetime and current

cigarette smoking have been asked on the National Health Interview Survey (Centers for Disease Control and Prevention) questionnaire since 1965. Many authors defined the smoking status, for example; Ministry of Health in New Zealand (2008) defined smoking status is commonly broken down into three categories: current smoker, ex-smoker and never smoker. Current smoker' is someone who has smoked greater than 100 cigarettes in their lifetime and currently smokes at least monthly. Ex-smoker' is someone who has smoked greater than 100 cigarettes in their lifetime, does not currently smoke, but used to smoke daily. Never smoker' is someone who has not smoked greater than 100 cigarettes in their lifetime and does not currently smoke. Some authors defined smoking status are point prevalence (no smoking one or more days prior to the follow-up), and prolonged abstinence (not smoking since a quit date) (Hughes & Callas, 2011).

In this study, smoking status is defined as self-report of smoking indicated that smokers use the cigarettes per day (Takeuchi, Nakao, Shinozaki, & Yano, 2010). Smokers with schizophrenia who made any quit attempt and reduced the number of cigarette per day were more likely to succeed in quitting smoking.

From evidences reported that smoking cessation success rate is about half of the other groups (Lucksted, McGuire, Postrado, Kreyenbuhl, & Dixon, 2004). Furthermore, smoking cessation treatment outcome of smokers with schizophrenia have shown 30%–50% success rates of short-term smoking reduction at post-treatment (Evins et al., 2004). There is less success for smoking abstinence following received smoking cessation intervention (Evins et al., 2005), and relapse rates after smoking cessation intervention are high.

From information above, monitoring of smoking status in smokers with schizophrenia smokers after hospitalization needs to be examined. Because of the complex of smoking in schizophrenia patients, so it is harder for smokers with schizophrenia to quit smoking and long term abstinence as general population. Therefore, in this study the smoking status was measured in the short period at one month after hospital discharged.

Smokers with schizophrenia need effective smoking cessation intervention provided by mental health professionals that encourage them to making a quit attempt. Most of the smoking cessation intervention is provided in hospital and outpatient department. While smokers with schizophrenia were admitted, the hospitalization represents a vital opportunity to counseling or encourages the patient to making a quit attempt. Smokers who are hospitalized may be particularly motivated to quit (Fiore, Jaén, Baker, & al., 2008). Hospitalization suitable for encourage the schizophrenia patients to making a quit attempt with variety of reason. Hospitalization may offer a natural opportunity to screen and advise patients on the advantages of quitting smoking, surrounding with smoke-free environment, availability of medical personnel, suitable of tailoring information (Orleans & Ockene, 1993).

Hospitalization is thought to be an opportune time to deliver cessation advice for two key reasons (N. A. Rigotti, Munafo, & Stead, 2007; N. A. Rigotti, Singer, Mulley, & Thibault, 1991). First, hospitals commonly have policies that restrict tobacco use, which interrupts a patient's usual pattern of tobacco use. Second, a state of ill health may result in a person questioning how one has either caused or can affect this state of health. Therefore, if the illness is possibly linked to tobacco use, then hospitalization is time when a smoker could be open to consideration of cessation

advice. As well as in psychiatric hospital setting has a rules and regulations about smoking restrictions, and creating smoke free environment. Smoking restriction in hospital has been powerful for reducing the opportunity to use cigarette and reduce exposure to environmental tobacco smoke. Additional benefits of clean indoor air regulations are that they contribute increase quit attempt efforts of psychiatric smokers.

In 2005, Thailand signed and later ratified the WHO Framework Convention on Tobacco control (WHO FCTC), which aimed to reduce tobacco consumption of the whole population. At present, the expansion of smoke free zones cover all of public places such as transportation, toilets, clinics, cinemas, restaurants, hospital etc. The impact from the enforcement is the more effective protection of non-smoker from smokers. It can reduce the prevalence of smoking among population.

The main policy of psychiatric hospitals under the Department of Mental Health on Thailand is to provide psychosocially rehabilitate patients to conduct self-care (Department of Mental Health; Thailand, 2006). The conventional psychiatric nursing care for schizophrenia inpatients composed of nursing care for promoting self-care for daily living, establishing the therapeutic relationship, socially appropriate behaviors. In the first weeks of hospitalized, the health care provider monitored the severe of psychotic symptoms. Then they are move into stable phase of psychotic symptoms, psycho-education, teaching patients about self-care behavior, healthy eating, taking and adherence in psychotropic medication, exercise, and skill training were given for them until they can return to home. Therefore, hospitalization is a valuable time to encourage smokers with schizophrenia to considering and making a quit attempt and continue to stop smoking after hospital discharged.

From the previous reviews, there are several methods to help smokers with schizophrenia to make a quit attempt and stop smoking or reduced the number of cigarettes smoked per day. The intervention programs integrate psychosocial and medication. The behavioral cessation programs such as motivational enhancement, relapse prevention, social skills training, and supportive therapy (Evins et al., 2001; George et al., 2002). Nevertheless the smoking cessation interventions are not effective for quit smoking in this population. The success rate is about half that of the general population groups (Lasser et al., 2000; Lucksted et al., 2004). Therefore, an understanding of the factors that related to quit attempt and in schizophrenia group can offer important insights for mental health nurse, before promoting the program.

The successful of smoking cessation in smokers with schizophrenia can enhanced by mental healthcare systems, mental healthcare provider, and the smoking cessation interventions delivered via healthcare providers (Fiore et al., 2008). In encouraging smokers with schizophrenia to making quit attempt and succeed in quitting, the predicting factors need to be examined. An understanding of those predictors can offer insight for mental health nurses before promoting quit attempt and smoking cessation.

Literature in Western countries found that, they are a few numbers of factors that can predict quit attempt and smoking status in smokers with schizophrenia, and still unclear examined the direct and indirect relationships with the quit attempt and smoking status. Especially in Thailand, no study of factors that influencing quit attempt and smoking status.

Quit attempt can emerged while hospitalization because smoking restriction in hospital has been powerful for reducing the opportunity to use cigarette, and

continually to stop smoking at the short period after hospitalization. In this study quit attempt was measured at 7 days after hospital discharged. Then the smokers with schizophrenia discharged, monitoring smoking status at 30 days after hospital discharged was conducted. The factors that influence smoking status were come from community. As in the study of Roick et al. (2007) investigated smokers with schizophrenia in outpatient and found that they were daily smoker. Environment in community has the effect on smoking status. These finding will increase insight of mental health care provider to provider appropriate smoking cessation intervention continually from hospitals to community.

Therefore, in this study, the possible factors that influenced the quit attempt and smoking status in smokers with schizophrenia were reviewed. Nine variables are expected to relate with quit attempt and smoking status among Thai smokers with schizophrenia which includes household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression. All of these variables were selected based on a research-evidence.

Research question

1. Do the variables including the household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression predict quit attempts in smokers with schizophrenia?

2. Do the variables including the household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention,

nicotine dependence, positive symptoms, negative symptoms, and depression predict smoking status in smokers with schizophrenia?

Objectives of the study

1. To identify the predicting factors of quit attempt and smoking status in smokers with schizophrenia.
2. To examine the direct and indirect relationship of household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression on quit attempt and smoking status in smokers with schizophrenia

Conceptual Framework

The conceptual framework in this study was developed based on literature review guided to related to quit attempt and smoking status in smokers with schizophrenia. The proposed relationships among the tested predictors and concepts is depicted as in Figure 1 as follow:

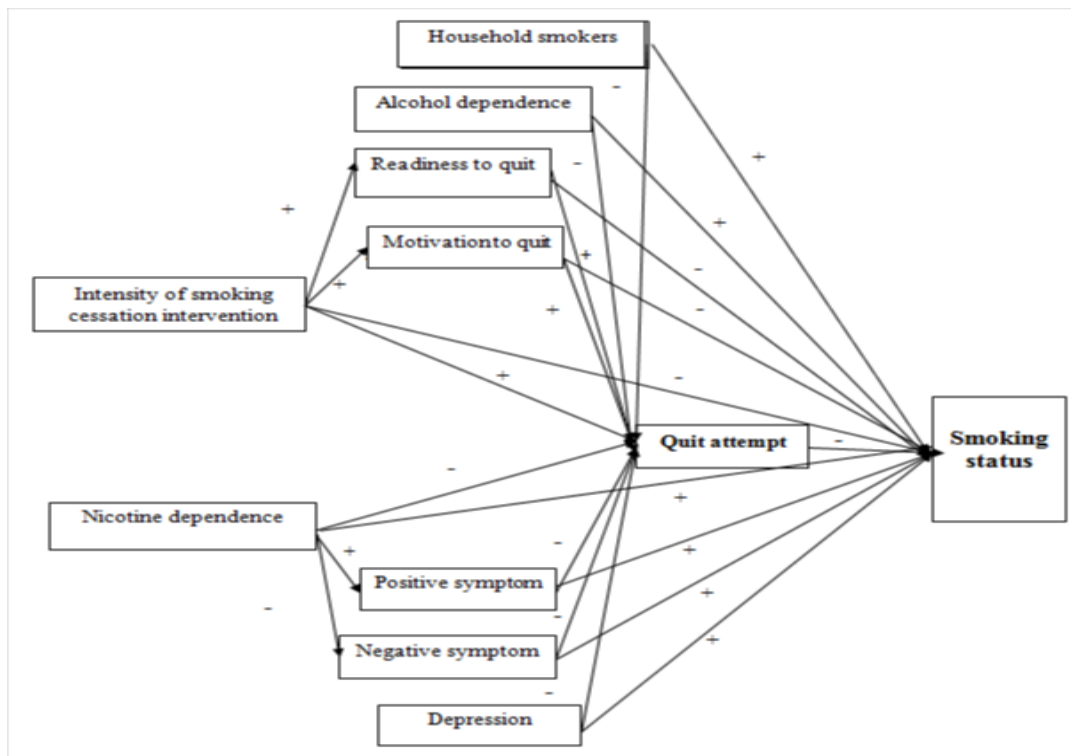


Figure 1 Conceptual framework of quit attempt and smoking status

Hypotheses with rationales

Hypothesis 1: Household smokers has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

Rationale: Family member use of tobacco, for example, may contribute to other member or youth through direct modeling of smoking behavior (Jackson & Henriksen, 1997), or by influencing or trigger other family member to smoking. In addition, person who living with family members who smoke may have easier access to cigarettes than person who do not live with family member smokers. A number of study of L. Zhao, Y. Song, L. Xiao, K. Palipudi, and S. Asma (2015a) found that person who exposed to smoking at home monthly or less often were more likely to have made a quit attempt than were those who were exposed on a daily basis (OR=1.80, 95% CI,1.17–2.79). It can postulated that smokers with schizophrenia who

living with others smokers in the house were more less making quit attempt and they will increase smoking and number of cigarettes smoked per day.

Hypothesis 2: Alcohol dependence has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

Rationale: Alcohol drinking increases the rate and amount of smoking among smokers. From laboratory and smoking studies indicated that alcohol consumption increases the frequency and intensity of smoking urges, smoking urges were higher during when alcohol had been recently consumed compared with no alcohol had been consumed (Businelle et al., 2013). Alcohol dependence refers to dependency syndrome of physical withdrawal symptoms, affective symptom, relief drinking, frequency of alcohol consumption, and speed of onset of withdrawal symptoms. The previous research confirmed the relationship between alcohol consumption and smoking cessation by reporting that smokers who heavy drinking were found to be less likely to made a quit attempt (Hyland et al., 2006). The presence of alcohol use disorder was predictive of poor smoking cessation outcomes (OR = -.43, 95% CI [.19-.95], $p < .05$) (C. Okoli, Johnson, Pederson, Adkins, & Rice, 2013). It can postulated that smokers with schizophrenia who have high level of alcohol dependence were likely to difficult to make a quit attempt and they were consumed more cigarettes.

Hypothesis 3: Readiness to quit has a positive direct relationship on quit attempt and has a negative direct relationship on smoking status.

Rationale: The stages represent a period of time as well as a set of tasks needed for movement to the next stage (Norcross, Krebs, & Prochaska, 2011). The smoker's stage in the change process is the variable that has been considered to be

better predictors of smoking cessation outcome. Once the smokers with schizophrenia have been identified as a tobacco user, his or her readiness to quit can be determined. Smokers with schizophrenia who were in the stage of not considering quitting can be moved to the considering quitting by asking them to consider the negative consequences of tobacco use as well as the advantages of quit attempt and smoking cessation. Recent study of Martínez, Guydish, Le, Tajima, and Passalacqua (2015) found that the smokers who has the greater score of readiness to quit (OR = 2.68, 95% CI: 1.51–4.77) was predict successful in making quit attempt. It can postulated that the schizophrenia smoker who have greater score of readiness to quit smoking are considering and moving on the stage of trying to make quit attempt and decrease number of cigarettes smoked.

Hypothesis 4: Motivation to quit has a positive direct relationship on quit attempt and has a negative direct relationship on smoking status

Rationale: Self-Determination Theory (SDT) is a theory of motivation. Motivation is defined as internal (intrinsic) and external (extrinsic) that stimulate desire and energy in people to be continually interested and committed to a job, role or subject, or to make an effort to attain a goal. Motivation to quit is an important factor affecting the successful outcome of a making quit attempt and smoking status in general and psychiatric patient. Higher motivation to change has been associated with quitting and greater concern about the negative consequences of smoking (McCaul, Mullens, Romanek, Erickson, & Gatheridge, 2007).

Xiaolei Zhou et al. (2009) identified predictors of quit attempts in 2,431 smokers. indicated that high motivation levels as measured by self-report determination to quit have been associated with seeking out and using evidence based

cessation support Furthermore, when the smokers explicit self-report “wanting to quit”, financial and health concerns and expectancies, and negative attitude to smoking have been found to predict making a quit attempt, and reduced cigarettes consumption and quitting (Borland et al., 2010).

Hypothesis 5: Intensity of smoking cessation intervention has a positive direct relationship on quit attempt and has a negative direct relationship on smoking status

Rationale: smoking cessation intervention as the provision of advice or counseling by any suitably-trained person (e.g., physicians, nurses, psychiatrists, dentists, tobacco treatment specialists, teachers, friends etc.), aiming to help people to stop smoking (Rice & Stead, 2008). Treating Tobacco Use and Dependence (2008) categorized smoking cessation into two kinds; brief intervention and intensive intervention.

Brief smoking cessation interventions are a range of effective behaviour change interventions that are client-centred, short in duration and used in a variety of settings by health and other professionals. Brief Interventions for smoking cessation are more successful when used with clients who are unlikely to need/seek or attend specialist treatment, are unsure/ambivalent about quitting, may require access to other appropriate services. The five components of the brief intervention framework (5A's) are: ask, advise, assess, assist, arrange. The brief intervention generally involves assessing and recording the clients current smoking status. The way to proceed then depends on which of the six 'stages' on Prochaska and DiClemente's Stages of Change model the patient is in. The aim is then to encourage smokers to move on to the next stage towards giving up.

Intensive smoking cessation intervention can be provided by any suitably trained clinician. The evidence shows that intensive tobacco dependence treatment is more effective than brief intervention. Intensive interventions (i.e., more comprehensive treatments that may occur over multiple visits for longer periods of time and that may be provided by more than one clinician) are appropriate for any tobacco user willing to participate in them; neither their effectiveness nor cost-effectiveness is limited to a subpopulation of tobacco users (e.g., heavily dependent smokers) (Barth, Critchley, & Bengel, 2006; N. A. Rigotti, Munafo, Murphy, & Stead, 2003).

From Meta-analyses show that simple advice from a physician has a small but significant effect on smoking cessation (OR = 1.74, 95% CI 1.48–2.05) (Lancaster, Stead, Silagy, & Sowden, 2000; Lancaster & Stead, 2005). Smoking cessation advice and/or counseling given by nurses significantly increase the likelihood of quitting (RR = 1.28, 95% CI 1.18–1.38) (Rice & Stead, 2008). Evelyn P. Davila et al. (2009) conducted the study examined factors associated with having attempts to quit smoking among adults current smokers. Results revealed that being advised by a physician to quit smoking were also positively associated with lifetime quit attempts. Smokers who received healthcare-provider advice to quit smoking in the past 12 months were more likely to report a quit attempt (AOR 1.53 [1.30–1.81]). Therefore, it can postulated that smokers with schizophrenia who received more intense of smoking cessation intervention, has more number of quit attempt, stop smoking, and less number of cigarettes smoked per day.

Hypothesis 6: Intensity of smoking cessation intervention has a positive indirect relationship on quit attempt through readiness to quit and motivation to quit

Rationale: Smoking cessation intervention is the one predictor of quit attempt and smoking status in smokers with schizophrenia. Any smoking cessation intervention motivate interest and readiness in quitting (Husten, 2007). The treatment or the program for smoking cessation are to move smokers along continuum of readiness to quit and to increase or maintain motivation to actively engage in the change process of quitting smoking (William R. Miller & Rose, 2009).

In giving the smoking cessation intervention, health care provider needs to assess readiness to quit smoking and enhancing the motivation to quit. Brief Interventions for smoking cessation are more successful when used with clients who are unlikely to need/seek or attend specialist treatment, are unsure/ambivalent about quitting, may require access to other appropriate services. The five components of the brief intervention framework (5A's) are: ask, advise, assess, assist, arrange. The brief intervention generally involves assessing and recording the clients current smoking status. The way to proceed then depends on which of the six 'stages' on Prochaska and DiClemente's Stages of Change model the patient is in. The aim is then to encourage smokers to move on to the next stage towards giving up. Therefore, it can postulated that smokers with schizophrenia who received more intense of smoking cessation intervention, the readiness to quit and motivation to quit could improve. Then smokers with schizophrenia can make more number of quit attempt, stop smoking, and less number of cigarettes smoked per day.

Hypothesis 7: Nicotine dependence has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

Rationale: Dependence on nicotine is made up of psychological dependence, physical dependence and tolerance. As they continue smoking, they need more and more nicotine to satisfy the same psychological and physical effects of the drug (Benowitz, 2008). Dependence on nicotine is an individual's difficulty to refrain from smoking. In smokers who dependence on nicotine, a reliable consequence of abstaining from smoking for more than a few hours is the onset of distress indicated by self-reported behavioral, cognitive, and physiological symptoms and by clinical signs (Hughes 2007). Researchers believe these symptoms—known as withdrawal symptoms—are major factors that impair the ability to remain abstinent from smoking (Patten & Martin, 1996). The management of withdrawal and craving symptoms (e.g., the urge to smoke) is a primary treatment strategy to maintain smoking cessation. Withdrawal symptoms typically emerge within a few hours after the last cigarette is smoked, peak within a few days to one week (Shiffman & Waters, 2004)

There are some evidences reported that higher nicotine dependence associated negatively with making a quit attempt (Hagimoto, Nakamura, Morita, Masui, & Oshima, 2010; X. Zhou et al., 2009). Bailey et al. (2011) conducted the analyses to determine statistically significant predictors of a successful quit attempt. The result reported that lower nicotine dependence was the predictive of successful quit attempt. X. Zhou et al. (2009) conducted study to identified predictors of attempts to stop smoking and predictors of relapse. Results revealed that higher levels of nicotine dependence as measured by the baseline FTND score were associated with lower likelihood of a quit attempt (OR = - 0.86; 95% CI: 0.80, 0.92). In Thailand, Rojnawee

(2014) examined the predictors of quit attempt in adolescents smokers, the result showed that nicotine dependence had a significant negative direct relationship with quit attempt ($\beta = -.03$, $p < .05$). Moreover, Wongsang, Yunibhand, and Preechawong (2012) examined the causal model of smoking cessation in alcohol dependent smokers and found that nicotine dependence had negative direct effect on smoking cessation (.12, $p < .001$).

Hypothesis 8: Nicotine dependence has a positive indirect relationship on quit attempt through positive symptoms, and it has a negative indirect relationship on quit attempt through negative symptoms

Rationale: Nicotine can affect the brain nicotine receptors and reduce perception of environmental stimulations and this factor leads to relatively increase of positive symptoms (Kumari & Postma, 2005). Patients with schizophrenia may smoke in an attempt to self-medicate some of their negative and/or cognitive symptoms. As The Psychological Tool Model (Myrsten, Andersson, & Frankenhauser, 1975) is asserted that nicotine can stimulate pleasure centres, increase alertness and enhance performance. When a person experiences the craving or withdrawal symptoms, and nicotine can affect the brain nicotine receptors, his or her thought and ability to resist smoking will be influenced. Nicotine dependence maintains the habit of cigarette smoking and the number of cigarettes per day will increase (McDermott, Marteau, Hollands, Hankins, & Aveyard, 2013).

Hypothesis 9: Positive symptoms have a negative direct relationship on quit attempt and it has a positive direct relationship on smoking status

Rationale: Positive symptoms include hallucinations and delusions (Brady & McCain, 2004). Nicotine of the cigarette affects the brain nicotine receptors and

reduce perception of environmental stimulations and this factor leads to relatively decrease of positive symptoms (C. Kelly & McCreddie, 2000; Kumari & Postma, 2005). Smoking also correlated with improvement positive symptoms such as hallucination and illusion (Smith, Singh, Infante, Khandat, & Kloos, 2002). It has shown that the level of nicotine dependence is correlated with positive symptoms (de Leon & Diaz, 2005). Some studies have higher levels of positive symptoms in schizophrenic patients that smoke than in those that do not smoker (Beratis, Katrivanou, & Gourzis, 2001). It can postulated that the schizophrenia smoker who have more severity of positive symptom they can not making a quit attempt and they still smoked more cigarettes.

Hypothesis 10: Negative symptoms have negative direct relationship on quit attempt and have positive direct relationship smoking status

Rationale: Negative symptoms refer to feelings or actions that are lost by person with schizophrenia. Negative symptoms are associated with disruptions to normal emotions and behaviors. These symptoms include flattening or affect as: Flat affect" (a person's face does not move or he or she talks in a dull or monotonous voice), lack of pleasure in everyday life, lack of ability to begin and sustain planned activities, and speaking little, even when forced to interact (Brady & McCain, 2004). The high incidence of smoking among psychiatric patients might in part be due to a beneficial effect of nicotine on cognition and/or mood. Hence, patients with schizophrenia may smoke in an attempt to self-medicate some of their negative and/or cognitive symptoms. As The Psychological Tool Model (Myrsten et al., 1975) is asserted that nicotine can stimulate pleasure centres, increase alertness and enhance performance. The short term psychological effects of nicotine that include

maintaining performance in the face of monotony and fatigue, increased selective attention and attenuation of the effects of stress have been confirmed. Therefore, when the schizophrenia smoking, that nicotine can stimulate pleasure centres, increase alertness and enhance performance in the face of monotony and fatigue, increased selective attention and attenuation of the effects of stress. So, they dependence on the nicotine and never try to make a quit attempt. Moreover, they still smoked and consumed cigarettes because nicotine can stimulate pleasure centres, increase alertness and enhance performance of them.

Hypothesis 11: Depression has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

Rationale: Depression is a serious illness that need treatments. There are several forms of depression: major depression (severe symptoms), dysthymic disorder (depressive symptoms that last a long time), and minor depression (less severe and may not last as long). Depression symptoms includes: feeling sad, hopeless, anxious, guilty, loss of interest, feeling very tired, not being able to concentrate, insomnia, headaches, aches or pains, overeating or not wanting to eat, suicide ideation or suicide attempt (The National Institute of Mental Health: NIMH, 2012). Depression may cause people to smoke (perhaps to self-medicate their symptoms), or smoking may cause increased risk of depression. Nicotine stimulates the release of the chemical dopamine in the brain. Dopamine is involved in triggering positive feelings. It is often found to be low in people with depression, who may then use cigarettes as a way of temporarily increasing their dopamine supply. However, smoking encourages the brain to switch off its own mechanism for making dopamine so in the long term the supply decreases, which in turn prompts people to smoke more.

In a cross-sectional study, depressive symptoms were positively correlated with current smoking and negatively correlated with likelihood of quitting smoking. Longitudinal data collected 9 years later indicated that initially depressed smokers were 40% less likely to have quit than initially non-depressed smokers (Anda et al., 1990). Likewise, Japuntich et al. (2007) examined the relationship between depression history and smoking after a quit attempt of 677 adult smokers who participated in a randomized smoking cessation trial. The results found depression history predicted smoking at 1 week post quit attempt. In addition, the study of Dvorak, Simons, and Wray (2011) conducted the cross-sectional analysis investigated the association between depressive rumination and impulsivity among smokers' quit attempt failure. Depressive rumination was positively associated with quit attempt failure.

Hypothesis 12: Quit attempt has a positive direct relationship on smoking status

Rationale: The number of cigarettes per day is a predictive of successful cessation. Studies have reported that reducing smoking consumption daily can increase the likelihood of successful cessation because the level of addiction decreases (Lee & Cooke, 2012).

Martínez et al. (2015) conducted the study investigated factors predicting quit attempts among smokers enrolled in substance abuse treatment in New York State. Result revealed that quit attempters also reported smoking fewer days per week ($p = .010$) and fewer cigarettes per day. Moreover, fewer cigarettes/smoking day (OR = 0.97, 95% CI: 10.95–1.00) presented higher odds of a quit attempt.

Scope of the study

The target population of this study was Thai smokers with schizophrenia who aged 18-60 years, and had attended at inpatient unit in the psychiatric hospital under Department of Mental Health, Ministry of Public Health, in all regions of Thailand including the Northern, Southern, Central, Northeastern, Western, and Eastern regions.

Independent variables were household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression. Dependent variable was quit attempt and smoking status.

Operational definitions

Quit Attempt is defined as number of times that smokers with schizophrenia stopped smoking at least 24 hours during the past 7 days after discharged. It can be measured by the Quit attempt questionnaire-Thai version modified by the researcher from Rojnawee (2014). The scoring was interpreted as number of times that smokers with schizophrenia stopped smoking at least 24 hours. A higher score indicate higher number of quit attempts.

Smoking Status is defined as the number of cigarettes that smokers with schizophrenia smoked per day at one month after hospital discharged. It can be measured by the Smoking status questionnaire which was developed by the researcher. A higher score indicate higher number of cigarettes or puffs that smokers with schizophrenia inhale per day.

Household smokers is defined as the history of having smoker in the house of smokers with schizophrenia. It can be measured by the Smoker in household

questionnaire which was developed by the researcher. The scoring was interpreted as having or not having other smoker living in the house.

Alcohol dependence is defined as the level of severity of addicted to alcohol products. It can be measured by the Alcohol Use Disorders Identification Test (AUDIT)- T. F. Babor, Higgins-Biddle, Saunders, and Monteiro (1992). Thai version modified by Ministry of Public Health from A higher score indicate higher level of alcohol dependence and vice versa.

Readiness to quit is defined as the smokers with schizophrenia' thought or plan to changing behavior from smoking to stop smoking through the decided not to quit smoking for my lifetime to have quit smoking and have more confidence not return to smoking. It can measured by the Readiness to Quit questionnaire-Thai version which modified by the researcher from Biener and Abrams (1991). A higher score indicate higher level of readiness to change.

Motivation to quit is defined as smokers with schizophrenia' desire to stop smoking stimulated by internal and external reasons that force them to changing the habit. The internal reason (intrinsic motivation) as the feeling that come from inside of smokers with schizophrenia that forces them to stop smoking, including health related concerns and self-control, whereas external reason (extrinsic motivation) as the energy outside of smokers with schizophrenia that forces them to stop smoking, including social pressure and immediate reinforcement.

Intrinsic motivation is defined as the feeling that come from inside of smokers with schizophrenia that forces them to stop smoking, including desire to increase one's self control over their behaviors, and the drive to change one's habits due to health related concerns. Health concerns include shortened life span, others

who have died from smoking, concern over own health and body, physical symptoms, and serious associated illness. Self-control include better self-liking, prove to one's self, feeling of self-control, proven one can accomplish a goal, and prove one can overcome addiction.

Extrinsic motivation is defined as the energy outside of smokers with schizophrenia that forces them to stop smoking, including the desire to response to social pressure to quit smoking, and the desire to quit smoking for immediate short term gains. Immediate reinforcement include ridding themselves of cigarettes smells, saving money from cigarette-related cost, and saving time from cleaning smoking-related messes. Social influences include nagging family, ultimatums, special gifts, and financial rewards.

It can be measured by The Reasons for Quitting (RFQ)-Thai version modified by the researcher from S. Curry, Wagner, and Grothaus (1990). A higher score indicate higher motivation to quit and vice versa.

Intensity of smoking cessation intervention is defined as the degree of individual or group counseling/advice, and follow-up services that the smokers with schizophrenia received from healthcare professions for helping to quit smoking. It can be measured by the Intensity of smoking cessation intervention questionnaire-Thai version of intensity of smoking cessation intervention questionnaire was developed by the researcher. A higher score indicate more intensity of smoking cessation intervention.

Nicotine dependence is defined as the level of severity of addicted to tobacco products caused by nicotine. It can be measured by the Fagerstrom Test for Nicotine Dependence (FTND)-Thai version modified by Ministry of Public Health from T. F.

Heatherton, L. T. Kozlowski, R. C. Frecker, and K.-O. Fagerstrom (1991a). A higher score indicate higher nicotine dependence and vice versa.

Positive symptom is defined as the characterized of thinking and emotions that are impaired, out of reality among smokers with schizophrenia. These positive symptoms include suspiciousness, unusual thought content, hallucinations, and conceptual disorganization. It can be measured by the Positive symptom rating scale (PSRS) -Thai version which modified by the researched from Ventura et al. (1993). A higher score indicate more severe positive symptoms and vice versa.

Negative symptom is defined as the feelings or actions that are lost by person with schizophrenia. These negative symptoms include restricted speech quantity, emotion: reduced range, reduced social drive, and reduced interests. It can be measured by the Negative symptom assessment (NSA-4)-Thai version which modified by the researcher from Alphs, Morlock, Coon, van Willigenburg, and Panagides (2010). A higher score indicate more severe negative symptoms and vice versa.

Depression is defined as mood and aversion to activity that can affect smokers with schizophrenia's thoughts, behavior, feeling, and physical changes. These include depression, hopelessness, self-depreciation, guilty ideas of reference, pathological guilt, morning depression, early wakening, suicide, and observed depression. It can measured by the Calgary Depression Scale for Schizophrenia (CDSS)-Thai version modified by Suttajit, Srisurapanont, Pilakanta, Charmsil, and Suttajit (2013) from D. Addington, Addington, and Maticka-Tyndale (1993b). A higher score indicate higher depression and vice versa.

Expected benefits

1. This knowledge can offer important insights for mental health care nurse in promoting quit attempt and successful of smoking cessation.

2. Mental health care nurse can use this finding to guide and develop the suitable smoking cessation programs for smokers with schizophrenia.

3. This study can guide mental health care nurses and researchers to develop research or contributes new knowledge to nursing science, whose goal is to help schizophrenic patients to quitting smoking for promote health and well-being.



CHAPTER II

LITERATURE REVIEW

In this chapter, the critical review of the existing literatures related quit attempt and smoking status in smokers with schizophrenias were describes. The review was divided into six parts as follows: 1) overview of smokers with schizophrenia, 2) smoking cessation for smokers with schizophrenia, 3) mental health nurse's role in smoking cessation among psychiatric smokers, 4) quit attempt, 5) smoking status, 6) factors influencing the quit attempt and smoking status in smokers with schizophrenia, and 7) research related in factors influencing the quit attempt and smoking status.

1. Overview of smokers with schizophrenias

1.1 The prevalence rates of smoking in schizophrenia

In Western countries

From meta-analysis 9 studies across six countries of de de Leon and Diaz (2005) demonstrates that schizophrenia patients had a higher prevalence of smoking than the general population and more than severe mentally illness patients. The prevalence rates of smoking in psychiatric patients are at least double rates of tobaccos use in the general population (Lawrence, Mitrou, & Zubrick, 2009). Several studies show that 75–85% of people with schizophrenia in the United States smoke cigarettes compared with 23% in the general population (Kalman, Morissette, & George, 2005; J.M. Williams & Zeidonis, 2004). Likewise, most research showed smoking rate among psychiatric patients is up to three times higher than in the general

population, with smoking prevalence between 40% and 85% (de Leon & Diaz, 2005; Solty et al., 2009).

Moreover, the prevalence rates of smoking in smokers with schizophrenia higher than other psychiatric patients. Ziaaddini et al. (2009) estimated the prevalence of cigarette smoking among smokers with schizophrenia and other psychiatric patients. The result showed that prevalence of cigarette smoking was 71.6% among schizophrenia, and 51.6% among other psychiatric patients. The severity of cigarette smoking was 6.9 along with other drug abuses. Therefore, the prevalence rates of smoking in smokers with schizophrenia and other psychiatric patients higher than is higher than general population.

In Thailand

Few study about smoking cessation of psychiatric patients and schizophrenia patients. Klongchai (2009) reported from files record in year 2008 that 68.02% of schizophrenia inpatients of Somdet Choapraya Institute Psychiatric were smokers. Moreover, Chinga (2003) examined knowledge, attitude, behavior toward cigarette smoking and related factors. The subject included 220 schizophrenic in-patient in Somdet Chaopraya Institute of Psychiatry. The results revealed that prevalence rate of smoking behavior were 70.63 percent in male group and 18.18 percent in female group.

1.2 Smoking characteristics in psychiatric patients

In Western countries

From the previous research of Amanda Baker et al. (2007) investigated the characteristics of 298 smokers with a psychotic disorder residing in the community (56.7% with schizophrenia). The result found participants smoked 30 cigarettes per

day, heavy smokers, highly dependent on nicotine. They had begun smoking at an early age at about 18 years of age and had been daily smokers before they were first diagnosed with a mental illness. Participant also reported having made only a relatively small number of quit attempts in their lifetime. Likewise, Hou et al. (2011) examined the clinical characteristics of the community schizophrenia patients. The prevalence of current smoking was 28.5.9% (n= 154), 53.6% in male and 4% in female. The age of onset for regular smoking was 20.8 ± 7.7 years, with 68.2% starting regular smoking before the onset of illness. Current smokers had a mean number of cigarettes of 20.1 ± 11.9 per day. Of current smokers 28.6% of them smoked 10 cigarettes or less daily, 47.4% smoked 11-20 cigarettes, and 24% smoked more than 20 cigarettes per day.

In Thailand

Little evidences supported the characteristics of smokers with schizophrenia. Chinga (2003) examined knowledge, attitude, behavior toward cigarette smoking and related factors. The subject included 220 schizophrenic in-patient in Somdet Chaopraya Institute of Psychiatry. The results revealed that most of subject were male, aged 20-29, had a low level of education. Smokers had a good level of knowledge, negative attitude toward smoking. Smokers had a moderate level of nicotine dependence and trend to develop to high level of nicotine dependence. Knowledge had statistically positive correlation with age of patients and duration of mental illness and had negative correlation with attitude. Attitude had positive correlation with level of nicotine and had negative correlation with age of patients and duration of mental illness.

1.3 Factors influencing to smoking among smokers with schizophrenia

It is likely that a number of factors are involved, and only a few possible explanations are discussed.

Firstly, The Psychoanalytical theory influenced early psychiatric explanations of smoking behavior. Psychological models of smoking behavior emerged during the 1960s and 1970s that included environmental, societal, and personality factors. Social and cultural implications including the influence of family and friends, stereotypes of the smoker and social rewards were acknowledged as important in both initiating and maintaining the habit (Lohr & Flynn, 1992). Research has found socioeconomic and environmental factors relevant to the high percentage of schizophrenics who smoke (Hughes et al. 1986).

The explanation, the personality theory of smoking behavior proposes that certain personality characteristics predispose people to smoke (Lohr & Flynn, 1992). The theory is based on an association between smoking and higher levels of neuroticism and anxiety. This personality theory then, determines that anxiety as a symptom of schizophrenia may contribute to the high percentage of smokers with this illness. The Psychological Tool Model of Myrsten et al. (1975) suggests a theory of smoking behavior that allows the smoker to use nicotine as a means of manipulating their psychological state under varied environmental conditions. It is asserted that nicotine can stimulate pleasure centers, increase alertness and enhance performance. The short term psychological effects of nicotine that include maintaining performance in the face of monotony and fatigue, increased selective attention and attenuation of the effects of stress have been confirmed.

Lastly, there is also evidence that, for some illnesses, nicotine through smoking is used as self-medication. Nicotine improves the symptoms of adult

attention, deficit hyperactivity disorder and also stimulates the release of some neurotransmitters which may counteract depression. In addition, nicotine helps alleviate some of the negative symptoms of schizophrenia (Patkar et al., 2002). Smoking may also help alleviate some side effects associated with antipsychotic medication.

Smoking could reduce the side effects of antipsychotics (Salokangas, Honkonen, Stengard, Koivisto, & Hietala, 2006). Antipsychotics act by blocking dopamine receptors and can trigger various side effects including extrapyramidal side effects. Nicotine in cigarette could induce dopamine release in pre-frontal cortex and could also increase hepatic clearance of antipsychotics by activating cytochrome P450 enzymes (Miksys & Tyndale, 2006). As such, the extrapyramidal side effects of antipsychotics, which are expressed as involuntary movement symptoms, are believed to be alleviated by smoking.

1.4 Impacts of smoking in smokers with schizophrenia

Impact on physical health

Schizophrenia patients have suffered from smoking-related diseases at twice the rate of same-aged adults without mental illness (D.M Ziedonis & Williams, 2003). About 200,000 of the 435,000 annual deaths from smoking occur among patients with mental illnesses and/or substance use disorders (CDC, 2005). Most of the excess mortality for schizophrenia is associated with cigarette smoking, with many patients dying at a younger age from illnesses related to smoking (e.g. coronary heart disease (CHD), cancer, cerebrovascular disease, respiratory disease) (Brown, Inskip, & Barraclough, 2000). The rates of cancer and cardiovascular and respiratory diseases

among schizophrenia patients, who have the highest rates of smoking of any group, have been shown to up to double of age matched controls.

Impact on cognition

The high incidence of smoking among psychiatric patients might in part be due to a beneficial effect of nicotine on cognition and/or mood. Research evidence suggests that patients with schizophrenia may derive improvement in some areas of cognitive performance after smoking cigarettes or using a nicotine replacement therapy (NRT) (Barr et al., 2008). Currently available antipsychotic agents are efficacious in treating the positive symptoms of schizophrenia (e.g., hallucinations, delusions), but do not mitigate negative symptoms (e.g., social withdrawal) or cognitive symptoms (e.g., attention and memory deficits) to the same extent (Meisenzahl et al., 2010). Hence, patients with schizophrenia may smoke in an attempt to self-medicate some of their negative and/or cognitive symptoms.

Impact on psychotropic medications

Smoking impacts the course of psychiatric disorders through its profound effect on the metabolism of psychotropic drugs and is thus a contributory factor to the individual variations observed in drug responses (Wu et al., 2008). Tobacco interact with some psychiatric medication making it less effective, resulting in increased dosages, interfere with medication treatment benefits, poor response to treatment , requiring a higher doses of antipsychotic medication than non-smokers (Botts, Littrell, & de Leon, 2004; Culhane et al., 2008; Salokangas et al., 2006).

Smoking affects the metabolism of various psychiatric medications by inducing enzymes in the cytochrome P450 (CYP) system, potentially lowering serum levels of medication by as much as 50% (Wilhelm, Arnold, Niven, & Richmond,

2004). Medication metabolised by CYP1A2 includes diazepam, haloperidol, olanzapine, clozapine, mirtazapine and tricyclic antidepressants. Liver enzyme induction has also been documented with opiates, barbiturates and benzodiazepines. Smoking can significantly lower serum levels of such medication. Since many psychiatric drugs, including diazepam, haloperidol, olanzapine, clozapine, fluphenazine, and mirtazapine, are also metabolized through CYP1A2 induction, smoking can lower their therapeutic blood levels and decrease their effectiveness (Desai et al., 2001). Haslemo et al. (2006) estimate that a daily consumption of 7–12 cigarettes is probably sufficient for maximum induction of clozapine and olanzapine metabolism, and recommends a 50% lower starting dose in non-smokers to avoid side-effects.

Increased psychiatric symptoms

Some studies have shown an increase in prevalence of parkinsonism in mental illness smokers (J.M. Williams & Zeidonis, 2004). Smoking also correlated with improvement in positive symptoms such as hallucination and illusion (Smith et al., 2002). There is evidence supporting that smoking may also exacerbate other symptoms of mental illness, and/or militate against the efficacy of prescribed medications (D. Ziedonis et al., 2008).

Increased cost

Smoking places a high financial burden on many people with mental illness. Many patients spend a significant percentage of their income on cigarettes and this can make it difficult to afford food, clothing, stable accommodation and other basic necessities (J. M. Williams & Foulds, 2007). For instance, smokers with

schizophrenia were found to spend almost 30% of their income on cigarette each month.

Increased risk for suicide attempt

Psychiatric patient with a history of suicide attempt had higher nicotine dependence (Milani et al., 2012). The possible mechanisms that justify the correlation between smoking and suicide explained that smoking results in painful and disabling conditions that increase the risk of suicide attempt, and smoking decrease serum levels of serotonin and monoamine oxidase. There is also strong evidence that smoking associated with increase the likelihood of suicidal ideation and suicide related acts (Cosci, JE., Abrams, Griez, & Schruers, 2009). Likewise the study of Breslau, Schultz, Johnson, Peterson, and Davis (2005) stated that smoking are associated with increase the likelihood of suicide ideation and suicide related acts

Related to the harmful effect of smoking above, there are now consistent and urgent recommendations for smokers with schizophrenia to quit smoking in order to improve health.

2. Smoking cessation services for smokers with schizophrenia

2.1 Smoking cessation for smokers with schizophrenia in hospital setting

In Western countries

Barriers to addressing tobacco control in mental health setting include undervaluing tobacco as an addiction, behavioral mental health care provider and systems have been slow to change in tobacco use (S. C. Williams et al., 2009). From a study of Ashton, Lawn, and Hosking (2010) found that it is important for mental health services to be involved in assisting people with mental illness patients to quit

smoking, however, only 26% of mental health care staff raised the issue of tobacco use as part of assessment the psychiatric patients.

Since 2000, a national network of National Health Service (NHS) smoking cessation services has provided support and training to healthcare professionals who interact with smokers in primary and secondary care, as well as offering intensive specialist support for smokers themselves. These services, resources permitting, can provide support and treatment for patients and staff on an ongoing basis, particularly when the NHS's smoke-free policy is being implemented. Health professionals working within mental health settings should receive training on smoking cessation interventions. Although patients can be referred to specialist advisors within the NHS Stop Smoking Services, it would make most sense to integrate and coordinate smoking cessation services within mental health settings where those with more severe mental illness are receiving treatment. This is important since to date, smoke-free policies in mental health settings appear to have had little effect on smoking cessation in the longer term, possibly in part because of poor coordination between inpatient, out-patient and smoking cessation services.

Ashton et al. (2010) assess mental health workers' attitudes to addressing tobacco dependence and found that more than two thirds of the participants felt it was important for mental health services to be involved in assisting patients to quit smoking; however, only 26% said they raised the issue of tobacco use with patients. The advice for smoking cessation from health care providers lead to increase quit attempt, as A 2008 Guideline meta-analysis estimated that physician advice to quit smoking led to a quit rate of 10.2%, as opposed to a quit rate of 7.9% among patients who did not receive physician advice to quit smoking (Fiore et al., 2008).

In conclusion, it is important to address tobacco use with their patients as part of routine care and that mental health services should implement significant tobacco policy and practice change.

In Thailand

Currently, in psychiatric hospital setting have rules and regulations about smoking restrictions, and creating smoke free environment used to support in smoking cessation program. Hospital environments become ideal setting for stop smoking and to gain the appropriated skills needed to attempt to stop smoking. Even though the institute had announced the non-smoking policy in the institute area, but the patients patient smoked while being hospitalized (Klongchai, 2009).

The main policy of psychiatric hospitals is to provide psychosocially rehabilitate patients to conduct self-care (Department of Mental Health; Thailand, 2006). The conventional psychiatric nursing care for schizophrenia inpatients composed of nursing care for promoting self-care for daily living, establishing the therapeutic relationship, socially appropriate behaviors. In the first weeks of hospitalized, the health care provider monitored the severe of psychotic symptoms, and provided nursing care. Then, when they are into stable phase, psycho-education, teaching patients about self-care behavior, healthy eating, taking psychotropic medication, exercise, and skill training will be given for them until they can return to home. In conclusion, it can be described that only smoking free policy not sufficient to stop their smoking. The psychiatric units should integral part of more health promoting culture within mental health setting by providing meaningful smoking cessation activities during the day beyond the helping therapeutic circumstances.

2.2 Smoking cessation services for smokers with schizophrenia

Presently, there is several smoking cessation intervention for psychiatric population as follows:

1) Brief intervention

The Clinical Practice Guidelines on Treating Tobacco Use and , Fiore et al. (2008) concluded that as the other treatments, the Guidelines recommend starting with as assessment as part of the “5 A’s. The “5 A’s: approach is a brief, goal directed way to more effectively address tobacco use with patient with the goal of tobacco users’ needs in terms of readiness to quit. The 5A may take 1 to 5 minutes, depending on a provider clinical setting and roles. The “5 A’s: (1) Ask about tobacco, (2). Advise to quit, (3) Assess willingness to make a quit attempt, (4) Assist in quit attempt, and finally (5) Arrange follow-up. This “brief intervention” is recommended for all patients. Mental Health care providers should examine the risk of continued smoking rewards of quitting that are relevant to the individual patients.

From the literature review, one of the few studies to evaluate efficacy of the 5A’s with the serious mental illness smokers examined physician-delivered 5A’s in public mental health clinics and reported modest effects of the 5A’s for reducing tobacco use and increasing cessation rates at 12 months after the intervention phase (Dixon et al., 2009). Specifically, the number of cigarettes smoked in a week differed significantly.

2) Pharmacotherapy comprised of Nicotine replacement therapies, Bupropion and Varenicline:

2.1) Nicotine replacement therapies (NRT)

Nicotine replacement therapies (NRT) are alternative ways of delivering nicotine without harmful substances such as tar, formaldehyde, and lead.

Six forms of NRT are currently available worldwide: gum, patch, inhalator, nasal spray, tablet and lozenge. Nicotine replacement is effective for people with schizophrenia, although not as effective as it is for the general population (Williams & Hughes, 2003). There is some evidence that the rapid nicotine delivery of a nasal spray is most successful (J. M. Williams & Foulds, 2007), and cessation rates are likely to be enhanced when it is combined with nicotine patches.

2.2) Bupropion

From the studied of Weiner, Ball, Summerfelt, Gold, and Buchanan (2001), who treated 8 participants in 9 weekly group sessions based on Fresh Start Program along with sustained-release bupropion, which was initiated at 150 mg/day by week 3 and administered through 14 weeks. The results found that one participant was abstinent at 21 weeks post-baseline.

2.3) Varenicline

Varenicline was approved by the FDA in 2006 for the treatment of nicotine dependence and is recommended by the treatment guidelines as the first-line treatment. This medication appears to represent a partial antagonist that binds with high affinity to the neural nicotine acetylcholine receptor.

Dutra, Stoeckel, Carlini, Pizzagalli, and Evins (2012) conducted the study with 53 schizophrenia patients. The participants completed a 12 week smoking cessation program combining with varenicline with cognitive behavior therapy. The results showed that at week 12, 32 participants had 14 day point prevalence abstinence.

2.4) Psychosocial treatment

While the underutilization of psychosocial treatments for tobacco dependence may be problematic in general, it is especially problematic in smokers with schizophrenia who may need more assistance than those in the general population. Psychosocial approaches are important for motivating ambivalent smokers with schizophrenia to make a quit attempt and for providing the smokers with tools necessary for a successful quit attempt. Psychosocial approaches such as motivational interviewing, cognitive behavioral therapy, and Freedom from Smoking.

2.5) Motivational interviewing (MI)

Motivational Interviewing (MI) is defined as collaborative, person centered form of guiding to elicit and strengthen motivation for change (William R. Miller & Rose, 2009). The motivational therapy was based on the motivational interviewing techniques. Its main objective was to help patients move forward through the Stages of Change Model. The main issues addressed during the sessions were pros and cons of smoking, health and financial burden of smoking, concerns about quitting.

In the randomized clinical trial of Steinberg, Ziedonis, Krejci, and Brandon (2004), conducted the intervention for smokers with schizophrenia or schizoaffective disorder who reported not wishing to quit smoking. Participants were randomly assigned to motivational interviewing, psychoeducation, or brief assessment only. It showed found that motivational interviewing intervention found to be effective for schizophrenia or schizoaffective disorder.

J. J. Prochaska, Hall, Delucchi, and Hall (2014) evaluated the efficacy of a motivational tobacco cessation treatment combined with NRT compared with usual care in inpatient psychiatry. The results showed that verified 7 day point

prevalence abstinence was significantly higher for intervention than usual care at month 3,6,12, and 18.

2.6) Cognitive behavioral therapy (CBT)

Cognitive behavioral therapy (CBT) is a psychotherapy used to help people with many different types of psychological problems. The therapy is based on changing maladaptive thinking patterns and the negative behaviors associated with them. CBT is a promising psychological intervention for people who want to quit smoking because changing and restructuring thought processes, combined with new learning behaviors, is essential for people who want to effectively quit smoking and maintain cessation. CBT alone does not usually have a significant effect on smoking cessation, but is very successful when combined with other quit strategies.

A. Baker, Richmond , Haile, and al. (2006) conducted a randomized controlled trial of smoking cessation intervention among people with psychotic disorder. Smoking cessation intervention consisted of nicotine replacement therapy, motivational interviewing, and cognitive behavior therapy. The result showed that a significantly higher proportion of smokers who completed all treatment sessions stopped smoking at each of the follow-up occasions. Smokers who completed all treatment sessions were also more likely to have achieved continuous abstinence at 3 months, one half of those who completed the intervention program achieving a 50% or greater reduction in daily cigarette consumption across the follow-ups.

In summary, there are many strategies for help smokers with schizophrenia to quitting smoking, but the success rate is very low. Therefore, mental health nurses have a key role to encourage the smokers with schizophrenia to quitting

smoking. Screening for tobacco use and dependence is one of the most important first steps for mental health professionals in the treatment of their patients' tobacco dependence. The suitable and individually of smoking cessation intervention is needed for smokers with schizophrenia.

3. Mental health nurse's role in smoking cessation among smokers with schizophrenia

In the past, the mental health profession has overlooked the prevalence of smoking in this population (Resnick & Bosworth, 1989). Historically, mental health care providers have used cigarettes as tool to manipulate patient behavior, and undervaluing tobacco addiction as a problem (S. C. Williams et al., 2009). In 2008, The U.S. Public Health Service updated guideline describes the gold standard for initiating smoking cessation treatment, otherwise known as the "5A" (Fiore et al., 2008), asking, advising, assessing, assisting, and arranging follow-up care.

The mental health nurses, who as a profession have a responsibility to confront the enormous problem of smoking and nicotine dependency among those with schizophrenia, the mental health nurse must first acknowledge that nicotine dependence is not an acceptable or component of mental illness. There is a profound need for mental health nurses to change their perceptions of smoking in this population and increase knowledge as to why these patient still smoke. Improved understanding of the predictor that related with smoking will better equip the mental health nurse to implementing the intervention that encompassed all of individual needs (Cataldo, 2001).

4. Quit attempt

4.1 Quit attempt in smokers with schizophrenia

The number of quit attempts among smokers is seen as a predictor of quitting smoking and abstinence. Smokers that made quit attempt that lasted longer than 24 hours are much more likely to succeed in quitting smoking than those that have not sustained to quit for that long (Moran, Wechsler, & Rigotti, 2004).

In the past, the available cessation data shown that smoking cessation rates among smokers with schizophrenia are quit low, this may relate with lower motivation to quit. It has the reported smokers with schizophrenia that attempts to cut down or quit smoking led to an exacerbation of psychiatric symptoms and return to smoking (Douglas M. Ziedonis & George, 1997).

Other studies focus on treating patients with atypical antipsychotic agents or medications such as bupropion ((Beratis et al., 2001). The behavioral cessation programs such as motivational enhancement, relapse prevention, social skills training, and supportive therapy (Evins et al., 2001). Nevertheless the smoking cessation interventions are not effective for quit smoking in schizophrenia. The success rate is about half that of the other groups (Lucksted et al., 2004). Therefore, an understanding of the factors that related to quit smoking in schizophrenia group can offer important insights for mental health nurse, before promoting the program.

4.2 Definition of quit attempt

Many authors defined the smoking status, for example; the Oxford Dictionary (2009) defined “quit” as to leave, be free from, stop doing, ”attempt” is defined as to make an effort to succeed at something, to try to do something, an effort to improve on something.

A major focus of most tobacco control interventions in adults is to motivate current smokers to attempt to stop smoking; thus, the incidence of quit attempts is often used as a measure of the success of tobacco control efforts (National Cancer Institute [NCI], 2000).

The OTRU Glossary of Tobacco Control provides definition of quit attempt as deliberate and intentional effort to stop smoking permanently, which is successful for at least 24 hours in a daily smoker and longer than 24 hours in a non-daily smoker, the required period depending on normal frequency of smoking.

In epidemiological, policy, and treatment surveys, a quit attempt is often defined as an attempt to stop smoking that lasted 1 day or 24 hr. (Starr et al., 2005).

Fagan et al. (2007) assessed quit attempt by asking current smokers “How many times during the past 12 months have you stopped smoking for 1 day or longer because you were trying to quit smoking”.

X. Zhou et al. (2009) defined quit attempt by affirmative response to the question “During the past 3 months (90 days), have you made a serious attempt to stop smoking for good that lasted for at least a day (24 h)?”

Bailey et al. (2011) examined factors associated with successful targeted 24 hr. quit during the smoking cessation program in adult smoker. They asked the participants to set quit date and to be successfully quit for 24 hr. Successful quit attempt was based on the self-report of no smoking for 24 hr.

Quit attempt is the main point related to successful for quit smoking (Bobo, Lando, Walker, & McIlvain, 1996; Joseph, Lexau, Willenbring, Nugent, & Nelson, 2004), important predictors of subsequent long-term cessation (Caponnetto & Polosa,

2008). Making a quit attempt and maintaining abstinence after it are the two main components of the process of quitting (Hyland et al., 2006; West et al., 2001).

From several authors indicated that quit attempt defined as self-report of smoker successfully stop smoking for at least 24 hours. It can be measured in two terms: successfully quit for 24 hr., or how many times that smokers made an attempt to stop smoking for at least a day (24 h).

In this study, quit attempt is defined as behavior of smokers with schizophrenia that stop smoking at least 24 hr. within seven days after discharged.

4.3 Measurement of quit attempt

Fagan et al. (2007) created a questionnaire for assessed quit attempt in young adult smoker by asking current smokers “How many times during the past 12 months have you stopped smoking for 1 day or longer because you were trying to quit smoking?”

X. Zhou et al. (2009) created a questionnaire for assessed quit attempt by affirmative response to the question “During the past 3 months (90 days), have you made a serious attempt to stop smoking for good that lasted for at least a day (24 h)?”

In Thailand, Rojnawee (2014) examined the quit attempt in Thai adolescent by use the quit attempt measurement that applied from Fagan et al. (2007). In this study, quit attempt refer to the abstinence from smoking for 24 hour during the past 30 days.

From several authors above, found that quit attempt can measured by asked smokers indicated the number of quit attempt and have the smokers made an attempt stop smoking for at least 24 hr.

In this study, quit attempt was measured by the self-report questionnaire of smokers with schizophrenias that stop smoking at least 24 hr., at 7 days after

discharged. The researcher was modified the questionnaire developed from Rojnawee (2014) by affirmative response to the question “During the past 7 days, have you made an attempt to stop smoking for at least a day (24 h)?”. The detail of quit attempt questionnaire was present in chapter 3.

5. Smoking status

5.1 Definition of smoking status

Many authors defined the smoking status, for example; the Oxford Dictionary (2009) defined “smoking” as the activity or habit of smoking cigarettes, and “status” is defined as the social, legal, or position of something in relation to others, the state or situation of affairs as it now or as it was before a recent change.

The Society for Research on Nicotine and Tobacco (SRNT) defined abstinence outcome measures used in clinical trials. The defined its charge as examining: (a) continuous abstinence, prolonged abstinence, sustained abstinence, point prevalence and repeated point-prevalence measures and the use of grace periods; (b) definitions of treatment failure; (c) whether non-cigarette tobacco use and non-tobacco nicotine use should be termed failures; (d) short-term (1–3 months), vs. long-term (6 and 12 months), vs. very-long-term (w12 months) follow-ups; and (e) non-traditional measures (e.g., survival analysis based measures). The authors recommend prolonged abstinence as the preferred measure because: (a) it requires a long period of abstinence, (b) it captures long-term abstainers who initially slip and (c) it can be used with treatments that have a delayed effect.

Bryant, Bonevski et al. (2004) assessed smoking status in disadvantaged populations by use computer administered self-report. The participants were asked self reported smoking status by “Do you currently smoke tobacco products?”

Response options are smoker- daily or occasional (daily, at least once a week, less often than once per week), and Non-smoker (No, not at all).

Ministry of Health in New Zealand (2008) defined smoking status is commonly broken down into three categories: current smoker, ex-smoker and never smoker. Current smoker' is someone who has smoked greater than 100 cigarettes in their lifetime and currently smokes at least monthly. Ex-smoker' is someone who has smoked greater than 100 cigarettes in their lifetime, does not currently smoke, but used to smoke daily. Never smoker' is someone who has not smoked greater than 100 cigarettes in their lifetime and does not currently smoke.

Centers for Disease Control and Prevention (2009) defined about smoking status were asked: "Have you smoked at least 100 cigarettes in your entire life?" and "Do you now smoke cigarettes every day, some days, or not at all?" Responses were grouped into three categories: Current Smoker, Former Smoker, and Never Smoker. Respondents who reported smoking at least 100 cigarettes in their lifetime and who smoked either every day or some days were defined as Current Smoker. Respondents who reported smoking at least 100 cigarettes in their lifetime and who did not smoke at all were defined as Former Smoker. Respondents who reported never having smoked 100 cigarettes were defined as Never Smoker.

Takeuchi et al. (2010) examined the validity of self-reported smoking in 158 schizophrenia patients. The patients were required to answer self-rated questions about their smoking status. Smoking status divided to current smoker, former smoker, or non-smoker.

As the research mentioned above, smoking status can be assessed through self-report of smoking indicated that smokers current use tobacco, stop smoking, or never use tobacco.

In this study, the smoking status is defined as the number of cigarettes that smokers with schizophrenia smoked per day at one month after hospital discharged.

5.2 Measurement of Smoking status

The smoking cessation or smoking status measurement can be broadly classified as self-report and biochemical as follows:

1) Point prevalence abstinence is a measure that reflects the proportion of smokers who have quit at a given time point; the length of abstinence is often specified as 24 hours or 7 days. Point prevalence abstinence is typically defined as not smoking on the day of follow-up or for a few days before a follow-up (Hughes, Carpenter, & Naud, 2010). The length of point prevalence abstinence is often specified as 24 hours or 7 days.

2) Continuous abstinence also called “sustained abstinence of prolonged abstinence. Continuous abstinence is the goal of treatment to help smokers achieve abstinence from smoking or other tobacco use. A measure often used in clinical trials involving avoidance of all tobacco use since the quit day until the time assessment. Continuous abstinence have the advantage of being more stable compared to point prevalence. The stability of these measures depends directly on the length of the defined period of abstinence since the probability of relapse declines with increasing time since the last puff (Velicer & Prochaska, 2004).

3) Prolonged abstinence as measure of cessation which typically allows a “grace period” following the quit date (usually of about two weeks), to allows slip/

lapse during the first few days when the effect of treatment may still be emerging (Hughes et al., 2003). Prolonged abstinence is typically defined as not smoking for a period of several months after quit attempt. Sometimes, this is for the entire period since the quit date, other times, it begins after the initial “grace period” (Hughes, et al., 2010). Prolonged abstinence measures permit the inclusion of subjects who quit after some delay after an intervention or who make repeated quit attempts. They reflect a combination of point prevalence and continuous abstinence measures.

4) Number of cigarettes smoked per day

Adda and Cornaglia (2004) defined number of cigarettes smoked per day as the number of roll cigarettes or puffs per cigarette and the possible blocking of ventilation holes in the filter by the smoker.

Flanders, Lally, Zhu, Henley, and Thun (2003) defined number of cigarettes smoked per day as self-report of quantity and intensity of smoking.

5) Biochemical verification

Cotinine, a major metabolite of nicotine, has been considered to be the “gold standard” for measuring nicotine intake (Benowitz, Kuyt, Jacob, Jones, & Osman, 1983) Carbon monoxide (CO) can be measured in expired air or in blood. The measurement of expired CO is simple and inexpensive.

In this study, the researcher was measured smoking status by self-report of smokers with schizophrenias at the period of one month after discharged. Smoking status was measured by number of cigarettes smoked per day at one month after discharged. The smokers were asked to respond to the question: “How many

cigarettes do you smoke per day”?. The detail of smoking status questionnaire was present in chapter 3.

6. Factors related to quit attempt and smoking status in smokers with schizophrenia

The previous studies have examined the factors that influenced the quit attempt and smoking cessation in psychiatric and smokers with schizophrenia. The conceptual framework of this study is based on literature review. The literatures relate on quit attempt and smoking status were reviewed, including the literature examining the relationships between the quit attempt and smoking status, and the independent variables, which were motivation to quit, readiness to quit, nicotine dependence, alcohol consumption, household smokers, depression, positive symptoms, negative symptoms, and intensity of smoking cessation intervention.

Table 1 Summary of factors influencing of quit attempt and smoking status

Authors	Predicting factors	Odd ratio (95% confidence interval), p value
Chiappetta, Garcia-Rodriguez, Jin, Secades-Villa, and Blanco (2014)	Failure of quit attempt: greater severity of alcohol use disorder, having a co-occurring drug use disorder and greater number of psychiatric disorders decreased the odds of success among individuals with alcohol abuse Success of quit attempt: female gender, being married and older than 40 years old increased the odds of success	
Martinez, Martinez-Sanchez, Robinson, Berther, and Fernandez (2013)	greater readiness to quit; pre-contemplation, smokers who were in preparation and contemplation stages positive attitudes toward quitting received clinician services in	OR = 2.68, 95% CI: 1.51–4.77 OR = 2.96; 95% CI: 1.61–5.42 OR = 1.49, 95% CI: 1.11–1.99 OR = 1.21, 95% CI: 1.01–

Authors	Predicting factors	Odd ratio (95% confidence interval), p value
	support of quitting Fewer cigarettes/smoking day	1.46 OR = 0.97, 95% CI: 10.95–1.00
Tzilos, Strong, Abrantes, Ramsey, and Brown (2013)	motivation to quit	r = 0.47, p < 0.05
	confidence to quit	r = 0.34, p = < 0.05
	Pressure to quit	r = -.163, p < 0.05
	Cons of smoking significantly decreased odds of a quit attempt - higher levels of dependence (p < 0.05)	r = .305, p < 0.05
	intention to quit smoking	b = 3.17, se = 0.47, p < 0.05
	increased concurrent motivation for quitting	b = 0.24, se = 0.08, p < 0.01
	and increased concurrent confidence to quit smoking	b = 0.15, se = 0.07, p < 0.05
Michopoulos et al. (2015)	female sex	
Solty et al. (2009)	Number of cigarettes per day correlated positively with nicotine dependence	r = .50, p < 0.001
E. P. Davila et al. (2009)	advised by a physician to quit smoking were positively associated with lifetime quit attempts	
	received healthcare-provider advice to quit smoking	AOR 1.53 [1.30–1.81]
	levels of nicotine dependence	AOR 1.83 [1.39–2.40]
	The odds of a lifetime quit attempt were inversely associated with the number of cigarettes smoked in the past 30 days.	
<u>Borland et al. (2010)</u>	health concern	r=.63-.64; p<.05
	health outcome expectancy	r=.47-.49; p<.05
	intention to quit	r=.63-.64; p<.05
	motive to smoke	r=-.31 to-.29; p<.05
	self-efficacy	r=.03-.06; p<.05

Authors	Predicting factors	Odd ratio (95% confidence interval), p value
Ussher, Kakar, Hajek, and West (2016)	Heavy smoking index	$r = -.43$ to $-.35$; $p < .05$
	Fagerström Test of Cigarette Dependence (FTCD)	0.86 (0.81-0.92); $p < .001$
Rafful et al. (2013)	Heaviness of Smoking Index (HSI)	0.82 (0.75-0.90); $p < .001$
	Non HIS items from FTCD	0.79 (0.70-0.88); $p < .001$
	having an educational level below high school and	ORs = 6.59; CI 95% = 1.25–34.69
	older age at first nicotine use	$t = 2.40$; $p < 0.05$
	male participants were 20% less likely than females to make a quit attempt	odds ratio [OR] = 0.80; 95% confidence interval [CI]: 0.67, 0.94)
Khara and Okoli (2011)	increase in score for motivation to quit raised the likelihood (odds) of an attempt by more than 10%	OR = 1.12; 95% CI: 1.02, 1.22
	Reported intention to quit in the next month were more than twice as likely to make an attempt in the subsequent quarter compared with others	OR = 2.49; 95% CI: 2.11, 2.94
	Higher levels of nicotine dependence were associated with lower likelihood of a quit attempt	OR = 0.86; 95% CI: 0.80, 0.92
	presence of an anxiety disorder, versus no psychiatric disorder was significantly predictive of poor cessation outcomes	OR = .51, 95% CI [.27–.96], $p < .05$
	higher nicotine dependence scores were significantly was predictive of poor cessation outcomes	OR = .90, 95% CI [.98–1.01], $p < .05$
	longer duration of abstinence during the last quit attempt	OR = 1.14, 95% CI [1.01–1.28], $p < .05$
	greater length of treatment	OR = 1.08, 95% CI [1.04–1.12], $p < .001$
<u>Bailey et al. (2011)</u>	presence of co-occurring alcohol use disorder was predictive of poor cessation outcomes	OR = .43, 95% CI [.19–.95], $p < .05$
	lower nicotine dependence scores	OR = 0.85, 95% CI: 0.74–0.98
	higher Behavior Inhibition System scores	OR = 1.20, 95% CI: 1.07–1.35
	lower baseline heart rates	OR = 0.96, 95% CI: 0.93–0.99

Authors	Predicting factors	Odd ratio (95% confidence interval), p value
Chan et al. (2010)	readiness to quit was predictors of making quit attempt receipt in hospital advice was predictors of making quit attempt	OR= 4.05;95%, CI, 1.91-8.60, p<.001 OR= 3.96; 95%, CI, 1.84-8.54; p<.001
<u>L. Zhao, Y. Song, L. Xiao, K. Palipudi, and S. Asma (2015b)</u>	Younger aged 15–24 were more likely to make attempts to quit when compared with those aged 60 years or older	OR = 2.23, 95% CI 1.02–4.89
	interest were significantly more likely to make a quit attempt than those who were not aware that smoking can cause any of these diseases	
	aware that smoking can cause all three diseases of interest were significantly more likely to make a quit attempt than those who were not aware that smoking can cause any of these diseases	OR = 2.58, 95% CI 1.50–4.43
	visited an health care provider and received advised to quit smoking were significantly more likely to make a quit attempt compared with smokers who had not visited exposed to smoking at home monthly or less often were more likely to have made a quit attempt than were those who were exposed on a daily basis	OR=2.90, 95% CI 1.98–4.23
<u>Dvorak et al. (2011)</u>	Depressive rumination was positively associated with quit attempt failure	positively relationship with quit attempt failure
<u>Arthur J Farkas, Gilpin, Distefan, and Pierce (1999)</u>	Smokers who lived under a total smoking ban were more likely to report a quit attempt	odds ratio (OR) = 3.86; 95% confidence interval (CI) = 3.57 to 4.18)
<u>Lancaster and Stead (2005)</u>	simple advice from a physician has a small but significant effect on smoking cessation	OR = 1.74, 95% CI 1.48–2.05
<u>Rice and Stead (2008)</u>	smoking cessation advice and/or counseling given by nurses significantly increase the likelihood of quitting	OR = 1.28, 95% CI 1.18–1.38

The theoretical definition, operational definition, relationship to quit attempt and smoking status, and the measure for each influencing factor are presented as follows:

6.1 Motivation to quit

6.1.1 Definition of motivation to quit

Oxford Dictionary (2009) defined “motivation” as the reason for somebody’s action, to cause someone to act in the particular way, to stimulate the interest of someone, to cause someone for want to do something.

Self-Determination Theory (SDT) is a theory of motivation. Motivation is defined as internal (intrinsic) and external (extrinsic) that stimulate desire and energy in people to be continually interested and committed to a job, role or subject, or to make an effort to attain a goal. In SDT, Deci and Ryan (1985) distinguish between different types of motivation based on the different reasons or goals that give rise to an action. The most basic distinction is between intrinsic motivation, which refer to doing something because it is inherently interesting or enjoyable, and extrinsic motivation, which refers to doing something because it leads to a separable outcome.

Motivation to quit is defined as desire or energy of smokers to be continually interested to stop smoking stimulate by intrinsic motivation and extrinsic motivation. The previous research found that one reason people quit smoking indicate that there are both (intrinsic) and external (extrinsic) dimension of motivation for such behavior change (S. Curry et al., 1990; S. J. Curry, Grothaus, & McBride, 1997). Intrinsic motivations include factors such as the desire to increase one’s self control

over their behaviors, as well as the drive to change one's habits due to health related concerns. Extrinsic motivation include factor such as the desire to response to social pressure to quit smoking, and the desire to quit smoking for immediate short term gains, such as saving money previously spent on cigarettes.

In conclusion, motivation to quit in smokers with schizophrenia can be summarized in two dimensions: intrinsic motivation which consists of health concern and self -control, extrinsic motivation which consists of immediate reinforcement and social influences. Motivation to quit is defined as desire of smokers with schizophrenias to be interested to stop smoking stimulate by intrinsic and extrinsic forces.

Intrinsic motivation is defined as the feeling that comes from inside of smokers with schizophrenia that forces them to stop smoking, including desire to increase one's self control over their behaviors, and the drive to change one's habits due to health related concerns.

Extrinsic motivation is defined as the energy outside of smokers with schizophrenia that forces them to stop smoking, including the desire to response to social pressure to quit smoking, and the desire to quit smoking for immediate short term gains.

In this study, motivation to quit is defined as desire of schizophrenic smokers to be interested to stop smoking stimulate by intrinsic and extrinsic forces.

6.1.2 Relationship between motivation to quit on quit attempt and smoking status

X. Zhou et al. (2009) identified predictors of quit attempts in 2,431 smokers. In this study, motivation to quit was predictive of quit attempts. The previous literatures indicated that high motivation levels as measured by self-report

determination to quit have been associated with seeking out and using evidence based cessation support (Challenger, Coleman, & Lewis, 2007). Furthermore, when the smokers explicit self-report “wanting to quit”, financial and health concerns and expectancies, and negative attitude to smoking have been found to predict making a quit attempt, and reduced cigarettes consumption and quitting (Borland et al., 2010).

In this study, the motivation to quit was used interchangeably with reasons to quit. The smokers who reported significantly more reasons for quitting appeared more highly motivated had made more prior quit attempt. The sources of motivation to quit in smokers with schizophrenia are internal (intrinsic) motivation which is health concerns and self-control, and external (extrinsic) motivation which is immediate reinforcement and social influence.

6.1.3 Measurement of motivation to quit

There are the existing instruments have been used to measure motivation to quit in general population and psychiatric population. The details of each instrument as follows:

The Reason for quitting (RFQ) was developed by S. Curry et al. (1990) The RFQ presents a list of self-report reasons that motivated smokers with schizophrenia desire to stop smoking. It consists of 20 items of Likert self-report scale assess 4 dimensions of motivation to quit smoking, including health concern, self-control, social influence, and immediate reinforcement. The RFQ has demonstrated good psychometric testing, internal consistency for 4 subscales in adult smokers were acceptable (between .74-.80) (S. Curry et al., 1990).

The University of Rhode Island Change Assessment-Maryland

(URICA-M) was developed by Nidecker, DiClemente, Bennett, and Bellack (2008). The URICA-M consists of 24 items, includes 4 subscales: Precontemplation, Contemplation, Action, and Maintainance. The URICA-M is modified to suit the needs of people with schizophrenia, more applicable to those with cognitive deficits. It has shown good internal consistency and convergent validity in people with severe mental illness and substance use disorder (Nidecker et al., 2008).

The Motivation To Stop Scale (MTSS) was developed by Kotz, Brown, and West (2013). MTSS is a Single item, “Which of the following describes you?”. The response scale ranging from 1 (Lowest) to 7 (highest level of motivation to stop smoking). The MTSS provided strong and accurate prediction of quit attempts and is a candidate for a standard single-item measure of motivation to stop smoking.

In this study, motivation to quit refers to smokers with schizophrenia’s desire to stop smoking influenced by intrinsic motivation and extrinsic motivation. The sources of motivation to quit in smokers with schizophrenia are internal (intrinsic) motivation which is health concerns and self-control, and external (extrinsic) motivation which is immediate reinforcement and social influence. It was measured by The Reasons for Quitting (RFQ) scale which was developed by Curry and colleagues (1990). The details of scale and psychometric testing are presented in Chapter 3.

6.2 Alcohol dependence

6.2.1 Definition of alcohol dependence

The Tenth Revision of the International Classification of Diseases and

Health Problems (ICD-10) defines the dependence syndrome as being a cluster of physiological, behavioural, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value. A central descriptive characteristic of the dependence syndrome is the desire (often strong, sometimes overpowering) to take the psychoactive drugs (which may or not have been medically prescribed), alcohol, or tobacco.

Alcohol dependence is defined as the drinking of beverages containing ethyl alcohol. Alcoholic beverages include wines, beers, and liquor. Alcohol affects every organ in the body. The intensity of the effect of alcohol is directly related to the amount consumed (Centers for Disease Control and Prevention; CDC). Alcohol consumption is considered to be a one of the coping mechanisms for stressful conditions such as chronic pain.

Alcohol dependence is a previous psychiatric diagnosis in which an individual is physically or psychologically dependent upon drinking alcohol. In 2013 it was reclassified as alcohol use disorder (alcoholism) along with alcohol abuse in DSM-5 (DSM-5, 2013).

Alcohol abuse means having unhealthy or dangerous drinking habits, such as drinking every day or drinking too much at a time. Alcohol abuse can harm relationships, cause to miss work, and lead to legal problems such as driving while drunk (intoxicated). When people abuse alcohol, they continue to drink even though they know drinking is causing problems. If they continue to abuse alcohol, it can lead to alcohol dependence. Alcohol dependence is also called alcoholism. The people are

physically or mentally addicted to alcohol. They have a strong need, or craving, to drink.

Encyclopedia Britannica defined alcohol dependence as the drinking of beverages containing ethyl alcohol. Alcoholic beverages is consumed largely for their physiological and psychological effects.

In this study, alcohol dependence is defined as the schizophrenia smokers' level of severity of alcohol use.

6.2.2 Relationship between alcohol dependence on quit attempt and smoking status

From laboratory and smoking studies indicated that alcohol consumption increases the frequency and intensity of smoking urges, smoking urges were higher during when alcohol had been recently consumed compared with no alcohol had been consumed (Businelle et al., 2013).

The previous research confirmed the relationship between alcohol consumption and smoking cessation by reporting that smokers who heavy drinking were found to be less likely to made a quit attempt (Jiang & Ling, 2013). Alcohol dependence was negatively associated with quit attempt for smokers, less successful when they try to quit (Breslau, Peterson, Schultz, Andreski, & Chilcoat, 1996)., and may interfere with smoking abstinence (Jiang & Ling, 2013).

6.2.3 Measurement of alcohol dependence

The instruments that have been used to measure alcohol dependence as follows:

The Alcohol Use Disorders Identification Test (AUDIT) was

developed by the World Health Organization (T. F. Babor et al., 1992). It is designed to screen for a range of drinking problems and in particular for hazardous and harmful consumption. It is a 10-item questionnaire which covers the domains of alcohol consumption, drinking behaviour, and alcohol-related problems. The AUDIT demonstrated internal consistency Cronbach's alpha coefficient of .93, and alcohol consequences had an alpha of .81 (John B. Saunders, Olaf G. Aasland, Thomas F. Babor, Juan R. De La Fuente, & Marcus Grant, 1993). In the study of S. Siriwong, J. Yunibhand, and S. Preechawong (2012a)) reported Cronbach's alpha coefficient was .75. The content validity index was .94.

The Severity of Alcohol Dependence Questionnaire (SADQ) (Edwards & Gross, 1976). It is a 20-item questionnaire designed to measure the severity of dependence on alcohol. It is divided into five subscales: physical withdrawal symptoms, affective withdrawal symptoms, craving and withdrawal relief drinking, consumption and reinstatement. In the study of Wongsang et al. (2012) reported Cronbach's alpha coefficient was .91. The content validity index was .95.

The Michigan Alcoholism Screening Test (MAST) Selzer (1971). It is 24 items, The MAST takes about 10 minutes to complete. A "YES" answer on items 3, 5, 9 and 16 are scored as 1; a "YES" answer on items 1,2,4,6,7,10 – 15, 17,18, 21-24 are scored as a 2; items 8,19 and 20 are scored as 5. The total score is 53. - The MAST appears to have high internal consistency with an alpha coefficient of .95 reported in the original validation study (Selzer, 1971).

In this study, the AUDIT in Thai version developed by The Mental Health Department, Ministry of Public Health, Thailand, was used to measure alcohol dependence. The AUDIT may be used by any health care provider who requires a

reliable and brief screening instrument to identify an individual with alcohol problems. The details of scale and psychometric testing are presented in Chapter 3.

6.3 Nicotine dependence

6.3.1 Definition of nicotine dependence

Nicotine dependence is an addiction to tobacco products caused by the drug nicotine. Nicotine dependence also referred to as tobacco dependence. It characterized by tolerance and withdrawal symptoms that are associated with the pharmacological effects of nicotine (US. Department of health and Human Service, 1988).

DSM-IV was defined nicotine dependence as to the occurrence of three out of seven symptoms during a 12-month period. These symptoms include physiological, psychological, and behavioral markers of nicotine dependence (American Psychiatric Association, 1994).

In this study, nicotine dependence is defined as the smokers with schizophrenia' addicted to tobacco products caused by nicotine.

6.3.2 Relationship between nicotine dependence on quit attempt and smoking status

Dependence on nicotine is made up of psychological dependence, physical dependence and tolerance. As they continue smoking, they need more and more nicotine to satisfy the same psychological and physical effects of the drug (Benowitz, 2008).

There are some evidences reported that higher nicotine dependence associated negatively with making a quit attempt (Hagimoto et al., 2010; X. Zhou et al., 2009). The dependence on nicotine is the largest factor determining successful

quit attempts. The higher level of nicotine dependence, it reveals harder to make a quit attempt (Zhou et al., 2009).

Moreover, Chandola, Head, and Bartley (2004) found the degree of nicotine dependence was the strongest predictor of quit smoking. The smokers with higher dependence were less likely to quit smoking. Bailey et al. (2011) conducted the analyses to determine statistically significant predictors of a successful quit attempt. The result reported that lower nicotine dependence was the predictive of successful quit attempt. The participants with higher level of nicotine dependence were less able to quit smoking successfully for 24 hr.

6.3.3 Measurement of nicotine dependence

There are the existing instruments have been used to measure nicotine dependence in general population and psychiatric population. The details of the instruments that have been used to measure nicotine dependence as present follows:

The Fagerstrom Test for Nicotine Dependence (FTND) developed by Heatherton et al. (1991a). It is a 6-item questionnaire. Scoring ranging from 0 to 10. Typically, scores of 6 or higher signify nicotine dependence. The FTND has shown acceptable psychometric properties (Chronbach's $\alpha = .72$ (Weinberger et al., 2007). The Thai version of FTND has demonstrated good psychometric properties in a sample of adult smokers with Cronbach's $\alpha .80-.91$ (Boonchan, 2007). The internal consistency and reliability in Siriwong et al. (2012) was $\alpha = .73$. The reliability of FTND in Wongsang et al. (2012) was $\alpha = .75$.

The Heaviness of Smoking Index (HSI) developed by Kozlowski, Porter, Orleans, Pope, and Heatherton (1994). Heaviness of Smoking Index (HSI), a subset of the FTND, has been suggested as an alternative to the FTND.

The scale has been strong predictive validity of heavy use and cessation and translated into a number of different languages. It comprises of only two items which are “time to first cigarette upon waking” and the “quantity of cigarettes smoked in a day”. The scoring categorized into a three category variable: low dependence (0–1), medium dependence (2–4), and high dependence (5–6). The HSI has shown high consistency (kappa agreement 0.72-0.78) with the FTND in several population-based studies (de Leon & Diaz, 2005; Lim et al., 2012). Moreover, the shorter two-item HSI is more practical in clinical and research settings.

In this study, the Thai version of The Fagerstrom Test for Nicotine Dependence (FTND) which developed by Heatherton et al. (1991a) was used to measures nicotine dependence level. The details of scale and psychometric testing are presented in Chapter 3.

6.4 Depression

6.4.1 Definition of depression

Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (World Health Organization).

Depression is a state of low mood and aversion to activity that can affect a person’s thoughts, behavior, feelings and sense of well-being (Salmans & Sandra, 1997).

Depression is a serious illness that need treatments. There are several forms of depression: major depression (severe symptoms), dysthymic disorder (depressive symptoms that last a long time), and minor depression (less severe and may not last as long). Depression symptoms includes: feeling sad, hopeless, anxious,

guilty, loss of interest, feeling very tired, not being able to concentrate, insomnia, headaches, aches or pains, overeating or not wanting to eat, suicide ideation or suicide attempt (The National Institute of Mental Health: NIMH, 2012).

In this study, is defined as mood and aversion to activity that can affect smokers with schizophrenia's thoughts, behavior, feeling, and physical changes such as depression, hopelessness, self-depreciation, guilty ideas of reference, pathological guilt, morning depression, early wakening, suicide, and observed depression.

6.4.2 Relationship between depression on quit attempt and smoking status

A relationship between cigarette smoking and major depressive disorder was conducted by Glassman et al. (1990). A history of regular smoking was observed among individuals who had experienced major depressive disorder than among individuals who had never experienced major depression or among individuals with no psychiatric diagnosis. The result showed that smokers with major depression were also less successful at their attempts to quit than were either of the comparison groups.

Japuntich et al. (2007) examined the relationship between depression history and smoking after a quit attempt of 677 adult smokers who participated in a randomized smoking cessation trial. The results found depression history predicted smoking at 1 week post quit attempt. In addition, Prediction models including depression history and depression related measures (e.g., negative affect, negative cognitive style) showed that depression history was a powerful predictor of smoking early in the quit attempt. In addition, the study of Dvorak et al. (2011) conducted the cross-sectional analysis investigated the association between depressive rumination

and impulsivity among smokers' quit attempt failure. Depressive rumination was positively associated with quit attempt failure.

6.4.3 Measurement of depression

There are the existing instruments have been used to measure depression in schizophrenia patients. The details of the instruments that have been used to measure depression as follows:

The Center for Epidemiological Studies - Depression Scale (CES-D) (Radloff, 1977). It has 20 items, self-rating scale. ES-D has shown good internal consistency, Cronbach's alpha coefficients range between 0.84-0.90. The CES-D discriminates between psychiatric inpatient and general population (Radloff, 1977). Thai version of CES-D was translated by Kuptniratsaikul and Pekuman (1997) with acceptable psychometric properties (Internal consistency Cronbach's alpha = 0.92 Sensitivity= 93.3% Specificity= 94.2%).

The Beck Depression inventory (BDI) was developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961). It is 21-item interviewing scale, item response range from 0 to 3. In patients with medical illness, a score of 16 or higher indicates moderate to severe depressive symptoms. The BDI good internal consistency, Cronbach's alpha was 0.93. The BDI showed acceptable test– retest reliability was 0.74 (Beck, Steer, & Brown, 1969). This measurement was Translated into Thai version with acceptable psychometric.

The Calgary Depression Scale for Schizophrenia (CDSS) (D. Addington et al., 1993b). This measurement used to assessment of depressive symptoms separate from positive, negative and extrapyramidal symptoms in people with schizophrenia. The CDSS consists of nine items. All ratings of the items are defined according to

operational criteria from 0-3. Internal reliability of the scale has been shown Cronbach's alpha coefficients was 0.79. Divergent validity from positive, negative and extrapyramidal symptoms has been established by the absence of correlations with measures of these symptoms. Thai version of CES-D was translated by Suttajit et al. (2013), with internal consistency Cronbach's alpha = 0.869. The inter-rater reliability was found to be in substantial agreement with the intra-class correlation coefficient of 0.979. The test-retest reliability over a period of 3 days was high, with an intra-class correlation coefficient of 0.861.

In this study, the Calgary Depression Scale for Schizophrenia which developed by Addington & Addington (1993), and translated into Thai language by Suttajit et al. (2013) was used to measure depression. The details of scale and psychometric testing are presented in Chapter 3.

6.5 Household smokers

6.5.1 Definition of Household smokers

Oxford Dictionary (2009) defined "Household" as all the people living together in the house, and "smoker" defined as a persons who smoke tobacco regularly

In this study, Household smokers defined as a presence or absence of smokers in the household of smokers with schizophrenias.

6.5.2 Relationship between household smokers on quit attempt and smoking status

The fact that the father's smoking in the home environment increased the risk of smoking among subjects with schizophrenia may be a marker of the importance of family influences and the parent as role model for smoking behavior

among these patients. For example, Riala, Hakko, Isohanni, Pouta, and Räsänen (2005) examined associations between family and environmental factors and the retrospectively determined regular smoking among patients with schizophrenia. The results found that increased likelihood of smoking among schizophrenia was associated with paternal smoking in the family environment.

Hymowitz et al. (1997) identified the quit attempt and the variables predictive of smoking cessation among adult smokers. The result found 67% of smokers reported making at least one quit attempt, and the predictors of smoking cessation includes the absence of other smokers in the household, less frequent alcohol consumption, lower levels of cigarette consumption, and a strong desire to stop smoking.

Arthur J Farkas et al. (1999) assess the association of household and workplace smoking restrictions with quit attempts, six month cessation, and light smoking. Results shown that Smokers who lived (odds ratio (OR) = 3.86; 95% confidence interval (CI) = 3.57 to 4.18) or worked (OR = 1.14; 95% CI = 1.05 to 1.24) under a total smoking ban were more likely to report a quit attempt in the previous year. Among those who made an attempt, those who lived (OR = 1.65, 95% CI = 1.43 to 1.91) or worked (OR = 1.21, 95% CI = 1.003 to 1.45) under a total smoking ban were more likely to be in cessation for at least six months. Current daily smokers who lived (OR = 2.73, 95% CI = 2.46 to 3.04) or worked (OR = 1.53, 95% CI = 1.38 to 1.70) under a total smoking ban were more likely to be light smokers. It can summarize that both workplace and household smoking restrictions were associated with higher rates of cessation attempts, lower rates of relapse in smokers who attempt to quit, and higher rates of light smoking among current daily smokers.

6.5.3 Measurement of Household smokers

Nowadays, there is no good psychometric property instrument to measure household smoker. Some research has measured the level of household smoking restriction (Arthur J Farkas et al., 1999). The participants were asked, "Which statement best describes the rules about smoking in your home?" Those who answered "No one is allowed to smoke anywhere" were classified as living under a total ban, while those who answered "Smoking is allowed in some places or at some times" were classified as living under a partial ban.

In the present study, household smoker was assessed by the check list which was developed by the researcher. The details of scale and psychometric testing are presented in Chapter 3.

6.6 Readiness to quit

6.6.1 Definition of readiness to quit

Readiness to change is one of the major concepts postulated by the Transtheoretical Model (TTM) (J. O. Prochaska, DiClemente, & Norcross, 1992). The TTM has been widely used to facilitate numerous behaviors change, and become one of the most influential models for smoking cessation. The readiness to change is described as the stages of change (SOC), a central construct of TTM. Five stages and their definition for smoking cessation are precontemplation (not seriously considering quitting in the next 6 months), contemplation (seriously considering quitting in the next 6 months or planning to quit in the next 30 days but has not made a quit attempt in the last year), preparation (planning to quit in the next 30 days and has made a quit attempt in the last year), action (quit for at least 24 hr.), and maintenance (quit for more than 6 months)

In this study, readiness to quit is defined as the smokers with schizophrenias' thought or plan to changing behavior from smoking to stop smoking.

6.6.2 Relationship between readiness to quit on quit attempt and smoking status

The smoker's stage in the change process is the variable that has been studied by several authors; the preparation and action stages are considered to be better predictors of successful outcome. Several studies indicated that smokers with schizophrenia most were in the precontemplation stage (not considering to quit) (79%), fewer were in contemplation stage (thinking about quit) (18%), and the smallest were in preparation stage (planning to make 24 hr. quit attempt (3%). (Etter et al., 2004). Likewise, D. L. Kelly et al. (2010) conclude that only 14% of smokers with schizophrenia were in preparation stage and planning to make 24 hr. quit attempt.

Several literature reviews identified that readiness to quit has been associated with quit attempt and smoking abstinence. For instance, E. Stockings et al. (2013) survey readiness to quit smoking and quit attempts among Australian Mental Health Inpatients. The results showed that nearly three quarters (71.2%) being classified as in a precontemplation stage of change. Likewise, Solty et al. (2009) reported that 51% psychiatric inpatients were in the precontemptative, 12.7% contemplative, and 36.2% preparatory or action oriented.

6.6.3 Measurement of readiness to quit

Assessment of readiness to quit was generally made up by using the readiness ruler (Rollnick, Miller, & Butler, 2008). This type of assessment seems to force the respondent into one stage of readiness by choosing only one answer. The

second measure format is the questionnaires. The details of the instruments that have been used to measure readiness to quit as follows:

The University of Rhode Island Change Assessment-Maryland (URICA-M) developed Nidecker et al. (2008). It is 24 items, includes 4 subscales: Precontemplation, Contemplation, Action, and Maintenance. The URICA-M is modified to suit the needs of people with schizophrenia, more applicable to those with cognitive deficits. It has shown good internal consistency and convergent validity in people with severe mental illness and substance use disorder (Nidecker et al., 2008).

The Readiness to Quit Ladder, the stages of change questionnaire (Biener & Abrams, 1991). It is 10 response options that assess readiness to quit, from not considering quitting at all in the near future to having already quit smoking. Validity studies have demonstrated that the Ladder is associated with cognitive and behavioral indices of readiness to consider smoking cessation (e.g., intention to quit, nicotine dependence) and performs as well or better than the staging algorithm in predicting smoking rate, quit attempts and cessation (Biener & Abrams, 1991).

The Stage of Change Questionnaire for smoking Cessation (SCQ) (DiClemente et al., 1991) (A standard algorithm classified current smokers into one of three pre-action: Precontemplation, Contemplation or Preparation based on 4 items. Thai version of SCQ developed by Wongsang et al. (2012) used in male alcohol-dependent smokers. The internal consistency and reliability was $\alpha = .934$.

In the present study, The Readiness to Quit Ladder, which developed from Abrams, Boutwell, et al. (1991) was used to measure readiness to quit smoking in smokers with schizophrenia. The details of scale and psychometric testing are presented in Chapter 3.

6.7 Positive symptoms

6.7.1 Definition of positive symptoms

Positive symptoms are those found in person with schizophrenia patients but not in healthy people. Schizophrenia patients with positive symptoms often lose touch with reality.

Positive symptoms is symptoms includes hallucinations (usually hearing voices that are not there, voices that criticize or condemn), delusions (false beliefs, often about a threat or persecution), illusion, thought disorders, paranoia; inappropriate behavior; disorganized or incoherent speech (Brady & McCain, 2004).

In this study, positive symptoms are defined as the characterized of thinking and emotions that are impaired, out of reality among smokers with schizophrenia. The four dimensions of positive symptoms include suspiciousness, unusual thought content, hallucinations, and conceptual disorganization.

6.7.2 Relationship between positive symptoms on quit attempt and smoking status

Several studies have shown that the level of nicotine dependence is correlated with positive symptoms (de Leon & Diaz, 2005). Some studies have higher levels of positive symptoms in schizophrenic patients that smoke than in those that do not smoker (Beratis et al., 2001). Smoking also correlated with improvement positive symptoms such as hallucination and illusion (Smith et al., 2002). Some studies have shown an increase prevalence of parkinsonism in mental illness smokers (J.M. Williams & Zeidonis, 2004).

6.7.3 Measurement of positive symptoms

Literatures have shown the instruments that have been used to measure positive symptoms as follows:

The Brief Psychiatric Rating Scale (BPRS). (Overall & Gorham, 1962) It assesses a range of psychotic and affective symptoms A one-page, 18-item rating scale which was developed more than 40 years ago. It is highly sensitive to change, and excellent inter-rater reliability can be achieved with training and a standard interview procedure

The Positive and Negative Syndrome Scale (The PANSS) developed by Kay, Fiszbein, and Opler (1987). It assesses Positive and Negative symptoms. The PANSS is a 30-item 7-point (1–7) rating scale. The PANSS was divided into positive, negative and general psycho-pathology sub-scales. The PANSS was furthermore sensitive and specific regarding pharmacological manipulation of the levels of both positive and negative symptoms in patients with schizophrenia.

The Positive Symptoms (SAPS) developed by Andreasen (1984). Assess positive symptoms of psychosis devised primarily to focus on schizophrenia, Psychiatric population. It is 34–item Scale for Assessment of These positive symptoms includes 4 domains: hallucinations, delusions, bizarre behavior, and positive formal thought disorder. Internal consistency of the questionnaire was established by calculating Cronbach's alpha coefficient was 0.86. Test-retest reliability over two years was very good ranging from 0.40 to 0.50.

The Positive symptom rating scale (PSRS). This questionnaire was developed by Ventura et al. (1993). It is a 4-item screening measure positive symptom in 4 dimensions: Suspiciousness, Unusual thought content, Hallucinations,

and Conceptual disorganization. For each item, the subjects respond to each item from 1 (not present) to 7 (extremely severe).

In the present study, Positive symptom rating scale (PSRS) which developed by Ventura (1993) was used to measured positive symptoms in smokers with schizophrenia. The details of scale and psychometric testing are presented in Chapter 3.

6.8 Negative symptoms

6.8.1 Definition of negative symptoms

Negative symptoms refer to feelings or actions that are lost by person with schizophrenia. Negative symptoms are associated with disruptions to normal emotions and behaviors. These symptoms are harder to recognize as part of the disorder and can be mistaken for depression or other conditions. These symptoms include flattening or affect.

Negative symptoms is symptoms includes hallucinations (usually hearing voices that are not there, voices that criticize or condemn), delusions (false beliefs, often about a threat or persecution), illusion, thought disorders, paranoia; inappropriate behavior; disorganized or incoherent speech (Brady & McCain, 2004).

In this study, negative symptoms are defined as the characterized of thinking and emotions that are impaired, out of reality among smokers with schizophrenia. The four dimensions of negative symptoms include restricted speech quantity, emotion: reduced range, reduced social drive, and reduced interests. The details of scale and psychometric testing are presented in Chapter 3.

6.8.2 Relationship between negative symptoms on quit attempt and smoking status

According to The Psychological Tool Model (Myrsten et al., 1975) suggests a theory of smoking behavior that allows the smoker to use nicotine as a means of manipulating their psychological state under varied environmental conditions. It is asserted that nicotine can stimulate pleasure centers, increase alertness and enhance performance. The short term psychological effects of nicotine that include maintaining performance in the face of monotony and fatigue, increased selective attention and attenuation of the effects of stress have been confirmed. In addition, nicotine helps alleviate some of the negative symptoms of schizophrenia (Patkar et al., 2002).

6.8.3 Measurement of negative symptoms

The details of the instruments that have been used to measure negative symptoms as follows:

The Negative Symptom Assessment (NSA-16) developed by Axelrod, Goldman, and Alphas (1993). It is increasingly used as a validated measure to track response to treatment of negative symptoms in clinical trials of schizophrenia. NSA-16 takes up to a half hour to administer. The dimensional structure of the 16-items. Negative Symptom Assessment (NSA-16) was validated in a sample of 223 schizophrenic inpatients. Using a confirmatory factor analytic procedure, a five factor model was found to best characterize the structure of this rating instrument. These factors include: Communication, Emotion/Affect, Social Involvement, Motivation, and Retardation.

The Negative symptom assessment (NSA-4). This questionnaire was developed by Alphas et al. (2010). Four NSA-16 items are included: restricted speech quantity, reduced emotion, reduced social drive, and reduced interests, as well as an

overall global rating of negative symptoms. For each item, the subjects respond to each item from 1 (normal) to 6 (severe). Total score ranging from 1-24. Alps, Morlock, Coon, et al. (2010) test the psychometric property of NSA-4 The 16-item Negative Symptom Assessment (NSA-16) scale is a validated tool for evaluating negative symptoms of schizophrenia. The psychometric properties and predictive power of a four-item version (NSA-4) were compared with the NSA-16. Baseline data from 561 patients with predominant negative symptoms of schizophrenia who participated in two identically designed clinical trials were evaluated. NSA-16 and NSA-4 scores were both predictive of scores on the NSA global rating (odds ratio = 0.83-0.86) and the Clinical Global Impressions--Severity scale (odds ratio = 0.91-0.93). NSA-16 and NSA-4 showed high correlation with each other (Pearson $r = 0.85$), similar high correlation with other measures of negative symptoms (demonstrating convergent validity), and lesser correlations with measures of other forms of psychopathology (demonstrating divergent validity). NSA-16 and NSA-4 both showed acceptable internal consistency (Cronbach α , 0.85 and 0.64, respectively) and test--retest reliability (intraclass correlation coefficient, 0.87 and 0.82). This study demonstrates that NSA-4 offers accuracy comparable to the NSA-16 in rating negative symptoms in patients with schizophrenia.

Alps et al. (2011), the ICCs were slightly lower (0.82 and 0.87, respectively), but still good/excellent. The NSA-4 had correlation coefficients of 0.67 or greater with the full scale (NSA-16), the global rating, the PANSS negative subscale, and the PANSS negative symptoms Marder factor. The NSA-4 is negatively correlated with the PANSS Marder factor anxiety/ depression ($r = -0.11$), and poorly correlated with the PANSS Marder factors disorganized thought and

hostility/excitement ($r = 0.29$ and 0.03 , respectively). In addition, the NSA-4 is correlated poorly with the PANSS positive symptoms ($r = 0.13$). These findings show even better divergent validity than found by Alps et al. (2011)

In the present study, The Negative symptom assessment (NSA-4) which developed by Alps et al. (2010) was used to measured negative symptoms in smokers with schizophrenia. As clinical trials have become more complex, a briefer assessment tool would be useful. The NSA-4 is proposed as a reliable and valid brief alternative. The details of scale and psychometric testing are presented in Chapter 3.

6.9 Intensity of smoking cessation intervention

6.9.1 Definition of smoking cessation intervention

The Oxford Dictionary (2009) defined “intensity” as the quality or amount or condition of being strong, concentrated or the degree to which something is difficult or strong. Rice & Stead (2009) defined “smoking cessation intervention” as the provision of advice or counseling by any suitably-trained person (e.g., physicians, nurses, psychiatrists, dentists, tobacco treatment specialists, teachers, friends etc.), aiming to help people to stop smoking. Smoking cessation intervention defined as any intervention that was initiated during the hospitalization and that aimed to increase motivation to quit, to assist a quit attempt, or to help recent quitters avoid relapse was included. Interventions that began in hospital and continued after discharge were included. The intervention could be delivered by physicians, nursing staff, psychologists, smoking cessation counsellors or other hospital staff. The intervention could include advice, more intensive behavioural therapy, or smoking cessation pharmacotherapy, with or without continued contact after hospital discharge (N.A. Rigotti, Munafo, & Stead, 2008).

Treating Tobacco Use and Dependence (2008) categorized smoking cessation into two kinds; brief intervention and intensive intervention. The details as follows:

Brief smoking cessation interventions are a range of effective behaviour change interventions that are client-centred, short in duration and used in a variety of settings by health and other professionals. They use an empathic approach, emphasising self efficacy, personal responsibility for change, information giving and details of resources available to support change. For smoking cessation, brief interventions involve opportunistic advice, discussion, negotiation and encouragement that typically take between 5 and 10 minutes. (NICE Guidelines, Brief Interventions and Referral for Smoking Cessation in Primary Care and Other Settings, 2006). The intervention may involve referral to a more intensive treatment if appropriate. Interventions should be recorded and followed up as appropriate.

Brief Interventions for smoking cessation are more successful when used with clients who are unlikely to need/seek or attend specialist treatment, are unsure/ambivalent about quitting, may require access to other appropriate services. The five components of the brief intervention framework (5A's) are: ask, advise, assess, assist, arrange and are outlined in more detail on page 16. The brief intervention generally involves assessing and recording the clients current smoking status. The way to proceed then depends on which of the six 'stages' on Prochaska and DiClemente's Stages of Change model the patient is in. The aim is then to encourage smokers to move on to the next stage towards giving up.

Intensive smoking cessation intervention can be provided by any

suitably trained clinician. The evidence shows that intensive tobacco dependence treatment is more effective than brief intervention. Intensive interventions (i.e., more comprehensive treatments that may occur over multiple visits for longer periods of time and that may be provided by more than one clinician) are appropriate for any tobacco user willing to participate in them; neither their effectiveness nor cost-effectiveness is limited to a subpopulation of tobacco users (e.g., heavily dependent smokers) (Alterman, Gariti, & Mulvaney, 2001; Barth et al., 2006; N. A. Rigotti et al., 2003).

Intensive interventions are provided by clinicians who specialize in the treatment of tobacco dependence. Specialists possess the skills, knowledge, and training to provide effective interventions across a range of intensities. They often are affiliated with programs offering intensive treatment interventions or services (e.g., programs with staff dedicated to tobacco interventions in which treatment involves multiple counseling sessions, including quitline). From mentioned above, substantial evidence shows that intensive intervention produce higher success rates than do less intensive interventions.

In the present study, intensity of smoking cessation intervention is defined as level of brief advice or intensive intervention plus follow-up services that smokers with schizophrenia received from mental health provider during hospital admitted.

6.9.2 Relationship between intensity of smoking cessation intervention on quit attempt and smoking status

Intensity of smoking cessation intervention is the one predictor of quit attempt and smoking status in smokers with schizophrenias. Any smoking cessation

intervention motivate interest and intention in quitting (Husten, 2007). The treatment or the program for smoking cessation are to move smokers along continuum of readiness to quit and to increase or maintain motivation to actively engage in the change process of quitting smoking (W.R. Miller & Rollnick, 2002).

From Meta-analyses show that simple advice from a physician has a small but significant effect on smoking cessation (OR = 1.74, 95% CI 1.48–2.05) (Lancaster et al., 2000; Lancaster & Stead, 2005). Smoking cessation advice and/or counseling given by nurses significantly increase the likelihood of quitting (OR = 1.28, 95% CI 1.18–1.38) (Rice & Stead, 2008).

Moreover, Lisa M. Shah et al. (2010) conducted study to examine the effect of clinician advice on quit attempt in hospitalized smokers. The result showed that the smoker who received advice to quit from physician, were more likely to make a quit attempt and report abstinence than those less prepared.

6.9.3 Measurement of intensity of smoking cessation intervention

Nowadays, the instruments that was used to measure intensity of smoking cessation intervention lacked of psychometric property. There is some literature that stated about the intensity of smoking cessation intervention.

Joel A. Simon, Timothy P. Carmody, Esther S. Hudes, Elizabeth Snyder, and Jana Murray (2003) indicated that intervention that lasted to 30-60 minutes was the intervention that intensive.

N. A. Rigotti et al. (2003) conducted the meta-analysis related the Interventions for smoking cessation in hospitalized patients. In this study, intensive intervention was include contact time plus follow-up for at least one month), and intervention that very brief (<20 minutes) during the hospital stay was brief

intervention. High intensity behavioural interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients.

Nohlert, Ohrvik, Tegelberg, Tillgren, and Helgason (2013) assigned the Participants into two groups: the high intensity intervention comprised eight 40-minute individual sessions, and low intensity intervention consisted of one 30 minute counselling session. It can be concluded that the intervention that is more intense should last for 40 minutes, multi session plus follow up, and low intensity was one session intervention.

Fiore et al. (2008) Clinical Practice Guideline indicated that brief tobacco dependence intervention is effective less than intense treatment. The intensity of intervention was making a quit attempt. Moreover, more sessions, more contact time, and follow up contact increased the smoking cessation rates.

In this study, intensity of smoking cessation intervention was measured by using The Intensity of smoking cessation intervention which was developed by the research. The details of scale and psychometric testing are presented in Chapter 3.

7. Research related in factors influencing the quit attempt and smoking status

Chiappetta et al. (2014) conducted a study sought to identify predictors of attempting to quit and of successfully quitting alcohol abuse or dependence in the adult population. The result revealed that greater severity of alcohol use disorder, having a co-occurring drug use disorder and greater number of psychiatric disorders decreased the odds of success among individuals with alcohol abuse, while female

gender, being married and older than 40 years old increased the odds of success. Among individuals with alcohol dependence, having nicotine dependence, greater number of psychiatric disorders and personality disorders decreased the odds of success.

Martínez et al. (2015) conducted a study that investigates factors predicting past year quit attempts among smokers enrolled in substance abuse treatment in New York State. Results revealed that compared to non-quit attempters, quit attempters were more likely to be greater readiness to quit smoking among those reporting past year quit attempts. Quit attempters also reported smoking fewer days per week ($p = .010$) and fewer cigarettes per day. Compared to pre-contemplation, smokers who were in preparation (OR = 2.68, 95% CI: 1.51–4.77) and contemplation stages (OR = 2.96; 95% CI: 1.61–5.42) presented higher odds of a quit attempt. In addition, smokers who reported more positive attitudes toward quitting (OR = 1.49, 95% CI: 1.11–1.99), and those who received more clinician services in support of quitting (OR = 1.21, 95% CI: 1.01–1.46) had higher odds of a quit attempt. Fewer cigarettes/smoking day (OR = 0.97, 95% CI: 10.95–1.00) presented higher odds of a quit attempt.

Tzilos et al. (2013) evaluated 191 inpatient with psychiatric disorders who had been enrolled in a randomized controlled trial of motivational interviewing versus brief advice for smoking cessation, and assessed their intentions to quit smoking. Results revealed that both motivation and confidence to quit at baseline were significantly correlated with intention to quit at hospital discharge ($r = 0.47$, $p < 0.05$, and $r = 0.34$, $p < 0.05$, respectively). Cons of smoking was significantly associated with intention to quit at hospital discharge ($r = .305$, $p < 0.05$). With adjustment for demographic characteristics, significantly decreased odds of a quit attempt with

higher levels of dependence ($p < 0.05$) and lower levels of psychiatric symptoms ($p < 0.05$), rates of quitting did not differ by treatment. In models adjusted, subjects that reported an intention to quit smoking were significantly more likely to report a quit attempt ($b = 3.17$, $se = 0.47$, $p < 0.05$).

Michopoulos et al. (2015) studied the smoking behaviour of patients admitted to a non-smoking psychiatric ward, after monitoring them for smoking habits and helping them cope in order to modify their smoking behaviour. Result revealed that Diagnosis did not affect the reduction or increase in cigarettes per day. The only factor that predicted reduction in CPD was the female sex.

Solty et al. (2009) conducted study in inpatients aged 18 years or older admitted to acute-care psychiatry units at the Foothills Medical Centre in Calgary, Alberta, during a 6-month period completed a survey involving questions from the Canadian Tobacco Use Monitoring Survey. Result revealed that Current smokers endorsed more negative than positive attributes of smoking. Regarding smoking cessation, 51% of patients were precontemplative, 12.7% contemplative, and 36.2% preparatory or action-oriented, despite few receiving advice to quit. Moreover, the number of cigarettes smoked per day correlated positively with nicotine dependence ($r=.50$, $p < .001$).

E. P. Davila et al. (2009) conducted study examined factors associated with having lifetime or recent attempts to quit smoking among current smokers, based on a telephone survey of Florida adults. Results revealed that being advised by a physician to quit smoking were also positively associated with lifetime quit attempts. Smokers who received healthcare-provider advice to quit smoking in the past 12 months were more likely to report a quit attempt during the same time period (AOR 1.53 [1.30–

1.81]). Both the number of days smoking and the amount smoked in the previous 30 days were associated with lower odds of a 12-month quit attempt. Compared to participants with lower levels of nicotine dependence, smokers with moderate and heavy dependence were more likely to have reported at least one quit attempt in their lifetime (AOR 1.53 [1.17–1.98]; and AOR 1.83 [1.39–2.40], respectively). Receipt of healthcare provider advice to quit smoking in the past 12 months was associated with increased odds of a lifetime quit attempt (AOR 1.56 [1.27–1.92]). Finally, the odds of a lifetime quit attempt were inversely associated with the number of cigarettes smoked in the past 30 days.

Borland et al. (2010) explored whether measures of motivation to quit smoking have different predictive relationships with making quit attempts and the maintenance of those attempts. Data are from three wave-to-wave transitions of the International Tobacco Control Four (ITC-4) country project. Correlation between Variables motivating quit attempt found that the factors that predict quit attempt were health concern ($r=.63-.64$; $p<.05$); health outcome expectancy ($r=.47-.49$; $p<.05$); intention to quit ($r=.63-.64$; $p<.05$); motive to smoke ($r=-.31$ to $-.29$; $p<.05$); self-efficacy ($r=.03-.06$; $p<.05$); heaviness of smoking index ($r=-.43$ to $-.35$; $p<.05$).

Ussher et al. (2016) conduct a secondary analysis from a trial with 864 smokers making quit attempt. Fagerström Test of Cigarette Dependence (FTCD), Heaviness of Smoking Index (HSI), and motivation to stop smoking (composite of determination to quit and importance of quitting) were measured at baseline. Continuous smoking abstinence, validated by expired-air carbon monoxide, was assessed at 4 weeks, 6 months and 12 months post-quit date. FTCD, HSI, non-HSI items in FTCD, and motivation were assessed as predictors of abstinence at 1, 6 12

months. Result from multiple-logistic regressions revealed that, lower scores for FTCD, HSI and non-HSI all significantly predicted abstinence at all follow-ups, while motivation did not predict abstinence at any time.

Rafful et al. (2013) examined sociodemographic and clinical predictors of quit attempts and successful quit attempts in a nationally representative sample of US adults. Data was collected in 2001–2002 (Wave 1) and 2004–2005 (Wave 2). Having an educational level below high school and older age at first nicotine use were predictors of successful quitting. The only significant predictors of successful quitting at Wave 2 was having an educational level below high school (ORs = 6.59; CI 95% = 1.25–34.69) and older age at first nicotine use ($t = 2.40$; $p < 0.05$). Daily tobacco consumption and younger age at first tobacco use were associated to increased odds of attempting to quit.

X. Zhou et al. (2009) conducted study to identified predictors of attempts to stop smoking and predictors of relapse. The study included 2431 smokers from pre-existing Internet panels in the United States, United Kingdom, Canada, France, and Spain. They were followed every 3 months for up to 18 months via Internet contact on measures relating to quit attempts, smoking status, motivation to quit, nicotine cue, weight and weight concern, health-related factors, withdrawal symptoms, and smoking cessation aids. Result revealed that factors related to quit attempt shown that male participants were 20% less likely than females to make a quit attempt (odds ratio [OR] = 0.80; 95% confidence interval [CI]: 0.67, 0.94). Each two-point increase in score for motivation to quit raised the likelihood (odds) of an attempt by more than 10% (OR = 1.12; 95% CI: 1.02, 1.22). Subjects who reported an intention to quit in the next month were more than twice as likely to make an attempt in the subsequent

quarter compared with others (OR = 2.49; 95% CI: 2.11, 2.94). Higher levels of nicotine dependence as measured by the baseline FTND score were associated with lower likelihood of a quit attempt (OR = 0.86; 95% CI: 0.80, 0.92).

Khara and Okoli (2011) examined smoking cessation outcomes and relevant predictors of smoking cessation among smokers with substance use and/or psychiatric disorders. Data from medical records of 674 participants in a tobacco treatment program within mental health and addictions services in Vancouver, Canada, were analyzed. Information on demographics, tobacco use and history, type of pharmacotherapy received, nicotine dependence, importance of and confidence in quitting smoking, expired carbon monoxide level, substance use and psychiatric disorder history, and total program visits were gathered. Results revealed that length of treatment was a significant predictor of smoking cessation for those with co-occurring disorders and substance use disorder only. In the final multivariate model (Hosmer-Lemeshow goodness-of-fit: $n = 500$, $\chi^2 = 13.20$; $df = 8$; $p = .110$), found that the presence of an anxiety disorder, versus no psychiatric disorder (OR = .51, 95% CI [.27–.96], $p < .05$) and higher nicotine dependence scores at baseline (OR = .90, 95% CI [.98–1.01], $p < .05$) were significantly predictive of poor cessation outcomes. Conversely, longer duration of abstinence during the last quit attempt (OR = 1.14, 95% CI [1.01–1.28], $p < .05$) and greater length of treatment (OR = 1.08, 95% CI [1.04–1.12], $p < .001$) were significant predictors of successful cessation outcomes. Among all three groups, greater length of treatment remained significantly predictive of successful smoking cessation at the end of treatment. The only other significant predictors were found among individuals with a co-occurring disorder: The presence of an opiate use disorder, versus a co-occurring alcohol use disorder (OR = .43, 95%

CI [.19–.95], $p < .05$) and higher nicotine dependence scores at baseline (OR = .85, 95% CI [.75–.97], $p < .05$) were predictive of poor cessation outcomes.

Bailey et al. (2011) examined factors associated with smokers' ability to achieve a targeted 24-hr quit during a smoking cessation program. Using baseline data from a randomized clinical trial to examine the efficacy of selegiline for cigarette smoking cessation ($n = 280$). Results revealed that lower nicotine dependence (modified Fagerström Tolerance Questionnaire [mFTQ]), higher Behavioral Inhibition System score, and lower baseline heart rate were predictive of SQA in both the univariate and the multivariate models. In the univariate analyses, mFTQ, $F(1, 238) = 4.15$, $p = .04$; $d = 0.35$, 95% CI: 0.01–0.68, the BIS score, $F(1, 238) = 8.72$, $p = .004$; $d = 0.50$, 95% CI: 0.16–0.84, and heart rate, $F(1, 238) = 6.31$, $p = .01$; $d = 0.43$, 95% CI: 0.09–0.76, were significant predictors of SQA. In the logistic regression model, participants who were successful in their quit attempt had lower mFTQ scores, $W(1) = 4.9$, $p = .03$; OR = 0.85, 95% CI: 0.74–0.98, higher BIS scores, $W(1) = 9.8$, $p = .002$; OR = 1.20, 95% CI: 1.07–1.35, and lower baseline heart rates, $W(1) = 5.1$, $p = .02$; OR = 0.96, 95% CI: 0.93–0.99, than those unable to quit for at least 24 hr.

L. M. Shah et al. (2010) assessed effect of clinician advice and patient's readiness to quit on quit attempt in hospitalized smokers. Smokers were asked to rate preparedness using the 10-step Contemplation Ladder. During phone surveys given 30-days post discharge, patients reported whether they made quit attempts, method and success of attempts, and recall of receiving advice to quit. Result revealed that compared with less prepared patients, prepared patients (score>6) were more likely to report making a quit attempt after discharge (77% [163/212] vs. 50% [32/64], $P <$

0.001) and were successful in that attempt (43% [90/212] vs. 25% [16/64], $P = 0.010$). Those prepared, and who received advice to quit, were more likely to make a quit attempt and report abstinence than those less prepared. In a multivariate logistic regression, both readiness to quit and receipt in hospital advice were predictors of making quit attempt (OR= 4.05;95%, CI,1.91-8.60, $p<.001$) for readiness to quit; and OR= 3.96; 95%, CI,1.84-8.54; $p<.001$.

(Luhua Zhao, Yang Song, Lin Xiao, Krishna Palipudi, and Samira Asma (2015)) identify factors influencing quit attempts among male Chinese daily smokers. The study sample included 3303 male daily smokers. To determine the factors that were significantly associated with making a quit attempt. They conducted logistic regression analyses investigate how the intermediate association and smoking-related variables affected making a quit attempt. Result revealed indicates male daily smokers aged 15–24 were more likely to make attempts to quit when compared with those aged 60 years or older (OR = 2.23, 95% CI 1.02–4.89) and those aged 25–44 years (OR = 2.18, 95% CI, 1.03–4.60). Smokers who had visited an health care provider in the past 12 months and were advised to quit smoking were significantly more likely to make a quit attempt compared with smokers who had not visited (OR=2.90, 95% CI 1.98–4.23) or those who had visited but had not been advised to quit (OR=2.24, 95% CI 1.43–3.51). The frequency of exposure to smoking at home was also a significant factor. Smokers who were exposed to smoking at home monthly or less often were more likely to have made a quit attempt (OR=1.80, 95% CI,1.17–2.79) than were those who were exposed on a daily basis.

CHAPTER III

METHODOLOGY

This chapter describes research design, population and samples, instrumentation, protection of human subjects, data collection, and data analysis

Research design

This study was a prospective, correlational research design. The purpose of this study was to examine factors that predict quit attempt and smoking status in smokers with schizophrenic including: household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression.

Population and sample

The target population of this study was Thai smokers with schizophrenia who aged 18-60 years, and had attended at inpatient unit in the psychiatric hospital under Department of Mental Health, Ministry of Public Health, in all regions of Thailand.

The sample of this study was Thai smokers with schizophrenia aged 18-60 years, who had attended at inpatient unit in the six psychiatric hospitals under the Department of Mental Health, Ministry of Public Health, in all regions of Thailand including Suanprung Psychiatric Hospital, Saansaranrom Psychiatric Hospital, Somdet Chaophraya Institute of Psychiatry, Galya Rajanagarinda Institute, Prasrimahabhodi Psychiatric Hospital, and Khon Kaen Rajanagarinda Psychiatric Hospital.

Sample selection

The inclusion criteria for the present study were:

- 1) Diagnosis with schizophrenia by criteria DSM IV-TR,
- 2) Being a current smoker (smoking cigarettes at least one cigarette per day within a month before admission),
- 3) Aged between 18-60 years, both male and female,
- 4) Admission as an inpatient,
- 5) Allow to telephone interview after hospital discharged,
- 6) Able to communicate in and understand the Thai language, and

Participants were excluded if they had any of the following criteria;

- 1) Re-admission within one month after discharged, and
- 2) Out of contact by telephone within one month after discharged.

Research setting

Nowadays, no statistical records of the prevalence and numbers of Thai smokers with schizophrenia. Most of schizophrenia patient living in the community, and some persons had psychotic symptoms relapse and re-admission in the psychiatric hospital. In present study was conducted in psychiatric hospital under Department of Mental Health, Ministry of Public Health, because of hospitalization represents a vital opportunity to encourage and counsel smokers to make a quit attempt. The hospitals that have the rule of smoke-free are the time of obligatory cessation for the majority of inpatients who smoke. Moreover, hospitalization provides multiple opportunities for smoking cessation counseling from a range of health care providers (Paradise, 2004). The Department of Mental Health (DMH), which is responsible for Mental Health Technical Organization and for population's psychological well-being, both normal and crisis situation, are the places which has the report the large number of inpatient schizophrenia in all regions of Thailand. Therefore, the inpatient smokers

with schizophrenia in psychiatric hospital, under the Department of Mental Health were recruited to the study.

According to the Annual Report of Department of Mental Health (2014) Thailand has 42,733 psychiatric inpatients, and 20,634 schizophrenia patients. The number of psychiatric inpatients and schizophrenia patients showed in table 2 as follows:

Table 2 Number of inpatients with psychiatric and inpatients with schizophrenia in the Psychiatric Hospitals under Department of Mental Health, Ministry of Public Health in Year 2013

Order	Institute	Psychiatric inpatients	Schizophrenia inpatients
Central region			
1	Somdet Chaophraya Institute of Psychiatry	4,098	2,548
2	Rajanukul Institute	2,216	0
3	Princess Galyani Vadhana Institute	1,595	949
4	Child and adolescent Mental Health Rajanagarinda Institute	0	0
5	Srithanya Psychiatric Hospital	5,837	3,936
6	Yuwaprasart Waithayopathum Child Psychiatric Hospital	1,750	10
7	Nakorn Sawan Rajanagarinda Psychiatric Hospital	640	420
Southern region			
8	Suansaranrom Psychiatric Hospital	3,153	1,891
9	Songkhlaraj Janagarindra Psychiatric Hospital	1,287	522

Table 2 Number of inpatients with psychiatric and inpatients with schizophrenia in the Psychiatric Hospital under Department of Mental Health, Ministry of Public Health in Year 2013 (continued)

Order	Institute	Psychiatric inpatients	Schizophrenia inpatients
Northeastern region			
10	Prasrimahabhodi Psychiatric Hospital	3,089	1,932
11	Khon Kaen Rajanagarinda Psychiatric Hospital	2,888	1,782
12	Nakorn Ratchasima Rajanagarinda Psychiatric Hospital	2,448	1,376
13	Loei Rajanagarinda Psychiatric Hospital	1,570	783
14	Nakhon Phanom Rajanagarinda Psychiatric Hospital	1,254	788
15	Northeast Child Development Center	0	0
Northern region			
16	Suanprung Psychiatric Hospital	5,687	2,414
17	Rajanagarinda Institute of child development	2,805	0
Eastern region			
18	Sakaeo Rajanagarinda Psychiatric Hospital	2,416	1,283
Total		42,733	20,634

Sample size calculation

J. Hair, Black, Babin, Anderson, and Tatham (2006) recommended that 200 sample size is sound basic for path analysis. In addition, the sample size was calculated by using the formula of Krejcie and Morgan (1970), which determined the appropriate sample size for this study.

$$n = \frac{\chi^2 N p (1-p)}{e^2 (N-1) + \chi^2 p (1-p)}$$

where, n = sample size

N = population, so N = 20,634

e = allowable error in estimating prevalence = 0.05

χ^2 = Chi-square at df = 1, with a confidence coefficient of 95%, so χ^2
= 3.841

p = estimated proportion = 0.5

$$n = \frac{(3.841)(20,634)(0.5)(1-0.5)}{(0.05)^2(20,634-1) + (3.841)(0.5)(1-0.5)}$$

$$n = \frac{19,813.80}{52.54}$$

$$n = 377$$

Therefore, a total sample of 377 smokers were recruited, 10% of the total sample size was added to take into account drop outs to arrive at a true population value. Thus, 420 participants were invited to participate in this study.

Sampling technique

Multi stage random sampling procedure was used for a probability sample of smokers with schizophrenia from six regions of Thailand. The details of sampling were as follows:

According to Bureau of policy and strategy, there are six regions of Thailand including Northern, Southern, Central, Northeastern, Western, and Eastern regions. There are 18 tertiary psychiatric hospitals under the Department of Mental Health, Ministry of Public Health in Thailand. Moreover, there are five psychiatric hospitals (Rajanukul Institute, Yuwaprasart Waithayopatum Child Psychiatric Hospital, Rajanagarinda Institute of child development, Child and adolescent Mental Health

Rajanagarinda Institute, and Northeast Child Development Center) were excluded from this study because these hospital specific provide services in children and adolescent. Therefore, there are 13 psychiatric hospitals were sampling including: 1 hospital in the Northern, 5 hospitals in the Northeastern, 4 hospitals in the Central region, 2 hospitals in the Southern, and 1 hospital in Eastern. No psychiatric hospital in West region.

First stage: The researcher calculated the estimated sample size availability of smokers with schizophrenia from number of schizophrenia patients in all part of Thailand by analyzing the proportion of schizophrenia patients in psychiatric hospital under Department of Mental Health, Ministry of Public Health in Thailand in each region. Participants were selected by using proportional sampling method to determine the number of subjects in each region based on their proportion in the population. Target population was totally 20,634 schizophrenia patients in all regions of Thailand (Department of Mental Health, 2014) that divided into five regions as the following: Central 7,863 (38.11%), Northern 2,414 (11.70%), Northeastern 6,661 (32.28%), Eastern 1,283 (6.22%), and Southern 2,413 (11.69%). By the sample size calculation, the minimum sample was 420. Therefore, approximately 160 schizophrenia patients from Central, 49 schizophrenia patients from Northern, 135 schizophrenia patients from Northeastern, 26 schizophrenia patients from Eastern, and 50 schizophrenia patients from Southern were recruited to the study.

Second stage: The researcher estimated the availability of the setting. The number of tertiary psychiatric hospitals that providing curative care for adult schizophrenia patients were 13 hospitals included Northern has 1 hospital (Suanprung), Northeastern has 5 hospitals (Prasimahabodi, Khon Kaen

Rajanagarinda, Nakorn Ratchasima Rajanagarinda, Loei Rajanagarinda, and Nakhon Phanom Rajanagarinda), Central has 4 hospitals (Srithanya, Princess Galyani Vadhana Institute, Somdet Chaophraya Institute of Psychiatry, and Nakorn Sawan), Eastern has 1 hospital (Sakaeo Rajanagarinda), and Southern has 2 hospitals (Songkhlaraj Janagarindra and Suansaranrom). Based on sample proportion of each region, Southern and Northern region required 50 schizophrenia patients for representative, thus one of two hospitals in Southern and Northern region was selected. For others region, numbers of sample is higher than the proportion of schizophrenia patients in Southern and Northern region 1 to 3 times. Therefore, the following numbers of hospitals were required: Northern 1 hospital, Northeastern 2 hospitals, Central 2 hospitals, Southern 1 hospital. Eastern region was excluded from the sampling because there is little number of schizophrenia inpatients.

Then, the simple random sampling without replacement procedure was used to recruited hospitals from each region. Finally, six hospitals were randomly selected: 1 hospital from Northern (Suanprung), 2 hospitals from Northeastern (Prasimahabhodi and Khon Kaen Rajanagarinda), 2 hospitals from Central (Princess Galyani Vadhana Institute and Somdet Chaophraya), and 1 hospital from Southern (Saunsaranrom).

Next step, after obtaining the permission for collecting the data, the participants were recruited from six setting. The researcher with staff nurses screened the list of schizophrenia patients in each setting and asked about smoking history before admission. The participants were selected by purposive sampling technique based on inclusion criteria. The sampling technique shows as figure 2.

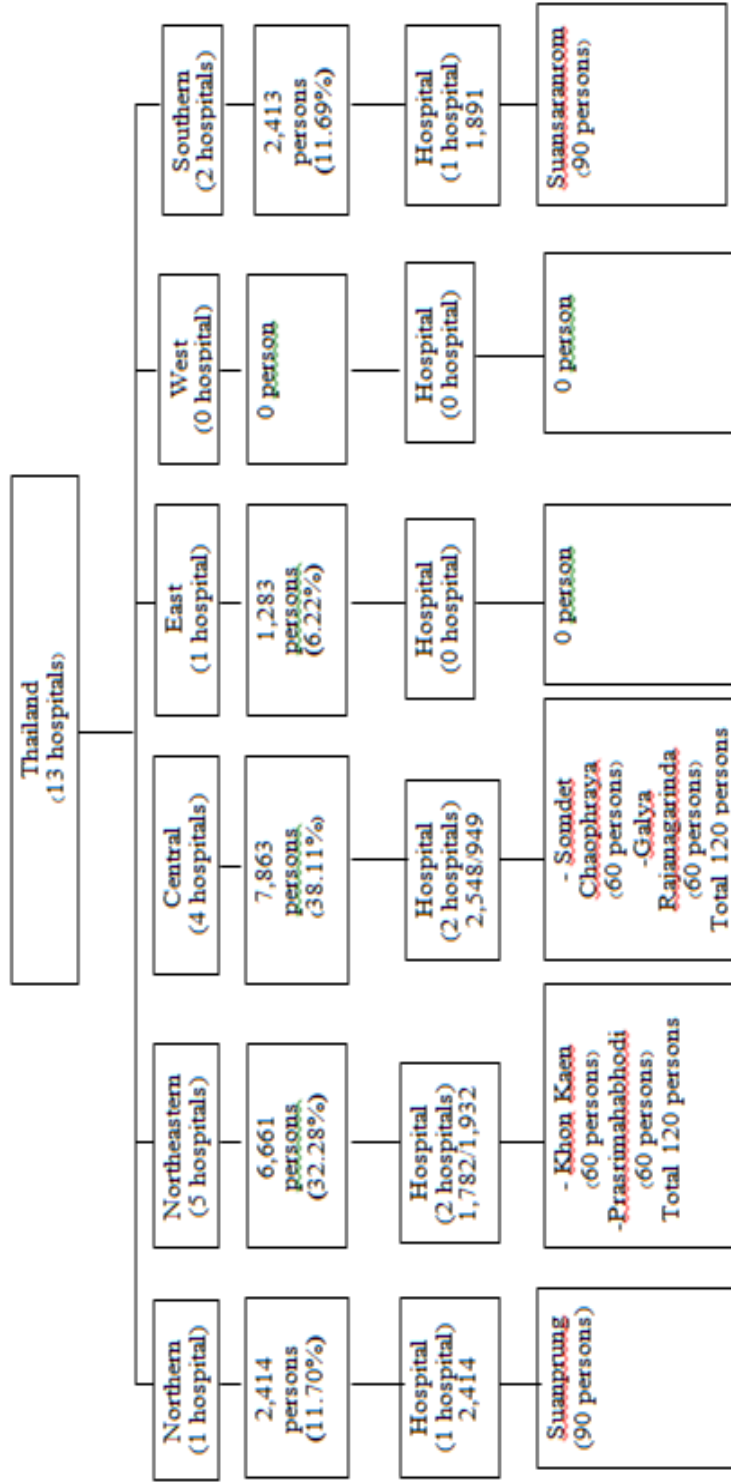


Figure 2: Multi-stage random sampling of the study

Figure 2 Sampling method of the study

Instrumentation

The details of translation process and modification of each instrument were described. Then, the content validity and reliability of all instruments were presented. The description of all instruments including psychometric properties is presented as follows:

1) Demographics data sheet

Demographics data sheet was developed by the researcher. It consists of eight open-ended questions. This instrument was used to collect the demographic data including gender, age, marital status, education level, occupation, residing, care-giver, number of hospital admission, and length of mental illness.

2) Smoking related information and Household smoker sheet

Smoking related information and Household smoker sheet was developed by the researcher. It consists of seven open-ended questions. This instrument was used to collect smoking history including age at first use cigarette, number of cigarettes smoked per day within one month before admission, years of smoking, type of cigarette, past quit attempt, household smoker, and use of smoking cessation medication.

The Household smoker questionnaire

Nowadays, the instruments that was used to measure household smokers lacked of psychometric property. There is some literature that stated about household smokers such as Metse et al. (2016) conducted a cross-sectional descriptive study to explore the association between smoking and environmental characteristics of 754 smokers admitted to four psychiatric inpatient facilities in Australia. The measurement of household smoker was used by asked the subjects with question

“lived with smokers prior to admission (lived with at least one other smoker; yes, no). Participants not residing with other smokers were 2.02 (95 % CI: 1.002 to 4.06, $p < 0.05$) times more likely to have quit for one month or longer in the past six months.

In the present study, household smokers questionnaire was developed by the researcher using literature review. This measurement assessed by the presence of smoker in the house of smokers with schizophrenia. This questionnaire consist of single items: 1) “Do you have person who smoke in the house: (a) yes (b) no” 2) “If you have smoker in the house who they are? (a) father/ mother (b) husband/ wife (c) brother/ sister (d) son/ daughter e) other

Scoring and interpretation of score

The scoring was dichotomized into “1 = no smoker in the house versus “0 = have a smoker in the house.

Content validity

Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the construct domain (Nunnally & Bernstein, 1994). The content validity were established by seven experts (two experts were psychiatrist with experience in smoking cessation service, one experts were advance practice nursing (APN) in psychiatric and mental health nursing, one expert was mental health care registered nurse with experience in smoking cessation service, one expert was instructor with experience in instrument development, one expert was professional nurse instructors with experience in smoking cessation service, and one expert was a physician with experience in smoking cessation service). These seven experts evaluated the content validity of the instruments by place

one of four-point scales that reflected relevance to the objectives of the measure (1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= very relevant) in each item (Polit, Beck, & Owen, 2007). Additionally, the experts were asked to clarify their reasons if they did not agree with any of the items. The acceptable score were equal to or higher than .80

In this study, pilot study was taken with thirty smokers with schizophrenia with similar characteristics to the participants at Nakhon Ratchasima Rajanagarindra Psychiatric Hospital (IRB on January/2558), The content validity index of The Household smoker questionnaire was 1.00 in both scale-content validity index (S-CVI) and item- content validity index (I-CVI).

Reliability

The Household smoker determined reliability by considering the stability using the test-retest method. Test-retest is a two-score method of computing reliability involving the temporal stability of a measure, or how constant scores remain from one occasion to another (DeVellis, 2003). For using the test-retest in this study, the time period for conducting test-retest was one week because of the deficit of cognitive and memory of subjects, and the score of two-time testing was calculated with Pearson's correlation coefficient (r). The acceptable correlation coefficient was greater than .80 (Crocker & Algina, 1986). In the present study, test-retest reliability was 1.00. The summary of the measure is presented in Table 3.

3) The Alcohol Use Disorders Identification Test (AUDIT)

The Alcohol Use Disorders Identification Test (AUDIT) was developed by the World Health Organization by J. B. Saunders, O.G Aasland, T.F. Babor, J.R. de la Fuente, and M. Grant (1993). It has been used to measure alcohol dependence in

general population and psychiatric population. The AUDIT is useful screening tool for alcohol use disorders in a variety of setting, including primary care clinics, emergency rooms, psychiatric hospitals, and workplaces (T. H. Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The AUDIT may be used by any health care provider who requires a reliable and brief screening instrument to identify an individual with alcohol problems. In Thailand, The AUDIT was very well known for measures alcohol dependence. Therefore, in this study The AUDIT in Thai version translated by The Mental Health Department, Ministry of Public Health, Thailand, was used to measure alcohol dependence. Recently, Cronbach's alpha coefficient for the AUDIT Nepali version for the detection of alcohol use disorders and hazardous drinking in medical settings was 0.82 which indicate that the internal consistency level of the good (Pradhan et al., 2012).

Scoring and interpretation of score

It was a 10-item questionnaire which covers the domains of alcohol Intake (item 1-3), alcohol dependence (item 4-6), and alcohol-related problems (item 7-10). The example of item were as How often do you have a drink containing alcohol?, How many alcohol units do you have on a typical day when you are drinking?, Response options were presented as item 1-8 are scored from 0-4, item 9 and 10 are scored from 0, 2, 4. The total score of The AUDIT score was computed by summing the score obtained from each item. The minimum score was 0 and maximum score was 40. Higher scores indicated greater alcohol dependence.

Content validity

The AUDIT in Thai version in the study of S. Siriwong, J Yunibhand, and S. Preechawong (2012b) reported the content validity index was .94. The AUDIT

tested the content validity on the same processes of Household smokers. In the present study, the content validity index of The AUDIT was .86 in scale-content validity index (S-CVI), and was .71-1.00 in item- content validity index (I-CVI).

Reliability

In the study of Siriwong et al. (2012b) reported Cronbach's alpha coefficient was .75. The AUDIT has been found to have good internal reliability across these populations, with Cronbach alphas ranging from .80 to .94. In the present study, reliability of the AUDIT was determined by considering internal consistency analysis using Cronbach's alpha coefficient. The Cronbach's alpha will generally increase as the inter correlations among test items increase, and is thus known as an internal consistency estimate of reliability of test scores. The Acceptable and unacceptable levels of the Cronbach's Alpha coefficient as below .050 was unacceptable; between .60 and .65 was undesirable; between .65 and .70 was minimally acceptable; between .70 and .80 was respectable; between .80 and .90 was very good; and above .90 was consider shortening the scale (DeVellis, 2003). The results showed that the AUDIT had Cronbach's alpha .88 that was acceptable. The summary of the measure is presented in Table 3.

4) The Fagerstrom Test for Nicotine Dependence (FTND)

The Fagerstrom Test for Nicotine Dependence (FTND) was developed by T. F. Heatherton, L. T. Kozlowski, R. C. Frecker, and K. O. Fagerstrom (1991b). It has been used to for assessment of nicotine dependence level among general population and psychiatric population. This study The Alcohol Use Disorders Identification Test (AUDIT) in Thai version developed by The Mental Health Department, Ministry of Public Health, Thailand, was used to measure nicotine dependence level.

Scoring and interpretation of score

It was a 6-item questionnaire. The examples of the question of item were as 1) How soon after you wake in the morning do you smoke your first cigarette? Response options were presented Within 5 minutes (3 points) Within 6-30 minutes (2 points) Within 31-60 minutes (1 point) Greater than 60 minutes (0 points), 2) Do you find it difficult NOT to smoke where smoking is forbidden? Response options were presented Yes (1 point) No (0 points). The total score of The FTND score was computed by summing the score obtained from each item. The minimum score was 0 and maximum score was 10. Higher scores indicated greater nicotine dependence level.

Content validity

The FTND in Thai version in the study of Siriwong et al. (2012b) reported the content validity index was .95. The FTND tested the content validity on the same processes of Household smokers. In the present study, the content validity index of The FTND was .93 in scale-content validity index (S-CVI), and was .86-1.00 in item- content validity index (I-CVI).

Reliability

The internal consistency and reliability in Siriwong et al. (2012b) was $\alpha = .73$. Moreover, the reliability of FTND in Wongsang et al. (2012) was $\alpha = .7$. In the present study, reliability of the FTND was determined by considering internal consistency analysis using Cronbach's alpha coefficient. The results showed that the FTND had Cronbach's alpha .76 that was acceptable. The summary of the measure is presented in Table 3.

5) The Reasons for Quitting scale (RFQ)

The Reasons for Quitting (RFQ) scale which developed by S. Curry et al. (1990) was used to measure motivation to quit. The RFQ presents a list of self-report reasons that motivated smokers with schizophrenia desire to stop smoking. This scale has been several used to measure motivation to quit smoking in general and psychiatric adults (D. L. Kelly et al., 2012; Marshall et al., 2009; Emily Stockings et al., 2013). The RFQ presents a list of self-report reasons that motivated smokers with schizophrenia desire to stop smoking. The RFQ scale is a 20-item Likert scale assessing 4 dimensions of motivation to quit smoking: health concerns, self-control, immediate reinforcement, and social influence. Health concerns include shortened life span, others who have died from smoking, concern over own health and body, physical symptoms, and serious-associated illnesses. Self-control includes better self-liking, prove to one's self, feelings of self-control, proven one can accomplish a goal, and prove one can overcome addiction. Immediate reinforcements included ridding themselves of cigarette smells, saving money from cigarette-related costs (eg, dry cleaning), and saving time from cleaning smoking-related messes. Social influences included nagging family, ultimatums, special gifts, and financial rewards. The first 2 dimensions of the RFQ assess intrinsic motivation and the latter 2 extrinsic motivation (S. Curry et al., 1990). Each dimension has five items as follows:

Intrinsic: Health Concerns consist of item 1, 5, 9, 13, 17. The example of questions was Because I am concerned that I will suffer from a serious illness if I do not quit smoking

Intrinsic: Self Control consist of item 2, 6, 10, 14, 18. The example of question was To show myself that I can quit smoking if I really want to.

Extrinsic: Immediate Reinforcement consist of item 3, 7, 11, 15, 19. The example of question was So that my hair and clothes won't smell.

Extrinsic: Social Pressure consist of item 4, 8, 12, 16, 20. The example of question was Because my spouse, children, or other person I am close to will stop nagging me if I quit smoking.

In the present study, the RFQ was translated from English to Thai language and modified. Firstly, the letter for asked permission to use this questionnaire was sent to the author. After obtaining permission, the RFQ was translated using the Brislin's back-translation model (Brislin, 1970) through two independent linguistic experts who working at translation and interpretation service unit at the Language Institute, Chulalongkorn University. Then, the experts who are different persons from the first step has been undertaken back-translation for reaching congruence of meaning between the original and target versions in Thai. After that, the researcher and expert educator with a PhD in Nursing compared both versions in the original language, conducted checks with the translators to examine and modify these items with apparent discrepancies in translation, wording and grammar, and produced a final consensus version. Finally, the instruments were acceptable and reflect the meaning of each item. After this, the final of RFQ Thai version is achieved and translation validity had been established .

Scoring and interpretation of score

For each item, the subjects respond to each item on a five-point Likert scale of reasons for quitting smoking. (0= not at all true, 1 = a little true, 2 =

moderately true, 3 = quite true, and 4 = extremely true). The total score are the total sum of response to the 10 intrinsic items minus the total sum of response to the 10 extrinsic items. The minimum score was 0 and maximum score was 80. Higher scores indicated greater motivation to quit.

Content validity

The RFQ has demonstrated good psychometric testing, internal consistency for 4 subscales in adult smokers were acceptable (between .74-.80) (S. Curry et al., 1990). The RFQ tested the content validity on the same processes of Household smokers. It was found that most experts suggested that in items 7, which “So that I will save money on smoking related costs such as dry cleaning” dry cleaning was not congruence with Thai culture. So, item 7 was changed to “So that I will save money on smoking related costs such as dining”. In the present study, the content validity index of The RFQ was .99 in scale-content validity index (S-CVI), and was .86-1.00 in item- content validity index (I-CVI).

Reliability

In the present study, reliability of the RFQ was determined by considering internal consistency analysis using Cronbach’s alpha coefficient. The results showed that the RFQ had Cronbach’s alpha was .97 for the overall intrinsic and extrinsic scales. The summary of the measure is presented in Table 3.

6) The Readiness to Quit Ladder

The Readiness to Quit Ladder, the stages of change questionnaire which developed by Biener and Abrams (1991) was used to measure readiness to quit. Contemplation ladders was a instrument for assessing readiness to change in substance using populations. Contemplation ladders are single-choice, that depict a

ladder whose higher rungs represent greater levels of readiness to change. Validity studies have demonstrated that the Ladder is associated with cognitive and behavioral indices of readiness to consider smoking cessation (e.g., intention to quit, nicotine dependence) and performs as well or better than the staging algorithm in predicting smoking rate, quit attempts and cessation (Biener & Abrams, 1991).

In the present study, the Readiness to Quit Ladder was translated from English to Thai language. Firstly, the letter for asked permission to use this questionnaire was sent to the author. After obtaining permission, the RFQ was translated using the Brislin's back-translation model (Brislin, 1970) with the same process as RFQ questionnaire.

Scoring and interpretation of score

It was the single item with 10 response options that assess readiness to quit, from not considering quitting at all in the near future to having already quit smoking. The response options were ranging from 1 (I have decided not to quit smoking for my lifetime) to 10 (I have quit smoking and have more confidence not return to smoking). The participant should to select one response that shows what subjects think about quitting. The minimum score was 1 and maximum score was 10. Higher scores indicated greater readiness to quit.

Content validity

The Readiness to Quit Ladder tested the content validity on the same processes of Household smokers. In the present study, the content validity index of The Readiness to Quit Ladder was .94 both in scale-content validity index (S-CVI), and item- content validity index (I-CVI).

Reliability

In the present study, reliability of the Readiness to Quit Ladder was determined by considering internal consistency analysis using test-retest with the same process of the Household smokers. The results showed that the Readiness to Quit Ladder had $r = .91$. The summary of the measure is presented in Table 3.

7) The Positive symptom rating scale (PSRS)

The Positive symptom rating scale (PSRS) which developed from Ventura et al. (1993) was used to measure positive symptom. It was a 4-item screening measure positive symptom in 4 dimensions: Suspiciousness, Unusual thought content, Hallucinations, and Conceptual disorganization.

In the present study, the PSRS was translated from English to Thai language and modified. Firstly, the letter for asked permission to use this questionnaire was sent to the author. After obtaining permission, the PSRS was translated using the Brislin's back-translation model (Brislin, 1970) with the same process as RFQ questionnaire.

Scoring and Interpretation of score

The PSRS has a 4-item, in each item, the subjects respond to each item from 1 (not present) to 7 (extremely severe). The total score of PSRS was the sum of raw score of the 4 items. The total score of PSRS was ranging from 1-28. Higher score indicated more severe positive symptoms.

Content validity

In the present study, the content validity index of The PSRS was 1.00 Both in scale-content validity index (S-CVI), and item- content validity index (I-CVI).

Reliability

In the present study, reliability of the PSRS was determined by considering internal consistency analysis using Cronbach's alpha coefficient. The results showed that the PSRS had Cronbach's alpha was .74 that was acceptable. The summary of the measure is presented in Table 3.

8) The Negative symptom assessment (NSA-4)

The Negative symptom assessment (NSA-4) which developed by Alphas et al. (2010) was used to measure negative symptoms. Four items are included: restricted speech quantity, reduced emotion, reduced social drive, and reduced interests. The psychometric properties and predictive power of a four-item version (NSA-4) were compared with the NSA-16. Baseline data from 561 patients with predominant negative symptoms of schizophrenia who participated in two identically designed clinical trials were evaluated. NSA-16 and NSA-4 both showed acceptable internal consistency (Cronbach α , 0.85 and 0.64, respectively) and test--retest reliability (intraclass correlation coefficient, 0.87 and 0.82). This study demonstrates that NSA-4 offers accuracy comparable to the NSA-16 in rating negative symptoms in patients with schizophrenia (Alphas et al., 2010).

In the present study, the NSA-4 was translated from English to Thai language and modified. Firstly, the letter for asked permission to use this questionnaire was sent to the author. After obtaining permission, the NSA-4 was translated using the Brislin's back-translation model (Brislin, 1970) with the same process as RFQ questionnaire.

Scoring and Interpretation of score

The NSA-4 has a 4-item, in each item, the subjects respond to each

item from 1 (normal) to 6 (severe). The total score of NSA-4 was the sum of raw score of the 4 items. The total score of NSA-4 was ranging from 1-24. Higher score indicated more severe negative symptoms.

Content validity

In the present study, the content validity index of The NSA-4 was 1.00 both in scale-content validity index (S-CVI), and item- content validity index (I-CVI).

Reliability

In the present study, reliability of the NSA-4 was determined by considering internal consistency analysis using Cronbach's alpha coefficient. The results showed that the NSA-4 had Cronbach's alpha was .83. The summary of the measure is presented in Table 3.

9) The Calgary Depression Scale for Schizophrenia (CDSS)

The Calgary Depression Scale for Schizophrenia (CDSS) was developed by D. Addington, Addington, and Maticka-Tyndale (1993a). Calgary Depression Scale (CDSS) is the most widely used scale for assessing depression in schizophrenia. This measurement used to assessment of depressive symptoms separate from positive, negative and extrapyramidal symptoms in people with schizophrenia. The CDSS has been specifically developed for the assessment of the level of depression in schizophrenia. It has excellent psychometric properties, internal consistency, inter-rater reliability, sensitivity, specificity, and discriminant and convergent validity. From Internal reliability of the scale has been shown to be good, as has inter-rater reliability (D. Addington et al., 1993a). A systematic review of instruments to measure depressive symptoms in patients with schizophrenia found that this scale to

be the best depressive instrument to differentiate depressive symptoms from other symptoms of schizophrenia (divergent validity) (Lako et al., 2012). Recently the study of J. Addington, Shah, Liu, and Addington (2014) examined validity and reliability of CDSS in psychosis patient. The result showed that CDSS has high inter-rater reliability. It also appears to be a valid measure of depression as shown by its high correlation with the presence of a major depressive episode. All CDSS items and the total score were predictive of the presence of a major depressive disorder.

In the present study, The Thai version of Calgary Depression Scale for Schizophrenia translated by Suttajit et al. (2013) was used to measure depression. Moreover, the internal consistency of the Thai version of the CDSS was very good (Cronbach's alpha = 0.869). The inter-rater reliability was found to be in substantial agreement with the intra-class correlation coefficient of 0.979. The test-retest reliability over a period of 3 days was high (Suttajit et al., 2013). The CDSS is a clinician-rated scale specifically developed for the assessment of depression in schizophrenia. It consisted of nine assessment items. The nine assessment items are (1) depression, (2) hopelessness, (3) self-depreciation, (4) guilty ideas of reference, (5) pathological guilt, (6) morning depression, (7) early wakening, (8) suicide, and (9) observed depression.

Scoring and interpretation

The CDSS has a 9-item, in each item, the subjects respond to each item from 0 (absent) to 3 (severe). Item number 9, is based on observations of the entire interview. The total score of CDSS was the sum of raw score of the 9 items. The total score of CDSS was ranging from 0-27. Higher score indicated more severe depression symptoms.

Content validity

In the present study, the content validity index of The CDSS was 1.00 both in scale-content validity index (S-CVI), and item- content validity index (I-CVI).

Reliability

In the present study, reliability of the CDSS was determined by considering internal consistency analysis using Cronbach's alpha coefficient. The results showed that the CDSS had Cronbach's alpha was .72 that was acceptable. The summary of the measure is presented in Table 3.

10) The Intensity of smoking cessation intervention questionnaire

Nowadays, the instruments that was used to measure intensity of smoking cessation intervention lacked of psychometric property. There is some literature that stated about the intensity of smoking cessation intervention. J. A. Simon, T. P. Carmody, E. S. Hudes, E. Snyder, and J. Murray (2003) indicated that intervention that lasted to 30-60 minutes was the intervention that intensive. N. A. Rigotti et al. (2003) conducted the meta-analysis related the Interventions for smoking cessation in hospitalized patients. In this study, intensive intervention was include contact time plus follow-up for at least one month), and intervention that very brief (<20 minutes) during the hospital stay was brief intervention. High intensity interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients.

Barth et al. (2006) conducted systematic review of the efficacy of smoking cessation interventions in patients. In this study assessed intensity of smoking cessation intervention as follows: (a) single initial contact lasting ≤ 1 hour, no follow-

up support; (b) one or more contacts in total > 1 hour, no follow-up support; (c) any initial contact plus follow-up ≤ 1 month; (d) any initial contact plus follow-up > 1 month and ≤ 6 month; (e) any initial contact plus follow-up > 6 month.

Moreover, N.A. Rigotti et al. (2008) conduct systematic review of interventions for smoking cessation in hospitalized. This led to four categories of intervention intensity: (a). Single contact in hospital lasting ≤ 15 minutes, no follow-up support; (b) One or more contacts in hospital lasting in total > 15 minutes, no follow-up support; (c) Any hospital contact plus follow-up ≤ 1 month; and (d) Any hospital contact plus follow-up > 1 month. The result revealed that intensive counselling interventions that began during the hospital stay and continued with supportive contacts for at least one month after discharge increased smoking cessation rates after discharged.

Scoring and interpretation

In the present study, intensity of smoking cessation intervention Questionnaire was developed by the researcher. The researcher developed the questionnaire guided by literature review of (N. A. Rigotti et al. (2003); N.A. Rigotti et al., 2008). This instrument has two items. The intensity of smoking cessation intervention that smokers with schizophrenia received from mental health care provider within one month before and during admission was reported. The score ranged from 0-4. For item one with the questions: "Have you ever receive individual/group counselling about quitting smoking from any health care professionals? (psychiatrist, nurse, psychologist)" was asked if "yes" , the score is 1, if "no", the score is 0. Then the following question was asked "which one on smoking cessation intervention that you ever received from health care professionals during admission?, if received individual/ group counselling about quitting smoking around 3-10 minutes

per time, is scored as 1, if received individual/ group counselling about quitting smoking around 30-45 minutes per time, is scored as 2, if received individual/ group counselling about quitting smoking around 3-10 minutes per time plus follow-up, is scored as 3, if received individual/ group counselling about quitting smoking around 30-45 minutes per time plus follow-up, is scored as 4. Higher score indicated higher intensity of smoking cessation intervention.

Content validity

In the present study, the content validity index of the intensity of smoking cessation intervention questionnaire was 1.00 both in scale-content validity index (S-CVI), and item- content validity index (I-CVI).

Reliability

In the present study, reliability of the Intensity of smoking cessation intervention questionnaire was determined by considering internal consistency analysis using Cronbach's alpha coefficient. The results showed that the Intensity of smoking cessation intervention questionnaire had Cronbach's alpha was .89. The summary of the measure is presented in Table 3.

11) The Quit attempt questionnaire

Nowadays, the instruments used to measure quit attempt no psychometric properties were established. There is some literature that stated about quit attempt. Fagan et al. (2007) created a questionnaire for assessed quit attempt in young adult smoker by asking current smokers "How many times during the past 12 months have you stopped smoking for 1 day or longer because you were trying to quit smoking? In addition, Xiaolei Zhou et al. (2009) created a questionnaire for assessed quit attempt

by affirmative response to the question “During the past 3 months (90 days), have you made a serious attempt to stop smoking for good that lasted for at least a day (24 h)?” In Thailand, Rojnawee (2014) examined the quit attempt in Thai adolescent by use the quit attempt measurement that applied from Fagan et al. (2007). The S-CVI and I-CVI of the scale were .86. The stability test-retest was .85.

Scoring and interpretation

In the present study, the quit attempt questionnaire was modified from Rojnawee (2014). It was single item. The Quit attempt questionnaire from Rojnawee (2014) was changed to fit this study by changing the period of time from “the past 12 months” to “seven days after hospital discharge” Therefore, the question was “How many times within seven days after hospital discharge have you stopped smoking for 24 hours or longer?”. Open-ended question, the number (i.e., 0, 1, 2, etc.) of quit attempts were reported. Responses were categorized into 0, 1, or more quit attempts. If the smokers with schizophrenia continue stop smoking for 1 day, they reports “1”. If smokers with schizophrenia continue stop smoking for 7 days, they reports “7”. A higher score indicate higher number of quit attempt.

Content validity

The Quit attempt questionnaire was tested the content validity on the same processes of household smokers questionnaire. The S-CVI and I-CVI of the scale were .86.

Reliability

The Quit attempt questionnaire was determined reliability by considering the internal consistency analysis using test-retest the same processes of

the Household smokers questionnaire. The result was $r=.95$. The summary of the measure is presented in Table 3.

12) The Smoking status questionnaire

Nowadays, the instruments used to measure smoking status no psychometric properties were established. The two most common outcome measures in clinical trials of smoking cessation are point prevalence (no smoking one or more days prior to the follow-up), and prolonged abstinence (not smoking since a quit date, with or without a grace period) (Hughes et al., 2003). In addition, smoking status is commonly broken down into three categories: current smoker, ex-smoker and never-smoker. Current smoker is identified as someone who has smoked greater than 100 cigarettes in their lifetime and currently smokes at least monthly. Ex-smoker is identified as someone who has smoked greater than 100 cigarettes in their lifetime, does not currently smoke, but used to smoke daily. Never-smoker is someone who has not smoked (Le et al., 2005).

From review above, smoking status was classify into group and measured by number of cigarettes per day. Therefore, in this study, the researcher was measured smoking status by self-report of smokers with schizophrenia at the period of one month after discharged, indicated the number of cigarettes per day that smokers with schizophrenia smoked per day.

Scoring and interpretation

The smoking status questionnaire was developed by the researcher. It was single item. The period of time that measured smoking status questionnaire was 30 days after hospital discharge. The participants were asked to respond to the following question: "How many cigarettes that you smoked per day? Open-ended

question, the number (i.e., 0, 1, 2, etc.) of roll of cigarettes that they smoked per day were reported. Responses were categorized into 0, 1, or more number of cigarettes per day. A higher score indicate higher number of cigarettes smoked per day.

Content validity

The Smoking status questionnaire was tested the content validity on the same processes of household smokers questionnaire. The S-CVI and I-CVI of the scale were 1.00.

Reliability

The Smoking status questionnaire was determined reliability by considering internal consistency analysis using test-retest the same processes of the Household smokers questionnaire. The result was .98. The summary of the measure is presented in Table 3.

In summary, all questionnaires had reliability ranging from 0.72 to 1.00, and Scale-Content validity index ranging from 0.86 to 1.00. All questionnaires had content validity and reliability that were acceptable as presented in table 3.

Table 3 Summary of content validity and internal consistency reliability of all instruments

Variable and questionnaire	Number of items	Scale-CVI	Item-CVI	Reliability (N = 30)	Reliability (N = 400)
Household smokers (HSQ)	1	1.00	1.00	r = 1.00	-
Nicotine dependence (FTND)	6	.93	.86-1.00	$\alpha = .76$	$\alpha = .53$
Intensity of smoking cessation intervention (ISCIQ)	2	1.00	1.00	$\alpha = .89$	-
Motivation to Quit (RFQ)	20	.99	.86-1.00	$\alpha = .97$	$\alpha = .96$
Alcohol dependence (AUDIT)	10	.86	.71-1.00	$\alpha = .88$	$\alpha = .89$
Depression (CDSS)	9	1.00	1.00	$\alpha = .72$	$\alpha = .82$
Positive symptom (PSRS)	4	1.00	1.00	$\alpha = .74$	$\alpha = .53$
Negative symptom (NSA)	4	1.00	1.00	$\alpha = .83$	$\alpha = .73$
Readiness to Quit (RTQ)	1	.94	.94	r = .91	-
Quit attempt (QA questionnaire)	1	.86	.86	r = .95	-
Smoking status (SS questionnaire)	1	1.00	1.00	r = .98	-

Translation procedure for translated instruments

After obtaining permission from the authors, four instruments including: The Readiness to Quit Ladder, The Reason for Quitting, The Positive Symptom Rating Scale, and Negative Symptoms Assessment-4 scale were translated using the Brislin's back-translation model (Brislin's Model, 1970). Firstly, the instruments were translated from English into Thai language by two linguistic experts who working at translation and interpretation service unit, Language Institute, Chulalongkorn University. Then, the linguistic experts of the Language Institute, Chulalongkorn University back translated the instruments form Thai version to English, but there are different persons from first step. After that, the researcher compared the original and Thai-back translated version, and discussed the Thai-back translated version in relation to the original version to ensure linguistic and conceptual equivalence with the back-translator experts. Then, the existing measures were modified to be specific for the purpose of this study.

Protection of the Rights of human subjects

This study was approved by The Ethics Review committee for Research Involving Human Research Subjects, Health Science group, Chulalongkorn University (COA NO. 018.1/2558), and the Institutional Review Board of six psychiatric hospital research settings including: Somdet Chaophraya Institute of Psychiatry (April/2558), Suansaranrom Psychiatric Hospital (IRB NO.050/2558), Prasimahabodi Psychiatric Hospital (IRB NO.0811/1345-), Suanprung Psychiatric Hospital (IRB NO.2/2558), Khon Kaen Rajanagarinda Psychiatric Hospital (IRB NO.004/2558), and Princess Galyani Vadhana Institute (IRB NO.3/2558). (Appendix B)

After IRB approved and obtained permission from director of each setting, the schizophrenia patients who met the study criteria were informed and explained of the purpose of the study, benefits, risks, the types of questionnaires and tasks to be completed, and the length of time to complete the questionnaires. Ethical considerations were maintained throughout the study including verbal and written informed consent from the participants before the interview and after explaining the purpose of the study and assuring confidentiality and anonymity:

1. Confidentiality of data collection was ensured both during data collection and after collection. The researcher and/or research assistance arrange the best time and private room (recreation or living room) for the participant to complete the questionnaires. After completing the questionnaires, the packet of the questionnaires and the informed consent were separately stored. The researcher put them in an envelope and seals it. The packet of the questionnaires was kept in the personal locker. The informed consent was kept in the other locker. Only, the researcher and research assistant have the key to open it. Data was computerized and accessible only by researcher. Results of the study were reported as a whole picture. Any personal information was not appeared in the report. All master lists containing names was lock up for storage and destroyed upon the completion of the study.

2. If the participants did not want to answer the questionnaires, they can withdraw from the study at any time without penalty.

3. There was the potential risks to participants are minimal, such as emotional discomforts when answering some questions. Participants were encouraged that if any time they felt discomfort, they able to stop and rest for a minute and return to answering the questions. During the interviewing, if the participant has mild emotional discomforts

such as anxiety and stress, the researcher given psychosocial support. If the participant has severe state especially in depression, positive and negative symptom, the interviewing was stopped.

4. Benefit of this study was emerged. The researcher provided the information about smoking effect on mental illness such as Tobacco interact with some psychiatric medication making it less effective, and the information about resources for smoking cessation services.

In this process, all participants were not withdrawn from the study. Emotional discomforts such as anxiety, stress and exhaust during the interview was not occurred.

Data collection procedure

Data collection was conducted after approval from The Ethics Review committee for Research Involving Human Research Subjects, Health Science group, Chulalongkorn University (COA NO. 018.1/2558), and the Institutional Review Board of six psychiatric hospital research settings. Also, formal permission for collecting data was obtained from the directors of six hospitals. This process was carried out from April to September of 2015. The data collection procedures were done in following steps:

Phase I: Conducted the pilot study. A pilot study was conducted to assess the feasibility of the study, the used of proposed instruments and testing psychometric properties, and prepare the collection process. It was carried out after obtained approval from IRB committee of Nakhon Ratchasima Rajanagarindra Psychiatric Hospital (IRB on January/2558). It took place at the psychiatric ward of Nakhon Ratchasima Rajanagarindra Psychiatric Hospital in March of 2015. A pilot study was conducted with 30 inpatient smokers with schizophrenia with similar characteristics

those of participants. Purposive sampling was employed to recruit a sample. The sample was asked to sign consent form and completed the packet of questionnaire. The researcher recorded the problems, time spent on completion the questionnaire, and suggestion. Also, the psychometric properties of the instruments were tested. The reliability of each questionnaire was tested to establish internal consistency with reliability ranging from 0.72 to 1.00.

From the pilot study indicated that some smokers with schizophrenia had the stable symptoms, had the doctor's order, and could participated in the study, but had not the relatives taking them to return home. So, the research spent more days to wait until the family or relatives convenient to taking them. Moreover, the researcher took around 20-30 minute for interview each participants case by case. Moreover, the questionnaire should order from short to long questionnaire, and group of symptomatology such as positive symptoms, negative symptoms, and depression should be sequences. Results from pilot study had benefits for planning the process of collecting data.

Phase II: After pilot study and psychometric properties of all instruments were tested, the researcher contacted to the nursing department of each setting. The researcher met the chief nursing and all head nurse of each hospital for described the objectives of study, inclusion criteria of recruiting the sample, and prepared and trained the research assistants in every setting. Then, the researcher decided with chief nursing and head nurse to conclude the ward that had the schizophrenia patients and appropriated for collecting data. Some ward was excluded such as depression ward.

Research assistant preparation

The researcher was prepared and trained the research assistants in every research setting. The qualification of research assistants were as follows: 1) graduated with master degree in mental health and psychiatric nursing, or 2) APNs in mental health and psychiatric nursing, or 3) mental health nurses who have at least five years experienced in caring for schizophrenia patients. Total eight research assistants was meet the qualification. The research assistants were trained to use all instruments. The training program takes for one day. In the morning, the researcher explained the study objective of the study, confidentiality, data collection, sample criteria, the process of sampling, the definition and concept-base of each instrument and over all questionnaires. Their understanding of these issues was rechecked. Then, in the afternoon, each research assistant interviewed 2 samples. After completed the interviewing, the researcher and research assistants were discussed about the problem during the interviewing.

Phase III: The researcher/ research assistants screened the sample from doctor order and medical record to find out the number of schizophrenia patients and process of recruited the subjects which met the inclusion criteria as follows:

1. The researcher/ research assistants screened the name of schizophrenia patients who had the doctor's order to discharge from hospital and had relatives to take them return home. Then, all schizophrenia patients were asked about history of current smoking (smoked cigarette at least one roll per day within one month before admission). The schizophrenia patients that met the inclusion criteria were recruited to the study.

2. On discharged day, the researcher/ research assistants arranged the best time and private room for explained the details of the study, including purpose, benefit, risk, and estimated time required for completion of questionnaires, and period of data collection to each smokers with schizophrenia.

3. The researcher/ research assistants gave information sheet and asked to sign consent from to the participants who agree to participate in the study. The participant asked their relatives for cooperation as required.

4. Each subject was asked to complete the questionnaire individually case-by-case. It took around 20-30 minutes to complete the packet of questionnaires which consist of 71 items (not includes Quit Attempt Questionnaire and Smoking Status Questionnaire). The answering of questionnaires was received through self-report, interviewed, and observation case by case. If they could not read the questionnaire by themselves, the researcher/ research assistants read for them. If emotional discomforts was occurred while answering the questions, the participants stopped and rest for a minute and returned to answering the questions.

5. After completing the 71 items, the researcher/ research assistants checked the completeness of data. No missing data was occurred. The questionnaires were putted into an envelope and sealed. The packet of the questionnaires and the informed consent were separately stored in envelop.

6. When completing the questionnaires, each participant was given a pill box in appreciation for their participation. Moreover, the researcher provided the information about smoking effect on mental illness such as Tobacco interact with some psychiatric medication making it less effective, and the information about resources for smoking cessation services.

7. When the participants discharged, the telephone number of participant and family member were asked for follow-up at 7 and 30 days after hospital discharged. The researcher/ research assistants made appointment with participants and their relatives for cooperation for 2 times telephone follow-up after discharged.

8. First time to contact, at one week after discharged, the researcher called to each participant asked for single item of the quit attempt self-report. In each participant, if could not contact by telephone in 1 times, the 2-3 times telephone called in different time and days were conducted. In this period, totally of 420 smokers with schizophrenia were remained.

9. Second time to contact, at one month after discharged, the researcher called to each participant asked for single item of the smoking status self-report. In each participant, if could not contact by telephone in 1 times, the 2-3 times telephone called in different time and days were conducted.

10. When completing asked smoking status questionnaires, the research thank you each participant and terminated the study.

In summary, this process was carried out from April to September of 2015. 20 subjects were excluded because of relapse (5 persons) and out of contact by telephone (15 persons) after one month hospital discharged. So, the data of 400 smokers with schizophrenia were prepared for data analysis.

Data analysis

A totally of 420 smokers with schizophrenia participated in the study. Twenty subjects were excluded because of relapse and out of contact after hospital discharge. So, the data of 400 smokers with schizophrenia were prepared for data analysis. In preparation data analysis, the researcher checked and cleans the data by eye screening.

The Statistical Package for Social Science (SPSS) program version 22.0 used to analyze data and provide descriptive statistics, and Linear Structural Relationship (LISREL) version 8.80 employee for the path analysis. The steps for data analysis as follows:

1. A totally of 400 questionnaires was double checked to confirm accuracy of the data. The researcher checked and cleans the data by eye screening. The researcher used a frequency table to verify incorrectly keyed category variables. A summary of descriptive statistics were used to help check the range of variables for incorrectly keyed category numeric values, number of sample, mean, median, and maximum and minimum values. No missing data occurred in this study.

2. Due to the criterion of outliers, the raw data that had the absolute of Z scores greater than 3 were identified as outlier data (Barnet & Lewis, 1994). As a result, 24 subjects had a Z scores greater than 3. Therefore, data of a total sample of 376 questionnaires were analyzed in the study.

3. Descriptive statistics, including frequencies, means, and standard deviation were used to describe the demographic data and to examine the distribution of demographic and variables in the study. The results of descriptive statistics were presented in chapter 4.

4. Pearson's Product Moment correlations were used to test for bivariate relationships among pairs of variables and to assess multicollinearity among the independent variables. The results of bivariate correlation were presented in chapter 4.

5. Multiple regression analyses were used to compute a variance inflation factor and tolerance to examine multicollinearity among the major variables. The results of variance inflation factor and tolerance were presented in chapter 4.

6. The path analysis command in Lisrel 8.80 was used to examine the direct, indirectly mediated, and total contribution of quit attempt and smoking status. An alpha level of .05 was set as the acceptable level of significance for this study. The hypothesized path model was tested and modified for best fit and parsimony. The overall model-fit-index was examined to determine how well the hypothesized model fit the existing data. The results of model and modification model were presented in chapter 4.



CHAPTER IV

RESULTS

This chapter presents the finding of data analysis included: characteristics of the study subjects, characteristics of the study variables, assumption testing, statistical analysis to test the predictors of quit attempt and smoking status, model testing and modification, and direct and indirect effects of influencing factors on quit attempt and smoking status

Characteristics of the study subjects

A total of 400 smokers with schizophrenia participated in the study. After considering the criterion of outliers (absolute Z score > 3), 24 subjects were excluded. In summary, data from 376 questionnaires were analyzed. The characteristics of the participants in this study were 40% were aged between 30-39 years old. The majority was male (95.48%). Around 70% of them were single. Moreover, one-third of the participants (38.30%) worked as employees. Half of them had completed high school (51.90%). Approximately two-thirds of them lived with their parents (67.29%). About three quarters (73.14%) of them were admitted in psychiatric hospitals between 1-5 times. About 43% of them were under treatment for 1-5 years. The findings regarding demographic characteristics of the study participants as shown in table 4.

Table 4 Number and percentage of subjects' demographic characteristics

Characteristics	Number (n = 376)	Percentage
Age (mean=35.67, SD=9.01)		
18-19 years old	6	1.60
20-29 years old	103	27.40
30-39 years old	144	38.30
40-49 years old	97	25.80
50-59 years old	23	6.10
60 years old	3	0.80
Gender		
Male	359	95.48
Female	17	4.52
Marital status		
Single	265	70.48
Marriage	48	12.77
Widowed/Divorced/Separated	63	16.75
Occupation		
Employee	144	38.30
Agriculturist	97	25.80
Unemployed	92	24.46
Merchant	21	5.59
Own business	14	3.72
Government official	4	1.06
Business employee	3	0.80
Student	1	0.27
Education level		
No education/ unletter	7	1.90
Elementary education	144	38.30
High school	195	51.90

Table 4 Number and percentage of subjects' demographic characteristics**(continued)**

Characteristics	Number (n = 376)	Percentage
Bachelor's degree	29	7.70
Higher than Bachelor's	1	0.20
Living		
With parent	253	67.29
With brother/ sister	36	9.57
Alone	35	9.31
With relatives	27	7.18
With husband/ wife	21	5.59
With son/ daughter	4	1.06
Number of admission		
1-5 times	275	73.14
6-10 times	70	18.62
11-15 times	15	3.99
16-20 times	10	2.66
More than 20 times	6	1.59
Duration of illness		
1-5 years	162	43.09
6-10 years	104	27.66
11-15 years	43	11.44
16-20 years	48	12.77
More than 20 years	19	5.04

Regarding the participants' smoking related characteristics, majority of the participants began smoking before the age of 20 (88.56%). Around half of them smoked 1-10 cigarettes per day (49.20%). One-third of them (36.70%) had been smoking for 11-20 years. Moreover, one-third of them (35.90%) smoked both factory and roll your own cigarettes. Around 60% of them reported making quit attempt in the previous year. 72.60% of subjects had length of past quit attempt 1-30 days. Most reported taking no smoking cessation medication (96.28%). The findings regarding the subjects' smoking related characteristics as shown in Table 5.

Table 5 Number and percentage of subjects' smoking related characteristics

Characteristics	Number (n = 376)	Percentage
Age when first smoking (mean=15.83, SD=4.45)		
8- 19 years old	333	88.56
20-29 years old	35	9.31
30-39 years old	5	1.33
40-45 years old	3	0.80
Number of cigarettes smoked per day		
1-10 roll	185	49.20
11-20 roll	131	34.84
21-30 roll	37	9.84
31-60 roll	23	6.12
Duration of smoking (mean=19.28, SD=9.46)		
1-10 years	73	19.41
11-20 years	138	36.70
21-30 years	120	31.91
31-40 years	39	10.37
41-46 years	6	1.61

Table 5 Number and percentage of subjects' smoking related characteristics (continued)

Characteristics	Number (n = 376)	Percentage
Type of cigarette		
Factory	124	32.98
Roll your own (RYO)	117	31.12
Combined (Factory and RYO)	135	35.90
Quit attempt in the previous year		
Yes	219	58.24
No	157	41.76
Length of past quit attempt (n = 219)		
1-30 days	159	72.60
30-60 days	11	5.02
61-90 days	16	7.31
91-120 days	3	1.37
121-150 days	1	0.46
151-180 days	3	1.37
181-300 days	26	11.87
Taking smoking cessation medication		
No	362	96.28
Yes	14	3.72
- Bupropion	2	
- Nicotine replacement therapy	7	
- Varenicline	1	
- Nortriptyline	4	

Characteristics of the study variables

The eleven major variables in the current study including that household smokers, alcohol dependence, nicotine dependence, motivation to quit, readiness to quit, positive symptoms, negative symptoms, depression, intensity of smoking cessation intervention, quit attempt, and smoking status were examined. The detail regarding characteristics of each variable is presented as follows:

Household smokers

Table 6, the total scores of the household smokers ranged from 0 to 1 point. The household smokers scores had a positive skewness value (0.67), thus indicating that most participants had scores of household smokers lower than the mean score. The kurtosis value of household smokers was a negative value (-1.57), thus suggesting that the household smokers was shaped like a flattened curve.

Table 6 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of household smokers

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Household smokers	0-1	0-1	-	-	0.67 (0.13)	-1.57 (0.25)

Alcohol dependence

Table 7, the total scores of the alcohol dependence ranged from 0 to 35 points with a mean of 8.13 (SD=9.08). The alcohol dependence scores had a positive skewness value (0.99), thus indicating that most participants had scores of alcohol dependence lower than the mean score. The kurtosis value of alcohol dependence was a positive value (0.07), thus suggesting that the alcohol dependence was shaped like a peakedness curve.

Table 7 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of alcohol dependence

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Alcohol dependence	0-40	0-35	8.13	9.08	0.99 (0.13)	0.07 (0.25)

Nicotine dependence

Table 8, the total scores of the nicotine dependence ranged from 0 to 10 points with a mean of 4.26 (SD=2.30). The nicotine dependence scores had a negative skewness value (-0.05), thus indicating that most participants had scores of nicotine dependence higher than the mean score. The kurtosis value of nicotine dependence was a negative value (-0.65), thus suggesting that the nicotine dependence was shaped like a flattened curve.

Table 8 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of nicotine dependence

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Nicotine dependence	0-10	0-10	4.26	2.30	-0.05 (0.13)	-0.65 (0.25)

Motivation to quit

Table 9, the total scores of the motivation to quit ranged from 0 to 80 points with a mean of 28.48 (SD=20.94). The motivation to quit scores had a positive skewness value (0.41), thus indicating that most participants had scores of motivation to quit lower than the mean score. The kurtosis value of motivation to quit was a negative value (-0.81), thus suggesting that the motivation to quit was shaped like a flattened curve.

Table 9 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of motivation to quit

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
motivation to quit	0-80	0-80	28.48	20.94	0.41 (0.13)	-0.81 (0.25)

Readiness to quit

Table 10, the total scores of the readiness to quit ranged from 1 to 10 points with a mean of 5.21 (SD=2.77). The readiness to quit scores had a positive skewness value (0.13), thus indicating that most participants had scores of readiness to quit lower than the mean score. The kurtosis value of readiness to quit was a negative value (-1.01), thus suggesting that the readiness to quit was shaped like a flattened curve.

Table 10 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of readiness to quit

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Readiness to quit	1-10	1-10	5.21	2.77	0.13 (0.13)	-1.01 (0.25)

Positive symptoms

Table 11, the total scores of the positive symptoms ranged from 4 to 9 points with a mean of 4.60 (SD=1.13). The positive symptoms scores had a positive skewness value (2.00), thus indicating that most participants had scores of positive symptoms lower than the mean score. The kurtosis value of positive symptoms was a positive value (3.34), thus suggesting that the positive symptoms was shaped like a peakedness curve.

Table 11 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of positive symptoms

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Positive symptoms	1-28	4-9	4.60	1.13	2.00 (0.13)	3.34 (0.25)

Negative symptoms

Table 12, the total scores of the negative symptoms ranged from 4 to 13 points with a mean of 5.39 (SD=2.07). The negative symptoms scores had a positive skewness value (1.63), thus indicating that most participants had scores of negative symptoms lower than the mean score. The kurtosis value of negative symptoms was a positive value (2.14), thus suggesting that the negative symptoms was shaped like a peakedness curve.

Table 12 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of negative symptoms

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Negative symptoms	1-24	4-13	5.39	2.07	1.63 (0.13)	2.14 (0.25)

Depression

Table 13, the total scores of the depression ranged from 0 to 10 points with a mean of 1.66 (SD=2.37). The depression scores had a positive skewness value (1.62), thus indicating that most participants had scores of depression lower than the mean score. The kurtosis value of depression was a positive value (1.92), thus suggesting that the depression was shaped like a peakedness curve.

Table 13 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of depression

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Depression	0-27	0-10	1.66	2.37	1.62 (0.13)	1.92 (0.25)

Intensity of smoking cessation intervention

Table 14, the total scores of the intensity of smoking cessation intervention ranged from 0 to 3 points with a mean of 0.59 (SD=0.82). The intensity of smoking cessation intervention scores had a positive skewness value (1.00), thus indicating that most participants had scores of intensity of smoking cessation intervention lower than the mean score. The kurtosis value of the intensity of smoking cessation intervention was a negative value (-0.44), thus suggesting that the intensity of smoking cessation intervention was shaped like a flattened curve.

Table 14 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of intensity of smoking cessation intervention

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Intensity of smoking cessation intervention	0-4	0-3	0.59	0.82	1.00 (0.13)	-0.44 (0.25)

Quit attempt

Table 15, the total scores of the quit attempt ranged from 0 to 7 points with a mean of 2.91 (SD=2.98). The quit attempt scores had a positive skewness value (0.36), thus indicating that most participants had scores of quit attempt lower than the

mean score. The kurtosis value of the quit attempt was a negative value (-1.60), thus suggesting that the quit attempt was shaped like a flattened curve.

Moreover, the participants reported making quit attempt average 2.91 times (Mean= 2.91, SD=2.98). About 42% of the participants reported that they did not make any attempt in the past 7 days. About 27% of the participants reported that they making quit attempt at 7 days after hospital discharged.

Table 15 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of quit attempt

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Quit attempt	0-7	0-7	2.91	2.98	0.36 (0.13)	-1.60 (0.25)
Quit attempt score				n	%	
0				157	41.76	
1				16	4.26	
2				30	7.98	
3				22	5.85	
4				20	5.32	
5				17	4.52	
6				12	3.19	
7				102	27.13	

Smoking status

Table 16, the total scores of the smoking status ranged from 0 to 60 points with a mean of 12.61 (SD=9.74). The smoking status scores had a positive skewness value (0.91), thus indicating that most participants had scores of smoking status lower than the mean score. The kurtosis value of the smoking status was a positive value (1.46), thus suggesting that the smoking status was shaped like a peakedness curve.

Moreover, The participants reported number of cigarettes per day one month after hospital discharged average 12.61 roll per day (Mean= 12.61, SD=2.98). About 44% of the participants reported that they smoked cigarettes 1-10 roll per day. About 33% of the participants reported that they smoked cigarettes 11-20 roll per day. About 16% of the participants reported that they did not smoked cigarette.

Table 16 Possible range, actual range, mean, standard deviation (SD), skewness, and kurtosis of smoking status

Variables	Possible range	Actual range	Mean	SD	Skewness (Z value)	Kurtosis (Z value)
Smoking status	0-60	0-60	12.61	9.74	0.91 (0.13)	1.46 (0.25)
	Smoking status score			n	%	
	0			59	15.69	
	1 – 10			163	43.35	
	11 – 20			125	33.24	
	21 – 30			16	4.26	
	31 – 40			12	3.19	
	41 – 50			0	0.00	
	51 - 60			1	0.27	

Additional findings

As shown in Table 17, quit attempt at (stop smoking 24 hours.) 7 days after hospital discharged of smokers with schizophrenia was 27.13.

Table 17 Number and percentage of quit attempt rate at 7 days after hospital discharged

quit attempt rate at 7 days	Number (n = 376)	Percentage
Yes	102	27.13
No	274	72.87

As shown in Table 18, smoking continuous abstinence rate (continuous stop smoking 30 days) at 30 days after hospital discharged of smokers with schizophrenia was 15.69.

Table 18 Number and percentage of continuous abstinence rate at 30 days after hospital discharged

30 days continuous abstinence	Number (n = 376)	Percentage
Yes	59	15.69
No	317	84.31

As shown in Table 19, 7 days point prevalence abstinence rate (stop smoking in the previous 7 days at 30 days) at 30 days after hospital discharged of smokers with schizophrenia was 24.20.

Table 19 Number and percentage of 7 days point prevalence abstinence rate at 30 days after hospital discharged

7 days point prevalence abstinence	Number (n = 376)	Percentage
Yes	91	24.20
No	285	75.80

Assumption testing

Before path analysis was conducted, normality, linearity, homoscedasticity, and multicollinearity were tested in order to ensure that there was no violation of the underlying assumption. The results of normality, linearity, homoscedasticity, and multicollinearity testing are presented.

Normality testing

In the current study, descriptive statistics including mean, standard deviation, skewness and kurtosis were used to test normality of variables. The skewness of all variables ranged from -0.05 to 2.00, and the kurtosis of variables ranged from -1.60 to 3.34. In fact, an absolute value of 2.0 for skewness is considered a departure from normality, and a value of univariate skewness greater than ± 3.0 indicates extreme skewness (Kline, 1998). According to Jr. Hair, Black, Babin, Anderson, and Tatham (2006), the z value of skewness and kurtosis not exceeding ± 1.96 which corresponds to a .05 level or ± 2.58 at the .01 probability level reflects a normal distribution. As for eleven variables, the Z value of skewness was 0.13., and Z value of kurtosis was 0.25 that were within the normal curve.

Linearity Testing

Multiple regression assumes that there is a linear relationship between the independent variables and the dependent variable. The linearity testing can be checked by the residual plot which is a visual examination of the scatter plot graph between the standardized residual (y-axis) versus the predict values (x-axis). Nonlinearity is indicated when most of the residuals are above the zero line on the plot at some predicted values and below the zero line at other predict values (Tabachnick & Fidell, 2007). In other words, the assumption of linearity is met when the standardized residual values are randomly around the horizontal line. In the current study, the scatter plot between independent and dependent variables showed such a linear relationship (appendix G).

Homoscedasticity testing

Homoscedasticity means that the variance of error is the same across all levels of the independent variables (Osborne & Elaine, 2002). This assumption can be tested by a visual examination of the plot of the regression of the standardized predicted dependent variable against the regression standardized residual. Homoscedasticity is indicated when the residual plots are randomly scattered around zero (in the horizontal line). In the current study, the scatter plot of residuals showed the results from homoscedastic data (appendix G).

Multicollinearity testing

The common criteria can be used to examine multicollinearity was tolerance values and variance inflation factor (VIF). It is worth noting that the values of VIF that are greater than 10 indicate a cause of concern (Mertler & Vannatta, 2002). In the present study, the results of the multiple regression analysis indicated that the tolerance ranged from .77 to .99 (not approaching 0) and VIF ranged from 1.01 to 1.34 (not greater than 10). Thus, these results confirmed no violation for multicollinearity as shown in Table 20.

Table 20 Multicollinearity testing of variables

Variable	Collinearity Statistics	
	Tolerance	VIF
Household smokers	.99	1.01
Positive symptoms	.85	1.17
Negative symptoms	.87	1.15
Depression	.80	1.26

Table 20 Multicollinearity testing of variables (continued)

Variable	Collinearity Statistics	
	Tolerance	VIF
Alcohol dependence	.97	1.03
Nicotine dependence	.97	1.03
Readiness to quit	.75	1.34
Intensity of intervention	.97	1.03
Motivation to quit	.77	1.30

Note. Dependent variables: Quit attempt and smoking status

Statistical analysis to test the predictors of quit attempt and smoking status

To describe the predicting factors of the quit attempt and smoking status on smokers with schizophrenia, the correlation between the variables and the quit attempt and smoking status were tested using bivariate Pearson correlations. The magnitude of the relationships was determined by the following criteria of the correlation coefficient (r): $r < .30$ = weak or low relationship, $.30 \geq r \leq .50$ = moderate relationship and $r > .50$ = strong or high relationship (Burns & Grove, 2009).

The results showed that motivation to quit had a moderate positive correlation with readiness to quit ($r = .47$; $p < .01$). Intensity of smoking cessation intervention had a low positive correlation with readiness to quit ($r = .14$; $p < .01$). Nicotine dependence had a low negative correlation with readiness to quit ($r = -.11$; $p < .05$). Negative symptoms had a low positive correlation with positive symptoms ($r = .24$; $p < .01$). Depression had a low positive correlation with alcohol dependence ($r = .10$; $p < .05$), moderate positive correlation with positive symptoms ($r = .36$; $p < .01$), and had moderate positive correlation with negative symptoms ($r = .31$; $p < .01$). Readiness to quit had a high positive correlation with quit attempt ($r = .64$; $p < .01$), and had a low

negative correlation with smoking status ($r = -.27$; $p < .01$), Motivation to quit had a moderate positive correlation with quit attempt ($r = .33$; $p < .01$), and had a low negative correlation with smoking status ($r = -.16$; $p < .01$). Intensity of smoking cessation intervention had a low positive correlation with quit attempt ($r = .16$; $p < .01$). Nicotine dependence had the moderate negative relationship with quit attempt ($r = -.31$; $p < .01$), and had the high positive relationship with smoking status ($r = .54$; $p < .01$). Smoking status had the low positive relationship with alcohol dependence ($r = .09$; $p < .05$). In addition, quit attempt had a high negative correlation with smoking status ($r = -.54$; $p < .01$).

In this study, the bivariate correlation showed that four variables (household smoker, positive symptoms, negative symptoms, and depression) were not significantly related to the quit attempt and smoking status. The literature indicates that non-significant variable in bivariate correlation is often eliminated (Shieh, 2006). However, some researchers have reported that bivariate results provide only partial information about the relationship between a predictor and an outcome variable, and are an improper method for selecting variables for multivariate analysis. The uncorrelated variable sometimes significantly improved the explained variance (Courville & Thompson, 2001). Therefore, all possible nine predictors were retained for use in the path analysis. Correlation matrix among variables is presented in Table 21.

Variable	HS	AD	RTQ	MTQ	IOS	ND	PS	NS	DP	Quit attempt	Smoking status
HS	1										
AD	.06	1									
RTQ	-.02	.02	1								
MTQ	-.02	.01	.47**	1							
IOSC	.02	-.06	.14**	.02	1						
ND	-.05	.08	-.11*	-.05	-.01	1					
PS	-.04	.01	-.04	.02	.04	.02	1				
NS	.01	-.06	-.08	-.03	.02	-.03	.24**	1			
DP	-.04	.10*	-.03	.06	.04	.08	.36**	.31**	1		
Quit attempt	.01	-.04	.64**	.33**	.16**	-.31**	-.04	-.08	-.04	1	
Smoking status	-.01	.09*	-.27**	-.16**	-.07	.54**	.05	-.03	.01	-.54**	1

Note. ** $p < .01$, * $p < .05$, HS= household smokers, AD= Alcohol dependence, RTQ= Readiness to quit, MTQ= Motivation to quit, IOSC= Intensity of smoking cessation intervention, ND= Nicotine dependence, PS= Positive symptoms, NS= Negative symptoms, and DP= Depression.

Table 21 Correlation matrix among the independent variables

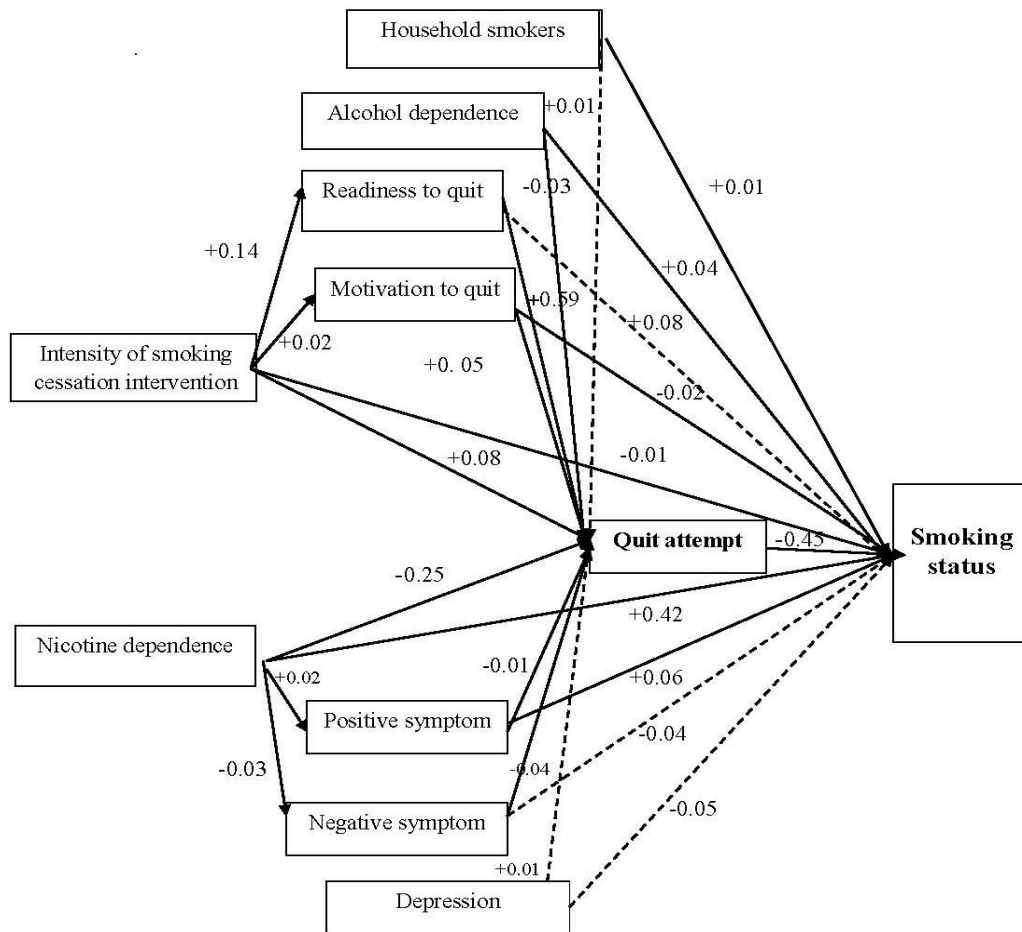
Model testing and modification

Model identification

Identification the hypothesized model by calculating the number of data points because the computer program will run when there is an over-identification model. The formula used is $\{p(p+1)\}/2$, where p equals the number of observed variables. There were eleven observed variables. So, the number of data points was 66 $[\{11(11+1)\}/2]$. According to Hair (2010), over-identification is the model that has more data points than free parameters. This study contains 34 free parameters, the number of data point more than free parameter. Thus, there is an over-identification model, which meant that it could be analyzed by path analysis.

Model testing

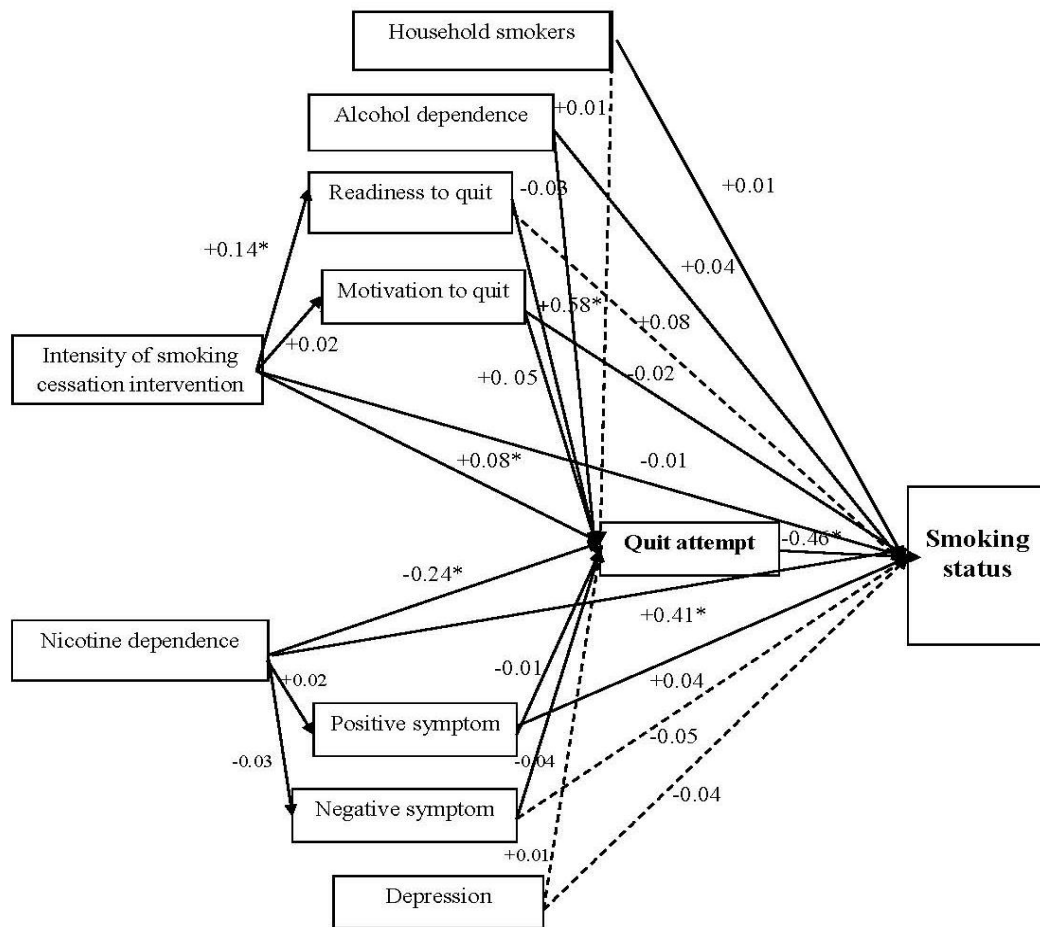
In the initially hypothesized model (Figure 3), the researcher did not constrain or fix any parameter. The results showed that the model unfitted with the empirical data. The result demonstrated: $\chi^2 = 204.04$, $df = 22$, $\chi^2/df = 9.27$, p value = 0.00, CFI = 0.73, GFI = 0.91, AGFI = 0.73, RMSEA = 0.15, $R^2 = 0.29$, as shown in Table 21. Therefore, the proposed model was refitted to get a suitable model that fit the data. The researcher applied modification indices to improve the model by fixing covariance matrix of exogenous variables (household smokers, alcohol dependence, intensity of smoking cessation intervention, nicotine dependence, and depression), freeing error covariance matrix of endogenous variables (readiness to quit, motivation to quit, positive symptoms, and negative symptoms).



Note. * $p < .05$, $\chi^2 = 204.04$, $df = 22$, $\chi^2/df = 9.27$, p value = 0.00, CFI = 0.73, GFI = 0.91, AGFI = 0.73, RMSEA = 0.15, $R^2 = 0.29$. **Dash line is the direction contradicts with hypothesis.

Figure 3 The initial model of quit attempt and smoking status in smokers with schizophrenia

In the final model (Figure 4), the model was modified by using the modification indices and theoretical support. The final model was better than the hypothesized model and explained 45% ($R^2 = .45$) of the variance of quit attempt and smoking status. The results showed that the model fitted with the empirical data.



Note. * $p < .05$, $\chi^2 = 19.79$, $df = 30$, $\chi^2/df = 0.66$, $p \text{ value} = 0.92$, $CFI = 1.00$, $GFI = 0.99$, $AGFI = 0.98$, $RMSEA = 0.00$, $R^2 = 0.45$. **Dash line is the direction contradicts with hypothesis

Figure 4 The final model of quit attempt and smoking status

Evaluation of goodness of fit criteria

The result found that the final model fit to the empirical data and explained 45% ($R^2 = .45$) of the variance of quit attempt by household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression, and 45% ($R^2 = .45$) of the variance of smoking status in smokers with schizophrenia by household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence,

positive symptoms, negative symptoms, depression and quit attempt. The result of the final model demonstrated: $\chi^2 = 19.79$, $df = 30$, $\chi^2/df = 0.66$, p value = 0.92, CFI= 1.00, GFI = 0.99, AGFI = 0.98, RMSEA = 0.00, $R^2 = 0.45$. The goodness of fit statistics between the initial hypothesized model and final model of quit attempt and smoking status in smokers with schizophrenia is presented in Table 22.

As shown in Figure 4, it was found that some independent variables were significantly predicted quit attempt and smoking status.

For quit attempt, readiness to quit had the most impact on the quit attempt ($\beta = .58$), followed by nicotine dependence ($\beta = -.24$), and intensity of smoking cessation intervention ($\beta = .08$). Moreover, intensity of smoking cessation intervention had the impact on the quit attempt through readiness to quit ($\beta = .14$).

For smoking status, the path coefficients of quit attempt had the most impact on the smoking status ($\beta = -.46$), followed by nicotine dependence ($\beta = .41$).

Direct and indirect effects of influencing factors on quit attempt and smoking status

The effects of the independent variables on quit attempt and smoking status in smokers with schizophrenia were presented and the findings were described below.

1. Household smokers had a non-significant positive direct effect ($\beta = .01$, $p > .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .01$, $p > .05$) on smoking status.

2. Alcohol dependence had a non-significant negative direct effect ($\beta = -.03$, $p > .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .04$, $p > .05$) on smoking status.

3. Readiness to quit had a significant positive direct effect ($\beta = .58, p < .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .08, p > .05$) on smoking status.

4. Motivation to quit had a non-significant positive direct effect ($\beta = .05, p > .05$) on quit attempt, and had a non-significant negative direct effect ($\beta = -.02, p > .05$) on smoking status.

5. Intensity of smoking cessation intervention had a significant positive direct effect ($\beta = .08, p < .05$) on quit attempt, and it had a non-significant negative direct effect ($\beta = -.01, p > .05$) on smoking status.

6. Intensity of smoking cessation intervention had a significant positive indirect effect on the quit attempt through readiness to quit ($\beta = .14, p < .05$) and had non-significant positive indirect effect on the quit attempt through motivation to quit ($\beta = .02, p > .05$).

7. Nicotine dependence had a significant negative direct effect ($\beta = -.24, p < .05$) on quit attempt, and it had a significant positive direct effect ($\beta = .41, p < .05$) on smoking status.

8. Nicotine dependence had a non-significant positive indirect effect on quit attempt through positive symptoms ($\beta = .02, p > .05$), and had a non-significant negative indirect effect on the quit attempt through negative symptoms ($\beta = -.03, p > .05$)

9. Positive symptoms had a non-significant negative direct effect ($\beta = -.01, p > .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .04, p > .05$) on smoking status.

10. Negative symptoms had a non-significant negative direct effect ($\beta = -.04$, $p > .05$) on quit attempt, and had a non-significant negative direct effect ($\beta = -.05$, $p > .05$) on smoking status.

11. Depression had a non-significant positive direct effect ($\beta = .01$, $p > .05$) on quit attempt, and had a non-significant negative direct effect ($\beta = -.04$, $p > .05$) on smoking status.

12. Quit attempt had a significant negative direct effect ($\beta = -.46$, $p < .05$) on smoking status.

Comparison of the goodness of fit statistics between the initial hypothesized model and final model of quit attempt and smoking status in smokers with schizophrenia as showed in Table 22 and summary of the total, direct, and indirect effects of the influencing variables on the affected variables as showed in Table 23 as follows:

Table 22 Comparison of the goodness of fit statistics between the initial hypothesized model and final model of quit attempt and smoking status in smokers with schizophrenia

Relative fit index	Initial model	Final model	Goodness of fit statistics
$\chi^2 - \text{test}$	204.04	19.79	($p < .05$)
	$p=0.00$	$p=0.92$	non significant
χ^2 / df	$204.04/22=9.27$	$19.79/30=0.66$	< 3.00
CFI	0.73	1.00	≥ 0.95
GFI	0.91	0.99	≥ 0.95
AGFI	0.73	0.98	≥ 0.95
RMSEA	0.15	0.00	< 0.05
SRMR	0.10	0.03	< 0.05
PGFI	0.30	0.45	< 0.50
Largest s.	9.06	2.30	± 2.00
Smallest s.	-3.79	-2.12	± 2.00
R^2	0.29	0.45	> 0.50

Note. χ^2 = Chi-square, df = degree of freedom, CFI = Comparative Fit Index, GFI = Goodness of Fit Index, AGFI = Adjust Goodness of Fit Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square Residual, Smallest s = Smallest standardized residual, Largest s = Largest standardized residual

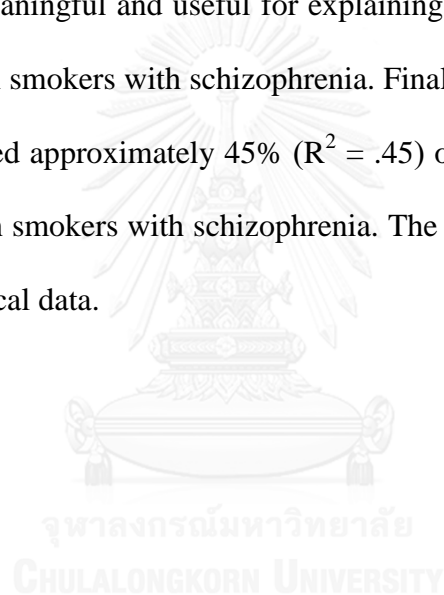
Table 23 Summary of the total, direct, and indirect effects of the influencing variables on the affected variables (n=376)

Endogenous Variables	R ²	Influencing Variables	TE	IE	DE
Quit attempt	.451	Household smokers	0.004	-	0.004
		Alcohol dependence	-0.026	-	-0.026
		Readiness to quit	0.581	-	0.581*
		Motivation to quit	0.049	-	0.049
		Positive symptoms	-0.008	-	-0.008
		Negative symptoms	-0.043	-	-0.043
		Depression	0.003	-	0.003
		Intensity of intervention	0.164	0.080	0.084*
		Nicotine dependence	-0.242	0.001	-0.243*
Smoking Status	.451	Household smokers	0.011	-0.002	0.013
		Alcohol dependence	0.051	0.012	0.039
		Readiness to quit	-0.186	-0.268	0.082
		Motivation to quit	-0.046	-0.022	-0.024
		Positive symptoms	0.041	0.004	0.037
		Negative symptoms	-0.028	0.020	-0.048
		Depression	-0.042	-0.002	-0.040
		Intensity of intervention	-0.068	-0.064	-0.004
		Nicotine dependence	0.528	0.114	0.414*
Readiness to quit	.018	Quit attempt	-0.461	-	-0.461*
		Intensity of intervention	0.135	-	0.150*
Motivation to quit	.000	Intensity of intervention	0.019	-	0.019
Positive symptoms	.000	Nicotine dependence	0.014	-	0.014
		Intensity of intervention	0.019	-	0.019
Negative symptoms	.001	Nicotine dependence	-0.027	-	-0.027
		Intensity of intervention	0.019	-	0.019

Note. TE= Total effect, IE= Indirect effect, DE= direct effect

Summary

The descriptive statistic characteristics of the variables investigated in the current study have been explained. The preliminary analysis reported did not violate the assumption for the path analysis. The hypothesized path model of quit attempt and smoking status in smokers with schizophrenia was tested. The initial model was rejected, and the modification model was applied. Finally, model fitted with the empirical data of quit attempt and smoking status in schizophrenia smoking status. The model is still meaningful and useful for explaining factors affecting quit attempt and smoking status in smokers with schizophrenia. Finally, all the predictive variables in the model explained approximately 45% ($R^2 = .45$) of the variance of quit attempt and smoking status in smokers with schizophrenia. The results showed that the model fitted with the empirical data.



CHAPTER V

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

This chapter provides the discussion of the study findings includes: summary of the study, discussion, implications for nursing, and recommendations for future research.

Summary of the study

This study was a prospective, correlational research design. The purpose of this study was to examine the direct and indirect effects of the factors that predicted quit attempt and smoking status in smokers with schizophrenia including: alcohol dependence, motivation to quit, readiness to quit, depression, nicotine dependence, intensity of smoking cessation intervention, positive symptoms, negative symptoms, and household smokers. The conceptual framework was guided by research literature review. The Multi-stage random sampling procedure was used for a probability sample of smokers with schizophrenia from all regions of Thailand. 376 inpatient smokers with schizophrenia, aged 18-60 years old, from six psychiatric hospitals participated in this study. Data were collected from April to September of 2015.

The participants were asked to respond a packet of questionnaire through interviews, observations and self-report. The instruments were used in this study including demographic, smoking related information, the Household smoker scale, the Intensity of smoking cessation intervention scale, the Reasons for Quitting scale (RFQ), the Readiness to Quit Ladder, the Alcohol Use Disorders Identification Test (AUDIT), the Fagerstrom Test for Nicotine Dependence (FTND), the Positive symptom rating scale (PSRS), the Negative symptom assessment (NSA-4), the

Calgary Depression Scale for Schizophrenia (CDSS), the Quit attempt form, and smoking status form. All questionnaires was reliability ranging from 0.72 to 1.00, Scale-Content validity index ranging from 0.86 to 1.00. This study was approved by the Institutional Review Board of Chulalongkorn University, and Institutional Review Board of six research setting (Somdet Chaophraya Institute of Psychiatry, Suansaranrom Psychiatric Hospital, Prasrimahabhodi Psychiatric Hospital, Suanprung Psychiatric Hospital, Khon Kaen Rajanagarinda Psychiatric Hospital, and Princess Galyani Vadhana Institute). Descriptive statistics, Bivariate correlation, and path analysis (Lisrel 8.80) were used to analyze the data.

Regarding, characteristics of the participants in this study was 40% were aged between 30-39 years old. The majority was male (95.48%). Around 70% of them were single. Moreover, one-third of the participants (38.30%) worked as employees. Half of them had completed high school (51.90%). Approximately two-thirds of them lived with their parents (67.29%). About three quarters (73.14%) of them were admitted in psychiatric hospitals between 1-5 times. About 43% of them were under treatment for 1-5 years.

Regarding the participants' smoking related characteristics, majority of the participants began smoking before the age of 20 (88.56%). Around half of them smoked 1-10 cigarettes per day (49.20%). One-third of them (36.70%) had been smoking for 11-20 years. Moreover, one-third of them (35.90%) smoked both factory and roll your own cigarettes. Around 60% of them reported making quit attempt in the previous year. 72.60% of subjects had length of past quit attempt 1-30 days. Most reported taking no smoking cessation medication (96.28%).

The outcome variables in this study were quit attempt and smoking status:

Quit attempt was measured by the number of times that smokers with schizophrenias stopped smoking at least 24 hours at 7 days after hospital discharged. The total scores of the quit attempt ranged from 0 to 7 days. The participants reported making quit attempt at 7 days after hospital discharged average 2.91 days (Mean= 2.91, SD=2.98). About 42% of the participants reported that they did not make any attempt in the past 7 days. About 27% of the participants reported that they making quit attempt at 7 days after hospital discharged.

Smoking status was measured by the number of cigarettes that smokers with schizophrenia smoked per day at one month after hospital discharged. The total scores of the smoking status ranged from 0 to 60 roll. The participants reported number of cigarettes per day at one month after hospital discharged average 12.61 roll per day (Mean= 12.61, SD=2.98). About 44% of the participants reported that they smoked cigarettes 1-10 roll per day. About one-thirds of the participants reported that they smoked cigarettes 11-20 roll per day (33%). About 16% of the participants reported that they did not smoked cigarette.

Furthermore, the result revealed that the final model fit to the empirical data and explained 45% ($R^2 = .45$) of the variance of quit attempt by household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression, and 45% ($R^2 = .45$) of the variance of smoking status in smokers with schizophrenia by household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, depression and quit attempt. The result of the

final model demonstrated: $\chi^2 = 19.79$, $df = 30$, $\chi^2/df = 0.66$, p value = 0.92, CFI= 1.00, GFI = 0.99, AGFI = 0.98, RMSEA = 0.00, $R^2 = 0.45$.

It was found that some independent variables were significantly predicted quit attempt and smoking status.

For quit attempt, readiness to quit had the most impact on the quit attempt ($\beta = .58$), followed by nicotine dependence ($\beta = -.24$), and intensity of smoking cessation intervention ($\beta = .08$). Moreover, intensity of smoking cessation intervention had the impact on the quit attempt through readiness to quit ($\beta = .14$).

For smoking status, the path coefficients of quit attempt had the most impact on the smoking status ($\beta = -.46$), followed by nicotine dependence ($\beta = .41$).

The results of the final model testing were summarized according to the research hypothesis as follows:

1. Household smokers had a non-significant positive direct effect ($\beta = .01$, $p > .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .01$, $p > .05$) on smoking status.

2. Alcohol dependence had a non-significant negative direct effect ($\beta = -.03$, $p > .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .04$, $p > .05$) on smoking status.

3. Readiness to quit had a significant positive direct effect ($\beta = .58$, $p < .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .08$, $p > .05$) on smoking status.

4. Motivation to quit had a non-significant positive direct effect ($\beta = .05$, $p > .05$) on quit attempt, and had a non-significant negative direct effect ($\beta = -.02$, $p > .05$) on smoking status.

5. Intensity of smoking cessation intervention had a significant positive direct effect ($\beta = .08, p < .05$) on quit attempt, and it had a non-significant negative direct effect ($\beta = -.01, p > .05$) on smoking status.

6. Intensity of smoking cessation intervention had a significant positive indirect effect on the quit attempt through readiness to quit ($\beta = .14, p < .05$) and had non-significant positive indirect effect on the quit attempt through motivation to quit ($\beta = .02, p > .05$).

7. Nicotine dependence had a significant negative direct effect ($\beta = -.24, p < .05$) on quit attempt, and it had a significant positive direct effect ($\beta = .41, p < .05$) on smoking status.

8. Nicotine dependence had a non-significant positive indirect effect on quit attempt through positive symptoms ($\beta = .02, p > .05$), and had a non-significant negative indirect effect on the quit attempt through negative symptoms ($\beta = -.03, p > .05$).

9. Positive symptoms had a non-significant negative direct effect ($\beta = -.01, p > .05$) on quit attempt, and had a non-significant positive direct effect ($\beta = .04, p > .05$) on smoking status.

10. Negative symptoms had a non-significant negative direct effect ($\beta = -.04, p > .05$) on quit attempt, and had a non-significant negative direct effect ($\beta = -.05, p > .05$) on smoking status.

11. Depression had a non-significant positive direct effect ($\beta = .01, p > .05$) on quit attempt, and had a non-significant negative direct effect ($\beta = -.04, p > .05$) on smoking status.

12. Quit attempt had a significant negative direct effect ($\beta = -.46, p < .05$) on smoking status.

Discussion of hypothesis testing and relationships

The study found that the hypothesized model fit the empirical data and could explain 45% of the variance of quit attempt and smoking status by household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression. The discussions of the hypothesis testing are presented as follows:

Hypothesis 1: Household smokers has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

The result of this study showed that household smokers had a non-significant positive direct effect ($\beta = .01, p > .05$) on quit attempt, which it was not support this hypothesis. This finding was not congruent with the previous study. Previous research has posited a variety of mechanisms for how family members, particularly parents, influence youth smoking. Family member use of tobacco, for example, may contribute to other member or youth through direct modeling of smoking behavior (Jackson & Henriksen, 1997), or by influencing or trigger other family member to smoking. In addition, person who living with family members who smoke may have easier access to cigarettes than person who do not live with family member smokers. Likewise, study of Luhua Zhao et al. (2015) found that person who exposed to smoking at home monthly or less often were more likely to have made a quit attempt than were those who were exposed on a daily basis (OR=-1.80, 95% CI,1.17–2.79).

Therefore, smokers in family may influence smokers with schizophrenia to smoking and can not making quit attempt.

Household smokers had a non-significant positive direct effect ($\beta = .01, p > .05$) on smoking status, which it was not support this hypothesis. The previous research has also demonstrated that the absence of smokers in the home and home smoking bans were strongly associated with successful smoking cessation (Wikes & Evins, 1999). Smokers who relapse had family member who smoke, such as older siblings and parents. Likewise, Macy, Seo, Chassin, Presson, and Sherman (2007) identified the predictors of long term abstinence versus relapse among individuals who quit smoking. The result found that strongest predictor of avoiding relapse was marrying with a nonsmoker. The authors concluded that the number of biological parents who smoked, spouse smoking status were independent predictors of smoking relapse versus long term abstinence. Therefore, it can concluded that the smokers with schizophrenia who living with other smokers may relapse to smoking and increase the number of cigarettes smoked per day.

The unexpected results could be explained that around 70% of subjects living without smokers, and the subjects start smoking before aged 20 years old and around one-thirds of them continuing smoking more than 20 years. Therefore, the smokers in household did not influence them to smoke. Moreover, the household smoker questionnaire that used in this study measured only the presence or absence of smokers in the house. So, the instrument that measured other variables related with household smoker such as bans, rule in the house or time spend with family member should be addressed in the future research.

Hypothesis 2: Alcohol dependence has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

Alcohol dependence had a non-significant negative direct effect ($\beta = -.03$, $p > .05$) on quit attempt.

This finding was not support this hypothesis. Laboratory and smoking studies indicated that alcohol consumption increases the frequency and intensity of smoking urges, smoking urges were higher during when alcohol had been recently consumed compared with no alcohol had been consumed. (Businelle et al., 2013). This finding was not congruent with the previous research of Agudo et al. (2004) found that alcohol dependence was the predictor of low smoking cessation rate on adult men. (Hymowitz et al., 1997) identified the quit attempt and the variables predictive of smoking cessation among adult smokers. The result found the predictors of smoking cessation includes less frequent alcohol dependence. The presence of alcohol use disorder was predictive of poor smoking cessation outcomes (OR = -.43, 95% CI [.19-.95], $p < .05$) (C. Okoli et al., 2013). Therefore, the smokers with schizophrenia who had alcohol dependence were less likely to making a quit attempt.

Alcohol dependence had a non-significant positive direct effect ($\beta = .04$, $p > .05$) on smoking status. This finding was not support this hypothesis. This finding was not congruent with the previous research of C. T. Okoli et al. (2011) examined the differences in smoking cessation outcomes in persons with substance use disorder and mental illness. The results showed that among males, having a history of alcohol dependence was a predictive of unsuccessful smoking cessation. Therefore, the smokers with schizophrenia who more alcohol drinking was more likely increase smoking or more number of cigarettes per day.

The unexpected results could be explained that the time period that measured alcohol dependent of this study conducted during hospital admission. So, the participants may have the lower level of alcohol dependent which might did not influenced the quit attempt. Likewise, study of Wongsang et al. (2012) found that severity of alcohol dependence had non-significant direct effect on smoking cessation (.00, $p > .05$).

Hypothesis 3: Readiness to quit has a positive direct relationship on quit attempt and has a negative direct relationship on smoking status

Readiness to quit had a significant positive direct effect ($\beta = .58, p < .05$) on quit attempt. This finding was support some part of this hypothesis. This finding congruent with the previous research which demonstrated that readiness to change appears to be an important predictor of whether or not someone will making quit attempt and quit smoking (W.R. Miller & Rollnick, 2002).. Readiness to quit or stages of change (also known as the Transtheoretical Model), is useful in recognizing that nicotine dependence is a chronic, relapsing disorder with most tobacco users in the general population requiring multiple attempts before they finally quit for good (Fiore et al., 2008; W.R. Miller & Rollnick, 2002). Many patients do not realize that it usually takes several attempts to stop using tobacco and will need motivation to attempt to quit if they have been unsuccessful in the past. It is useful to think of tobacco cessation as a process rather than an event. Once the smokers with schizophrenia have been identified as a tobacco user, his or her readiness to quit can be determined. This is important because smokers who are not considering making the quit attempt appear to need different interventions than those smokers who are ambivalent about quitting or those presently interested in quitting. Smokers with

schizophrenia who were in the stage of not considering quitting can be moved to the considering quitting by asking them to consider the negative consequences of tobacco use as well as the advantages of quit attempt and smoking cessation. As the previous research of Martínez et al. (2015) found that the smokers who has the greater score of readiness to quit (OR = 2.68, 95% CI: 1.51–4.77) was predict successful in making quit attempt. Likewise, study of Chan et al. (2010) that readiness to quit was predictors of making quit attempt (OR= 4.05; 95%, CI, 1.91-8.60, $p < .001$).

Readiness to quit had a non-significant positive direct effect ($\beta = .08$, $p > .05$) on smoking status. This finding was not support this hypothesis. This finding was not congruent with the previous research. If the smokers who have the lower score of readiness to quit, they were not considering about stop smoking and never concern the negative consequences of tobacco. So they continue to smoke and increase the number of cigarette per day.

Hypothesis 4: Motivation to quit has a positive direct relationship on quit attempt and has a negative direct relationship on smoking status

Motivation to quit had a non-significant positive direct effect ($\beta = .05$, $p > .05$) on quit attempt, which it was not support this hypothesis. This finding was not congruent with the previous study. Motivation to quit is defined as desire or energy of smokers to be continually interested to stop smoking stimulate by intrinsic motivation and extrinsic motivation. The previous research found that one reason people quit smoking indicate that there are both (intrinsic) and external (extrinsic) dimension of motivation for such behavior change (S. J. Curry et al., 1997).

The previous research demonstrated that motivation to quit is an important factor affecting the successful outcome of a making quit attempt and smoking status

in general and psychiatric patient. Several study which examined the motivation to quit in general population and psychiatric smokers indicated that if the smoker who reported more reasons to quit (intrinsic and extrinsic reason), were appeared more highly motivated and had made more quit attempt (D. L. Kelly et al., 2010; Stockings et al., 2012). Likewise, recent study of Tzilos et al. (2013) evaluated 191 inpatient with psychiatric disorders who had been enrolled in a randomized controlled trial of motivational interviewing versus brief advice for smoking cessation. Result revealed that both motivation to quit at was significantly correlated with intention to quit at hospital discharge ($r = 0.47, p < 0.05$). In Thailand, Rojnawee (2014) examined the predictors that influencing quit attempt in adolescents and found that motivation to quit was found to have positive direct relationship with quit attempt ($\beta = .24, p < .05$).

Motivation to quit had a non-significant negative direct effect ($\beta = -.02, p > .05$) on smoking status, which it was not support this hypothesis. This finding was not congruent with the previous study. Motivation to quit is defined as desire or energy of smokers to be continually interested to stop smoking stimulate by intrinsic motivation and extrinsic motivation. The previous research found that one reason people quit smoking indicate that there are both (intrinsic) and external (extrinsic) dimension of motivation for such behavior change (S. J. Curry et al., 1997). Therefore, the smokers with schizophrenia who had motivation to quit, they had the desire or energy to be continually interested to stop smoking. Then they can stop or reduced the number of cigarettes smoker per day.

The unexpected results could be explained that around one-thirds of smokers with schizophrenia have low score of motivation to quit (0-10 score from 80 score). Therefore, the subjects less likely to thinking in make a quit attempt and then they

continue to smoke. As the study of D. L. Kelly et al. (2010) examined motivation for quitting in smokers with schizophrenia. The results showed that smokers with schizophrenia had less appreciation of health risks associated with smoking and were less motivated to quit smoking. Moreover, motivation to quit can be enhanced by receiving the more intense smoking cessation interventions, but in this study the participants reported around 62% of them did not receive smoking cessation intervention. Therefore, they may have a low level of motivation to quit.

Hypothesis 5: Intensity of smoking cessation intervention has a positive direct relationship on quit attempt, and it has a negative direct relationship on smoking status

The result of this study showed that intensity of smoking cessation intervention had a significant positive direct effect ($\beta = .08, p < .05$) on quit attempt. This finding supports this hypothesis. As Rice and Stead (2008) defined “smoking cessation intervention” as the provision of Advice or counseling by any suitably-trained person (e.g., physicians, nurses, psychiatrists, dentists, tobacco treatment specialists, teachers, friends etc.), aiming to help people to stop smoking. The brief and intensive smoking cessation intervention can be provided by any suitably trained clinician. The evidence shows that intensive smoking cessation intervention is more effective than brief smoking cessation intervention. Intensive interventions (i.e., more comprehensive treatments that may occur over multiple visits for longer periods of time and that may be provided by more than one clinician) are appropriate for any smokers willing to participate in the intervention (Barth et al., 2006; N. A. Rigotti et al., 2003). Evelyn P. Davila et al. (2009) conducted the study examined factors associated with having attempts to quit smoking among adults current smokers,

Results revealed that being advised by a physician to quit smoking were also positively associated with lifetime quit attempts. Smokers who received healthcare-provider advice to quit smoking in the past 12 months were more likely to report a quit attempt (AOR 1.53 [1.30–1.81]).

Intensity of smoking cessation intervention had a non-significant negative direct effect ($\beta = -.01, p > .05$) on smoking status. This finding was not support this hypothesis.

This finding was not congruent with the previous study of E. P. Davila et al. (2009) conducted the study examined factors associated with having attempts to quit smoking among adults current smokers, Results revealed that the number of cigarettes smoked per day in the previous 30 days was associated with lower odds of a smoking cessation. A. Baker et al. (2006) compared an integrated psychological and nicotine replacement therapy intervention for people with a psychotic disorder with routine care alone. The result found significantly higher proportion of smokers who completed all treatment sessions stopped smoking at each of the follow-up occasions. It can concluded that there was a strong dose-response relationship between treatment session attendance and smoking reduction status, with one-half of those who completed the intervention program achieving a 50% or greater reduction in daily cigarette smoked per day across the follow-ups.

Hypothesis 6: Intensity of smoking cessation intervention has a positive indirect relationship on quit attempt through readiness to quit and motivation to quit

The result of this study showed that intensity of smoking cessation intervention had a significant positive indirect effect on the quit attempt through readiness to quit ($\beta = .14, p < .05$) and had non-significant positive indirect effect on the quit attempt through motivation to quit ($\beta = .02, p > .05$). This finding was support some part of this hypothesis.

Most smoking cessation interventions focus on enhancing motivation to quit and readiness to quit (Husten, 2007). The smoking cessation intervention is to move smokers along continuum of readiness to quit and to increase or maintain motivation to actively engage in the change process of quitting smoking (W.R. Miller & Rollnick, 2002). Caponnetto and Polosa (2008) demonstrated that motivation to quit can be increased by receiving advice from health professions through behavioral support. Therefore, receiving more counseling related with the high motivation to quit.

Intensity of smoking cessation intervention had a significant positive indirect effect on the quit attempt through readiness to quit ($\beta = .14, p < .05$) and had non-significant positive indirect effect on the quit attempt through motivation to quit ($\beta = .02, p > .05$). This part was not support this hypothesis. The explanation of this finding which was not support the hypothesis that around 60% of subjects were report they were not receive the smoking cessation intervention, which might have effect the variance of this variable. Moreover, the intensity of smoking cessation intervention questionnaire in this study measured the level of smoking cessation intervention. Therefore, intensity of smoking cessation intervention questionnaire that related with quality of smoking cessation intervention that smokers were received need further developed and reflect the intensity of intervention.

Hypothesis 7: Nicotine dependence has a negative direct relationship on quit attempt, and has a positive direct relationship on smoking status

The result of this study showed that nicotine dependence had a significant negative direct effect ($\beta = -.24, p < .05$) on quit attempt, which it was support this hypothesis.

Dependence on nicotine is made up of psychological dependence, physical dependence and tolerance. As they continue smoking, they need more and more nicotine to satisfy the same psychological and physical effects of the drug (Benowitz, 2008). Dependence on nicotine is an individual's difficulty to refrain from smoking. In the final model found that nicotine dependence is the predictors both of quit attempt at 7 days and smoking status at 30 days after hospital discharged.

This finding congruent with many studies which indicated that nicotine dependence was predicted quit attempt and smoking status. X. Zhou et al. (2009) conducted study to identified predictors of attempts to stop smoking and predictors of relapse. Results revealed that higher levels of nicotine dependence as measured by the baseline FTND score were associated with lower likelihood of a quit attempt (OR = - 0.86; 95% CI: 0.80, 0.92). In Thailand, Rojnawee (2014) examined the predictors of quit attempt in adolescents smokers, the result showed that nicotine dependence had a significant negative direct relationship with quit attempt ($\beta = -.03, p < .05$). Moreover, Wongsang et al. (2012) examined the causal model of smoking cessation in alcohol dependent smokers and found that nicotine dependence had negative direct effect on smoking cessation (.12, $p < .001$).

Nicotine dependence had a positive direct effect ($\beta = .41, p < .05$) on smoking status, which it was support this hypothesis. Solty et al. (2009) conducted study in inpatients aged 18 years or older admitted to acute-care psychiatry units at the Foothills Medical Centre in Calgary, Alberta, during a 6-month period completed a survey involving questions from the Canadian Tobacco Use Monitoring Survey, the Fagerstrom Test for Nicotine Dependence (FTND), the Readiness to Quit Ladder, and the Decisional Balance for Cigarette Smoking. Responses were analyzed for correlation with discharge diagnoses, age, and sex. Result revealed that the number of cigarettes smoked per day correlated positively with nicotine dependence ($r = .50, p < .001$).

Hypothesis 8: Nicotine dependence has a positive indirect relationship on quit attempt through positive symptoms, and it has a negative indirect relationship on quit attempt through negative symptoms

The result of this study showed that nicotine dependence had a non-significant positive indirect effect on quit attempt through positive symptoms ($\beta = .02, p > .05$). This findings which was not support this hypothesis. This finding was not congruent with the previous study. Smoking also correlated with improvement positive symptoms such as hallucination and illusion (Smith et al., 2002). Some studies have shown that the level of nicotine dependence is correlated with positive symptoms (de Leon & Diaz, 2005). The smokers with schizophrenia who have improvement of positive symptoms are less likely to make quit attempt and continue smoking.

Nicotine dependence had a non-significant negative indirect effect on the quit attempt through negative symptoms ($\beta = -.03, p > .05$). This findings which was not support this hypothesis. This finding was not congruent with the previous study.

Smokers with schizophrenia dependence on nicotine come from many reasons as The Psychological Tool Model (Myrsten et al., 1975) suggests a theory of smoking behavior that allows the smoker to use nicotine as a means of manipulating their psychological state under varied environmental conditions. It is asserted that nicotine can stimulate pleasure centers, increase alertness and enhance performance. The short term psychological effects of nicotine that include maintaining performance in the face of monotony and fatigue, increased selective attention and attenuation of the effects of stress have been confirmed. Also evidence that, for some mental illnesses, schizophrenia use nicotine as self-medication. Nicotine improves the symptoms of attention, deficit hyperactivity disorder and also stimulates the release of some neurotransmitters which may counteract depression. In addition, nicotine helps alleviate some of the negative symptoms of schizophrenia (Patkar et al., 2002). Therefore, smokers with schizophrenia difficulty to refrain from smoking and less likely to stop smoking.

This finding was not support this hypothesis .The unexpected results could be explained that the period that measured nicotine level, positive symptoms, and negative symptoms were asked during hospitalization and before smokers with schizophrenia discharged from hospital. So, the participants were not allowed to smoke. Then the level of nicotine dependence was lower, and it may not effects positive and negative symptoms. Moreover, while hospitalization the schizophrenia patients received treatment from health care provider to decreased positive symptoms and improved negative symptoms.

Hypothesis 9: Positive symptoms have a negative direct relationship on quit attempt, and it have the positive direct relationship on smoking status

The result of this study showed that positive symptoms had a non-significant negative direct effect ($\beta = -.01, p > .05$) on quit attempt, which it was not support this hypothesis.

Positive symptoms is symptoms includes hallucinations (usually hearing voices that are not there, voices that criticize or condemn), delusions (false beliefs, often about a threat or persecution), illusion, **thought disorders**, paranoia; inappropriate behavior; disorganized or incoherent speech (Brady & McCain, 2004). Smoking also correlated with improvement positive symptoms such as hallucination and illusion (Smith et al., 2002). Some studies have shown that the level of nicotine dependence is correlated with positive symptoms (de Leon & Diaz, 2005). The study of Chiappetta et al. (2014) revealed that among individuals who having nicotine dependence, has a greater number of psychiatric disorders and personality disorders decreased the odds of success in quit attempt. Therefore, the smokers with schizophrenia who have improvement of positive symptoms are less likely to make quit attempt.

Positive symptoms had a non-significant positive direct effect ($\beta = .04, p > .05$) on smoking status. Nicotine of the cigarette affects the brain nicotine receivers and reduces perception of environmental stimulations and this factor leads to relatively increase of positive symptoms (C. Kelly & McCreddie, 2000; Kumari & Postma, 2005). Therefore, the smokers with schizophrenia who smoked more cigarettes, they more had positive symptoms.

This finding was not support this hypothesis. The unexpected results could be explained that the period that measured nicotine level and positive symptoms were asked during hospitalization and before smokers with schizophrenia discharged from

hospital. So, the participants were not allowed to smoke. Then the level of nicotine dependence was lower, and it may not effects positive symptoms. While hospitalization the schizophrenia patients received treatment from health care provider to decrease positive symptoms until them move on stable phase and absence of positive symptoms before discharged. Moreover, the positive symptoms questionnaire that was used in this study, was never been used in Thai culture and the reliability was .74. So, the psychometric properties of this instrument need to be test and further analysis.

Hypothesis 10: Negative symptoms have negative direct relationship on quit attempt and have positive direct relationship smoking status

The result of this study showed that negative symptoms had a non-significant negative direct effect ($\beta = -.04, p > .05$) on quit attempt, which it was not support this hypothesis. Negative symptoms are associated with disruptions to normal emotions and behaviors. These symptoms include flattening or affect as: Flat affect" (a person's face does not move or he or she talks in a dull or monotonous voice), lack of pleasure in everyday life, lack of ability to begin and sustain planned activities, and speaking little, even when forced to interact (Brady & McCain, 2004). The patients with schizophrenia may smoke in an attempt to self-medicate some of their negative and/or cognitive symptoms. Nicotine can stimulate pleasure centres, increase alertness and enhance performance. Therefore, when the schizophrenia smoking, nicotine can stimulate pleasure centres, increase alertness and enhance performance in the face of monotony and fatigue, increased selective attention and attenuation of the effects of stress. So, they need nicotine level to elevate their negative symptoms. So, they never try to make a quit attempt.

Negative symptoms had a non-significant negative direct effect ($\beta = -.05$, $p > .05$) on smoking status. Smith et al. (2002) investigated the effects of smoking of high nicotine on positive and negative symptoms and cognitive functions in schizophrenic patients. The results revealed that smoking high nicotine cigarettes decreased negative symptoms, but smoking neither cigarette changed scores of positive symptoms, anxiety, or depression. These results suggest that acute smoking of cigarettes may transiently decrease negative symptoms in patients with schizophrenia. Many patients with schizophrenia find smoking helps them to increase patients' interactions and social contact with others. They smoke in an effort to attain social contact, pleasure, and as something to do (Goldberg, Moll, & Washington, 1996). Because of benefits of nicotine on negative symptoms, these smokers with schizophrenia were likely to smoke and increase number of cigarettes smoked per day for reduce negative symptoms.

This finding was not support this hypothesis. The unexpected results could be explained that the period that measured nicotine level and negative symptoms were asked during hospitalization and before smokers with schizophrenia discharged from hospital. So, the participants were not allowed to smoke. Then the level of nicotine dependence was lower, and it may not effects negative symptoms. While hospitalization, the schizophrenia patients received psychosocial group therapy and interrelationship between health care provider and patients. These program during admission can improve negative symptoms until them move on stable phase and less of negative symptoms before discharged. Moreover, the negative symptoms questionnaire that was used in this study, was never been used in Thai culture and the

reliability was .83. So, the psychometric properties of this instrument need to be test and further analysis.

Hypothesis 11: Depression has a negative direct relationship on quit attempt and has a positive direct relationship on smoking status

The result of this study showed that depression had a non-significant positive direct effect ($\beta = .01, p > .05$) on quit attempt, which it was not support this hypothesis. The study of Japuntich et al. (2007) examined the relationship between depression history and smoking after a quit attempt of 677 adult smokers who participated in a randomized smoking cessation trial. The results found that depression history predicted smoking at 1 week post quit attempt. In addition, prediction models including depression history and depression related measures (e.g., negative affect, negative cognitive style) showed that depression history was a powerful predictor of smoking early in the quit attempt.

Taylor et al. (2014) investigated change in mental health after smoking cessation compared with continuing to smoke. Design Systematic review and meta-analysis of observational studies. Results 26 studies that assessed mental health with questionnaires designed to measure anxiety, depression, mixed anxiety and depression, psychological quality of life, positive affect, and stress were included. Follow-up mental health scores were measured between seven weeks and nine years after baseline. Anxiety, depression, mixed anxiety and depression, and stress significantly decreased between baseline and follow-up in quitters compared with continuing smokers: the standardized mean differences (95% confidence intervals) were anxiety -0.37 (95% confidence interval -0.70 to -0.03); depression -0.25 (-0.37 to -0.12); mixed anxiety and depression -0.31 (-0.47 to -0.14); stress -0.27

(-0.40 to -0.13). It can be concluded that quit attempt is associated with reduced depression, anxiety, and stress compared with continuing to smoke. In a cross-sectional study, depressive symptoms were positively correlated with current smoking. Longitudinal data collected 9 years later indicated that initially depressed smokers were 40% less likely to have quit than initially non-depressed smokers (Anda et al., 1990).

Depression had a non-significant negative direct effect ($\beta = -.04$, $p > .05$) on smoking status. This finding which was not support this hypothesis. This finding was not congruent with the previous study.

People who have depression might smoke to feel better. It may be that people who are depressed turn to smoking and increase number of cigarettes smoked per day, hoping to make themselves feel better and alleviate their depression symptoms. Recent research suggests that an increased risk of depression is among the many negative effects of smoking, possibly because nicotine damages certain pathways in the brain that regulate mood. As a result, nicotine may trigger mood swings (CDC). In a cross-sectional study, depressive symptoms were positively correlated with current smoking. Longitudinal data collected 9 years later indicated that initially depressed smokers were 40% less likely to have quit than initially non-depressed smokers (Anda et al., 1990).

This finding was not support this hypothesis. The unexpected results could be explained that the period that measured depression was asked during hospitalization and before smokers with schizophrenia discharged from hospital. While hospitalization, the schizophrenia patients received psychosocial group therapy and interrelationship between health care provider and patients. These programs during

admission can decrease depression before discharged. Moreover, after discharged, about 70% of the participants reported living with parents. Only 10% reported living alone. So, they get social support from family, and less depression. Therefore, the level of depression did not effect on quit attempt and smoking status in this group. Contrary with this hypothesis, some cross sectional analysis of smokers with history of depression, showed no more differences in smoking cessation (John, Meyer, Rumpf, & Hapke, 2004). Moreover, a recent meta-analysis by Hitsman et al. (2013), looked at 15 studies and found no differences in either short term or long term smoking abstinence rates between smokers with history of depression.

Hypothesis 12: Quit attempt has a negative direct relationship on smoking status

The result of this study showed that quit attempt had a significant negative direct effect ($\beta = -.46, p < .05$) on smoking status, which it support this hypothesis.

Quit attempt is defined as number of times that smokers with schizophrenia stopped smoking at least 24 hours during the past 7 days after hospital discharged. Smoking status is defined as the number of cigarettes that smokers with schizophrenia smoked per day at one month after hospital discharged. It means that if the smokers with schizophrenia made more quit attempt, they can stop smoking or reduce the number of cigarettes smoked per day. Controversy, if the smokers with schizophrenia less made quit attempt, they continually to smoke or increase the number of cigarettes smoked per day.

From the findings showed that about 42% of the participants reported that they did not make any attempt in the past 7 days, and they reported 84.31% still smoked 1-

60 roll per day. Only Fifty nine participants reported that they did not smoke any cigarette (16%).

The number of quit attempts among smokers is seen as a predictor of stop smoking or reduced the number of cigarettes smoked per day. Smokers that made quit attempt that lasted longer than 24 hours are much more likely to succeed in quitting smoking than those that have not sustained to quit for that long (Moran et al., 2004).

Martínez et al. (2014) conducted the study investigated factors predicting quit attempts among smokers enrolled in substance abuse treatment in New York State. Result reveled that quit attempters also reported smoking fewer days per week ($p = .010$) and fewer cigarettes per day. Moreover, fewer cigarettes/smoking day (OR = 0.97, 95% CI: 10.95–1.00) presented higher odds of a quit attempt. The finding from previous research stated that the number of times that make quit attempt in 24 hours (length of recent quit attempt) is the strongest determination of smoker's success in quitting smoking (A. J. Farkas et al., 1996). Those who have made any quit attempt that lasted longer than two weeks are much more likely to succeed than those who have not sustained a stoppage for that long, and those who never tried to quit before were also more likely to succeed than those who tried but for whom the quit attempt lasted less than two week. Therefore, the smokers with schizophrenia that have the long duration ever quit, they can stop smoking and reduced the number of cigarettes smoked per day.

Implications for nursing

4.1 Implications for nursing practice

From previous evidences found that smoking interact with some psychiatric medication making it less effective, resulting in increased dosages, interfere with

medication treatment benefits, poor response to treatment, but smoking cessation rates among smokers with schizophrenia are quite low. Therefore, encourage the quit attempt in smokers with schizophrenia as a challenge for mental health care nurses. This study has provided a comprehensive understanding of the predictors of quit attempt and smoking status in smokers with schizophrenia can help psychiatric nurses encourage quit attempt in these patients. Based on the findings, several significant implications for nursing practice can be proposed as follows:

Firstly, from the findings of model of quit attempt and smoking status in smokers with schizophrenia, it has the benefits for mental health care provider to conduct the effective smoking cessation intervention to smokers with schizophrenia. Based on the results of the study, readiness to quit had the most impact on the quit attempt, followed by nicotine dependence, and intensity of smoking cessation intervention. Moreover, intensity of smoking cessation intervention had the impact on the quit attempt through readiness to quit. Then the smoking cessation intervention for smokers with schizophrenia should be developed based on the stage of change or readiness to quit. Using the hospital setting to address tobacco use offers advantages both in terms of policy and treatment initiatives. While hospitalization and short period after hospitalization, nurses should encourage the smokers with schizophrenia making the quit attempt and reduced the amount of cigarettes by screen readiness to change behavior from smoking to stop smoking.

Secondly, intensity of smoking cessation intervention had the impact on the quit attempt through readiness to quit. The intervention that nurses will provide to smokers with schizophrenia should be suitable for each stage of change. The stage of pre-contemplation (do not intend to stop smoking in the future, usually measured as

the next 6 months), assess the readiness to quit and provide information of effect of smoking to health is needed. The stage of contemplation (intend to stop smoking in the next 6 months), in this stage, information about pros of quitting and cons of smoking is appropriate. The stage of preparation (intend to stop smoking in the immediate future, usually measured as the next month), in this stage nurses should built up the confidence of quitting and increase motivation to quit for smokers with schizophrenia. The stage of action (quitting smoking less than 6 months), nurses should to concern about withdrawal symptoms and craving and encourage social support. Finally, the stage of maintenance (quitting smoking for more than 6 months), prevention relapse to smoking and follow-up is needed.

Moreover, it was found that intensity of smoking cessation intervention had the impact on quit attempt at 7 days after hospital discharged, but it did not effect on smoking status after at 30 days after hospital discharged. Therefore, the smoking cessation program for this group should be continually from hospital to community.

Thirdly, nicotine dependence had the negative impact on quit attempt and positive impact on smoking status. The smokers with higher dependence were less likely to make a quit attempt and increased the number of cigarettes smoked per day. Therefore, smoking cessation intervention that will provide should to concern and assessing the level of nicotine dependence before giving the intervention. The smoking cessation intervention/ counselling/ program should be difference in each level of dependence on nicotine. Maybe, in some cases, the medication for assisting smoking cessation such as NRT, Brupopion are needed.

In conclusion, understanding by mental health care providers of the factors that affect quit attempts may be useful for development of an effective intervention that will help smokers with psychiatric and mental health disorder to quit.

4.2 Implications for nursing education

Nursing instructors can use these findings to generate new perspectives in teaching about the effects of smoking in psychiatric patients in several ways such as effect on physical health, poor response to psychotropic drugs. Moreover, nicotine has the impact on psychiatric symptoms and improve psychotic relapse. Therefore, nursing instructors should teach the way to encourage these patients to quitting smoking.

4.3 Implications for nursing research

The current study was the first study in Thailand that focused on smokers with schizophrenia and quit attempt and smoking status. This study explored the relationship among household smokers, alcohol dependence, readiness to quit, motivation to quit, intensity of smoking cessation intervention, nicotine dependence, positive symptoms, negative symptoms, and depression on quit attempt and smoking status in smokers with schizophrenias. The findings of the present study will serve as a reference point for further interventions to increase quitting smoking and smoking cessation rates in these patients.

4.4 Implications for healthcare policy

From the findings of model of quit attempt and smoking status in smokers with schizophrenia, it has the benefits for mental health care provider to conduct the effective smoking cessation intervention to smokers with schizophrenia. As in the past, the mental health profession has overlooked the prevalence of smoking in this

population (Resnick & Bosworth, 1989). Historically, mental health care providers have used cigarettes as tool to manipulate patient behavior (Resnick & Bosworth, 1989), and undervaluing tobacco addiction as a problem (S. C. Williams et al., 2009). Moreover, some evidences showed that a number of nurses believed that smoking cessation might exacerbate psychiatric symptoms and provoke illness relapse. Therefore, the finding of model like an assured that smokers with schizophrenia can made a quit attempt and stop smoking with assistance from nurse professions.

Recommendations for future research

Based on the findings of the present study, the following recommendations for future research can be made as follows.

1. Continuous abstinence is the goal of treatment to help smokers achieve abstinence from smoking or other tobacco use. So, a longitudinal study should be conducted to assess the change of smoking status and continuous abstinence of smokers with schizophrenia at 3, 6, 12 months.

2. An intervention study to enhance smoking cessation in smokers with schizophrenia patients should be developed and tested as well. It should considers the factors that influences quitting smoking includes readiness to quit, intensity of smoking cessation, and should manage the barriers of quitting smoking such as level of nicotine dependence.

3. The Reason for quitting, the contemplation ladder to quit, the positive symptoms rating scale, and the negative symptoms assessment were the instruments that never been used in Thai culture. In this study test content validity and reliability in small subjects. Therefore, further investigating of psychometric property of these instruments is needed.

4. The descriptive study of factors influenced on smoking status and smoking cessation of smokers with schizophrenia in community should be addressed in further research.



REFERENCES

- Adda, J., & Cornaglia, F. (2004). Prices, Cigarette Consumption and Smoking Intensity
The American Economic Review, 96(4), 1013-1028.
- Addington, D., Addington, J., & Maticka-Tyndale, E. (1993a). Assessing depression in schizophrenia: the Calgary Depression Scale. *British Journal Psychiatry Supplement*, 22, 39-44.
- Addington, D., Addington, J., & Maticka-Tyndale, E. (1993b). Assessing depression in schizophrenia: the Calgary Depression Scale. *Br J Psychiatry Suppl*(22), 39-44.
- Addington, J., Shah, H., Liu, L., & Addington, D. (2014). Reliability and Validity of the Calgary Depression Scale for Schizophrenia (CDSS) in Youth at Clinical High Risk for Psychosis. *Schizophr Res*, 153(0), 64-67. doi: 10.1016/j.schres.2013.12.014
- Agudo, A., Pera, G., Rodriguez, M., Quiros, J. R., Navarro, C., Martinez, C., . . . Gonzalez, C. A. (2004). Changes in smoking habits in adults: results from a prospective study in Spain. *Ann Epidemiol*, 14(4), 235-243. doi: 10.1016/s1047-2797(03)00245-x
- Alphs, L., Morlock, R., Coon, C., van Willigenburg, A., & Panagides, J. (2010). The 4-Item Negative Symptom Assessment (NSA-4) Instrument: A Simple Tool for Evaluating Negative Symptoms in Schizophrenia Following Brief Training. *Psychiatry (Edgmont)*, 7(7), 26-32.
- Altamura, A. C., Bassetti, R., Bignotti, S., Pioli, R., & Mundo, E. (2003). Clinical variables related to suicide attempts in schizophrenic patients: a retrospective study. *Schizophrenia Research*, 60(1), 47-55.
- Alterman, A. I., Gariti, P., & Mulvaney, F. (2001). Short- and long-term smoking cessation for three levels of intensity of behavioral treatment. *Psychol Addict Behav*, 15(3), 261-264.
- Anda, R. F., Williamson, D. F., Escobedo, L. G., Mast, E. E., Giovino, G. A., & Remington, P. L. (1990). Depression and the dynamics of smoking. A national perspective. *JAMA*, 264(12), 1541-1545.
- Andreasen, N. C. (1984). *Scale for the Assessment of Positive Symptoms (SAPS)* Iowa City: University of Iowa.
- Ashton, M., Lawn, S., & Hosking, J. R. (2010). Mental health workers' views on addressing tobacco use. *Aust N Z J Psychiatry*, 44(9), 846-851. doi: 10.3109/00048674.2010.488637
- Axelrod, B., Goldman, R. S., & Alphs, L. (1993). Validation of the 16-item Negative Symptom Assessment. *J Psychiatr Res*, 27(3), 253-258.
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (1992). *The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care*. CH-1211 Geneva 27, Switzerland: World Health Organization
- Babor, T. H., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The Alcohol Use Disorders Identification Test : Guidelines for Use in Primary Care*. Switzerland: World Health Organization.
- Bailey, S. R., Bryson, S. W., & Killen, J. D. (2011). Predicting successful 24-hr quit attempt in a smoking cessation intervention. *Nicotine & Tobacco Research*:

- Official Journal Of The Society For Research On Nicotine And Tobacco*, 13(11), 1092-1097. doi: 10.1093/ntr/ntr151
- Baker, A., Richmond, R., Haile, M., & al., e. (2006). A Randomized Controlled Trial of a Smoking Cessation Intervention Among People With a Psychotic Disorder. *American Journal Psychiatry*, 163, 1934-1942.
- Baker, A., Richmond, R., Haile, M., Lewin, T. J., Carr, V. J., Taylor, R. L., . . . Moeller-Saxone, K. (2007). Characteristics of smokers with a psychotic disorder and implications for smoking interventions. *Psychiatry Research*, 150(2), 141-152. doi: <http://dx.doi.org/10.1016/j.psychres.2006.05.021>
- Barr, R. S., Culhane, M. A., Jubelt, L. E., Mufti, R. S., Dyer, M. A., Weiss, A. P., . . . Evins, A. (2008). The effects of transdermal nicotine on cognition in nonsmokers with schizophrenia and nonpsychiatric controls. *Neuropsychopharmacology*, 33(3), 480-490.
- Barth, J., Critchley, J., & Bengel, J. (2006). Efficacy of psychosocial interventions for smoking cessation in patients with coronary heart disease: a systematic review and meta-analysis. *Ann Behav Med*, 32(1), 10-20. doi: 10.1207/s15324796abm3201_2
- Beck, A. T., Steer, R. A., & Brown, G. K. (1969). *Manual for the Beck Depression Inventory-II*. San Antonio Texas: Psychological Corporation.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4(561-571).
- Benowitz, N. L. (2008). Neurobiology of nicotine addiction: implications for smoking cessation treatment. *Am J Med*, 121(4 Suppl 1), S3-10. doi: 10.1016/j.amjmed.2008.01.015
- Benowitz, N. L., Kuyt, F., Jacob, P., 3rd, Jones, R. T., & Osman, A. L. (1983). Cotinine disposition and effects. *Clin Pharmacol Ther*, 34(5), 604-611.
- Beratis, S., Katrivanou, A., & Gourzis, P. (2001). Factors affecting smoking in schizophrenia. *Compr Psychiatry*, 42(5), 393-402. doi: 10.1053/comp.2001.26273
- Biener, L., & Abrams, D. B. (1991). The Contemplation Ladder: validation of a measure of readiness to consider smoking cessation. *Health Psychol*, 10(5), 360-365.
- Bobo, J. K., Lando, H. A., Walker, R. D., & McIlvain, H. E. (1996). Predictors of tobacco quit attempts among recovering alcoholics. *J Subst Abuse*, 8(4), 431-443.
- Boonchan, T. (2007). *Predictors of smoking cessation in Thai patients*. (Master's thesis), Chulalongkorn University.
- Borland, R., Yong, H.-H., Balmford, J., Cooper, J., Cummings, K. M., O'Connor, R. J., . . . Fong, G. T. (2010). Motivational factors predict quit attempts but not maintenance of smoking cessation: findings from the International Tobacco Control Four country project. *Nicotine & Tobacco Research: Official Journal Of The Society For Research On Nicotine And Tobacco*, 12 Suppl, S4-S11. doi: 10.1093/ntr/ntq050
- Botts, S., Littrell, R., & de Leon, J. (2004). Variables associated with high olanzapine dosing in a state hospital. *Journal of Clinical Psychiatry*, 65, 113-143.

- Brady, N., & McCain, G. (2004). Living with Schizophrenia: A Family Perspective. *OJIN: The Online Journal of Issues in Nursing*, 10(1). doi: DOI: 10.3912/OJIN.Vol10No01HirshPsy01
- Breslau, N., Peterson, E., Schultz, L., Andreski, P., & Chilcoat, H. (1996). Are smokers with alcohol disorders less likely to quit? *American Journal of Public Health*, 86(7), 985-990. doi: 10.2105/AJPH.86.7.985
- Breslau, N., Schultz, L. R., Johnson, E. O., Peterson, E. L., & Davis, G. C. (2005). Smoking and the risk of suicidal behavior: a prospective study of a community sample. *Arch Gen Psychiatry*, 62(3), 328-334. doi: 10.1001/archpsyc.62.3.328
- Brislin, R. W. (1970). Back-Translation for Cross-Cultural Research. *Journal of Cross-Cultural Psychology*, 1(3), 185-216. doi: 10.1177/135910457000100301
- Brown, S., Inskip, H., & Barraclough, B. (2000). Causes of the excess mortality of schizophrenia. *British Journal of Psychiatry*, 177, 212-217.
- Burns, N., & Grove, S. (2009). *The Practice of Nursing Research: appraisal, synthesis, and generation of evidence* (6th ed.). St. Louis: W. B. Saunders.
- Businelle, M. S., Lam, C. Y., Kendzor, D. E., Cofta-Woerpel, L., McClure, J. B., Cinciripini, P. M., & Wetter, D. W. (2013). Alcohol Consumption and Urges to Smoke among Women during a Smoking Cessation Attempt. *Experimental and clinical psychopharmacology*, 21(1), 10.1037/a0031009. doi: 10.1037/a0031009
- Campion, J., Checinski, K., & Nurse, J. (2008). Review of smoking cessation treatments for people with mental illness. *Advances in Psychiatric Treatment*, 14, 208-216.
- Caponnetto, P., & Polosa, R. (2008). Common predictors of smoking cessation in clinical practice. *Respiratory Medicine*, 102(8), 1182-1192. doi: <http://dx.doi.org/10.1016/j.rmed.2008.02.017>
- Challenger, A., Coleman, T., & Lewis, S. (2007). Predicting default from smoking cessation treatment following enrolment. *Health Education Journal*, 66(1), 32-43. doi: 10.1177/0017896907069379
- Chandola, T., Head, J., & Bartley, M. (2004). Socio-demographic predictors of quitting smoking: how important are household factors? *Addiction*, 99(6), 770-777. doi: 10.1111/j.1360-0443.2004.00756.x
- Chiappetta, V., Garcia-Rodriguez, O., Jin, C. J., Secades-Villa, R., & Blanco, C. (2014). Predictors of quit attempts and successful quit attempts among individuals with alcohol use disorders in a nationally representative sample. *Drug Alcohol Depend*, 141, 138-144. doi: 10.1016/j.drugalcdep.2014.05.019
- Chinga, T. (2003). *Knowledge, attitude and cigarette smoking behavior among in-patients schizophrenic at Somdet Chaopraya Institute of Psychiatry*. (Master thesis, Nursing science), Chulalongkorn University.
- Cosci, F., JE., K., Abrams, K., Griez, E., & Schruers, K. (2009). Cigarette smoking and panic: A critical review of the literature. *Clinical Psychiatry*, 71(5), 606-615. doi: 10.4088/JCP.08r04523blu

- Courville, T., & Thompson, B. (2001). Use of Structure Coefficients in Published Multiple Regression Articles: β is not Enough. *Educational and Psychological Measurement*, 61(2), 229-248. doi: 10.1177/0013164401612006
- Crocker, L. M., & Algina, J. (1986). *Introduction to classical and modern test theory*. New York: Holt, Rinehart, and Winston.
- Culhane, M. A., Schoenfeld, D. A., Barr, R. S., Cather, C., Deckersbach, T., Freudenreich, O., . . . Evins, A. E. (2008). Predictors of Early Abstinence in Smokers with Schizophrenia. *The Journal of clinical psychiatry*, 69(11), 1743-1750.
- Curry, S., Wagner, E. H., & Grothaus, L. C. (1990). Intrinsic and extrinsic motivation for smoking cessation. *J Consult Clin Psychol*, 58(3), 310-316.
- Curry, S. J., Grothaus, L., & McBride, C. (1997). Reasons for quitting: intrinsic and extrinsic motivation for smoking cessation in a population-based sample of smokers. *Addict Behav*, 22(6), 727-739.
- Davila, E. P., Zhao, W., Byrne, M., Webb, M., Huang, Y., Arheart, K., . . . Lee, D. J. (2009). Correlates of smoking quit attempts: Florida Tobacco Callback Survey, 2007. *Tob Induc Dis*, 5(1), 1-10. doi: 10.1186/1617-9625-5-10
- Davila, E. P., Zhao, W., Byrne, M., Webb, M., Huang, Y., Arheart, K., . . . Lee, D. J. (2009). Correlates of smoking quit attempts: Florida Tobacco Callback Survey, 2007. *Tob Induc Dis*, 5, 10. doi: 10.1186/1617-9625-5-10
- de Leon, J., & Diaz, F. J. (2005). A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. *Schizophr Res*, 76(2-3), 135-157. doi: 10.1016/j.schres.2005.02.010
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. . New York: Plenum.
- Department of Mental Health, M. o. P. H. (2014). Annual report.
- Desai, H. D., Seabolt, J., & Jann, M. W. (2001). Smoking in patients receiving psychotropic medications: a pharmacokinetic perspective. *CNS Drugs*, 15(6), 469-494.
- DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). California: Sage.
- DiClemente, C. C., Prochaska, J. O., Fairhurst, S. K., Velicer, W. F., Velasquez, M. M., & Rossi, J. S. (1991). The process of smoking cessation: an analysis of precontemplation, contemplation, and preparation stages of change. *J Consult Clin Psychol*, 59(2), 295-304.
- Dixon, L. B., Medoff, D., Goldberg, R., Lucksted, A., Kreyenbuhl, J., DiClemente, C., . . . Afful, J. (2009). Is implementation of the 5 A's of smoking cessation at community mental health centers effective for reduction of smoking by patients with serious mental illness? *Am J Addict*, 18(5), 386-392. doi: 10.3109/10550490903077747
- Dutra, S. J., Stoeckel, L. E., Carlini, S. V., Pizzagalli, D. A., & Evins, A. E. (2012). Varenicline as a smoking cessation aid in schizophrenia: effects on smoking behavior and reward sensitivity. *Psychopharmacology (Berl)*, 219(1), 25-34. doi: 10.1007/s00213-011-2373-6
- Dvorak, R. D., Simons, J. S., & Wray, T. B. (2011). Alcohol use and problem severity: Associations with dual systems of self-control. . *Journal of Studies on Alcohol and Drugs*, 72(4), 678-684.

- Edwards, G., & Gross, M. M. (1976). Alcohol dependence: provisional description of a clinical syndrome. *British Medical Journal*, *1*(6017), 1058-1061.
- Etter, M., Mohr, S., Garin, C., & Etter, J. F. (2004). Stages of change in smokers with schizophrenia or schizoaffective disorder and in the general population. *Schizophr Bull*, *30*(2), 459-468.
- Evins, A. E., Cather, C., Deckersbach, T., Freudenreich, O., Culhane, M. A., Olm-Shipman, C. M., . . . Rigotti, N. A. (2005). A double-blind placebo-controlled trial of bupropion sustained-release for smoking cessation in schizophrenia. *J Clin Psychopharmacol*, *25*(3), 218-225.
- Evins, A. E., Cather, C., Rigotti, N. A., Freudenreich, O., Henderson, D. C., Olm-Shipman, C. M., & Goff, D. C. (2004). Two-year follow-up of a smoking cessation trial in patients with schizophrenia: increased rates of smoking cessation and reduction. *J Clin Psychiatry*, *65*. doi: 10.4088/JCP.v65n0304
- Evins, A. E., Mays, V. K., Rigotti, N. A., Tisdale, T., Cather, C., & Goff, D. C. (2001). A pilot trial of bupropion added to cognitive behavioral therapy for smoking cessation in schizophrenia. *Nicotine & Tobacco Research: Official Journal Of The Society For Research On Nicotine And Tobacco*, *3*(4), 397-403.
- Fagan, P., Augustson, E., Backinger, C. L., O'Connell, M. E., Vollinger, R. E., Kaufman, A., & Gibson, J. T. (2007). Quit attempts and intention to quit cigarette smoking among young adults in the United States. *American Journal of Public Health*, *97*. doi: 10.2105/ajph.2006.103697
- Farkas, A. J., Gilpin, E. A., Distefan, J. M., & Pierce, J. P. (1999). The effects of household and workplace smoking restrictions on quitting behaviours. *Tobacco Control*, *8*(3), 261-265. doi: 10.1136/tc.8.3.261
- Farkas, A. J., Pierce, J. P., Zhu, S. H., Rosbrook, B., Gilpin, E. A., Berry, C., & Kaplan, R. M. (1996). Addiction versus stages of change models in predicting smoking cessation. *Addiction*, *91*. doi: 10.1111/j.1360-0443.1996.tb03608.x
- Ferron, J. C., Brunette, M. F., He, X., Xie, H., McHugo, G. J., & Drake, R. E. (2011). Course of smoking and quit attempts among clients with co-occurring severe mental illness and substance use disorders. *Psychiatr Serv*, *62*. doi: 10.1176/ps.62.4.pss6204_0353
- Fiore, M., Jaén, C., Baker, T., & al., e. (2008). Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline. from Rockville, MD: U.S. Department of Health and Human Services. Public Health Service
- Flanders, W. D., Lally, C. A., Zhu, B. P., Henley, S. J., & Thun, M. J. (2003). Lung cancer mortality in relation to age, duration of smoking, and daily cigarette consumption: results from Cancer Prevention Study II. *Cancer Res*, *63*(19), 6556-6562.
- George, T. P., Vessicchio, J. C., Termine, A., Bregartner, T. A., Feingold, A., Rounsaville, B. J., & Kosten, T. R. (2002). A placebo controlled trial of bupropion for smoking cessation in schizophrenia. *Biol Psychiatry*, *52*(1), 53-61.
- Glassman, A. H., Helzer, J. E., Covey, L. S., Cottler, L. B., Stetner, F., Tipp, J. E., & Johnson, J. (1990). Smoking, smoking cessation, and major depression. *JAMA*, *264*(12), 1546-1549.

- Goldberg, J. O., Moll, S., & Washington, A. (1996). Exploring the challenge of tobacco use and schizophrenia. *Psychiatr Rehab Skills, 1*. doi: 10.1080/10973435.1996.10387541
- Green, M., & Clarke, D. (2005). Smoking reduction and cessation: a hospital-based survey of outpatients' attitudes. *Journal Psychosocial Mental Health Survey, 43*, 18-25.
- Hagimoto, A., Nakamura, M., Morita, T., Masui, S., & Oshima, A. (2010). Smoking cessation patterns and predictors of quitting smoking among the Japanese general population: a 1-year follow-up study. *Addiction, 105*(1), 164-173. doi: 10.1111/j.1360-0443.2009.02735.x
- Hair, J., Black, B., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis* (6 ed.). Upper Saddle River New Jersey: Prentice-Hall.
- Hair, J., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate Data Analysis* (6th ed.). Upper Saddle River: NJ: Pearson Prentice Hall.
- Haslemo, T., Eikeseth, P. H., Tanum, L., Molden, E., & Refsum, H. (2006). The effect of variable cigarette consumption on the interaction with clozapine and olanzapine. *European Journal of Clinical Pharmacology, 62*(12), 1049-1053.
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K.-O. (1991a). The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *Br J Addict, 86*. doi: 10.1111/j.1360-0443.1991.tb01879.x
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991b). The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *Br J Addict, 86*(9), 1119-1127.
- Hewitt, J. (2007). Smoking cessation - effect on psychotropic medication including clozapine. *Sussex Partnership NHS Trust*.
- Hitsman, B., Papandonatos, G. D., McChargue, D. E., DeMott, A., Herrera, M. J., Spring, B., . . . Niaura, R. (2013). Past major depression and smoking cessation outcome: a systematic review and meta-analysis update. *Addiction, 108*(2), 294-306. doi: 10.1111/add.12009
- Hou, Y. Z., Xiang, Y. T., Yan, F., Ungvari, G. S., Dickerson, F., Chiu, H., & al., e. (2011). Cigarette smoking in community-dwelling patients with schizophrenia in China. *Journal of Psychiatric Research, 45*, 1551-1556.
- Hughes, J. R., & Callas, P. W. (2010). Definition of a quit attempt: a replication test. *Nicotine & Tobacco Research: Official Journal Of The Society For Research On Nicotine And Tobacco, 12*(11), 1176-1179. doi: 10.1093/ntr/ntq165
- Hughes, J. R., & Callas, P. W. (2011). Is delaying a quit attempt associated with less success? *Nicotine & Tobacco Research: Official Journal Of The Society For Research On Nicotine And Tobacco, 13*(12), 1228-1232. doi: 10.1093/ntr/ntq207
- Hughes, J. R., Carpenter, M. J., & Naud, S. (2010). Do point prevalence and prolonged abstinence measures produce similar results in smoking cessation studies? A systematic review. *Nicotine & Tobacco Research, 12*(7), 756-762. doi: 10.1093/ntr/ntq078
- Hughes, J. R., Keely, J. P., Niaura, R. S., Ossip-Klein, D. J., Richmond, R. L., & Swan, G. E. (2003). Measures of abstinence in clinical trials: issues and

- recommendations. *Nicotine & Tobacco Research*, 5(1), 13-25. doi: 10.1093/ntr/5.1.13
- Husten, C. G. (2007). Smoking Cessation in Young Adults. *American Journal of Public Health*, 97(8), 1354-1356. doi: 10.2105/AJPH.2007.117358
- Hyland, A., Borland, R., Li, Q., Yong, H.-H., McNeill, A., Fong, G. T., . . . Cummings, K. M. (2006). Individual-level predictors of cessation behaviours among participants in the International Tobacco Control (ITC) Four Country Survey. *Tob Control*, 15.
- Hymowitz, N., Cummings, K., Hyland, A., Lynn, W., Pechacek, T., & Hartwell, T. (1997). Predictors of smoking cessation in a cohort of adult smokers followed for five years. *Tobacco Control*, 6(Suppl 2), S57-S62.
- Jackson, C., & Henriksen, L. (1997). Do as I say: parent smoking, antismoking socialization, and smoking onset among children. *Addictive Behaviors*, 22, 107-114.
- Japuntich, S. J., Smith, S. S., Jorenby, D. E., Piper, M. E., Fiore, M. C., & Baker, T. B. (2007). Depression predicts smoking early but not late in a quit attempt. *Nicotine & Tobacco Research: Official Journal Of The Society For Research On Nicotine And Tobacco*, 9(6), 677-686.
- Jiang, N., & Ling, P. M. (2013). Impact of Alcohol Use and Bar Attendance on Smoking and Quit Attempts Among Young Adult Bar Patrons. *American Journal of Public Health*, 103(5), e53-e61. doi: 10.2105/AJPH.2012.301014
- John, U., Meyer, C., Rumpf, H.-J., & Hapke, U. (2004). Smoking, nicotine dependence and psychiatric comorbidity—a population-based study including smoking cessation after three years. *Drug Alcohol Depend*, 76. doi: 10.1016/j.drugalcdep.2004.06.004
- Joseph, A., Lexau, B., Willenbring, M., Nugent, S., & Nelson, D. (2004). Factors associated with readiness to stop smoking among patients in treatment for alcohol use disorder. *Am J Addict*, 13(4), 405-417. doi: 10.1080/10550490490483116
- Kalman, D., Morissette, S. B., & George, T. P. (2005). Co-Morbidity of Smoking in Patients with Psychiatric and Substance Use Disorders. *Am J Addict*, 14(2), 106-123. doi: 10.1080/10550490590924728
- Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr Bull*, 13(2), 261-276.
- Kelly, C., & McCreadie, R. (2000). Cigarette smoking and schizophrenia. *Advances in Psychiatric Treatment*, 6, 327-331.
- Kelly, D. L., Gallagher, H., Lo, S., Wright, K., Moolchan, E., Feldman, S., . . . Heishman, S. (2010). MOTIVATORS FOR SMOKING CESSATION AND KNOWLEDGE AND PERCEPTION OF SMOKING RISKS/CONSEQUENCES AMONG PEOPLE WITH SCHIZOPHRENIA COMPARED TO NORMAL CONTROLS. *Schizophrenia Research*, 117(2-3), 309-310. doi: <http://dx.doi.org/10.1016/j.schres.2010.02.520>
- Kelly, D. L., Raley, H. G., Lo, S., Wright, K., Liu, F., McMahon, R. P., . . . Heishman, S. J. (2012). Perception of Smoking Risks and Motivation to Quit Among Nontreatment-Seeking Smokers With and Without Schizophrenia. *Schizophrenia Bulletin*, 38(3), 543-551. doi: 10.1093/schbul/sbq124

- Khara, M., ., & Okoli, C. (2011). Smoking Cessation Outcomes among Individuals with Substance Use and/or Psychiatric Disorders. *Journal of Addiction Research Therapy*, 2(15). doi: 10.4172/2155-6105.1000115
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford.
- Klongchai, T. (2009). *The development of a clinical practice guideline for smoking reduction and cessation in schizophrenia patients*. (Mental Health and Psychiatric Nursing), Mahidol University.
- Kotz, D., Brown, J., & West, R. (2013). Predictive validity of the Motivation To Stop Scale (MTSS): a single-item measure of motivation to stop smoking. *Drug Alcohol Depend*, 128(1-2), 15-19. doi: 10.1016/j.drugalcdep.2012.07.012
- Kozlowski, L. T., Porter, C. Q., Orleans, C. T., Pope, M. A., & Heatherton, T. (1994). Predicting smoking cessation with self-reported measures of nicotine dependence: FTQ, FTND, and HSI. *Drug Alcohol Depend*, 34(3), 211-216.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Psychological measurement*. *Educational and Psychological Measurement*, 30, 607-610.
- Kumari, V., & Postma, P. (2005). Nicotine use in schizophrenia: the self medication hypotheses. *Neurosci Biobehav Rev*, 29(6), 1021-1034. doi: 10.1016/j.neubiorev.2005.02.006
- Kuptniratsaikul, V., & Pekuman, P. (1997). The study of the Center for Epidemiologic Studies-Depression Scale (CES-D) in Thai people *Siriraj Hospital Gazette*, 49(5), 442-448.
- Lako, I. M., Bruggeman, R., Knegtering, H., Wiersma, D., Schoevers, R. A., Slooff, C. J., & Taxis, K. (2012). A systematic review of instruments to measure depressive symptoms in patients with schizophrenia. *Journal of Affective Disorders*, 140(1), 38-47. doi: 10.1016/j.jad.2011.10.014
- Lancaster, T., Stead, L., Silagy, C., & Sowden, A. (2000). Effectiveness of interventions to help people stop smoking: findings from the Cochrane Library. *BMJ*, 321(7257), 355-358.
- Lancaster, T., & Stead, L. F. (2005). Individual behavioural counselling for smoking cessation. *Cochrane Database Syst Rev*(2). doi: 10.1002/14651858.CD001292.pub2
- Lasser, K., Boyd, J. W., Woolhandler, S., Himmelstein, D. U., McCormick, D., & Bor, D. H. (2000). Smoking and mental illness: A population-based prevalence study. *JAMA*, 284(20), 2606-2610.
- Lawrence, D., Mitrou, F., & Zubrick, S. R. (2009). Smoking and mental illness: results from population surveys in Australia and the United States. *BMC Public Health*, 9. doi: 10.1186/1471-2458-9-285
- Le, C. F., Mukeria, A., Hunt, J. D., Kelm, O., Hung, R. J., Tanire, P., . . . Hainaut, P. (2005). TP53 and KRAS mutation load and types in lung cancers in relation to tobacco smoke: distinct patterns in never, former, and current smokers. *Cancer Research*, 65, 5076-5083.

- Lee, J., & Cooke, J. P. (2012). Nicotine and pathological angiogenesis. *Life Sciences*, *91*(21-22), 1058-1064.
- Lim, K. H., Idzwan, M. F., Sumarni, M. G., Kee, C. C., Amal, N. M., Lim, K. K., & Gurpreet, K. (2012). Heaviness of smoking index, number of cigarettes smoked and the Fagerstrom test for nicotine dependence among adult male Malaysians. *Asian Pac J Cancer Prev*, *13*(1), 343-346.
- Lineberry, T. W., Allen, J. D., Nash, J., & Galaray, C. W. (2009). Population Based Prevalence of Smoking in Psychiatric Inpatients: A Focus on Acute Suicide Risk and Major Diagnostic Groups. *Compr Psychiatry*, *50*(6), 526-532. doi: doi:10.1016/j.comppsy.2009.01.004
- Lising-Enriquez, K., & George, T. P. (2009). Treatment of comorbid tobacco use in people with serious mental illness. *Journal of Psychiatry & Neuroscience : JPN*, *34*(3), E1-E2.
- Lohr, J. B., & Flynn, K. (1992). Smoking and schizophrenia. *Schizophr Res*, *8*(2), 93-102.
- Lucksted, A., McGuire, C., Postrado, L., Kreyenbuhl, J., & Dixon, L. B. (2004). Specifying Cigarette Smoking and Quitting among People with Serious Mental Illness. *The American Journal on Addictions*, *13*(2), 128-138. doi: 10.1080/10550490490436000
- MacFarlane, K., Paynter, J., Arroll, B., & Youdan, B. (2011). Tax as a motivating factor to make a quit attempt from smoking: A study before and after the April 2010 tax increase. *Journal Primary Health Care*, *3*(4), 283-288. .
- Macy, J. T., Seo, D.-C., Chassin, L., Presson, C. C., & Sherman, S. J. (2007). Prospective Predictors of Long-Term Abstinence Versus Relapse Among Smokers Who Quit as Young Adults. *American Journal of Public Health*, *97*(8), 1470-1475. doi: 10.2105/AJPH.2006.101386
- Mann-Wrobel, M. C., Bennett, M. E., Weiner, E. E., Buchanan, R. W., & Ball, M. P. (2011). Smoking history and motivation to quit in smokers with schizophrenia in a smoking cessation program. *Schizophr Res*, *126*(1-3), 277-283. doi: 10.1016/j.schres.2010.10.030
- Marshall, E. C., Vujanovic, A. A., Kutz, A., Gibson, L., Leyro, T., & Zvolensky, M. J. (2009). Reasons for Quitting Smoking Prior to a Self-Quit Attempt among Smokers with and without Posttraumatic Stress Disorder or Other Anxiety/Mood Psychopathology. *The American Journal on Addictions*, *18*(4), 309-315. doi: 10.1080/10550490902925763
- Martínez, C., Fu, M., Martínez-Sánchez, J. M., Antón, L., Fernández, P., Ballbè, M., . . . Fernández, E. (2014). Impact of a long-term tobacco-free policy at a comprehensive cancer center: a series of cross-sectional surveys. *BMC Public Health*, *14*(1), 1-10. doi: 10.1186/1471-2458-14-1228
- Martínez, C., Guldish, J., Le, T., Tajima, B., & Passalacqua, E. (2015). Predictors of quit attempts among smokers enrolled in substance abuse treatment. *Addictive Behaviors*, *40*, 1-6. doi: <http://dx.doi.org/10.1016/j.addbeh.2014.08.005>
- Martinez, C., Martinez-Sanchez, J. M., Robinson, G., Berther, C., & Fernandez, E. (2013) *Protection to Secondhand Smoke in the WHO European Region: an assessment of legislation.*

- McCaul, K. D., Mullens, A. B., Romanek, K. M., Erickson, S. C., & Gatheridge, B. J. (2007). The motivational effects of thinking and worrying about the effects of smoking cigarettes. *Cognition and Emotion, 21*(8), 1780-1798.
- McDermott, M. S., Marteau, T. M., Hollands, G. J., Hankins, M., & Aveyard, P. (2013). Change in anxiety following successful and unsuccessful attempts at smoking cessation: cohort study. *Br J Psychiatry, 202*(1), 62-67. doi: 10.1192/bjp.bp.112.114389
- Meisenzahl, E. M., Seifert, D., Bottlender, R., Teipel, S., Zetzsche, T., Jager, M., . . . Frodl, T. (2010). Differences in hippocampal volume between major depression and schizophrenia: a comparative neuroimaging study. *Eur Arch Psychiatry Clin Neurosci, 260*(2), 127-137. doi: 10.1007/s00406-009-0023-3
- Mertler, C. A., & Vannatta, R. A. (2002). *Advanced and multivariate statistical methods: practical application and interpretation*. Los Angeles: Pyrczak Publishing.
- Metse, A. P., Wiggers, J., Wye, P., Moore, L., Clancy, R., Wolfenden, L., . . . Bowman, J. A. (2016). Smoking and environmental characteristics of smokers with a mental illness, and associations with quitting behaviour and motivation; a cross sectional study. *BMC Public Health, 16*(1), 1-11. doi: 10.1186/s12889-016-2969-1
- Michopoulos, I., Rizos, E., Gournellis, R., Karvouni, A., Kotsiounpa, I., & Douzenis, A. (2015). Smoking reduction in psychiatric inpatients is feasible: results from a 12-month prospective study. *Annals of General Psychiatry, 14*, 4. doi: 10.1186/s12991-015-0043-5
- Miksys, S., & Tyndale, R. F. (2006). Nicotine induces brain CYP enzymes: relevance to Parkinson's disease. *J Neural Transm Suppl*(70), 177-180.
- Milani, H. S., Kharaghani, R., Safa, M., Samadi, R., Farhadi, M. H., Ardakani, M. R. K., . . . Masjedi, M. R. (2012). Pattern of Smoking and Nicotine Dependence in Patients with Psychiatric Disorders. *Tanaffos, 11*(1), 55-60.
- Miller, W. R., & Rollnick, S. (2002). *Motivational Interviewing: Preparing People to Change*: Guilford press.
- Miller, W. R., & Rose, G. S. (2009). Toward a Theory of Motivational Interviewing. *The American psychologist, 64*(6), 527-537. doi: 10.1037/a0016830
- Moran, S., Wechsler, H., & Rigotti, N. A. (2004). Social smoking among US college students. *Pediatrics, 114*(4), 1028-1034. doi: 10.1542/peds.2003-0558-L
- Myrsten, A. L., Andersson, K., & Frankenhauser, M. (1975). Immediate effects of cigarette smoking related to different smoking habits. *Perceptual and Motor Skills, 40*, 515-523.
- Nidecker, M., DiClemente, C. C., Bennett, M. E., & Bellack, A. S. (2008). Application of the Transtheoretical Model of Change: Psychometric Properties of Leading Measures in Patients with Co-Occurring Drug Abuse and Severe Mental Illness. *Addictive Behaviors, 33*(8), 1021-1030. doi: 10.1016/j.addbeh.2008.03.012
- Nohlert, E., Ohrvik, J., Tegelberg, A., Tillgren, P., & Helgason, A. R. (2013). Long-term follow-up of a high- and a low-intensity smoking cessation intervention in a dental setting--a randomized trial. *BMC Public Health, 13*, 592. doi: 10.1186/1471-2458-13-592

- Norcross, J. C., Krebs, P. M., & Prochaska, J. O. (2011). Stages of change. *J Clin Psychol*, *67*(2), 143-154. doi: 10.1002/jclp.20758
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Okoli, C., Johnson, A., Pederson, A., Adkins, S., & Rice, W. (2013). Changes in smoking behaviours following a smokefree legislation in parks and on beaches: an observational study. *BMJ Open*, *3*(6). doi: 10.1136/bmjopen-2013-002916
- Okoli, C. T., Khara, M., Torchalla, I., Ensom, M. H., Oliffe, J. L., Bottorff, J. L., & Stanley, P. J. (2011). Sex differences in smoking cessation outcomes of a tailored program for individuals with substance use disorders and mental illness. *Addict Behav*, *36*(5), 523-526. doi: 10.1016/j.addbeh.2010.12.029
- Orleans, C. T., & Ockene, J. K. (1993). Routine hospital-based quit-smoking treatment for the postmyocardial infarction patient: An idea whose time has come. *Journal of the American College of Cardiology*, *22*(6), 1703-1705. doi: 10.1016/0735-1097(93)90599-V
- Osborne, J., & Elaine, W. (2002). Four assumptions of multiple regression that researchers should always test. *Practical Assessment, Research & Evaluation*, *8*(2).
- Overall, J. E., & Gorham, D. R. (1962). The Brief Psychiatric Rating Scale. *Psychological Reports*, *10*, 90- 812.
- Paradise, A. (2004). Why the Joint Commission on Accreditation of Healthcare Organizations should add new regulations regarding libraries. *Journal of the Medical Library Association*, *92*(2), 166-168.
- Patkar, A. A., Gopalakrishnan, R., Lundy, A., Leone, F. T., Certa, K. M., & Weinstein, S. P. (2002). Relationship between tobacco smoking and positive and negative symptoms in schizophrenia. *J Nerv Ment Dis*, *190*(9), 604-610. doi: 10.1097/01.nmd.0000030525.40247.b9
- Patten, C. A., & Martin, J. E. (1996). Does nicotine withdrawal affect smoking cessation? Clinical and theoretical issues. *Annals of Behavioral Medicine*, *18*(3), 190-200. doi: 10.1007/bf02883397
- Poirier, M. F., Canceil, O., Bayle, F., Millet, B., Bourdel, M. C., Moatti, C., . . . Attar-Levy, D. (2002). Prevalence of smoking in psychiatric patients. *Prog Neuropsychopharmacol Biol Psychiatry*, *26*(3), 529-537.
- Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*, *30*(4), 459-467. doi: 10.1002/nur.20199
- Pradhan, B., Chappuis, F., Baral, D., Karki, P., Rijal, S., Hadengue, A., & Gache, P. (2012). The alcohol use disorders identification test (AUDIT): validation of a Nepali version for the detection of alcohol use disorders and hazardous drinking in medical settings. *Substance Abuse Treatment, Prevention, and Policy*, *7*, 42-42. doi: 10.1186/1747-597X-7-42
- Prochaska, J. J., Hall, S. E., Delucchi, K., & Hall, S. M. (2014). Efficacy of initiating tobacco dependence treatment in inpatient psychiatry: a randomized controlled trial. *Am J Public Health*, *104*. doi: 10.2105/ajph.2013.301403

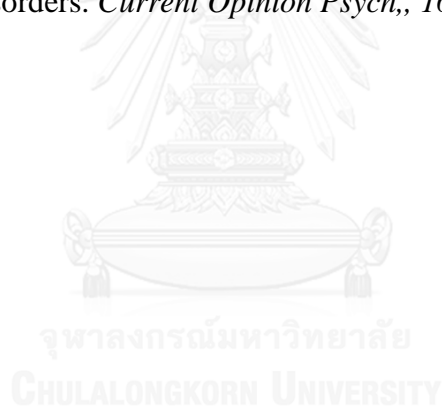
- Prochaska, J. J., Hall, S. M., & Bero, L. A. (2008). Tobacco use among individuals with schizophrenia: what role has the tobacco industry played? *Schizophr Bull*, 34(3), 555-567. doi: 10.1093/schbul/sbm117
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change. Applications to addictive behaviors. *Am Psychol*, 47. doi: 10.1037/0003-066x.47.9.1102
- Radloff, L. S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*, 1(3), 385-401. doi: 10.1177/014662167700100306
- Rafful, C., García-Rodríguez, O., Wang, S., Secades-Villa, R., Martínez-Ortega, J. M., & Blanco, C. (2013). Predictors of quit attempts and successful quit attempts in a nationally representative sample of smokers. *Addictive Behaviors*, 38(4), 1920-1923. doi: <http://dx.doi.org/10.1016/j.addbeh.2012.12.019>
- Resnick, M. P., & Bosworth, E. E. (1989). A smoke-free psychiatric unit. *Hosp Community Psychiatry*, 40(5), 525-527.
- Riala, K., Hakko, H., Isohanni, M., Pouta, A., & Räsänen, P. (2005). Is initiation of smoking associated with the prodromal phase of schizophrenia? *Journal of Psychiatry and Neuroscience*, 30(1), 26-32.
- Rice, V. H., & Stead, L. F. (2008). Nursing interventions for smoking cessation. *Cochrane Database Syst Rev*(1), Cd001188. doi: 10.1002/14651858.CD001188.pub3
- Rigotti, N. A., Munafo, M. R., Murphy, M. F., & Stead, L. F. (2003). Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev*(1), Cd001837. doi: 10.1002/14651858.cd001837
- Rigotti, N. A., Munafo, M. R., & Stead, L. F. (2007). Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev*(3), Cd001837. doi: 10.1002/14651858.CD001837.pub2
- Rigotti, N. A., Munafo, M. R., & Stead, L. F. (2008). Smoking cessation interventions for hospitalized smokers: a systematic review. *Archives International Medicine*, 168(18), 1950-1960.
- Rigotti, N. A., Singer, D. E., Mulley, A. G., & Thibault, G. E. (1991). Smoking cessation following admission to a coronary care unit. *Journal of General Internal Medicine*, 6. doi: 10.1007/bf02597426
- Roick, C., Fritz-Wieacker, A., Matschinger, H., Heider, D., Schindler, J., Riedel-Heller, S., & Angermeyer, M. C. (2007). Health habits of patients with schizophrenia. *Soc Psychiatry Psychiatr Epidemiol*, 42(4), 268-276. doi: 10.1007/s00127-007-0164-5
- Rojnawee, S. (2014). *Predicting factors of quit attempt in Thai adolescents*. (Doctor of Philosophy Program), Chulalongkorn University.
- Rollnick, S., Miller, W. R., & Butler, C. C. (2008). *Motivational Interviewing in Health Care: Helping Patients Change Behavior*. New York: Guilford Press.
- Salokangas, R. K., Honkonen, T., Stengard, E., Koivisto, A. M., & Hietala, J. (2006). Cigarette smoking in long-term schizophrenia. *European Psychiatry*, 21, 219-223.
- Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT):

- WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption. *Addiction.*, 88(6), 791-804.
- Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-II. *Addiction*, 88(6), 791-804. doi: 10.1111/j.1360-0443.1993.tb02093.x
- Selzer, M. L. (1971). The Michigan alcoholism screening test: the quest for a new diagnostic instrument. *Am J Psychiatry*, 127(12), 1653-1658. doi: 10.1176/ajp.127.12.1653
- Shah, L. M., King, A. C., Basu, A., Krishnan, J. A., Borden, W. B., Meltzer, D., & Arora, V. (2010). Effect of clinician advice and patient preparedness to quit on subsequent quit attempts in hospitalized smokers. *J Hosp Med*, 5(1), 26-32. doi: 10.1002/jhm.536
- Shah, L. M., King, A. C., Basu, A., Krishnan, J. A., Borden, W. B., Meltzer, D., & Arora, V. (2010). Effect of clinician advice and patient preparedness to quit on subsequent quit attempts in hospitalized smokers. *J Hosp Med*, 5(1), 26-32. doi: 10.1002/jhm.536
- Shieh, C. (2006). Practice-Based Evidence. *AWHONN Lifelines*, 10(5), 375-378. doi: 10.1111/j.1552-6356.2006.00081.x
- Shiffman, S., & Waters, A. J. (2004). Negative affect and smoking lapses: a prospective analysis. *J Consult Clin Psychol*, 72(2), 192-201. doi: 10.1037/0022-006x.72.2.192
- Simon, J. A., Carmody, T. P., Hudes, E. S., Snyder, E., & Murray, J. (2003). Intensive smoking cessation counseling versus minimal counseling among hospitalized smokers treated with transdermal nicotine replacement: a randomized trial. *Am J Med*, 114(7), 555-562.
- Simon, J. A., Carmody, T. P., Hudes, E. S., Snyder, E., & Murray, J. (2003). Intensive smoking cessation counseling versus minimal counseling among hospitalized smokers treated with transdermal nicotine replacement: a randomized trial. *Am J Med*, 114(7), 555-562. doi: [http://dx.doi.org/10.1016/S0002-9343\(03\)00081-0](http://dx.doi.org/10.1016/S0002-9343(03)00081-0)
- Siriwong, S., Yunibhand, J., & Preechawong, S. (2012a). Predictors of quitting smoking among The Royal Thai Navy Personnel. *J Health Res*, 26(6).
- Siriwong, S., Yunibhand, J., & Preechawong, S. (2012b). *Predictors of Quitting Smoking among the Royal Thai Navy Personnel*. (Doctoral degree), Chulalongkorn University.
- Smith, R. C., Singh, A., Infante, M., Khandat, A., & Kloos, A. (2002). Effects of cigarette smoking and nicotine nasal spray on psychiatric symptoms and cognition in schizophrenia. *Neuropsychopharmacology*, 27(3), 479-497. doi: 10.1016/s0893-133x(02)00324-x
- Solty, H., Crockford, D., White, W. D., & Currie, S. (2009). Cigarette smoking, nicotine dependence, and motivation for smoking cessation in psychiatric inpatients. *Can J Psychiatry*, 54(1), 36-45.
- Starr, G., Rogers, T., Schooley, M., Porter, S., Wiesen, E., & Jamison, N. (2005). Key outcome indicators for evaluating comprehensive tobacco control programs. *Centers for Disease Control and Prevention*.

- Steinberg, M. L., Ziedonis, D. M., Krejci, J. A., & Brandon, T. H. (2004). Motivational interviewing with personalized feedback: a brief intervention for motivating smokers with schizophrenia to seek treatment for tobacco dependence. *J Consult Clin Psychol*, *72*(4), 723-728. doi: 10.1037/0022-006x.72.4.723
- Stockings, E., Bowman, J., McElwaine, K., Baker, A., Terry, M., Clancy, R., . . . Wiggers, J. (2012). Readiness to Quit Smoking and Quit Attempts Among Australian Mental Health Inpatients. *Nicotine & Tobacco Research*. doi: 10.1093/ntr/nts206
- Stockings, E., Bowman, J., McElwaine, K., Baker, A., Terry, M., Clancy, R., . . . Wiggers, J. (2013). Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine & Tobacco Research: Official Journal Of The Society For Research On Nicotine And Tobacco*, *15*(5), 942-949. doi: 10.1093/ntr/nts206
- Stockings, E., Bowman, J., McElwaine, K., Baker, A., Terry, M., Clancy, R., . . . Wiggers, J. (2013). Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine Tob Res*, *15*(5), 942-949. doi: 10.1093/ntr/nts206
- Suttajit, S., Srisurapanont, M., Pilakanta, S., Charmsil, C., & Suttajit, S. (2013). Reliability and validity of the Thai version of the Calgary Depression Scale for Schizophrenia. *Neuropsychiatric Disease and Treatment*, *9*, 113-118. doi: 10.2147/NDT.S40292
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon.
- Takeuchi, T., Nakao, M., Shinozaki, Y., & Yano, E. (2010). Validity of self-reported smoking in schizophrenia patients. *Psychiatry and Clinical Neurosciences*, *64*(3), 274-278. doi: 10.1111/j.1440-1819.2010.02082.x
- Taylor, G., McNeill, A., Girling, A., Farley, A., Lindson-Hawley, N., & Aveyard, P. (2014). Change in mental health after smoking cessation: systematic review and meta-analysis. *BMJ*, *348*. doi: 10.1136/bmj.g1151
- Tidey, J. W., Rohsenow, D. J., Kaplan, G. B., Swift, R. M., & Ahnallen, C. G. (2013). Separate and combined effects of very low nicotine cigarettes and nicotine replacement in smokers with schizophrenia and controls. *Nicotine Tob Res*, *15*(1), 121-129. doi: 10.1093/ntr/nts098
- Tzilos, G. K., Strong, D. R., Abrantes, A. M., Ramsey, S. E., & Brown, R. A. (2013). Quit intention as a predictor of quit attempts over time in adolescents with psychiatric disorders. *Am J Addict*. doi: 10.1111/j.1521-0391.2013.12067.x
- Ussher, M., Kakar, G., Hajek, P., & West, R. (2016). Dependence and motivation to stop smoking as predictors of success of a quit attempt among smokers seeking help to quit. *Addictive Behaviors*, *53*, 175-180. doi: <http://dx.doi.org/10.1016/j.addbeh.2015.10.020>
- Velicer, W. F., & Prochaska, J. O. (2004). A comparison of four self-report smoking cessation outcome measures. *Addict Behav*, *29*(1), 51-60.
- Ventura, J., Lukoff, D., Nuechterlein, K. H., Liberman, R. P., Green, M. F., & Shaner. (1993). A Manual for the expanded Brief Psychiatric Rating Scale. *International Journal of Methods Psychiatry Research*, *3*, 227-244.

- Weinberger, A. H., Reutenauer, E. L., Allen, T. M., Termine, A., Vessicchio, J. C., Sacco, K. A., . . . George, T. P. (2007). Reliability of the Fagerstrom Test for Nicotine Dependence, Minnesota Nicotine Withdrawal Scale, and Tiffany Questionnaire for Smoking Urges in smokers with and without schizophrenia. *Drug Alcohol Depend*, 86(2-3), 278-282. doi: 10.1016/j.drugalcdep.2006.06.005
- Weiner, E., Ball, M. P., Summerfelt, A., Gold, J., & Buchanan, R. W. (2001). Effects of sustained-release bupropion and supportive group therapy on cigarette consumption in patients with schizophrenia. *Am J Psychiatry*, 158(4), 635-637. doi: 10.1176/appi.ajp.158.4.635
- West, R., McEwen, A., Bolling, K., & Owen, L. (2001). Smoking cessation and smoking patterns in the general population: A 1-year follow-up. *Addiction*, 96(6), 891-902. doi: 10.1080/09652140020051013
- Westman, E. C., Behm, F. M., Simel, D. L., & Rose, J. E. (1997). Smoking behavior on the first day of a quit attempt predicts long-term abstinence. *Arch Intern Med*, 157(3), 335-340.
- Wikes, S., & Evins, A. (1999). A cross-sectional study comparing the motivation for smoking cessation in apparently healthy patients who smoke to those who smoke and have ischaemic heart disease. *Family Practice*, 16(6), 608-610.
- Wilhelm, K., Arnold, K., Niven, H., & Richmond, R. (2004). Grey lungs and blue moods: smoking cessation in the context of lifetime depression history. *Aust N Z J Psychiatry*, 38(11-12), 896-905. doi: 10.1111/j.1440-1614.2004.01489.x
- Williams, J. M., & Foulds, J. (2007). Successful Tobacco Dependence Treatment schizophrenia. *American Journal Psychiatry*, 164, 222-227.
- Williams, J. M., & Zeidonis, D. M. (2004). A case series of nicotine nasal spray in the treatment of tobacco dependence among patients with schizophrenia. *Psychiatric Services*, 55, 1064-1066.
- Williams, S. C., Hafner, J. M., Morton, D. J., Holm, A. L., Milberger, S. M., Koss, R. G., & Loeb, J. M. (2009). The adoption of smoke-free hospital campuses in the United States. *Tob Control*, 18. doi: 10.1136/tc.2009.030494
- Wongsaeng, Y., Yunibhand, J., & Preechawong, S. (2012). *Causal relationship of smoking cessation among Thai alcohol-dependent smokers*. Chulalongkorn University.
- Wu, T. H., Chiu, C. C., Shen, W. W., Lin, F. W., Wang, L. H., Chen, H. Y., & Lu, M. L. (2008). Pharmacokinetics of olanzapine in Chinese male schizophrenic patients with various smoking behaviors. *Prog Neuropsychopharmacol Biol Psychiatry*, 32(8), 1889-1893. doi: 10.1016/j.pnpbp.2008.08.022
- Zhao, L., Song, Y., Xiao, L., Palipudi, K., & Asma, S. (2015). Factors influencing quit attempts among male daily smokers in China. *Prev Med*, 81, 361-366. doi: <http://dx.doi.org/10.1016/j.ypmed.2015.09.020>
- Zhao, L., Song, Y., Xiao, L., Palipudi, K., & Asma, S. (2015a). Factors influencing quit attempts among male daily smokers in China. *Prev Med*, 81, 361-366. doi: 10.1016/j.ypmed.2015.09.020
- Zhao, L., Song, Y., Xiao, L., Palipudi, K., & Asma, S. (2015b). Factors influencing quit attempts among male daily smokers in China(). *Prev Med*, 81, 361-366. doi: 10.1016/j.ypmed.2015.09.020

- Zhou, X., Nonnemaker, J., Sherrill, B., Gilseman, A. W., Coste, F., & West, R. (2009). Attempts to quit smoking and relapse: Factors associated with success or failure from the ATTEMPT cohort study. *Addictive Behaviors*, 34(4), 365-373. doi: <http://dx.doi.org/10.1016/j.addbeh.2008.11.013>
- Zhou, X., Nonnemaker, J., Sherrill, B., Gilseman, A. W., Coste, F., & West, R. (2009). Attempts to quit smoking and relapse: factors associated with success or failure from the ATTEMPT cohort study. *Addict Behav*, 34(4), 365-373. doi: 10.1016/j.addbeh.2008.11.013
- Ziaaddini, H., Kheradmand, A., & Vahabi, M. (2009). Prevalence of Cigarette Smoking in Schizophrenic Patients Compared to Other Hospital Admitted Psychiatric Patients. *Addiction & Health*, 1(1), 38-42.
- Ziedonis, D., Hitsman, B., Beckham, J. C., Zvolensky, M., Adler, L. E., Audrain-McGovern, J., . . . Riley, W. T. (2008). Tobacco use and cessation in psychiatric disorders: National Institute of Mental Health report. *Nicotine Tob Res*, 10(12), 1691-1715. doi: 10.1080/14622200802443569
- Ziedonis, D. M., & George, T. P. (1997). Schizophrenia and Nicotine Use: Report of a Pilot Smoking Cessation Program and Review of Neurobiological and Clinical Issues. *Schizophrenia Bulletin*, 23(2), 247-254. doi: 10.1093/schbul/23.2.247
- Ziedonis, D. M., & Williams, J. M. (2003). Management of smoking in people with psychiatric disorders. *Current Opinion Psych*, 16(3), 305-315.

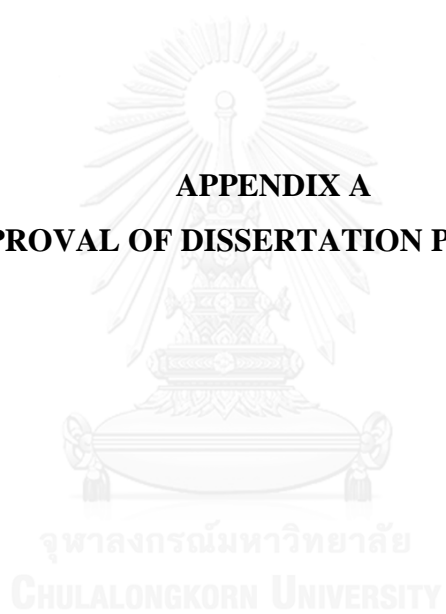


APPENDIX



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

APPENDIX A
APPROVAL OF DISSERTATION PROPOSAL



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY



ประกาศ

คณะกรรมการศาสตร์ ดุษฎีบัณฑิตกิตติมศักดิ์
เรื่อง การอนุมัติหัวข้อวิทยานิพนธ์ ครั้งที่ 1/2556 ประจำปีการศึกษา 2556

ตามที่คณะกรรมการศาสตร์ ได้มีประกาศ เรื่อง การอนุมัติหัวข้อวิทยานิพนธ์ ครั้งที่ ๑/2556 ประจำปีการศึกษา 2556 ประกาศ ณ วันที่ 26 กรกฎาคม 2555 และครั้งที่ ๒/2556 ประจำปีการศึกษา 2556 ประกาศ ณ วันที่ 17 พฤษภาคม 2556 แล้วนั้น เนื่องจากมีการปรับเปลี่ยนรายชื่อวิทยานิพนธ์ ของ นางสุชาลา เวียงรัตนสินพร, นางวิจิตรนทร์ วุฒิวัฒนสุทธิ์ และนางวราศวิญญู อรรถธรรม ซึ่งถือ ในประเภทดุษฎีบัณฑิตกิตติมศักดิ์ และใช้ประกาศฉบับนี้แทนดังนี้

นิติบัญญัติและอาจารย์ที่ปรึกษาวิทยานิพนธ์

รหัสนิติ	5177976836
ชื่อ-นามสกุล	นางสุชาลา เวียงรัตนสินพร
สาขาวิชา	พยาบาลศาสตร์ (นานาชาติ)
อาจารย์ที่ปรึกษาหลัก	รองศาสตราจารย์ ดร. จินตนา ฐนิพันธ์ุ
อาจารย์ที่ปรึกษาร่วม	ผู้ช่วยศาสตราจารย์ ดร. ชนบท จิตปัญญา
ประธานกรรมการสอบ	รองศาสตราจารย์ ดร. สุวิทย์ วัฒนศิริ
กรรมการสอบ	รองศาสตราจารย์ ดร. สิทธิพันธ์ สุวรรณเมธธา
กรรมการสอบ	ผู้ช่วยศาสตราจารย์ ดร. จุฑิศา ปรีชาวณิช
กรรมการสอบ	ศาสตราจารย์ นายแพทย์ ผู้เฒ่า ฤกษ์พงษ์
ชื่อหัวข้อวิทยานิพนธ์	ปัจจัยทำนายการมีกิจกรรมทางกายของผู้ป่วยโรคหลอดเลือดหัวใจที่รับยาใหม่ หลังจำหน่ายจากโรงพยาบาล (PREDICTING FACTORS OF PHYSICAL ACTIVITY AMONG NEW CORONARY ARTERY DISEASE PATIENTS AFTER HOSPITALIZATION) 1/2556
ครั้งที่อนุมัติ ฉบับ	ปริญญาเอก

นิติบัญญัติและอาจารย์ที่ปรึกษาวิทยานิพนธ์

รหัสนิติ	5177974536
ชื่อ-นามสกุล	นางวิจิตรนทร์ วุฒิวัฒนสุทธิ์
สาขาวิชา	พยาบาลศาสตร์ (นานาชาติ)
อาจารย์ที่ปรึกษาหลัก	รองศาสตราจารย์ ดร. จินตนา ฐนิพันธ์ุ
อาจารย์ที่ปรึกษาร่วม	รองศาสตราจารย์ ดร. วราภรณ์ ชัยวัฒน์
ประธานกรรมการสอบ	รองศาสตราจารย์ รศ.อ.หญิง ดร. จุฑิศา อังสุโรจน์
กรรมการสอบ	รองศาสตราจารย์ ดร. สิทธิพันธ์ สุวรรณเมธธา
กรรมการสอบ	รองศาสตราจารย์ ดร. สุวิทย์ วัฒนศิริ
กรรมการสอบ	ผู้ช่วยศาสตราจารย์ ดร. ชนบท จิตปัญญา
กรรมการสอบ	รองศาสตราจารย์ ดร. นารี สิงห์อินทร์
ชื่อหัวข้อวิทยานิพนธ์	การมีปัญหาดูแลพฤติกรรมเสี่ยงต่อการซึมเศร้าในวัยรุ่นไทย (CO-OCCURRENCE OF DISRUPTIVE BEHAVIOR AND DEPRESSION AMONG THAI ADOLESCENTS) 1/2556
ครั้งที่อนุมัติ ฉบับ	ปริญญาเอก

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บิลด์ผู้ทำวิจัยและอาจารย์ที่ปรึกษาคุณสุวิทย์
 รหัสบิลด์ 5377977636
 ชื่อ-นามสกุล นราทวิหญิง อรรถกร ชื่อเรื่อง
 สาขาวิชา พยาบาลศาสตร์ (นานาชาติ)
 อาจารย์ที่ปรึกษาหลัก รองศาสตราจารย์ ดร. จินตนา ชูณิศิษฐ์
 อาจารย์ที่ปรึกษาร่วม ผู้ช่วยศาสตราจารย์ ดร. สุณิศา ปรีชาวณิช
 ประธานกรรมการสอบฯ รองศาสตราจารย์ ร.ศ.หญิง ดร. อุทัย สัตย์วิจารณ์
 กรรมการสอบฯ พันเอก นายแพทย์ ศิษย์ แผลงฤทธิ์
 กรรมการสอบฯ รองศาสตราจารย์ ดร. อภิพรหม สุวรรณฉวี
 กรรมการสอบฯ รองศาสตราจารย์ ดร. วราภรณ์ ชัยวัฒน์
 ชื่อหัวข้องานวิจัย บิดเบือนการควบคุมการสูบบุหรี่ของผู้ป่วยโรค
 จิตเภทที่สูบบุหรี่
 PREDICTING FACTORS OF QUIT ATTEMPT AND SMOKING STATUS IN
 SCHIZOPHRENIC SMOKERS.
 คุ้งใต้สูบบุหรี่ 1/2556
 ระดับปริญญาตรี

ประกาศ ณ วันที่ 24 กรกฎาคม พ.ศ. 2556



(รองศาสตราจารย์ ดร. สุวิทย์ ชูณิศิษฐ์)

รองคณบดี

วิทยาการพัฒนาคณะพยาบาลศาสตร์



APPENDIX B
APPROVAL OF ETHICAL REVIEW COMMITTEE

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

AF 01-12



คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย
อาคารสถาบัน 2 ชั้น 4 ซอยสุขุมวิท 62 ถนนสุขุมวิท เขตสุขุมวิท กรุงเทพฯ 10330
โทรศัพท์: 0-2218-8147 โทรสาร: 0-2218-8147 E-mail: cocu@chula.ac.th

COA No. 080/2558

ใบรับรองโครงการวิจัย

โครงการวิจัยที่ 018.1/58 : ปรัชญาว่ามาขอความพหุชาตเมธิกบุหวิณะสถานสภาพการสุบบุหวิของผูปว
โรคจิตเภทที่สุบบุหวิ
ผู้วิจัยหลัก : นรารณวิหคิงชรรวม ฉิมมณี
หน่วยงาน : คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย
ได้พิจารณา โดยใส่ถัก ๖๐4 The International Conference on Harmonization – Good Clinical Practice
(ICH-GCP) อนุมัติให้ดำเนินการศึกษาวิจัยเรื่องดังกล่าวได้

ประธาน..... *[Signature]*..... กรรมการและเลขานุการ.....
(รองศาสตราจารย์ ดร. นพ. ประดิษฐ์) (ผู้รักษาตรวจโรค ค.บ. นันทวิ ชิตระดมการโรจน)
ประธาน กรรมการและเลขานุการ

วันที่รับรอบ : 19 เมษายน 2558 วันหมดอายุ : 18 เมษายน 2559

ผลการพิจารณาผลการรับรอง

- 1) อนุมัติ
- 2) ให้ออกใบแจ้งความยินยอมให้ผู้เข้าร่วมโครงการวิจัยและใบยินยอมของศูนย์ประจำโรงพยาบาลที่ผู้เข้าร่วมโครงการวิจัย
- 3) ผู้วิจัย
- 4) หมดอายุ : 18 เม.ย. 2559



- เงื่อนไข
1. ผู้ขอรับรองต้องปฏิบัติตามเงื่อนไขการพิจารณาฯ หากดำเนินการไม่ถูกต้องจะถือว่าไม่ผ่านการพิจารณา
 2. หากใบรับรองโครงการวิจัยหมดอายุ การดำเนินการวิจัยที่ยุติ เมื่อสิ้นอายุการต่ออายุโครงการวิจัยใหม่โดยอัตโนมัติไม่ได้ / คือขอ อนุมัติพิจารณา
การดำเนินการวิจัย
 3. ผู้ขอรับรองโครงการวิจัยต้องปฏิบัติตามเงื่อนไขการวิจัยที่เสนอ
 4. ให้ออกใบแจ้งความยินยอมให้ผู้เข้าร่วมโครงการวิจัยและใบยินยอมของศูนย์ประจำโรงพยาบาลที่ผู้เข้าร่วมโครงการวิจัย และออกใบแจ้ง
ความยินยอมให้ผู้เข้าร่วมโครงการวิจัย
 5. หากโครงการวิจัยไม่ผ่านการพิจารณาในครั้งต่อไป ผู้ขอรับรองต้องปฏิบัติตามเงื่อนไขการพิจารณาฯ ดังกล่าวจนครบถ้วนก่อนยื่น 5 วันก่อน
 6. หากมีการเปลี่ยนแปลงเงื่อนไขการวิจัย ไม่สามารถดำเนินการพิจารณาในครั้งต่อไป
 7. โครงการวิจัยไม่ได้รับอนุมัติหากพ้นกำหนดโครงการวิจัย 180 วัน (2 ปี) นับแต่โครงการวิจัยได้รับอนุมัติ 20 วัน นับแต่โครงการวิจัยได้รับอนุมัติ
โครงการวิจัยได้รับอนุมัติให้ดำเนินการวิจัย 20 วัน นับแต่โครงการวิจัยได้รับอนุมัติ

โรงพยาบาลพระศรีมหาโพธิ์

แบบรายงานผลการพิจารณาด้านจริยธรรมการศึกษาวิจัยในมนุษย์

ชื่อโครงการวิจัย: วิจัยทำนายความพยายามเลิกบุหรี่และสถานะภาพการสูบบุหรี่ของผู้ป่วยโรคไตเรื้อรังที่สูบบุหรี่
 เจ้าของโครงการวิจัย / ผู้ขออนุมัติศึกษาวิจัย: นวราชวีระ ธรรมวรรณ ชื่องค์ดี นิสิตชั้นปริญญาโท ชั้นบัณฑิต
 จุฬาลงกรณ์มหาวิทยาลัย

ผลการพิจารณา

- อนุมัติ (โดยไม่มีเงื่อนไข)
 อนุมัติโดยมีเงื่อนไข ให้อัปเกรดโปรโตคอล ใ้ปรับประกัน
 ให้อัปเกรดโปรโตคอลก่อนยื่นขอพิจารณาใหม่ ยังไม่อนุมัติ
 ไม่อนุมัติ

ลงนาม 

(นายแพทย์จรรยาพร กอสงสูร)

ประธานคณะกรรมการจริยธรรมการวิจัยในโรงพยาบาลพระศรีมหาโพธิ์

๒๖ กันยายน / ๒๕๕๘



แบบสอบถามโครง งานวิจัย การศึกษาอิสระ - ✓ วิทยานิพนธ์
เพื่อมาศึกษาใน วิทยาลัยพยาบาลจักษุเวชภัณฑ์ราชภัฏรำไพพรรณี

วันที่ ๙ มกราคม พ.ศ. 2558

เรียน ผู้อำนวยการ วิทยาลัยพยาบาลจักษุเวชภัณฑ์ราชภัฏรำไพพรรณี

ข้าพเจ้า นาวาตรีหญิง อรรณพ น้อยคำ นิสิตชั้นปริญญาตรี คณะพยาบาลศาสตร์ พุทธสาสน์มหาวิทยาลัย

มีความประสงค์ขอยืมแบบสำรวจ งานวิจัย การศึกษาอิสระ ✓ วิทยานิพนธ์
ชื่อเรื่อง ภาษาไทย ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานะการสูบบุหรี่ของสูบบุหรี่โรคจิตเภทที่สูบบุหรี่
ภาษาอังกฤษ Predicting factors of quit attempt and smoking status in schizophrenic smokers
และได้แนบคำขอขอยืมนี้จำนวน ๓ ชุด เพื่อมาศึกษาใน วิทยาลัยพยาบาลจักษุเวชภัณฑ์ราชภัฏรำไพพรรณี

จึงเรียนมาเพื่อโปรดพิจารณาอนุญาตต่อไปด้วย ขอเป็นพระคุณยิ่ง

ลงชื่อ นาวาตรีหญิง อรรณพ น้อยคำ ผู้สอบโครง
(นาวาตรีหญิง อรรณพ น้อยคำ)

คณะกรรมการวิจัย วิทยาลัยพยาบาลจักษุเวชภัณฑ์ราชภัฏรำไพพรรณี

เห็นการอนุมัติ
 ความเห็นอื่น _____

ลงชื่อ ศาสตราจารย์ ดร. สนิท ทรัพย์สมบูรณ์ ประธานคณะกรรมการวิจัย
(ศาสตราจารย์ ดร. สนิท ทรัพย์สมบูรณ์)
วันที่ 26, 2/1, 58

อนุมัติ
 ไม่อนุมัติ เนื่องจาก _____

ลงชื่อ [Signature]
(นางสุภาวดี เรืองแสง)
ผู้อำนวยการ วิทยาลัยพยาบาลจักษุเวชภัณฑ์ราชภัฏรำไพพรรณี
วันที่ 26, 2/1, 58

23 រៀង ៨ ឆ្នាំ រដ្ឋបាល រដ្ឋបាល
ព្រះរាជាណាចក្រ កម្ពុជា



លេខ: ០ ២ ៤៤ ៩១៦
លេខរៀង: ០ ២៤៤ ៩១៦

គណៈកម្មាធិការវិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស
មន្ទីរពិសោធន៍សុខាភិបាល

លេខ: ៣/២៥៥៨

ទីស្នាក់ការកណ្តាល: ទីស្នាក់ការកណ្តាលគណៈកម្មាធិការវិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស
មន្ទីរពិសោធន៍សុខាភិបាល

លេខស្នាក់ការ: ៣/២៥៥៨

ក្រសួងសុខាភិបាល / មន្ទីរពិសោធន៍សុខាភិបាល: ប្រទេសកម្ពុជា ភ្នំពេញ

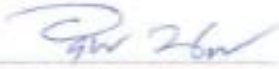
ស្នាក់ការកណ្តាល: មន្ទីរពិសោធន៍សុខាភិបាល

មន្ត្រីបញ្ជូន:

1. មន្ត្រីពិសោធន៍សុខាភិបាលស្នាក់ការកណ្តាលគណៈកម្មាធិការវិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស
2. មន្ត្រីពិសោធន៍សុខាភិបាល
3. មន្ត្រីសុខាភិបាល
4. មន្ត្រីពិសោធន៍សុខាភិបាល

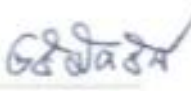
ស្នាក់ការកណ្តាល (): _____
ទីស្នាក់ការ: _____

គណៈកម្មាធិការវិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស មន្ទីរពិសោធន៍សុខាភិបាល ក្នុងការអនុវត្តវិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស
ស្របតាមគោលការណ៍វិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស រដ្ឋបាល លើកលែងតែ Declaration of Helsinki, the Belmont Report, CDMS
Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

ឈ្មោះ: 
(លេខស្នាក់ការ: ៣/២៥៥៨)
ប្រធានគណៈកម្មាធិការវិនិច្ឆ័យស្តីពីសុខភាពមនុស្ស

២៤ ខែសីហា ២០១៨
ឆ្នាំ

ឈ្មោះ: 
(លេខស្នាក់ការ: ៣/២៥៥៨)
មន្ត្រីប្រធានមន្ទីរពិសោធន៍សុខាភិបាល


ឆ្នាំ



เอกสารรับรองโครงการวิจัย
โดย
คณะกรรมการวิจัยธรรมการวิจัย สถาบันจิตเวชศาสตร์สมเด็จเจ้าพระยา

- โครงการวิจัยเรื่อง : ปี๋นิจำนำควมพหุขณมิกำนุโธสถณำภำภำกรำสูงนุทโธฐุปี๋นโธคภิมภำทฐุบุนุทฐุ
- ผู้ดำเนินการวิจัยโดย : นภำภโศฐุโธธวำรณ ฉัธฉัธ
- สถณำที่ดำเนินกำรวิจัย : สถำบันจิตเวชศำสตร์สมเด็จเจ้าพระยำ
- ระยะเวลาดำเนินกำร : ๒๕๕๗ - ๒๕๕๘
- เอกสารที่อยู่มูลนิธิ
๑. โครงการวิจัย
 ๒. หนังสือแสดงความยินยอมเข้าร่วมกำรวิจัย
 ๓. เครื่องมือที่ใช้ในกำรวิจัย

คณะกรรมการวิจัยธรรมการวิจัย สถาบันจิตเวชศาสตร์สมเด็จเจ้าพระยา ได้พิจารณาโครงการนี้ว่า
คณะกรรมการฯ พิจำรณำฐุฎฐุฉิโธธธรรมโถ้ดำเนินกำรศึกษำวิจัยเรื่องฉัธฉัธได้ จึฉัธฉัธสมควรโถ้ดำเนินกำร
วิจัยเรื่องฉัธฉัธฉัธฉัธฉัธ

✓)

(นายสินเงิน สุขสมบูรณ์)
ผู้อำนวยการสถาบันจิตเวชศาสตร์สมเด็จเจ้าพระยา



คณะกรรมการจริยธรรมการวิจัยในคน
โรงพยาบาลสวนปรุง

โครงการวิจัย : ปัจฉัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่

ผู้ดำเนินการวิจัยหลัก : นาวาตรีหญิง อรรพรรณ ช้องค้อ

สถานที่ดำเนินการวิจัย : โรงพยาบาลสวนปรุง

เอกสารที่พิจารณา : ๑. ปัจฉัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่

คณะกรรมการจริยธรรมการวิจัยในคนโรงพยาบาลสวนปรุง ได้พิจารณาโครงการวิจัยแล้ว คณะกรรมการฯ พิจารณาในแง่จริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้ ทั้งนี้โดยยึดตามเอกสารโครงการวิจัยเป็นหลัก

(นายสุรเชษฐ ม่องชัยญา)
นายแพทย์ชำนาญการพิเศษ
ประธานคณะกรรมการจริยธรรมการวิจัยในคน

(นายปริทรรศน์ ศิลปกิจ)
นายแพทย์เชี่ยวชาญ วิชาการสาธารณสุข
ผู้อำนวยการโรงพยาบาลสวนปรุง

หมายเลขใบรับรอง : ๒ / ๒๕๕๘
วันที่ให้การรับรอง : ๑ พฤษภาคม ๒๕๕๘
วันหมดอายุใบรับรอง : ๑ พฤษภาคม ๒๕๕๙



คณะกรรมการพิจารณาการศึกษาวิจัยในชุมชน (ด้านสุขภาพจิตและจิตเวช)
โรงพยาบาลจิตเวชขอนแก่นราชนครินทร์

เอกสารรับรองโครงการวิจัย

ชื่อโครงการภาษาไทย บัญชีทำนายความพยายามเลิกบุหรี่ที่สถานสภาพการสุขภาพที่ศูนย์
ผู้ป่วยโรคจิตเภทที่ศูนย์

รหัสโครงการ : 004 / 2558

หัวหน้าโครงการ / หน่วยงานที่สังกัด : นาวาตรีหญิงอรพรรณ นื่องตั้ง
คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

เอกสารที่รับรอง

1. โครงการวิจัยฉบับภาษาไทย
2. หนังสือแนะนำโครงการสำหรับอาสาสมัคร
3. หนังสือแสดงความยินยอมเข้าร่วมวิจัยสำหรับอาสาสมัคร

วันที่รับรอง : วันที่ 3 มีนาคม พ.ศ. 2558

วันที่หมดอายุ : วันที่ 3 มีนาคม พ.ศ. 2559

คณะกรรมการพิจารณาการศึกษาวิจัยในชุมชน (ด้านสุขภาพจิตและจิตเวช) ได้ผ่านการพิจารณาแล้ว และเห็นว่าไม่มีการกีดกันเชื้อชาติ ศาสนา และไม่ได้ก่อให้เกิดอันตรายแก่ผู้ร่วมวิจัย จึงเห็นสมควร ให้ดำเนินการวิจัยในขอบข่ายของโครงการวิจัยที่เสนอได้ ภายในระยะเวลา ๑ ปี ตั้งแต่วันที่ออกหนังสือรับรองฉบับนี้

หนังสือออกวันที่ 3 เดือน มีนาคม พ.ศ. 2558

(นางหญิงฐา งามก่อ)

ประธานคณะกรรมการวิจัยโรงพยาบาลจิตเวชขอนแก่นราชนครินทร์

(นายประภาส สุธรรมรัตน์)

ผู้อำนวยการ โรงพยาบาลจิตเวชขอนแก่นราชนครินทร์



เอกสารรับรองด้านจริยธรรมการทำวิจัยในมนุษย์

เลขที่ ๐๕๐/๒๕๕๘

คณะกรรมการวิจัย และคณะกรรมการจริยธรรมการวิจัย โรงพยาบาลสวนสราญรมย์
ขอได้การรับรองว่า

ชื่องานวิจัย : ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่

ผู้วิจัยหลัก : นาวาศรีหญิงอรารวม อ่อนศักดิ์

หน่วยงาน : คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

เอกสารที่เกี่ยวข้อง :

๑. โครงร่างงานวิจัย
๒. ใบยินยอมให้ทำการวิจัยในมนุษย์
๓. เครื่องมือที่ใช้ในการวิจัย
๔. เอกสารชี้แจงข้อมูลสำคัญสำหรับผู้เข้าร่วมวิจัย

เป็นการวิจัยที่มีลักษณะสหวิทยาการของ International Guidelines for Human Research Protection
ได้แก่ Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International
Conference on Harmonization's Good Clinical Practice (ICH-GCP) ทุกประการ

วันที่ยื่นพิจารณา : ๓ กุมภาพันธ์ ๒๕๕๘

เลขที่งานวิจัยที่ยื่นพิจารณา : ๕๖/๒๕๕๘

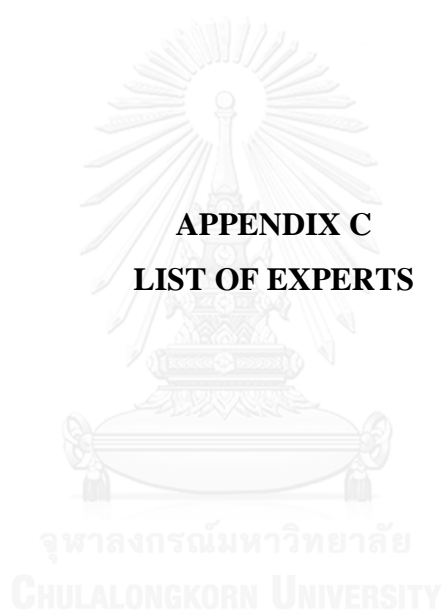
วันที่ได้รับการรับรอง : ๓๑ กุมภาพันธ์ ๒๕๕๘

ลงนาม ประธานคณะกรรมการวิจัย
(นายแพทย์วิศิษฐ์ ชาติโรจน์)

ลงนาม ประธานคณะกรรมการจริยธรรมการวิจัย
(นายแพทย์พงศ์ อธิมุตานนท์)

ลงนาม ผู้อำนวยการโรงพยาบาลสวนสราญรมย์
(นายแพทย์บุญชู พงษ์สีดา)

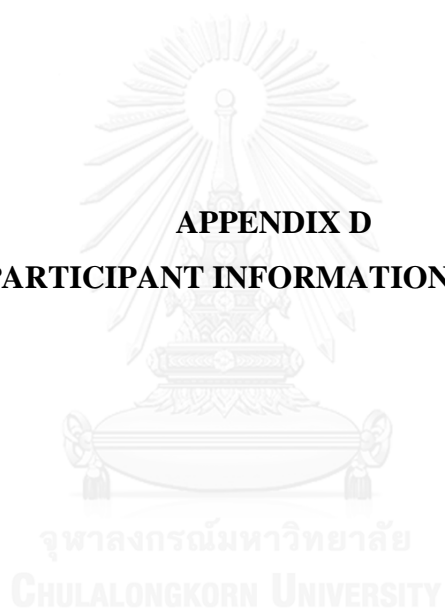
APPENDIX C
LIST OF EXPERTS



LIST OF EXPERTS

1. Associate Professor Dr. Orasa Panpakdee
Faculty of Nursing, Mahidol University
2. Assistant Professor Suthus Rungruanghiranya
Faculty of Medicine, Srinakharinwirot University
3. Assistant Professor Dr. Weeraphol Saengpanya
Faculty of Education, Chulalongkorn University
4. R.Adm Vichai Manusirivithaya M.D., Psychiatrist
Naval Medical Department, Somdejprapinklao Hospital.
5. Tanyaroch Tippayawong, M.D., Psychiatrist
Thanyarak Institute on drug abuse
6. Petcharee Kanthasaibour
Registered nurse, Advanced Practice Nursing, Somdet Chaophraya
Institute of
Psychiatry
7. Patcharee Ratanasaeng
Registered nurse, Thanyarak Institute on drug abuse

APPENDIX D
PARTICIPANT INFORMATION SHEET



ข้อมูลสำหรับผู้มีส่วนร่วมในการวิจัย

ชื่อโครงการวิจัย “ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่”

ชื่อผู้วิจัย นาวาตรีหญิง อรวรรณ ฌ่องด้อย ตำแหน่ง นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

สถานที่ติดต่อผู้วิจัย คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย หรือ 69/306 ซอยแผ่นดินทอง 57/1 ถนนติวานนท์ ตำบลบางกระสอ อำเภอเมือง จังหวัดนนทบุรี 11000

โทรศัพท์มือถือ 08-6336-1005

E-mail: k.orrawan@hotmail.com

1. ขอเรียนเชิญท่านเข้าร่วมในการวิจัย ก่อนท่านจะตัดสินใจเข้าร่วมในการวิจัยนี้ มีความจำเป็นที่จะต้องทราบว่างานวิจัยนี้ทำเพราะเหตุใดและเกี่ยวข้องกับอะไร ดังนั้นผู้วิจัยจึงจัดทำเอกสารฉบับนี้ขึ้นเพื่อบอกเล่าข้อมูลของผู้วิจัยและการดำเนินการวิจัย ซึ่งท่านสามารถนำข้อมูลในเอกสารฉบับนี้ไปใช้ประกอบการตัดสินใจว่าจะเข้าร่วมหรือไม่เข้าร่วมในการวิจัยครั้งนี้ กรุณาอ่านข้อมูลต่อไปนี้อย่างละเอียด และสอบถามข้อมูลเพิ่มเติมหรือข้อมูลที่ไม่ชัดเจนจากผู้วิจัยได้ตลอดเวลา

2. การวิจัยนี้เป็นการศึกษาปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่ เนื่องจากการสูบบุหรี่มีผลกระทบหลายๆ ด้านต่อผู้ป่วยจิตเภท ทั้งในด้านสุขภาพร่างกาย การตอบสนองต่อการรักษาด้วยยาจิตเวช และเป็นปัจจัยกระตุ้นให้เกิดอาการทางจิตกำเริบได้ จึงควรส่งเสริมให้ผู้ป่วยเกิดความพยายามเลิกบุหรี่ และคงสภาพภาพที่ไม่สูบบุหรี่หรือลดปริมาณการสูบลง ซึ่งในการพยาบาลและดูแลผู้ป่วยจิตเภทในประเทศไทยนั้น ยังไม่มีการศึกษาที่ แน่ชัดว่ามีปัจจัยใดบ้างที่ทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ ด้วยเหตุนี้ผู้วิจัยจึงทำวิจัยเรื่องนี้ขึ้น

3. รายละเอียดของกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย

มีเกณฑ์ในการคัดเลือกผู้มีส่วนร่วมในการวิจัยดังนี้ 1(เป็นผู้ป่วยในโรคจิตเภท 2(เป็นผู้สูบบุหรี่ร่วมกับดื่มสุรา ในระยะเวลา 1 เดือน ก่อนรับไว้เป็นผู้ป่วยใน 3(มีอาการสงบ 4 อายุ (18-60 ปี ทั้งเพศชายและเพศหญิง 5(เคยหยุดสูบบุหรี่อย่างน้อย 1 วันช่วง 1 ปีที่ผ่านมา 6(มีคำสั่งแพทย์อนุญาตให้กลับบ้านและ 7 (ยินดีเข้าร่วมการวิจัยและอนุญาตให้โทรสัมภาษณ์หลังจำหน่ายออกจากโรงพยาบาล

เกณฑ์คัดออกดังนี้ 1 กลับมารักษาตัวในโรงพยาบาลภายใน (1 เดือนหลังจากจำหน่าย 2 ใช้สารเสพติดชนิดอื่นร่วมด้วย และ (3ไม่ (สามารถโทรติดตามได้หลังจำหน่ายออกจากโรงพยาบาล

ผู้เข้าร่วมการวิจัยในครั้งนี้มีจำนวน 420 คน จากการสุ่มผู้เข้าร่วมการวิจัย จากโรงพยาบาลจิตเวช สถาบันจิตเวชศาสตร์ ในสังกัดกรมสุขภาพจิต ตามภาคต่างๆ ของประเทศไทย ทั้งหมด/ 7 แห่ง

4. กระบวนการเก็บรวบรวมข้อมูล

หลังได้รับอนุมัติให้เก็บรวบรวมข้อมูลจากผู้บริหารแล้ว ผู้วิจัย และ/หรือ ผู้ช่วยวิจัย ขออนุญาตแพทย์เพื่อให้ท่านเข้าร่วมการวิจัย หลังจากนั้น ผู้วิจัย และ/หรือ ผู้ช่วยวิจัย พบท่าน แนะนำตัว และอธิบายวัตถุประสงค์การวิจัยให้ สัมภาษณ์ท่าน ท่านจะได้รับการชี้แจงจากผู้วิจัยและ/หรือ ผู้ช่วยวิจัย ถึงวัตถุประสงค์ และการเก็บรวบรวมข้อมูล เป็นการตอบแบบสอบถาม โดยผู้วิจัย และ/หรือ ผู้ช่วยวิจัยทำการสัมภาษณ์ท่าน จะไม่มีผู้ใดรู้ว่าแบบสัมภาษณ์นี้เป็นของใคร เมื่อดำเนินการสัมภาษณ์เสร็จสิ้นแล้วจะนำแบบสัมภาษณ์ใส่ซองที่เตรียมไว้ให้ทันทีและปิดผนึกให้เรียบร้อย คำตอบแต่ละข้อของท่าน ไม่มีข้อใดถูกหรือผิด จะไม่มีผลต่อการได้รับการดูแลรักษาจากแพทย์และโรงพยาบาล

ท่านจะตอบแบบสอบถาม 3 ครั้ง โดยครั้งที่ 1 ณ วันที่ท่านจะได้รับการจำหน่ายออกจากโรงพยาบาล ผู้วิจัย และ/หรือ ผู้ช่วยวิจัย จัดสิ่งแวดล้อมที่เงียบสงบในหอผู้ป่วยเพื่อให้ท่านตอบแบบสัมภาษณ์ รวมทั้งเปิดโอกาสให้ซักถาม ใช้เวลาประมาณ 20-30 นาที โดยใช้แบบบันทึกและแบบสัมภาษณ์ทั้งหมด 10 ชุดคำถาม ประกอบไปด้วย 1) แบบบันทึกข้อมูลส่วนบุคคล 2) แบบบันทึกข้อมูลที่เกี่ยวข้องกับการสูบบุหรี่ 3) แบบสัมภาษณ์และสังเกตอาการทางบวก 4) แบบสัมภาษณ์และสังเกตอาการทางลบ 5) แบบสัมภาษณ์และสังเกตความซึมเศร้า 6) แบบสัมภาษณ์การคิดนิโคติน 7) แบบสัมภาษณ์การดื่มเครื่องดื่มแอลกอฮอล์ 8) แบบสัมภาษณ์แรงจูงใจในการเลิกบุหรี่ 9) แบบสัมภาษณ์ความพร้อมในการเลิกบุหรี่ 10) แบบสัมภาษณ์ความเข้มข้นของการบริการช่วยเลิกบุหรี่

ครั้งที่ 2 หลังจำหน่ายออกจากโรงพยาบาล 7 วัน จะสัมภาษณ์ท่านทางโทรศัพท์โดยใช้แบบสัมภาษณ์ความพยายามเลิกบุหรี่ ใช้เวลาประมาณ 1 นาที

ครั้งที่ 3 หลังจำหน่ายออกจากโรงพยาบาล 30 วัน จะสัมภาษณ์ท่านทางโทรศัพท์โดยใช้แบบสัมภาษณ์สถานภาพการสูบบุหรี่ ใช้เวลาประมาณ 1 นาที

5. ในการคัดกรองผู้มีส่วนร่วมวิจัย ใช้การคัดกรองข้อมูลจากแฟ้มประวัติ/เวชระเบียน ซึ่งต้องได้รับการอนุมัติจากแพทย์ ร่วมกับการสอบถามจากพยาบาลจิตเวชที่ปฏิบัติงานในหอผู้ป่วยนั้น รวมทั้งการสัมภาษณ์ผู้ป่วย เพื่อให้ได้ผู้ที่มีคุณสมบัติตามเกณฑ์การคัดเลือก

6. ในการวิจัยครั้งนี้จะมีความเสี่ยงเพียงเล็กน้อย คือ การเสียเวลาและรู้สึกเหนื่อยล้าจากการตอบแบบสัมภาษณ์ อาจจะทำให้ท่านเกิดความไม่สะดวก หากท่านเหนื่อยล้าจากการตอบคำถาม ให้หยุดพักและเริ่มสัมภาษณ์อีกครั้งเมื่อพร้อม หากคำถามใดที่ทำให้ท่านรู้สึกอึดอัด ไม่สบายใจหรือไม่

สะดวกที่จะตอบ ท่านมีสิทธิ์จะปฏิเสธ ไม่ตอบ ระหว่างการสัมภาษณ์ หากพบว่าท่านอาการรุนแรง ก้าวร้าว หลงผิด ผู้วิจัย และหรือ ผู้ช่วยวิจัย/ จะแจ้งให้พยาบาลหรือผู้ป่วยทราบ เพื่อการรักษาต่อไป

ประโยชน์ของการวิจัยนี้ ทำให้พยาบาลและผู้ที่เกี่ยวข้องเข้าใจถึงปัจจัยต่าง ๆ ที่สามารถ ทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของท่าน โดยสามารถนำผลการศึกษานั้นได้ ไปพัฒนาทั้งทางด้านนโยบาย และ ด้านการปฏิบัติการพยาบาล เพื่อส่งเสริมการเลิกบุหรี่ อันจะ ส่งผลให้มีสุขภาพที่ดี

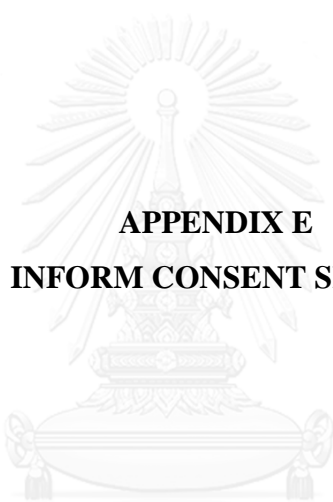
7. การเข้าร่วมในการวิจัยเป็นโดยสมัครใจ และสามารถปฏิเสธที่จะเข้าร่วมหรือถอนตัวจาก การวิจัยได้ทุกขณะ โดยไม่ต้องให้เหตุผล และไม่มีผลกระทบต่อการศึกษา

8. หากท่านมีข้อสงสัยให้สอบถามเพิ่มเติมได้จากผู้วิจัย โดยสามารถติดต่อผู้วิจัยได้ ตลอดเวลาที่ นาวาตรีหญิง อรพรรณ น้อยตื้อ คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย หรือ โทรศัพท์มือถือ 08-6336-1005

9. หากผู้วิจัยตีพิมพ์ผลการศึกษา ผู้วิจัยจะไม่มีภาระบุญชื่อของท่านในการวิจัยไม่ว่ากรณีใดๆ

10. การวิจัยครั้งนี้มีการมอบกล่องบรรจุขนาดพกพา จำนวน 1 กล่อง เป็นของที่ระลึกแก่ ท่าน เมื่อสิ้นสุดการตอบแบบสัมภาษณ์ในโรงพยาบาล

11. หากท่านไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าว สามารถร้องเรียนได้ที่คณะกรรมการ พิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ จุฬาลงกรณ์มหาวิทยาลัย 1 10330 ถนนพญาไท เขตปทุมวัน กรุงเทพฯ 62 ซอยจุฬาลงกรณ์ 2 อาคารสถาบัน 4 ชั้น โทรศัพท์ 8147-2218-0 โทรสาร 8147-2218-0



APPENDIX E
INFORM CONSENT SHEET

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

หนังสือแสดงความยินยอมเข้าร่วมการวิจัย

ทำที่.....

วันที่..... .ศ.พ.....เดือน.....

เลขที่ ประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย.....

ข้าพเจ้า ซึ่งได้ลงนามท้ายหนังสือนี้ ขอแสดงความยินยอมเข้าร่วมโครงการวิจัยเรื่อง ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่ ซึ่งผู้วิจัยคือนาวาตรีหญิง อรรวรรณ น้อยตื้อ นิสิตปริญญาเอก คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ที่อยู่ที่สามารถติดต่อได้คือ บ้านเลขที่ 69/306 ซอยแผ่นดินทอง 57/1 ถนนติวานนท์ ตำบลบางกระสอบ อำเภอเมือง จังหวัดนนทบุรี 11000 โทรศัพท์ 08-6336-1005 ได้อธิบายให้ข้าพเจ้าได้ทราบแล้วเกี่ยวกับโครงการวิจัย

ข้าพเจ้า ได้รับทราบรายละเอียดเกี่ยวกับที่มา วัตถุประสงค์ในการทำวิจัย ขั้นตอนการวิจัย และได้รับคำอธิบายในเอกสารชี้แจงผู้เข้าร่วมการวิจัย โดยตลอด และได้รับคำอธิบายจากผู้วิจัยเป็นอย่างดีแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมโครงการวิจัย โดยตอบแบบสอบถาม 3 ครั้ง ครั้งที่ 1 ณ วันที่จะจำหน่ายออกจากโรงพยาบาล ใช้เวลา 20-30 นาที ครั้งที่ 2 หลังจำหน่ายออกจากโรงพยาบาล 7 วัน ใช้เวลา 1 นาที และครั้งที่ 3 หลังจำหน่ายออกจากโรงพยาบาล 30 วัน ใช้เวลา 1 นาที

ข้าพเจ้ามีสิทธิถอนตัวออกจากการวิจัยเมื่อใดก็ได้ตามความประสงค์ โดยไม่ต้องแจ้งเหตุผล ซึ่งการถอนตัวออกจากการวิจัยนั้น จะไม่มีจะไม่มีผลต่อการดูแลรักษาหรือผลกระทบในทางใดๆ ต่อข้าพเจ้าทั้งสิ้น

ข้าพเจ้าได้รับคำรับรองว่า ผู้วิจัยจะปฏิบัติตามข้อมูลที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และข้อมูลใดๆ ที่เกี่ยวข้องกับข้าพเจ้า ผู้วิจัยจะเก็บรักษาเป็นความลับ โดยจะนำเสนอข้อมูลการวิจัยเป็นภาพรวมเท่านั้น ไม่มีข้อมูลใดในการรายงานที่จะนำไปสู่การระบุตัวข้าพเจ้า

หากข้าพเจ้าไม่ได้รับการปฏิบัติตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย

ข้าพเจ้าสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ถนนพญาไท เขตปทุมวัน 62 ซอยจุฬาลงกรณ์ 2 อาคารสถาบัน 4 จุฬาลงกรณ์มหาวิทยาลัย ชั้น 1 8147-2218-0 โทรศัพท์ 10330 กรุงเทพฯ, 0-2218-8141 โทรสาร 8147-2218-0

ข้าพเจ้าได้ลงลายมือชื่อไว้เป็นสำคัญต่อหน้าพยาน ทั้งนี้ข้าพเจ้าได้รับสำเนาเอกสารชี้แจงผู้เข้าร่วมการวิจัย และสำเนาหนังสือแสดงความยินยอมไว้แล้ว

ลงชื่อ.....
(.....)

ผู้วิจัยหลัก

ลงชื่อ.....
(.....)

ผู้มีส่วนร่วมในการวิจัย

ลงชื่อ.....
(.....)

พยาน





APPENDIX F
RESEARCH INSTRUMENTS

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

แบบสอบถามที่ใช้ในการวิจัย
เรื่อง “ปัจจัยทำนายความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วย
โรคจิตเภทที่สูบบุหรี่”
 ของ
 นาวาตรีหญิง อรรพรรณ ฆ้องต้อ
 นิสิตหลักสูตรดุริยางค์บัณฑิต คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

คำชี้แจง

แบบสอบถามฉบับนี้จัดทำขึ้นเพื่อใช้ในการเก็บรวบรวมข้อมูลเกี่ยวกับปัจจัยที่เกี่ยวข้องกับความพยายามเลิกบุหรี่และสถานภาพการสูบบุหรี่ของผู้ป่วยโรคจิตเภทที่สูบบุหรี่ โดยแบ่งออกเป็น 12 ชุด รวม 73 ข้อ ดังนี้

- | | |
|--|--------------|
| 1. แบบสอบถามข้อมูลส่วนบุคคล | จำนวน 8 ข้อ |
| 2. แบบสอบถามข้อมูลที่เกี่ยวข้องกับการสูบบุหรี่ | จำนวน 7 ข้อ |
| 3. แบบสัมภาษณ์และสังเกตอาการทางบวก | จำนวน 4 ข้อ |
| 4. แบบสัมภาษณ์และสังเกตอาการทางลบ | จำนวน 4 ข้อ |
| 5. แบบสัมภาษณ์และสังเกตความซึมเศร้า | จำนวน 9 ข้อ |
| 6. แบบประเมินการดื่มสุรา | จำนวน 10 ข้อ |
| 7. แบบประเมินระดับการคิดนิโคติน | จำนวน 6 ข้อ |
| 8. แบบสอบถามความพร้อมในการเลิกบุหรี่ | จำนวน 1 ข้อ |
| 9. แบบสอบถามแรงจูงใจในการเลิกบุหรี่ | จำนวน 20 ข้อ |
| 10. แบบสอบถามความเข้มข้นของการบริการช่วยเลิกบุหรี่ | จำนวน 2 ข้อ |
| 11. แบบสอบถามความพยายามเลิกบุหรี่ | จำนวน 1 ข้อ |
| 12. แบบสอบถามสถานภาพการสูบบุหรี่ | จำนวน 1 ข้อ |

ชุดที่ ๑ แบบสอบถามข้อมูลส่วนบุคคล

คำชี้แจง แบบสอบถามนี้ต้องการทราบข้อมูลทั่วไปของผู้ป่วย โดยให้พยาบาลสัมภาษณ์ร่วมกับศึกษาข้อมูลจากแฟ้มประวัติผู้ป่วย และทำเครื่องหมาย ✓ลงใน O หน้าข้อความหรือเติมข้อความลงในช่องว่าง

1. เพศ ชาย หญิง

2. อายุ.....ปี

3. สถานภาพสมรส

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|----------------------------------|-----------------------------|
| <input type="radio"/> โสด | <input type="radio"/> คู่ |
| <input type="radio"/> หม้าย | <input type="radio"/> หย่า |
| <input type="radio"/> แยกกันอยู่ | <input type="radio"/> อื่นๆ |

ระบุ.....

4. งาน อาชีพปัจจุบัน/

- | | |
|---|-----------------------------------|
| <input type="radio"/> ว่างาน ไม่ได้ประกอบอาชีพ/ | <input type="radio"/> รับราชการ |
| <input type="radio"/> รับจ้าง | <input type="radio"/> รัฐวิสาหกิจ |
| <input type="radio"/> บริษัทเอกชน | <input type="radio"/> ค้าขาย |
| <input type="radio"/> เกษตรกร | <input type="radio"/> อื่นๆ |

ระบุ.....

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ชุดที่ ๓ แบบสัมภาษณ์และสังเกตอาการทางบวก

คำชี้แจง แบบสัมภาษณ์นี้ เพื่อประเมินอาการทางบวกของผู้ป่วย โดยให้พยาบาลใช้การสัมภาษณ์และสังเกตอาการร่วมด้วย เป็นการถามถึงอาการทางบวกของผู้ป่วยในขณะนี้ กรุณาทำเครื่องหมาย ✓ ลงใน O หน้าข้อความที่ตรงกับอาการของผู้ป่วย

1. ความสงสัย (Suspiciousness): การแสดงออกหรือความเชื่อ ความคิดหลงผิดว่าตนเองถูกปองร้ายจากสิ่งที่ไม่เห็นธรรมชาติหรือสิ่งที่ไม่ใช่มนุษย์ เช่น ปีศาจ

โดยการถามผู้ป่วยว่า คุณรู้สึกไม่ปลอดภัยเมื่ออยู่ในที่สาธารณะหรือไม่? คุณคิดว่ามีคนจ้องมองคุณอยู่หรือไม่? คุณคิดว่ามีคนมุ่งความสนใจมาที่คุณหรือไม่? มีคนพยายามทำร้ายคุณหรือไม่? คุณรู้สึกไม่ปลอดภัยหรือไม่? ถ้าผู้ป่วยแสดงความคิดหวาดระแวง ความคิดใดความคิดหนึ่งออกมา ให้ถามต่อไปว่า คุณกังวลเรื่องเหล่านี้บ่อยครั้งเพียงใด?

(1) ไม่มีอาการ

(2) อาการขั้นต่ำสุด: ดูเหมือนจะปกป้องตนเอง ดังเลที่จะตอบคำถามเกี่ยวกับเรื่องส่วนตัว มีข้อมูลว่ามีอาการระมัดระวังตนเองมากเกินไปเมื่ออยู่ในที่สาธารณะ

(3) อาการเล็กน้อย: อธิบายเหตุการณ์ที่มีความเป็นไปได้ว่าคนอื่นทำร้าย หรือต้องการทำร้ายตน ผู้ป่วยรู้สึกราวกับว่าคนอื่นกำลังเฝ้ามอง หัวเราะ หรือวิพากษ์วิจารณ์ตน เมื่ออยู่ในที่สาธารณะ แต่เหตุการณ์แบบนี้เกิดขึ้นเป็นครั้งคราว หรือแทบจะไม่เกิดขึ้นเลย มีอาการหมกมุ่น เล็กน้อยหรือไม่มีเลย

(4) อาการปานกลาง: บอกว่ามีคนพูดถึงตนในแง่ร้าย มีเจตนาลบ หรืออาจจะทำร้ายตน ในลักษณะเกินจริงแต่ยังไม่มีอาการหลงผิด มีความคิดสงสัยว่าตนเองถูกปองร้ายเกิดขึ้นเป็นบางครั้ง (น้อยกว่า 1 ครั้งต่อสัปดาห์) และเกิดร่วมกับอาการหมกมุ่น

(5) อาการค่อนข้างรุนแรง: อาการเหมือนข้อ (4) แต่เกิดขึ้นบ่อยครั้ง เช่น มากกว่า 1 ครั้งต่อสัปดาห์ ผู้ป่วยหมกมุ่นอยู่กับความคิดเรื่องการถูกปองร้าย ในระดับปานกลาง หรือผู้ป่วยมีอาการหลงผิดว่าถูกปองร้ายร่วมกับอาการสงสัยอย่างมาก (เช่น หลงผิดบางส่วน)

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ชุดที่ ๕ แบบสัมภาษณ์และสังเกตความซึมเศร้า

คำชี้แจง แบบสัมภาษณ์นี้ เพื่อประเมินความซึมเศร้าของผู้ป่วย โดยให้พยาบาลใช้การสัมภาษณ์และสังเกตอาการร่วมด้วยเป็นการถามถึงอาการที่เกิดขึ้นในระยะเวลา 2 สัปดาห์ที่ผ่านมา (หมายเหตุ: ข้อ 9 ได้จากการสังเกต) กรุณาทำเครื่องหมาย \surd ลงใน O หน้าข้อความที่ตรงกับอาการของผู้ป่วย)

1. ความซึมเศร้า: คุณจะบรรยายถึงอารมณ์ของคุณในช่วง 2 สัปดาห์ที่ผ่านมาอย่างไร? เมื่อเร็ว ๆ นี้คุณยังคงร่าเริงดีตามปกติ หรือว่าคุณซึมเศร้าหรือเศร้าใจ? ในช่วง 2 สัปดาห์ที่ผ่านมาบ่อยแค่ไหนที่คุณเศร้าใจ?

(0) ไม่มี

(1) เล็กน้อย แสดงความเศร้าบางอย่าง หรือความท้อใจเมื่อถูกถาม

(2) ปานกลาง มีอารมณ์ซึมเศร้าอย่างชัดเจน ต่อเนื่องกันไม่เกินครึ่งหนึ่งของเวลาทั้งหมด ในช่วง 2 สัปดาห์ที่ผ่านมา โดยเกิดขึ้นทุกวัน

(3) รุนแรง มีอารมณ์ซึมเศร้าอย่างมาก ต่อเนื่องทุกวัน เกินกว่าครึ่งหนึ่งของเวลาทั้งหมด โดยส่งผลกระทบต่อการทำงานของร่างกายและกิจกรรมทางสังคม

2. ความรู้สึกสิ้นหวัง: คุณมองตัวเองในอนาคตว่าเป็นอย่างไร? คุณมองว่ามีอนาคตบ้างไหม? หรือว่าชีวิตคุณสิ้นหวัง? คุณยอมแพ้หรือยัง หรือว่ามันยังคงมีเหตุผลที่จะพยายามต่อไปอยู่?

(0) ไม่มี

(1) เล็กน้อย มีบางครั้งที่รู้สึกสิ้นหวังในช่วงเวลา 2 สัปดาห์ที่ผ่านมา แต่ยังคงมีความหวังในระดับหนึ่งกับอนาคต

(2) ปานกลาง รู้สึกสิ้นหวังปานกลาง อย่างต่อเนื่องในช่วง 1 สัปดาห์ที่ผ่านมา แต่เมื่อถูกชักจูงก็ยอมรับความเป็นไปได้ว่าสิ่งต่างๆ จะดีขึ้น

(3) รุนแรง รู้สึกสิ้นหวังที่ทุกข์ทรมานและต่อเนื่อง

: : : : : :
: : : : : :

ชุดที่ 6 แบบประเมินการดื่มนมสุรา

คำชี้แจง คำถามแต่ละข้อต่อไปนี้จะถามถึงประสบการณ์การดื่มนมสุรา ในรอบ 1 ปีที่ผ่านมา โดยสุรา หมายถึง เครื่องดื่มที่มีแอลกอฮอล์ทุกชนิด ได้แก่ เบียร์ เหล้า สาโท กระแช่ วิสกี้ สเปย์ไวน์ เป็นต้น พยายามผู้สัมภาษณ์กรุณาทำเครื่องหมาย \surd ลงในตัวเลือกที่ตรงกับการพฤติกรรมการดื่มของผู้ป่วย

1. คุณดื่มนมสุราหรือไม่

ดื่ม ไม่ดื่ม หากไม่ดื่ม ให้ข้ามแบบสอบถามนี้ไป หากดื่มกรุณาตอบข้อต่อไป)

2. ชนิดของสุราที่ผู้ป่วยดื่ม คือ เลือกตอบได้มากกว่า 1 ข้อ(

เบียร์ เหล้า สาโท กระแช่

ข้อคำถาม	0	1	2	3	4
1. คุณดื่มนมสุราบ่อยแค่ไหน	ไม่เคยเลย	เดือนละครั้ง หรือน้อยกว่า	2-4 ครั้ง ต่อเดือน	2-3 ครั้ง ต่อสัปดาห์	4 ครั้งขึ้นไป ต่อสัปดาห์
2. เลือกตอบเพียงข้อเดียว ในวันที่คุณดื่มนมสุรา โดยทั่วไปแล้ว คุณดื่มประมาณเท่าไรต่อวัน หรือ	1-2 ดื่มนมมาตรฐาน	3-4 ดื่มนมมาตรฐาน	5-6 ดื่มนมมาตรฐาน	7-9 ดื่มนมมาตรฐาน	ตั้งแต่ 10 ดื่มนม มาตรฐานขึ้นไป
ถ้าโดยทั่วไป <u>ดื่มนมเบียร์</u> เช่น สิงห์ ลีโอ ไฮเนเกน เขียว ไทเกอร์ ช้าง คุณดื่มประมาณเท่าไรต่อวัน	1-1.5 กระป๋อง/1/2- 3/4 ขวด	2-3 กระป๋อง/ 1-1.5 ขวด	3.5-4 กระป๋อง/2 ขวด	4.5-7 กระป๋อง/ 3-4 ขวด	7 กระป๋อง/ 4 ขวดขึ้นไป
ถ้าโดยทั่วไป <u>ดื่มนมเหล้า</u> เช่น แม่ โจง หงส์ทอง หงส์ทิพย์ เหล้าขาว 40 ดีกรีคุณดื่มประมาณเท่าไรต่อวัน	2-3 ฝา	1/4 แบน	1/2 แบน	3/4 แบน	1 แบนขึ้นไป
3. คุณดื่มตั้งแต่ 6 ดื่มนมมาตรฐาน ขึ้นไป หรือ เบียร์ 4 กระป๋อง หรือ 2 ขวดใหญ่ขึ้นไป หรือ เหล้าขาว 40 ดีกรี 3 เป๊กขึ้นไป หรือ 1/2 แบนในคราวเดียวกันบ่อยแค่ไหน	ไม่เคยเลย	น้อยกว่า เดือนละครั้ง	เดือนละครั้ง	สัปดาห์ละครั้ง	ทุกวัน หรือเกือบทุกวัน

ชุดที่ ๘ แบบสอบถามความพร้อมในการเลิกบุหรี่

คำชี้แจง ประโยคด้านล่างแสดงถึงความคิดของผู้ป่วยเกี่ยวกับความตั้งใจในการเลิกบุหรี่
 พยาบาลผู้สัมภาษณ์ กรุณาเลือกวงกลมตัวเลขเพียงหนึ่งตัวเท่านั้น ที่แสดงถึงความคิดของ
 ผู้ป่วยในการเลิกบุหรี่ ในขณะนี้

ขณะนี้...คุณคิดว่าคุณมีความตั้งใจในการเลิกบุหรี่อยู่ในขั้นใด

คะแนน	ระดับขั้นของการเลิกบุหรี่
10	ฉันเลิกบุหรี่แล้ว และมั่นใจว่าจะไม่กลับไปสูบบุหรี่อีก
9	ฉันเลิกบุหรี่แล้ว แต่ยังคงกลัวว่าจะกลับไปสูบบุหรี่ใหม่ ดังนั้นฉันต้องการดำรงชีวิตที่ปลอด บุหรี่ไว้
8	ฉันยังคงสูบบุหรี่ แต่ฉันเริ่มเปลี่ยนตัวเอง เช่น ลดจำนวนบุหรี่ลง ฉันพร้อมที่จะ กำหนดวันเลิกสูบบุหรี่
7	ฉันวางแผนไว้แน่นอนแล้วว่าจะเลิกบุหรี่ใน 30 วันข้างหน้า
6	:: :: :: :: :: ::
5	:: :: :: :: :: ::
4	:: :: :: :: :: ::
3	:: :: :: :: :: ::
2	:: :: :: :: :: ::
1	:: :: :: :: :: ::

ชุดที่ ๕ แบบสอบถามแรงจูงใจในการเลิกบุหรี่

คำชี้แจง คำถามแต่ละข้อต่อไปนี้จะถามถึงเหตุผลที่ทำให้ผู้ป่วยอยากเลิกบุหรี่ พยาบาลผู้สัมภาษณ์ กรุณาทำเครื่องหมาย ✓ลงในตัวเลือกที่ตรงกับการความคิดหรือความรู้สึกของผู้ป่วยเกี่ยวกับการอยากเลิกบุหรี่ ในช่วง 1 เดือนที่ผ่านมา

คุณอยากเลิกบุหรี่ เพราะ.....

ข้อคำถาม	ไม่จริง เลย 0	จริง เล็กน้อย 1	จริง ปานกลาง 2	ค่อนข้าง จริง 3	จริง มาก ที่สุด 4
1. เพราะว่าฉันกังวลว่าฉันจะ ทุกข์ทรมานจากโรคร้ายแรง ถ้าฉันไม่เลิกบุหรี่					
2. เพื่อแสดงให้เห็นว่า ฉันสามารถเลิกบุหรี่ได้ถ้าฉัน ต้องการจะทำจริง ๆ					
3. เพื่อที่ว่าผมและเสื้อผ้าของฉัน จะได้ไม่มีกลิ่นเหม็นบุหรี่					
4. เพราะว่าคู่สมรส ลูกหรือคน อื่นๆ ที่ใกล้ชิดฉันจะได้เลิกบ่นว่า ให้ฉันเลิกบุหรี่					
5. เพราะว่าฉันได้สังเกตอาการ ทางกายว่าการสูบบุหรี่ทำร้าย สุขภาพของฉัน					
6. เพราะว่าฉันจะรู้สึกชอบตัวเอง ได้มากขึ้นถ้าฉันเลิกบุหรี่					
7. : : : : : :					

ชุดที่ ๑๐ แบบสอบถามความเข้มข้นของการได้รับบริการช่วยเหลือหู

คำชี้แจง คำถามต่อไปนี้ต้องการถามถึงการบริการช่วยเหลือหูที่ผู้ป่วยได้รับ ในช่วง 1 เดือนที่ผ่านมา

พยาบาลผู้สัมภาษณ์กรุณาทำเครื่องหมาย ✓ ลงใน O หน้าข้อความที่ตรงกับการบริการช่วยเหลือ

1. ในช่วง 1 เดือนที่ผ่านมา คุณเคยได้รับคำแนะนำหรือคำปรึกษาเรื่องการเล็บบูหู จากบุคลากรด้านสุขภาพ หรือไม่ (เช่น จิตแพทย์ พยาบาลจิตเวช นักจิตวิทยา นักสังคมสงเคราะห์ หรือ ทันตแพทย์)

ไม่ได้รับ

ได้รับ (*กรุณาตอบข้อต่อไป "ได้รับ" หากตอบ*)

2. จังหวะรูปแบบบริการช่วยเหลือหูที่คุณเคยได้รับจากบุคลากรด้านสุขภาพ ในช่วง 1 เดือนที่ผ่านมา

โดยเลือกตอบเพียงข้อใดข้อหนึ่งเท่านั้น

ได้รับคำแนะนำหรือคำปรึกษารายบุคคลหรือรายกลุ่มเรื่องการเล็บบูหู จากบุคลากรด้านสุขภาพ (นักสังคมสงเคราะห์ หรือทันตแพทย์ จิตแพทย์ พยาบาลจิตเวช นักจิตวิทยา) *โดยใช้* เวลาในการให้คำปรึกษา *ประมาณ 3-10 นาทีต่อครั้งจำนวนครั้งที่ได้รับ* คำแนะนำ.....ครั้ง (

ครบ 7 วันหลังจำหน่ายออกจากโรงพยาบาล

: : : : : :

: : : : : :

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ชุดที่ ๑๑ แบบสอบถามความพยายามเลิกบุหรี่

คำชี้แจง แบบสอบถามนี้ต้องการถามถึงความพยายามเลิกบุหรี่ของผู้ป่วย ในช่วง 7 วันที่ผ่านมา หลังจากจำหน่ายออกจากโรงพยาบาล พยาบาลผู้สัมภาษณ์กรุณาทำเครื่องหมาย \surd ลงใน หน้าข้อความ หรือเติมข้อความลงในช่องว่าง

1. ในช่วง 7 วันที่ผ่านมาหลังจากจำหน่ายออกจากโรงพยาบาล คุณหยุดสูบบุหรี่ได้ต่อเนื่องกันอย่างน้อย 24 ชั่วโมง ได้หรือไม่

ไม่ได้

ได้ หากตอบ กรุณาระบุว่า "ได้" หยุดสูบบุหรี่ได้ต่อเนื่องกันอย่างน้อย 24 ชั่วโมง ได้ทั้งหมดกี่ครั้ง..... ครั้ง หยุดสูบบุหรี่ได้ต่อเนื่อง 24 ชั่วโมง นับเป็นการหยุดสูบบุหรี่ได้ 1 ครั้ง(

ครบ 30 วันหลังจากจำหน่ายออกจากโรงพยาบาล

ชุดที่ ๑๒ แบบสอบถามสถานภาพการสูบบุหรี่

คำชี้แจง แบบสอบถามนี้ต้องการถามถึงสถานภาพการสูบบุหรี่ของผู้ป่วยในปัจจุบัน พยาบาล
ผู้สัมภาษณ์กรุณาทำเครื่องหมาย ✓ ลงใน หน้าข้อความ หรือเติมข้อความลงในช่องว่าง

1. ปัจจุบัน คุณสูบบุหรี่หรือไม่

สูบ หากตอบ “สูบ” กรุณาระบุว่า ปัจจุบันสูบบุหรี่วันละกี่มวน.....
มวน

ไม่สูบ กรุณาเลือกว่าหยุดสูบได้แบบใด

หยุดสูบบุหรี่ได้ต่อเนื่องกันตลอด 30 วันหลังจำหน่ายออกจากโรงพยาบาล

หยุดสูบบุหรี่ได้ต่อเนื่องกันมากกว่า 7 วัน ก่อนการสัมภาษณ์



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HULALONGKORN UNIVERSITY

ขอขอบคุณที่ให้ความร่วมมือในการตอบแบบสอบถาม

APPENDIX G
ASSUMPTION TESTING OF PATH ANALYSIS



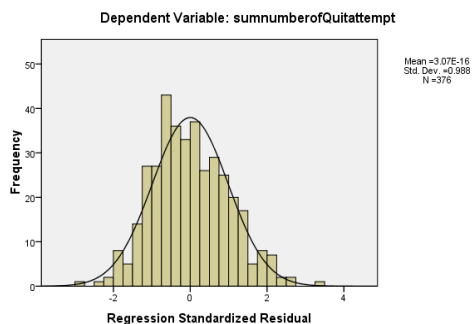
จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

Tests of Normality

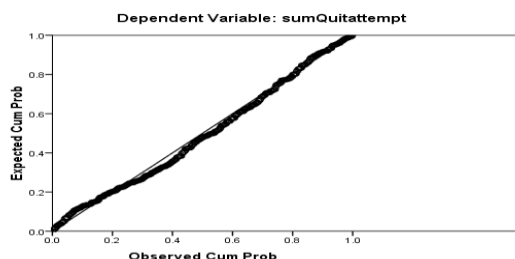
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Household smokers	.422	376	.000	.600	376	.000
Positive symptoms	.419	376	.000	.596	376	.000
Negative symptoms	.307	376	.000	.718	376	.000
Depression	.253	376	.000	.735	376	.000
Alcohol consumption	.185	376	.000	.843	376	.000
Nicotine dependence	.095	376	.000	.969	376	.000
Readiness to quit	.124	376	.000	.940	376	.000
Intensity of intervention	.380	376	.000	.696	376	.000
Motivation to quit	.090	376	.000	.950	376	.000
Quit attempt	.253	376	.000	.775	376	.000
Smoking status	.510	376	.000	.436	376	.000

a. Lilliefors Significance Correction

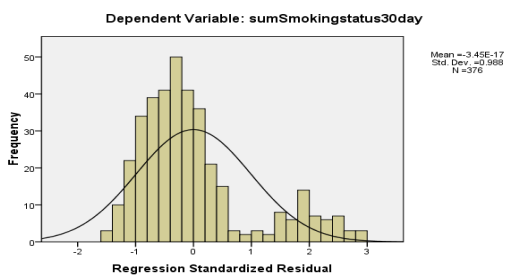
Histogram



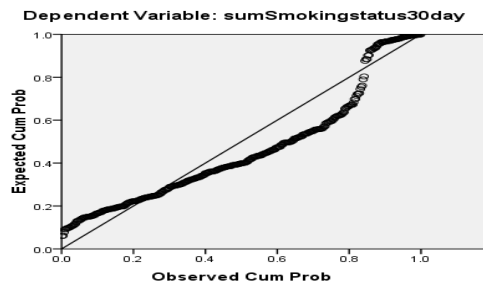
Normal P-P Plot of Regression Standardized Residual



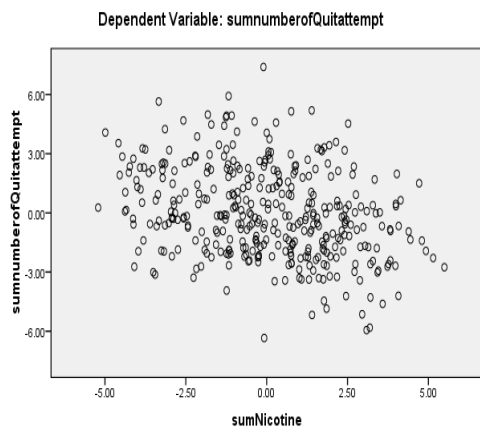
Histogram



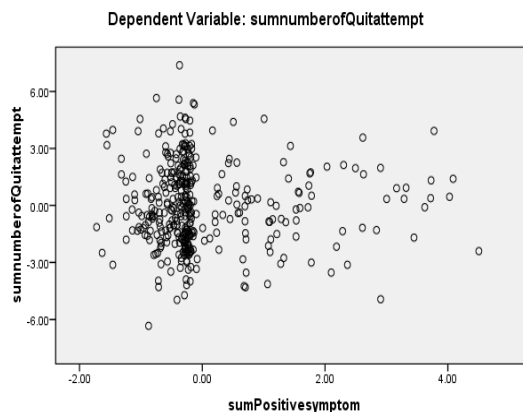
Normal P-P Plot of Regression Standardized Residual



Partial Regression Plot



Partial Regression Plot



Multicollinearity testing

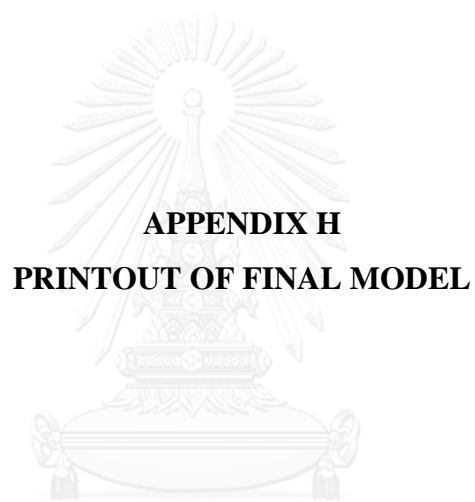
Model	Unstandardize		Standardized	t	Sig.	Collinearity	
	Coefficients		Coefficients			Statistics	
	B	Std. Error	Beta			Tolerance	VIF
constant	1.197	0.659		1.817	.070		
Household smokers	.031	.240	.005	.128	.898	.988	1.012
Positive symptoms	-.036	.109	-.014	-.331	.741	.852	1.1.74
Negative symptoms	-.066	.059	-.046	-1.127	.261	.872	1.147
Depression	.022	.054	.018	.413	.680	.796	1.257
Alcohol consumption	-.009	.013	-.027	-.686	.493	.968	1.033
Nicotine dependence	-.311	.050	-.024	-6.203	.000	.970	1.031
Readiness to quit	.616	.047	.571	12.979	.000	.748	1.336
Intensity	.297	.140	.082	2.123	.034	.971	1.030
Motivation to quit	.007	.006	.048	1.112	.267	.772	1.295

Dependent variable: Quit attempt

Multicollinearity testing

Model	Unstandardize		Standardized	t	Sig.	Collinearity Statistics	
	Coefficients		Coefficients				
	B	Std. Error	Beta			Tolerance	VIF
constant	.080	.096		.834	.405		
Household smokers	-.014	.035	-.018	-.395	.693	.988	1.012
Positive symptoms	.007	.016	.022	.451	.652	.852	1.1.74
Negative symptoms	-.009	.009	-.053	-1.081	.281	.872	1.147
Depression	.013	.008	.084	1.648	.100	.796	1.257
Alcohol consumption	-.002	.002	-.043	-.922	.357	.968	1.033
Nicotine dependence	-.040	.007	-.255	-5.514	.000	.970	1.031
Readiness to quit	.051	.007	.385	7.312	.000	.748	1.336
Intensity	.026	.020	.059	1.273	.204	.971	1.030
Motivation to quit	.000	.001	-.034	-.662	.509	.772	1.295

Dependent variable: Smoking status



APPENDIX H

PRINTOUT OF FINAL MODEL

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

LISREL 8.80 (STUDENT EDITION)

BY

Karl G. Jöreskog & Dag Sörbom

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The following lines were read from file C:\Users\Admin\Desktop\P_Phu\Smoking New\Smoking New.LPJ:

TI Path Smoking
 DA NI=11 NO=376 MA=CM
 RA FI='C:\Users\Admin\Desktop\P_Phu\Smoking New\SmokingNew.psf'
 SE
 2 3 7 9 10 11 1 4 5 6 8 /
 MO NX=5 NY=6 BE=FU GA=FI PS=SY TY=FI TX=FI AL=FI KA=FI
 FI PH(2,1) PH(3,1) PH(3,2) PH(4,1) PH(4,2) PH(4,3) PH(5,1) PH(5,2) PH(5,3)
 FI PH(5,4)
 FR BE(5,1) BE(5,2) BE(5,3) BE(5,4) BE(6,1) BE(6,2) BE(6,3) BE(6,4) BE(6,5)
 FR GA(1,4) GA(2,4) GA(3,5) GA(4,5) GA(5,1) GA(5,2) GA(5,3) GA(5,4) GA(5,5)
 FR GA(6,1) GA(6,2) GA(6,3) GA(6,4) GA(6,5) AL(1) AL(2) AL(3) AL(4)
 FR AL(5) AL(6) KA(1) KA(2) KA(3) KA(4) KA(5) PS(2,1) PS(4,3)
 FI TH (2,2)
 ST 1 TH (2,2)
 FI TH (2,1)
 ST 1 TH (2,1)
 PD
 OU PC RS EF SS ND=3

TI Path Smoking

Number of Input Variables 11
 Number of Y - Variables 6
 Number of X - Variables 5
 Number of ETA - Variables 6
 Number of KSI - Variables 5
 Number of Observations 376

TI Path Smoking

Covariance Matrix

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	1.271					
NEGAITIV	0.554	4.270				

READINES	-0.108	-0.461	7.651			
MOTIVATI	0.503	-1.145	27.154	438.400		
QUITATTE	-0.126	-0.503	5.233	20.594	8.885	
SMOKINGS	0.498	-0.502	-7.199	-32.212	-15.783	94.948
HOUSEHOL	-0.021	0.011	-0.023	-0.242	0.005	-0.028
DEPRESSI	0.953	1.505	-0.183	2.737	-0.245	0.107
ALCOHOL	0.029	-1.045	0.383	0.783	-0.977	7.699
NICOTINE	0.038	-0.124	-0.708	-2.174	-2.096	12.194
INTERVEN	0.039	0.036	0.309	0.319	0.399	-0.585

Covariance Matrix

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
HOUSEHOL	0.226				
DEPRESSI	-0.048	5.601			
ALCOHOL	0.273	2.092	82.476		
NICOTINE	-0.049	0.459	1.593	5.291	
INTERVEN	0.008	0.071	-0.432	-0.011	0.680

Means

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
	4.596	5.386	5.213	28.479	2.907	12.609

Means

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
	1.343	1.660	8.130	4.258	0.590

TI Path Smoking

Parameter Specifications

BETA

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	0	0	0	0	0	0
NEGAITIV	0	0	0	0	0	0
READINES	0	0	0	0	0	0
MOTIVATI	0	0	0	0	0	0
QUITATTE	1	2	3	4	0	0
SMOKINGS	5	6	7	8	9	0

GAMMA

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE
POSITIVE	0	0	0	10	0
NEGAITIV	0	0	0	11	0
READINES	0	0	0	0	12
MOTIVATI	0	0	0	0	13
QUITATTE	14	15	16	17	18

SMOKINGS 19 20 21 22 23

PHI

HOUSEHOL DEPRESSI ALCOHOL NICOTINE INTERVEN

 24 25 26 27 28

PSI

POSITIVE NEGAITIV READINES MOTIVATI QUITATTE SMOKINGS

 POSITIVE 29
 NEGAITIV 30 31
 READINES 0 0 32
 MOTIVATI 0 0 33 34
 QUITATTE 0 0 0 0 35
 SMOKINGS 0 0 0 0 0 36

ALPHA

POSITIVE NEGAITIV READINES MOTIVATI QUITATTE SMOKINGS

 37 38 39 40 41 42

TI Path Smoking

Number of Iterations = 5

LISREL Estimates (Maximum Likelihood)

BETA

POSITIVE NEGAITIV READINES MOTIVATI QUITATTE SMOKINGS

 POSITIVE -- -- -- -- -- --
 NEGAITIV -- -- -- -- -- --
 READINES -- -- -- -- -- --
 MOTIVATI -- -- -- -- -- --
 QUITATTE -0.020 -0.063 0.616 0.007 -- --
 (0.101) (0.057) (0.047) (0.006)
 -0.200 -1.096 13.188 1.122
 SMOKINGS 0.315 -0.228 0.285 -0.011 -1.515 --
 (0.333) (0.188) (0.186) (0.020) (0.171)
 0.945 -1.210 1.533 -0.544 -8.865

GAMMA

HOUSEHOL DEPRESSI ALCOHOL NICOTINE INTERVEN

 POSITIVE -- -- -- 0.007 --
 (0.024)
 0.300
 NEGAITIV -- -- -- -0.023 --
 (0.045)

			-0.525		
READINES	--	--	--	--	0.454
			(0.173)		
			2.630		
MOTIVATI	--	--	--	--	0.470
			(1.319)		
			0.356		
QUITATTE	0.026	0.003	-0.008	-0.309	0.299
	(0.238)	(0.049)	(0.013)	(0.049)	(0.139)
	0.110	0.068	-0.654	-6.253	2.157
SMOKINGS	0.272	-0.165	0.041	1.735	-0.042
	(0.783)	(0.159)	(0.041)	(0.171)	(0.458)
	0.347	-1.036	0.994	10.154	-0.092

Covariance Matrix of Y and X

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	1.296					
NEGAITIV	0.468	4.073				
READINES	0.000	0.000	7.651			
MOTIVATI	0.000	0.000	27.154	438.400		
QUITATTE	-0.067	-0.226	4.991	19.819	8.580	
SMOKINGS	0.469	-0.652	-5.712	-27.116	-14.674	92.787
HOUSEHOL	0.000	0.001	0.003	0.004	0.023	-0.038
DEPRESSI	0.003	-0.011	0.032	0.033	-0.100	0.118
ALCOHOL	0.011	-0.037	-0.196	-0.203	-1.406	7.988
NICOTINE	0.038	-0.124	-0.005	-0.005	-1.648	11.693
INTERVEN	0.000	0.000	0.309	0.320	0.404	-0.603

Covariance Matrix of Y and X

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
HOUSEHOL	0.226				
DEPRESSI	-0.048	5.524			
ALCOHOL	0.273	2.092	82.374		
NICOTINE	-0.049	0.459	1.593	5.291	
INTERVEN	0.008	0.071	-0.432	-0.011	0.681

Mean Vector of Eta-Variables

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
	4.596	5.386	5.213	28.479	2.907	12.609

PHI

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
HOUSEHOL	0.226				
	(0.016)				
	13.733				
DEPRESSI	-0.048	5.524			
	(0.338)				
	16.332				
ALCOHOL	0.273	2.092	82.374		

		(5.906)			
		13.947			
NICOTINE	-0.049	0.459	1.593	5.291	
		(0.384)			
		13.794			
INTERVEN	0.008	0.071	-0.432	-0.011	0.681
			(0.050)		
			13.685		

PSI

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	1.296					
	(0.082)					
	15.707					
NEGAITIV	0.469	4.070				
	(0.110)	(0.286)				
	4.277	14.236				
READINES	--	--	7.510			
		(0.552)				
		13.601				
MOTIVATI	--	--	27.009	438.250		
		(3.297)	(32.221)			
		8.193	13.601			
QUITATTE	--	--	--	--	4.714	
				(0.347)		
				13.603		
SMOKINGS	--	--	--	--	--	50.978
				(3.746)		
				13.609		

Squared Multiple Correlations for Structural Equations

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
	0.000	0.001	0.018	0.000	0.451	0.451

Squared Multiple Correlations for Reduced Form

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
	0.000	0.001	0.018	0.000	0.088	0.288

Reduced Form

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
POSITIVE	--	--	--	0.007	--
			(0.024)		
			0.300		
NEGAITIV	--	--	--	-0.023	--
			(0.045)		
			-0.525		
READINES	--	--	--	--	0.454
				(0.173)	
				2.630	

MOTIVATI	--	--	--	--	0.470
				(1.319)	
				0.356	
QUITATTE	0.026	0.003	-0.008	-0.308	0.582
	(0.238)	(0.049)	(0.013)	(0.050)	(0.176)
	0.110	0.068	-0.654	-6.218	3.299
SMOKINGS	0.232	-0.170	0.054	2.209	-0.799
	(0.862)	(0.176)	(0.046)	(0.179)	(0.512)
	0.269	-0.969	1.178	12.329	-1.560

ALPHA

POSITIVE	NEGATIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
----------	---------	----------	----------	----------	----------

4.565	5.485	4.945	28.201	1.100	7.830
(0.118)	(0.217)	(0.175)	(1.338)	(0.710)	(2.342)
38.847	25.300	28.226	21.074	1.549	3.344

Goodness of Fit Statistics

Degrees of Freedom = 30

Minimum Fit Function Chi-Square = 19.680 (P = 0.925)

Normal Theory Weighted Least Squares Chi-Square = 19.790 (P = 0.922)

Estimated Non-centrality Parameter (NCP) = 0.0

90 Percent Confidence Interval for NCP = (0.0 ; 2.076)

Minimum Fit Function Value = 0.0525

Population Discrepancy Function Value (F0) = 0.0

90 Percent Confidence Interval for F0 = (0.0 ; 0.00561)

Root Mean Square Error of Approximation (RMSEA) = 0.0

90 Percent Confidence Interval for RMSEA = (0.0 ; 0.0137)

P-Value for Test of Close Fit (RMSEA < 0.05) = 1.00

Expected Cross-Validation Index (ECVI) = 0.305

90 Percent Confidence Interval for ECVI = (0.305 ; 0.311)

ECVI for Saturated Model = 0.357

ECVI for Independence Model = 2.020

Chi-Square for Independence Model with 55 Degrees of Freedom = 725.262

Independence AIC = 747.262

Model AIC = 113.790

Saturated AIC = 132.000

Independence CAIC = 801.488

Model CAIC = 345.481

Saturated CAIC = 457.353

Normed Fit Index (NFI) = 0.973

Non-Normed Fit Index (NNFI) = 1.028

Parsimony Normed Fit Index (PNFI) = 0.531

Comparative Fit Index (CFI) = 1.000

Incremental Fit Index (IFI) = 1.015

Relative Fit Index (RFI) = 0.950

Critical N (CN) = 970.758

Root Mean Square Residual (RMR) = 0.894
 Standardized RMR = 0.0323
 Goodness of Fit Index (GFI) = 0.991
 Adjusted Goodness of Fit Index (AGFI) = 0.979
 Parsimony Goodness of Fit Index (PGFI) = 0.450

TI Path Smoking

Fitted Covariance Matrix

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	1.296					
NEGAITIV	0.468	4.073				
READINES	0.000	0.000	7.651			
MOTIVATI	0.000	0.000	27.154	438.400		
QUITATTE	-0.067	-0.226	4.991	19.819	8.580	
SMOKINGS	0.469	-0.652	-5.712	-27.116	-14.674	92.787
HOUSEHOL	0.000	0.001	0.003	0.004	0.023	-0.038
DEPRESSI	1.003	0.989	0.032	0.033	-0.100	0.118
ALCOHOL	0.011	-0.037	-0.196	-0.203	-1.406	7.988
NICOTINE	0.038	-0.124	-0.005	-0.005	-1.648	11.693
INTERVEN	0.000	0.000	0.309	0.320	0.404	-0.603

Fitted Covariance Matrix

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
HOUSEHOL	0.226				
DEPRESSI	-0.048	5.524			
ALCOHOL	0.273	2.092	82.374		
NICOTINE	-0.049	0.459	1.593	5.291	
INTERVEN	0.008	0.071	-0.432	-0.011	0.681

Fitted Means

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
	4.596	5.386	5.213	28.479	2.907	12.609

Fitted Means

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
	1.343	1.660	8.130	4.258	0.590

Fitted Residuals

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	-0.025					
NEGAITIV	0.086	0.196				
READINES	-0.108	-0.461	0.000			
MOTIVATI	0.503	-1.145	0.000	0.000		
QUITATTE	-0.058	-0.277	0.242	0.775	0.305	
SMOKINGS	0.029	0.150	-1.487	-5.096	-1.109	2.161

DEPRESSI	-0.342	2.054	-0.638	1.057	-0.603	-0.017
ALCOHOL	0.032	-1.061	0.444	0.100	0.462	-0.109
NICOTINE	0.000	0.000	-2.126	-0.866	-2.035	1.653
INTERVEN	0.807	0.409	-0.224	-0.224	-0.140	0.083

Standardized Residuals

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
HOUSEHOL	-0.129				
DEPRESSI	--	0.344			
ALCOHOL	--	--	0.076		
NICOTINE	--	--	--	0.000	
INTERVEN	--	--	--	--	-0.224

Summary Statistics for Standardized Residuals

Smallest Standardized Residual = -2.126
 Median Standardized Residual = 0.000
 Largest Standardized Residual = 2.300

Stemleaf Plot

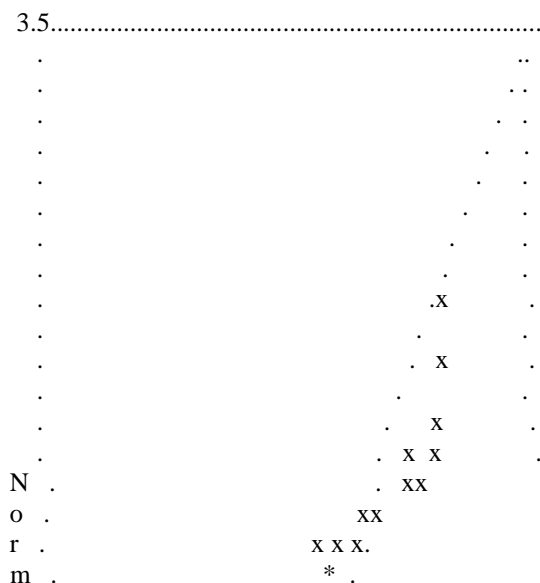
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-2|100
-1|96
-1|41
-0|9977665555
-0|4432222221110000000000000000
0|1111223444
0|568
1|01
1|677
2|1223
    
```



TI Path Smoking

Qplot of Standardized Residuals



จุฬาลงกรณ์มหาวิทยาลัย
 CHULALONGKORN UNIVERSITY

PH 2_2	0.000	0.000	0.000	0.000	-0.001	0.000
PH 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PH 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PH 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 1_1	0.000	0.000	0.000	0.000	0.001	0.000
PS 2_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_2	0.000	0.000	0.000	0.000	0.000	0.001
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 6_6	0.000	0.000	0.000	0.000	0.032	0.007
AL 1	0.000	0.000	0.000	0.000	0.000	0.000
AL 2	0.000	0.000	0.000	0.000	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	-0.043	-0.013	-0.007	0.000	0.000	0.000
AL 6	0.000	0.000	0.000	0.000	-0.462	-0.143
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	BE 6_3	BE 6_4	BE 6_5	GA 1_4	GA 2_4	GA 3_5
BE 6_3	0.035					
BE 6_4	-0.001	0.000				
BE 6_5	-0.018	0.000	0.029			
GA 1_4	0.000	0.000	0.000	0.001		
GA 2_4	0.000	0.000	0.000	0.000	0.002	
GA 3_5	0.000	0.000	0.000	0.000	0.000	0.030
GA 4_5	0.000	0.000	0.000	0.000	0.000	0.107
GA 5_1	0.000	0.000	0.000	0.000	0.000	0.000
GA 5_2	0.000	0.000	0.000	0.000	0.000	0.000
GA 5_3	0.000	0.000	0.000	0.000	0.000	0.000
GA 5_4	0.000	0.000	0.000	0.000	0.000	0.000
GA 5_5	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_1	0.000	0.000	-0.001	0.000	0.000	0.000
GA 6_2	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_3	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_4	-0.006	0.000	0.009	0.000	0.000	0.000
GA 6_5	-0.005	0.001	-0.009	0.000	0.000	0.000
PH 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PH 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PH 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PH 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PH 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000

PS 6_6	-0.001	0.000	0.001	0.000	0.000	0.000
AL 1	0.000	0.000	0.000	-0.002	-0.001	0.000
AL 2	0.000	0.000	0.000	-0.001	-0.008	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	-0.018
AL 4	0.000	0.000	0.000	0.000	0.000	-0.063
AL 5	0.001	0.000	-0.002	0.000	0.000	0.000
AL 6	-0.056	-0.004	-0.032	0.000	0.000	0.000
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	GA 4_5	GA 5_1	GA 5_2	GA 5_3	GA 5_4	GA 5_5
GA 4_5	1.739					
GA 5_1	0.000	0.057				
GA 5_2	0.000	0.001	0.002			
GA 5_3	0.000	0.000	0.000	0.000		
GA 5_4	0.000	0.001	0.000	0.000	0.002	
GA 5_5	0.000	-0.001	0.000	0.000	0.000	0.019
GA 6_1	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_2	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_3	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_4	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_5	0.000	0.000	0.000	0.000	0.000	0.000
PH 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PH 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PH 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PH 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PH 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 6_6	0.000	0.000	0.000	0.000	0.000	0.000
AL 1	0.000	0.000	0.000	0.000	0.000	0.000
AL 2	0.000	0.000	0.000	0.000	0.000	0.000
AL 3	-0.063	0.000	0.000	0.000	0.000	0.000
AL 4	-1.027	0.000	0.000	0.000	0.000	0.000
AL 5	0.000	-0.080	-0.013	-0.001	-0.010	-0.006
AL 6	0.000	0.000	0.000	0.000	0.000	0.000
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	GA 6_1	GA 6_2	GA 6_3	GA 6_4	GA 6_5	PH 1_1
--	--------	--------	--------	--------	--------	--------

GA 6_1	0.614					
GA 6_2	0.006	0.025				
GA 6_3	-0.002	-0.001	0.002			
GA 6_4	0.006	-0.002	0.000	0.029		
GA 6_5	-0.009	-0.003	0.001	-0.002	0.210	
PH 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PH 2_2	0.000	-0.001	0.000	0.000	0.000	0.000
PH 3_3	-0.001	0.000	0.001	0.000	0.000	-0.001
PH 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PH 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 6_6	-0.001	-0.004	0.000	0.001	0.000	0.000
AL 1	0.000	0.000	0.000	0.000	0.000	0.000
AL 2	0.000	0.000	0.000	0.000	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	0.000	0.000	0.000	-0.001	0.001	0.000
AL 6	-0.858	-0.141	-0.006	-0.115	-0.055	0.000
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	PH 2_2	PH 3_3	PH 4_4	PH 5_5	PS 1_1	PS 2_1
PH 2_2	0.114					
PH 3_3	-0.022	34.884				
PH 4_4	-0.001	-0.011	0.147			
PH 5_5	0.000	-0.001	0.000	0.002		
PS 1_1	-0.004	0.000	0.000	0.000	0.007	
PS 2_1	-0.004	0.000	0.000	0.000	0.002	0.012
PS 2_2	-0.004	0.000	0.000	0.000	0.001	0.006
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 6_6	0.000	0.000	0.000	0.000	0.000	0.000
AL 1	0.000	0.000	0.002	0.000	0.000	0.000
AL 2	0.000	0.000	0.002	0.000	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	-0.001	0.001	0.000	0.000	0.000	0.000
AL 6	0.005	-0.003	0.000	0.000	-0.004	-0.004
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	PS 2_2	PS 3_3	PS 4_3	PS 4_4	PS 5_5	PS 6_6
PS 2_2	0.082					
PS 3_3	0.000	0.305				
PS 4_3	0.000	1.096	10.867			
PS 4_4	0.000	3.943	63.982	1038.177		
PS 5_5	0.000	0.000	0.000	0.000	0.120	
PS 6_6	0.000	0.000	0.000	0.000	0.000	14.031
AL 1	0.000	0.000	0.000	0.000	0.000	0.000
AL 2	0.000	0.000	0.000	0.000	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	0.001	0.000	0.000	0.000	0.000	0.000
AL 6	-0.005	0.000	0.000	0.000	0.000	-0.184
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	AL 1	AL 2	AL 3	AL 4	AL 5	AL 6
AL 1	0.014					
AL 2	0.004	0.047				
AL 3	0.000	0.000	0.031			
AL 4	0.000	0.000	0.110	1.791		
AL 5	0.000	0.000	0.000	0.000	0.504	
AL 6	0.002	0.002	0.000	0.000	0.004	5.483
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.003	0.003	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Covariance Matrix of Parameter Estimates

	KA 1	KA 2	KA 3	KA 4	KA 5
KA 1	0.001				
KA 2	0.000	0.015			
KA 3	0.001	0.006	0.223		
KA 4	0.000	0.001	0.004	0.014	
KA 5	0.000	0.000	-0.001	0.000	0.002

TI Path Smoking

Correlation Matrix of Parameter Estimates

	BE 5_1	BE 5_2	BE 5_3	BE 5_4	BE 6_1	BE 6_2
BE 5_1	1.000					
BE 5_2	-0.204	1.000				

GA 5_1	0.000	0.000	0.000	0.000	0.000	0.000
GA 5_2	0.003	0.000	-0.005	0.000	0.000	0.000
GA 5_3	0.000	0.000	0.001	0.000	0.000	0.000
GA 5_4	0.000	0.000	0.000	-0.008	-0.004	0.000
GA 5_5	0.000	0.000	0.000	0.000	0.000	0.000
GA 6_1	0.003	0.000	-0.005	0.000	0.000	0.000
GA 6_2	-0.007	-0.001	0.013	0.000	0.000	0.000
GA 6_3	-0.018	-0.002	0.032	0.000	0.000	0.000
GA 6_4	-0.174	-0.018	0.308	0.023	0.012	0.000
GA 6_5	-0.054	0.057	-0.112	0.000	0.000	0.000
PH 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PH 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PH 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PH 4_4	0.000	0.000	0.000	-0.043	-0.023	0.000
PH 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 1_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_1	0.000	0.000	0.000	0.000	0.000	0.000
PS 2_2	0.000	0.000	0.000	0.000	0.000	0.000
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	-0.001	0.000	0.001	0.000	0.000	0.000
PS 6_6	-0.001	0.000	0.001	0.000	0.000	0.000
AL 1	0.000	0.000	0.000	-0.864	-0.119	0.000
AL 2	0.000	0.000	0.000	-0.120	-0.875	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	-0.582
AL 4	0.000	0.000	0.000	0.000	0.000	-0.274
AL 5	0.008	0.001	-0.015	0.002	0.001	0.000
AL 6	-0.128	-0.085	-0.081	-0.007	-0.004	0.000
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Correlation Matrix of Parameter Estimates

	GA 4_5	GA 5_1	GA 5_2	GA 5_3	GA 5_4	GA 5_5
GA 4_5	1.000					
GA 5_1	0.000	1.000				
GA 5_2	0.000	0.047	1.000			
GA 5_3	0.000	-0.072	-0.098	1.000		
GA 5_4	0.000	0.046	-0.077	-0.071	1.000	
GA 5_5	0.000	-0.025	-0.043	0.062	0.004	1.000
GA 6_1	0.000	0.001	0.000	0.000	0.000	0.000
GA 6_2	0.000	0.000	0.001	0.000	0.000	0.000
GA 6_3	0.000	0.000	0.000	0.001	0.000	0.000
GA 6_4	0.000	0.000	-0.002	0.000	0.001	0.000
GA 6_5	0.000	0.000	0.001	0.000	0.000	0.001
PH 1_1	0.000	0.001	0.000	0.000	0.000	0.000
PH 2_2	0.000	0.001	0.024	-0.002	-0.002	-0.001
PH 3_3	0.000	0.000	0.000	-0.003	0.000	0.000
PH 4_4	0.000	0.000	0.000	0.000	-0.002	0.000
PH 5_5	0.000	0.000	0.000	0.000	0.000	-0.001
PS 1_1	0.000	0.000	-0.003	0.000	0.000	0.000
PS 2_1	0.000	0.000	-0.003	0.000	0.000	0.000

PS 2_2	0.000	0.000	-0.001	0.000	0.000	0.000
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.001	0.023	-0.002	-0.002	-0.001
PS 6_6	0.000	0.000	0.000	0.000	0.000	0.000
AL 1	0.000	0.000	0.000	0.000	0.007	0.000
AL 2	0.000	0.000	0.000	0.000	0.004	0.000
AL 3	-0.274	0.000	0.000	0.000	0.000	0.000
AL 4	-0.582	0.000	0.000	0.000	0.000	0.000
AL 5	0.000	-0.470	-0.377	-0.059	-0.277	-0.060
AL 6	0.000	-0.001	0.000	0.000	0.000	0.000
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Correlation Matrix of Parameter Estimates

	GA 6_1	GA 6_2	GA 6_3	GA 6_4	GA 6_5	PH 1_1
GA 6_1	1.000					
GA 6_2	0.047	1.000				
GA 6_3	-0.072	-0.097	1.000			
GA 6_4	0.042	-0.069	-0.058	1.000		
GA 6_5	-0.024	-0.045	0.058	-0.031	1.000	
PH 1_1	-0.001	0.000	0.000	0.000	0.000	1.000
PH 2_2	-0.001	-0.020	0.002	0.001	0.001	-0.003
PH 3_3	0.000	0.000	0.002	0.000	0.000	-0.005
PH 4_4	0.000	0.000	0.000	0.001	0.000	-0.002
PH 5_5	0.000	0.000	0.000	0.000	0.001	-0.001
PS 1_1	0.000	0.003	0.000	-0.001	0.000	0.000
PS 2_1	0.000	0.002	0.000	0.000	0.000	0.000
PS 2_2	0.000	0.001	0.000	0.000	0.000	0.000
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 6_6	0.000	-0.007	0.001	0.001	0.000	0.000
AL 1	0.000	0.000	0.000	-0.020	0.000	0.000
AL 2	0.000	0.000	0.000	-0.011	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	0.000	0.000	-0.001	-0.005	0.002	-0.001
AL 6	-0.468	-0.376	-0.061	-0.288	-0.051	0.001
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Correlation Matrix of Parameter Estimates

	PH 2_2	PH 3_3	PH 4_4	PH 5_5	PS 1_1	PS 2_1
PH 2_2	1.000					

PH 3_3	-0.011	1.000				
PH 4_4	-0.007	-0.005	1.000			
PH 5_5	-0.002	-0.004	0.000	1.000		
PS 1_1	-0.140	0.000	0.000	0.000	1.000	
PS 2_1	-0.105	0.000	0.000	0.000	0.203	1.000
PS 2_2	-0.040	0.000	0.000	0.000	0.024	0.195
PS 3_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_3	0.000	0.000	0.000	0.000	0.000	0.000
PS 4_4	0.000	0.000	0.000	0.000	0.000	0.000
PS 5_5	0.000	0.000	0.000	0.000	0.000	0.000
PS 6_6	0.000	0.000	0.000	0.000	0.001	0.000
AL 1	0.000	0.000	0.037	0.000	0.000	0.000
AL 2	0.000	0.000	0.020	0.000	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	-0.004	0.000	0.001	0.000	0.007	0.006
AL 6	0.006	0.000	0.000	0.000	-0.020	-0.017
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Correlation Matrix of Parameter Estimates

	PS 2_2	PS 3_3	PS 4_3	PS 4_4	PS 5_5	PS 6_6
PS 2_2	1.000					
PS 3_3	0.000	1.000				
PS 4_3	0.000	0.602	1.000			
PS 4_4	0.000	0.222	0.602	1.000		
PS 5_5	0.000	0.000	0.000	0.000	1.000	
PS 6_6	0.000	0.000	0.000	0.000	0.000	1.000
AL 1	0.000	0.000	0.000	0.000	0.000	0.000
AL 2	0.000	0.000	0.000	0.000	0.000	0.000
AL 3	0.000	0.000	0.000	0.000	0.000	0.000
AL 4	0.000	0.000	0.000	0.000	0.000	0.000
AL 5	0.002	0.000	0.000	0.000	-0.001	0.000
AL 6	-0.007	0.000	0.000	0.000	0.000	-0.021
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.000	0.000	0.000	0.000	0.000	0.000
KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Correlation Matrix of Parameter Estimates

	AL 1	AL 2	AL 3	AL 4	AL 5	AL 6
AL 1	1.000					
AL 2	0.154	1.000				
AL 3	0.000	0.000	1.000			
AL 4	0.000	0.000	0.471	1.000		
AL 5	-0.002	-0.001	0.000	0.000	1.000	
AL 6	0.008	0.004	0.000	0.000	0.002	1.000
KA 1	0.000	0.000	0.000	0.000	0.000	0.000
KA 2	0.188	0.102	0.000	0.000	0.003	-0.001

KA 3	0.000	0.000	0.000	0.000	0.000	0.000
KA 4	0.000	0.000	0.000	0.000	0.000	0.000
KA 5	0.000	0.000	0.000	0.000	0.000	0.000

Correlation Matrix of Parameter Estimates

	KA 1	KA 2	KA 3	KA 4	KA 5
KA 1	1.000				
KA 2	-0.043	1.000			
KA 3	0.063	0.098	1.000		
KA 4	-0.045	0.085	0.076	1.000	
KA 5	0.019	0.037	-0.058	-0.006	1.000

TI Path Smoking

Standardized Solution

BETA

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	--	--	--
NEGAITIV	--	--	--	--	--	--
READINES	--	--	--	--	--	--
MOTIVATI	--	--	--	--	--	--
QUITATTE	-0.008	-0.043	0.581	0.049	--	--
SMOKINGS	0.037	-0.048	0.082	-0.024	-0.461	--

GAMMA

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
POSITIVE	--	--	0.014	--	--
NEGAITIV	--	--	-0.027	--	--
READINES	--	--	--	0.135	--
MOTIVATI	--	--	--	0.019	--
QUITATTE	0.004	0.003	-0.026	-0.243	0.084
SMOKINGS	0.013	-0.040	0.039	0.414	-0.004

Correlation Matrix of Y and X

	POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	1.000					
NEGAITIV	0.204	1.000				
READINES	0.000	0.000	1.000			
MOTIVATI	0.000	0.000	0.469	1.000		
QUITATTE	-0.020	-0.038	0.616	0.323	1.000	
SMOKINGS	0.043	-0.034	-0.214	-0.134	-0.520	1.000
HOUSEHOL	-0.001	0.001	0.003	0.000	0.016	-0.008
DEPRESSI	0.001	-0.002	0.005	0.001	-0.015	0.005
ALCOHOL	0.001	-0.002	-0.008	-0.001	-0.053	0.091
NICOTINE	0.014	-0.027	-0.001	0.000	-0.245	0.528
INTERVEN	0.000	0.000	0.135	0.019	0.167	-0.076

Correlation Matrix of Y and X

HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN	
HOUSEHOL	1.000				
DEPRESSI	-0.043	1.000			
ALCOHOL	0.063	0.098	1.000		
NICOTINE	-0.045	0.085	0.076	1.000	
INTERVEN	0.019	0.037	-0.058	-0.006	1.000

PSI

POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS	
POSITIVE	1.000					
NEGAITIV	0.204	0.999				
READINES	--	--	0.982			
MOTIVATI	--	--	0.466	1.000		
QUITATTE	--	--	--	--	0.549	
SMOKINGS	--	--	--	--	--	0.549

Regression Matrix Y on X (Standardized)

POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	0.014	--
NEGAITIV	--	--	--	-0.027	--
READINES	--	--	--	--	0.135
MOTIVATI	--	--	--	--	0.019
QUITATTE	0.004	0.003	-0.026	-0.242	0.164
SMOKINGS	0.011	-0.042	0.051	0.528	-0.068

TI Path Smoking

Total and Indirect Effects

Total Effects of X on Y

POSITIVE	NEGAITIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	0.007	--
				(0.024)	
				0.300	
NEGAITIV	--	--	--	-0.023	--
				(0.045)	
				-0.525	
READINES	--	--	--	--	0.454
					(0.173)
					2.630
MOTIVATI	--	--	--	--	0.470
					(1.319)
					0.356
QUITATTE	0.026	0.003	-0.008	-0.308	0.582
	(0.238)	(0.049)	(0.013)	(0.050)	(0.176)
	0.110	0.068	-0.654	-6.218	3.299
SMOKINGS	0.232	-0.170	0.054	2.209	-0.799
	(0.862)	(0.176)	(0.046)	(0.179)	(0.512)
	0.269	-0.969	1.178	12.329	-1.560

Indirect Effects of X on Y

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
POSITIVE	--	--	--	--	--
NEGATIV	--	--	--	--	--
READINES	--	--	--	--	--
MOTIVATI	--	--	--	--	--
QUITATTE	--	--	--	0.001	0.283
		(0.003)	(0.113)		
		0.396	2.511		
SMOKINGS	-0.040	-0.005	0.012	0.474	-0.757
	(0.361)	(0.073)	(0.019)	(0.092)	(0.258)
	-0.110	-0.068	0.653	5.134	-2.938

Total Effects of Y on Y

	POSITIVE	NEGATIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	--	--	--
NEGATIV	--	--	--	--	--	--
READINES	--	--	--	--	--	--
MOTIVATI	--	--	--	--	--	--
QUITATTE	-0.020	-0.063	0.616	0.007	--	--
	(0.101)	(0.057)	(0.047)	(0.006)		
	-0.200	-1.096	13.188	1.122		
SMOKINGS	0.345	-0.133	-0.647	-0.021	-1.515	--
	(0.367)	(0.207)	(0.169)	(0.022)	(0.171)	
	0.942	-0.642	-3.834	-0.965	-8.865	

Largest Eigenvalue of B*B' (Stability Index) is 2.543

Indirect Effects of Y on Y

	POSITIVE	NEGATIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	--	--	--
NEGATIV	--	--	--	--	--	--
READINES	--	--	--	--	--	--
MOTIVATI	--	--	--	--	--	--
QUITATTE	--	--	--	--	--	--
SMOKINGS	0.031	0.095	-0.933	-0.010	--	--
	(0.154)	(0.087)	(0.127)	(0.009)		
	0.200	1.087	-7.357	-1.113		

TI Path Smoking

Standardized Total and Indirect Effects

Standardized Total Effects of X on Y

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
POSITIVE	--	--	--	0.014	--
NEGATIV	--	--	--	-0.027	--
READINES	--	--	--	--	0.135

MOTIVATI	--	--	--	--	0.019
QUITATTE	0.004	0.003	-0.026	-0.242	0.164
SMOKINGS	0.011	-0.042	0.051	0.528	-0.068

Standardized Indirect Effects of X on Y

	HOUSEHOL	DEPRESSI	ALCOHOL	NICOTINE	INTERVEN
POSITIVE	--	--	--	--	--
NEGATIV	--	--	--	--	--
READINES	--	--	--	--	--
MOTIVATI	--	--	--	--	--
QUITATTE	--	--	--	0.001	0.080
SMOKINGS	-0.002	-0.002	0.012	0.114	-0.064

Standardized Total Effects of Y on Y

	POSITIVE	NEGATIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	--	--	--
NEGATIV	--	--	--	--	--	--
READINES	--	--	--	--	--	--
MOTIVATI	--	--	--	--	--	--
QUITATTE	-0.008	-0.043	0.581	0.049	--	--
SMOKINGS	0.041	-0.028	-0.186	-0.046	-0.461	--

Standardized Indirect Effects of Y on Y

	POSITIVE	NEGATIV	READINES	MOTIVATI	QUITATTE	SMOKINGS
POSITIVE	--	--	--	--	--	--
NEGATIV	--	--	--	--	--	--
READINES	--	--	--	--	--	--
MOTIVATI	--	--	--	--	--	--
QUITATTE	--	--	--	--	--	--
SMOKINGS	0.004	0.020	-0.268	-0.022	--	--

VITA

Lieutenant Commander Orrawan Khongtor was born in 1971 at Bangkok, Thailand. She received a Bachelor of Nursing Science from Royal Thai Navy College of Nursing, Mahidol University in 1994. She received a Master of Nursing Science (Mental health and Psychiatric Nursing) from Chulalongkorn University in 2007. She studied in Doctor of Philosophy Program in Nursing Science at Faculty of Nursing, Chulalongkorn University since 2010-2016. She is an instructor at Royal Thai Navy College of Nursing. The contact information is 504/56 Royal Thai Navy College of Nursing, Naval Medical Department, Somdej Phrachao Taksin Road, Bukkhalo, Thonburi, Bangkok, Thailand, 10600. Email address is k.orrawan@hotmail.com.

