CAUSAL RELATIONSHIP OF SMOKING CESSATION AMONG THAI ALCOHOL DEPENDENT SMOKERS

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แบบจำลองเชิงสาเหตุการเลิกบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์

นาวาตรีหญิงยุวดี วงษ์แสง รน.

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ยุวดี วงษ์แสง: แบบจำลองเชิงสาเหตุการเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์
(CAUSAL RELATIONSHIP OF SMOKING CESSATION AMONG THAI ALCOHOL DEPENDENT SMOKERS)
อ. ที่ปรึกษาวิทยานิพนธ์หลัก : รศ.ดร.จินตนา ยูนิพันธุ์, อ. ที่ปรึกษาวิทยานิพนธ์ร่วม: ผศ.ดร.สุนิดา ปรีชาวงษ์, 217 หน้า

การวิจัยเชิงสำรวจเพื่อวิเคราะห์เชิงสาเหตุนี้มีวัตถุประสงค์เพื่อพัฒนาและทดสอบความสัมพันธ์เชิงสาเหตุระหว่าง การติดนิโคติน ระดับความรุนแรงของการติดแอลกอฮอล์ ระยะการเปลี่ยนแปลง กระบวนการเปลี่ยนแปลง ความสมดุลในการตัดสินใจ และการรับรู้ความสามารถของตนเองซึ่งกลุ่มตัวอย่างได้แก่ ผู้สูบบุหรี่ไทยที่ติดแอลกอฮอล์จำนวน 458 คน จากคลินิกเลิกสุรา จำนวน 2 แห่ง และศูนย์บริการเลิกบุหรี่ทางโทรศัพท์แห่งชาติ เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลประกอบด้วยแบบบันทึกข้อมูลส่วนบุคคล แบบวัดระดับความรุนแรงของการติดนิโคติน แบบวัดถามระดับความรุนแรงของการติดแอลกอฮอล์ แบบสอบถามระยะของการเลิกบุหรี่ แบบสอบถามกระบวนการการเลิกบุหรี่ แบบวัดความสารถของตนเองในการเลิกบุหรี่ และแบบวัดถามความสมดุลในการตัดสินใจเพื่อการเลิกหรือสูบบุหรี่ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาและการวิเคราะห์สมการโครงสร้าง

ผลการศึกษาพบว่า โมเดลมีความกลมกลืนกับข้อมูลเชิงประจักษ์ โดยตัวแปรในโมเดลสามารถร่วมกันอธิบายความผันแปรของการเลิกสูบบุหรี่ของผู้สูบไทยที่ติดแอลกอฮอล์ได้ร้อยละ 82.60 ทั้งนี้ปัจจัยที่มีผลต่อการเลิกสูบบุหรี่มากที่สุดคือ การติดนิโคติน ซึ่งการติดนิโคตินมีอิทธิพลทางตรงด้านลบต่อการเลิกสูบบุหรี่ ระดับความรุนแรงของการติดแอลกอฮอล์มีอิทธิพลทางอ้อมด้านบวกต่อการเลิกบุหรี่ผ่านการติดนิโคติน การรับรู้ความสามารถของตนเองและความสมดุลในการตัดสินใจมีอิทธิพลทางตรงด้านบวกต่อการเลิกบุหรี่ ระยะของการเปลี่ยนแปลงมีอิทธิพลทางอ้อมที่เป็นลบต่อการเลิกสูบบุหรี่ผ่านกระบวนการเปลี่ยนแปลง

ผลการศึกษานี้ทำให้เข้าใจเพิ่มขึ้นเกี่ยวกับตัวแปรที่มีอิทธิพลต่อการเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์ การจัดการดูแลเพื่อการเลิกสูบบุหรี่ในผู้สูบบุหรี่ที่ติดแอลกอฮอล์ควรประเมินทั้งระดับความรุนแรงของการติดแอลกอฮอล์และการติดนิโคติน การส่งเสริมการรับรู้ความสามารถของตนเองและสนับสนุนการตัดสินใจเพื่อการเลิกหรือสูบบุหรี่เป็นอีกสิ่งหนึ่งที่ควรตระหนักในการดูแลเพื่อส่งเสริมการเลิกบุหรี่สำหรับบุคคลกลุ่มนี้

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2555 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม .....

5177972236 : MAJOR NURSING SCIENCE
KEYWORDS : CAUSAL RELATIONSHIP/ TRANSTHEORETICAL MODEL/ SMOKING CESSATION/ ALCOHOL DEPENDENCE

YUWADEE WONGSAENG: CAUSAL RELATIONSHIP OF SMOKING CESSATION AMONG THAI ALCOHOL DEPENDENT SMOKERS. ADVISOR: ASSOC. PROF. JINTANA YUNIBHAND, Ph.D., A.P.N., CO-ADVISOR: ASST. PROF. SUNIDA PREECHAWONG, Ph.D., A.P.N., 217 pp.

The purposes of this survey research for causal analysis were to develop and examine the causal relationship among nicotine dependence, severity of alcohol dependence, stages of change, process of change, decisional balance, self-efficacy and smoking cessation in Thai alcohol dependent smokers. Four hundred fifty-eight Thai alcohol-dependent smokers, recruited from two alcohol dependent treatment centers and Thailand National Quitline, participated in this study. Research instruments included the demographic characteristics questionnaire, Fagerstrom Test for Nicotine Dependence, The Severity of Alcohol Dependence Questionnaire, Smoking Stage of Change, Processes of Change Questionnaire, Smoking Self-efficacy Scale, and Smoking Decisional Balance Scale. The descriptive statistics and structural equation modeling were used to analyze data.

The results showed that based on the Goodness of fit indices, the smoking cessation model fits with the empirical data and can explain 82.60% of the variance of smoking cessation among Thai alcohol-dependent smokers. Nicotine dependence had the most negative direct effect on smoking cessation. Severity of alcohol dependence was not significantly affect on smoking cessation but it had a positive indirect effect on smoking cessation through nicotine dependence. In addition, self-efficacy and decisional balance had significant positive direct effect on smoking cessation. Furthermore, stage of change had a negative indirect effect on smoking cessation through processes of change.

These results contribute to a better understanding of the variables that influence smoking cessation in alcohol-dependent smokers. It is essential to gather information on smoking cessation interventions in alcohol-dependent smokers should assess both severity of alcohol dependence and level of nicotine dependence. In addition enhancing self-efficacy and encouraging decisional balance could be considered to promote cessation in this group.

Field of Study : Nursing Science Student's Signature .....

Academic Year : 2012 Advisor's Signature .....

Co-advisor's Signature .....

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CHAPTER I

INTRODUCTION

Background and Significance of the study

Alcohol dependence causes alcohol related problems and chronic diseases which are causes often progressive health consequences (Anton, 2007) and are increasingly (Alcohol and public health, 2006) becoming more advanced as the illness becomes more severe. Especially, when alcohol dependence occurs along with smoking, it can present a serious health concern for alcoholics (Hughes, 1993; John, & Hanke, 2002; Prochaska, 2010). Moreover, it becomes more complex in the term of co-dependent of alcohol and nicotine addiction mechanism (Schmidt, & Smolka, 2001; Hillemacher, et al., 2006) and more difficult to cure or care than only smoking or drinking (Berggren, Berglund, Fahlke, Aronsson, Eriksson, & Balldin, 2007; Littleton, Barron, Prendergast, & Nixon, 2007; Ramo, Prochaska, & Myers, 2009).

Both nicotine and alcohol are classified as dependence producing substances, which a heavy user may find it difficult to quit and they still use even if it is seen as problematic. Le and colleague (2006) found that repeated administrations of nicotine stimulate alcohol consumption. Drinking and smoking seem like automatic behavior (Room, 2004). The smokers may have no consciousness of smoking another cigarette, but it all chances when they refill the glass of alcohol. Classical condition was used to explain this automatic behavior. Drinking may enhance craving for nicotine in cigarette smokers, and alcohol as an accompanying experience could also serve as a

conditioned stimulus in this sense of classical conditioned interaction (Burton and Tiffany, 1997).

Heavy drinking relates to heavy smoking. Smoking prevalence in alcohol-dependent individuals thus widely exceeds the general population, as high as 80–90%. In addition, alcohol-dependent patients who smoke have a higher alcohol dependence severity than non-smokers (John et al., 2003) and a lower rate of smoking cessation (DiFranza and Guerrera, 1990) than non-alcohol-dependent smokers (Ellingstad et al., 1999). Moreover alcohol dependent smokers are more likely to die of smoking-related disease rather than directly from alcohol-related medical disorder (Hurt et al., 1996; Hurt and Patten, 2003). substitute to reduce alcohol withdrawal symptom

Comparison with non alcohol dependent smokers and those who are alcohol dependent smokers have a reduced success in smoking cessation. From previous studies show that the majority of alcohol dependent smokers express desire to stop smoking, but only a few are successful. Numerous studies reveal that alcohol dependent smokers use tobacco as self medication (Fidler, & West, 2009; Shiffman, 1993; Asher, Martin, Rohsenow, MacKinnon, Traficante, & Momti, 2003; Rohsenow, Monti, Colby, & Martin, 2002). The number of tobacco use per day in alcoholic smokers who received alcohol rehabilitation were increases (Hughes, Rose, & Callas, 2000; Hughes, Callas, & et al., 2003; Hughes, & Kalman, 2006). Alcohol dependent smokers use tobaco for manage certain symptoms from alcohol withdrawal symptom (Monti, Rohsenow, Colby, & Abrams, 1995) or they use tobacco as substitute to reduce alcohol withdrawal symptom. Then, smoking cessation among alcohol dependence smokers are more complex and more difficult than among the general smokers.

Several researchers recommended that smoking cessation is an effective way to stop and reduce health consequences. Especially among alcohol dependent smokers is a principle strategy to prevent negative outcome from many diseases, and also to abstain from alcohol dependence (Bobo, Mcilvain, Lando, & Leed-Kelly, 1998; Burling, Burling, & Latini, 2001; Cooney et al., 2003; Grant et al., 2003; Madden et al., 2000; Mckee, Krishnan-Sarin, Shi, Mase, & O'Malley, 2006).

Smoking cessation refers to a trial period ofsuccessful stoppage within 7 days, a month, and 3 months (Velicer , & Prochaska, 2004). Although smoking cessation is very important, not all of alcohol dependent smokers can do. Only 16.9% considered the possibility to stop smoking or already decided to stop. (Haustein, & Groneberg, 2010) Individuals who were interested in smoking cessation while on treatment for an alcohol dependence were different from those who did not want to quit. Such difference influences their ability to successfully address both problems together. (Ellingstad, et al, 1999)

However, varieties of factors have a substantial impact on successful outcome in smoking cessation among alcohol dependent smokers. Nicotine dependence is the main point related to success of smoking cessation. In two randomized, non-placebo-controlled clinical trials of 200 subjects, 41.3% of smokers placed on nicotine replacement were abstinent on their quit date and had a low tobacco dependence score and were able to maintain abstinence for the 6-months. Those who were smoked on the quit date were 10 times less likely to have long-term success. (Westman, Behm, Simel, & Rose, 1997 cite in Ryckman et al., 2006)

Similarly, the severity of alcohol dependence is a significant predictor of smoking cessation among alcohol dependent smokers (Bobo, Lando, Walker, & Mcilvain, 1996; Asher et al., 2003; Breitling, Muller, Raum, Rothenbacher, & Brenner, 2009) Furthermore, in laboratory investigations, smokers administered alcohol which tends to increase smoking rate (Mitchell, de Wit, & Zacny, 1995; Rose et al., 2004). A number of empirical evidence has supported that alcohol dependent smokers with higher level of alcohol dependence severity have less readiness to quit or being less confident in their smoking cessation (John et al., 2003).

Numerous studies have revealed that self-efficacy is an emprises predictor of smoking cessation (Stuart, Borland, & McMurray, 1994). Furthermore, longitudinal analysis report that smokers with low self-efficacy were less likely to stop smoking than quitters who report high self-efficacy and motivation from post-treatment (6 week) and follow up (6 months) (Boardman, Catley, Mayo, & Ahluwalia, 2005). Similarly, Martin and colleague (2006) focused on longitudinal study indicated that self-efficacy was significantly associated with longer abstinence from smoking.

Nurses have an instrumental role to play in tobacco reduction (Schultz, 2003).

Furthermore, nurses have been identified as an instrumental partner in tobacco reduction because nurses are the largest health professional group, they have extensive exposure to various populations through direct client contact in a diversity of care settings, and nurses are trusted by the public (International Council of Nurses, 1999; Rice and Stead, 2001; World Health Organization, 1999).

There are many type of therapy for smoking cessation which were invented by health care providers including nurse (Froelicher, Doolan, Yerger, McGruder, &

Malone, 2010; Kwong, Bouchard-Miller, Kathryn, 2010; Browning, Wewers, Ferketich, Otterson, & Reynolds, 2009; Andrews et al., 2007; Andrus, & Clark, 2007; Buchanan, & Likness, 2008; Dennis, & Kingston, 2008; Forest, 2009; Albrecht et al., 2006; Chouinard, & Robichaud-Ekstrand, 2005; Montoya, 2005; Himelhoch et al., 2004). Most of the previous research result studies have significant findings. However, the finding are inconclusive among alcohol dependent smokers. Pochaska (2010) examines the impact of providers' failure to treat tobacco use on patients' alcohol and illicit drug use. The result presents failure to treat tobacco dependence in mental health and addiction treatment. Emerging evidence indicates treatment of tobacco dependence may even improve addiction treatment and mental health outcomes. Providers in mental health and addiction treatment settings have an ethical duty to intervene on patients' tobacco use and provide available evidence-based treatments.

Heffner, Barrett, and Anthenelli (2007) have been used the meta-analysis technique to predict alcohol misuses, readiness and ability to quit smoking. They found non- consistency in prediction of motivation to smoking cessation and the results were not unanimous to a greater length in abstinence from alcohol predicted quit smoke success. Furthermore, Hughes & Kalman (2006) have used mixed methods in a literature review to compare nicotine dependence and the ability to stop smoking in smokers with no alcohol problems and smokers with current, past or lifetime (i.e., either current or past) alcohol problems. The results were unclear (mix result). One problem with the initiation and maintenance of smoking cessation may be that the intervention used to guide smoking cessation behavior are not theory based, or are based on the theoretical constructs that are inadequately tested.

The Transtheoretical Model (TTM) of behavior change (Prochaska & DiClemente, 1983) was developed from psychotherapeutic smoking cessation research (Andersen & Keller, 2002). The TTM authors note that even though formal smoking cessation programs fail with most smokers, 30% of smoking quit on their own. Research shows the only difference between self change and formal program quitters was that self change used more affective and cognitive processes of change (Prochaska, Norcross,& DiClimente, 1994). The knowledge about the relationship of factors that associated with smoking cessation both of direct and indirect effect is quite limited and needs further research.

Although earlier smoking cessation research among alcohol dependent smokers has been designed to test at descriptive to prescriptive levels and incorporating the total effect of these determinants have not been proven on alcohol dependent smokers. Therefore, understanding the causality of these variables and their effect on smoking cessation in the entire model is also required. Consequently, it is wondering if there are any other determinants including in the new model with base on a theory that can appropriately explain the variance of smoking cessation among alcohol dependent smokers.

In Thailand, a small number of studies have focused on smoking cessation in alcohol dependent smokers. The research was focused on smokers and nonsmokers or drinkers and nondrinkers. For this study, smoking cessation model was developed base on the relevant literature and was guided by the principle of the TTM . This model consists of five variables include nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, and self-efficacy which were

examined to explain participation in smoking cessation among Thai alcohol dependent smokers.

The finding would be useful to contribute to overall understanding of the effects of various and knowledge of smoking cessation among Thai alcohol dependent smokers. Moreover, the knowledge derived from theory and research effectively explain nursing phenomena and provide a valuable to nursing science.

Research question

1. What are the relationships between nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy and smoking cessation in alcohol dependent smokers?

2. Does the hypothesized model explain smoking cessation of alcohol dependent smokers including nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, and self-efficacy, and does it adequately fit the data?

Purpose of the study

To examine the causal relationships between nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy and smoking cessation among Thai alcohol dependent smokers.

Conceptual framework of the study

The theoretical framework of the study was guided by Transtheoretical Model of Behavior Change (TTM) in order to explain and predict of smoking cessation among Thai alcohol dependent smokers. The core constructs of the TTM comprises of

stages of change, processes of change, decisional balance, and self-efficacy. (Prochaska, 1985)

The TTM describes the stages of change behaviors as follows; (1) pre-contemplation where there is no intention to change within the next 6 months, (2) contemplation where change is intended sometime in the future (usually defined as between 1 and 6 months), (3) preparation where change is intended in the immediate future (1 month) and steps are taken to help prepare for change, (4) action where the target behavior has been modified for less than 6 months, and (5) maintenance which is the stage characterized by temporally robust behavior change extending beyond 6 months.

In the present study, the participants were alcohol dependent smokers who receive smoking cessation intervention form health care providers for 1 month as new case. Therefore, stages of change can be classify into four stages include pre-contemplation, contemplation, preparation, and action stages. Pre-contemplation stage refer to alcohol dependent smokers no intention to change within the next 6 months. Contemplation stage, alcohol dependent smokers sometimes have intention to stop smoking in future (next 6 month). Preparation stage, alcohol dependent smokers have plan to stop smoking within 1 month. Lastly action stage, alcohol dependent smokers can stop smoking for less than 6 month.

In the TTM, individuals utilize a variety of processes of change in their efforts to move through the stages of change (Prochaska and DiClemente, 1982). In this study, processes of change for smoking cessation is defined as activities and experience that alcohol dependent smokers engage in when they attempt to modify

their smoking behaviors. Each of the process is related to the stages of change by a curvilinear function. These are activities in which people engage to overcome the barriers they encounter at particular stages, and thus progress toward their desired end state. The theory thus proposes that the effectiveness of different processes of change will vary according to the individual's stage of readiness to change (Prochaska et al., 1992). There are two categories of change process include experimental and behavioral processes. Experimental process refer to cognitive and emotional learning, it consists of five processes include consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, and social liberation. Behavioral processes refer to activities typical of smoking cessation behavior modification, consists of five processes include stimulus control, counter conditioning, reinforcement management, self-liberation, and helping relationships.

In addition, the TTM explain decision making in term of decisional balance. Decisional balance refer to individual's relative weighing of the pros and cons of changing. The pros represent the benefits of the changing or the reasons to change, and the cons represent the barriers to change or not to change. Both pros and cons of smoking were significantly related to the stages of change. In this study**,** decisional balance refer to alcohol dependence smokers' s self-decision to stop smoking by balancing of the pros and cons of smoking cessation. Pros of smoking cessation refer to the positive aspect of changing behavior, the benefits of change, the reason of change. Cons of smoking cessation refer to the negative aspect of changing behavior, the barriers to change, the reasons not to change.

The self-efficacy construct represents the situation-specific confidence people have in their ability to cope with high-risk situations without relapsing to their

unhealthy or high-risk habit. In this study, self-efficacy is defined as a perception of Thai alcohol dependent smokers in their ability to stop smoking in high risk situations: positive/social, negative/affective, and habit/addictive. This construct is represented either by a temptation measure or a self-efficacy measure, since both measures have the same structure (Velicer, DiClemente, Rossi & Prochaska, 1990). The self-efficacy is particularly sensitive to the changes that is involved in progress in the later stages and is good predictors of relapse (Velicer et al., 1998).

Beside, the significant variables in the TTM, the literature review found that the factors associated with smoking cessation among alcohol dependent smokers are nicotine dependence (Little, 2000; Rose et al., 2002; Hughes, Rose, & Callas, 2000; Clark et al., 2001; Madden, & Health, 2002), and severity of alcohol dependence (Bobo, Lando, Walker, & Mcilvain, 1996; Asher et al., 2003; Breitling, Muller, Raum, Rothenbacher, & Brenner, 2009).

Therefore, this study aimed to examine the causal relationships among stages of change, processes of change, decisional balance, self-efficacy, nicotine dependence, severity of alcohol dependence, and smoking cessation among Thai alcohol dependent smokers. Theoretical subtruction provides a mechanism for reevaluate models and makes the results of theory testing that may contribute to nursing knowledge development (Bekhet & Zauszniewski, 2008). Therefore, an explicit conceptual-theoretical-empirical structure using the TTM will be developed to test proposition of smoking cessation in Thai alcohol dependent smokers. The theoretical substruction diagram was depicted in Figure 1.1

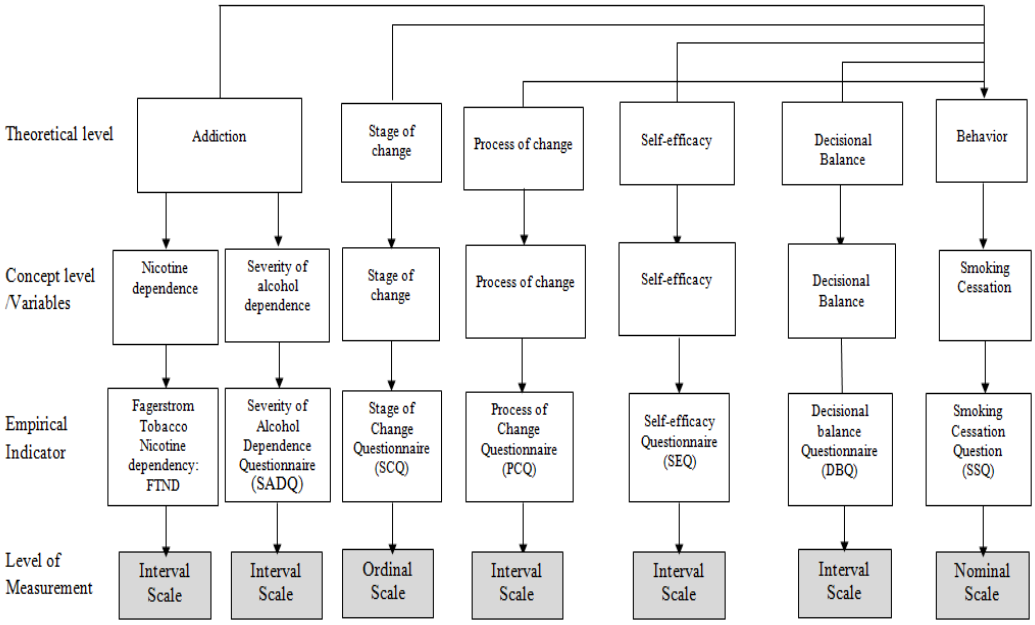

Figure 1.1: The theoretical substruction diagram

The hypothesized model of smoking cessation among Thai alcohol dependence smokers was depicted in Figure 1.2

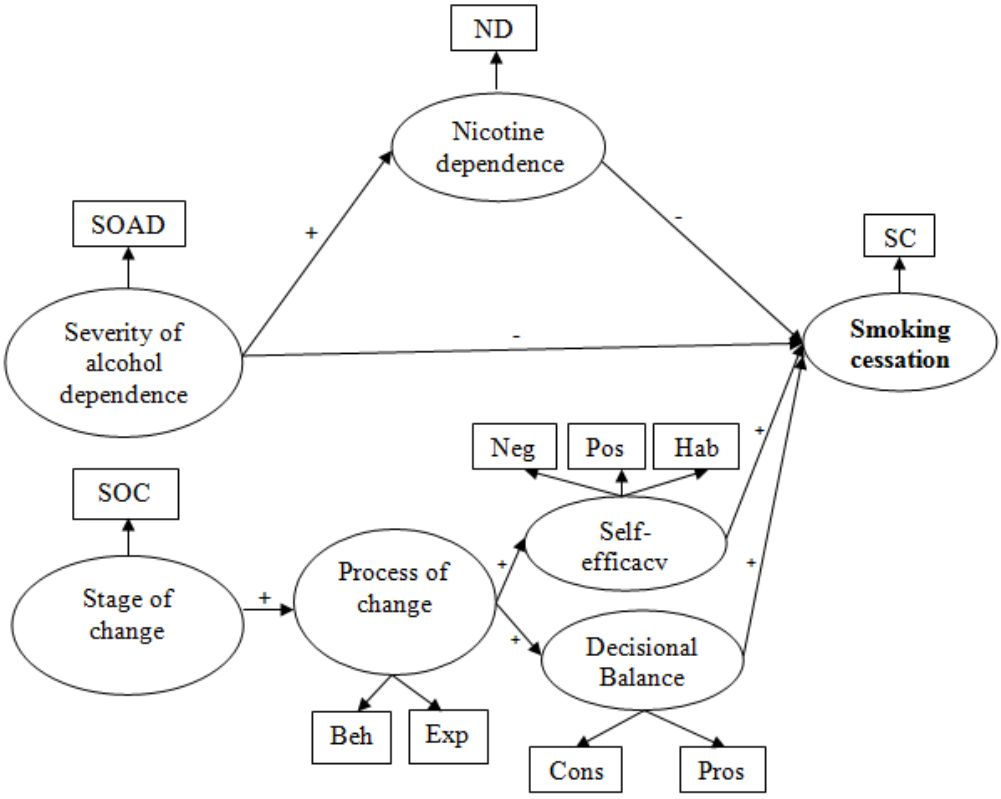

Figure 1.2: The hypothesized model of smoking cessation among Thai alcohol dependent smokers

Note:

SOAD = Severity of Alcohol Dependence
SOC = Stage of Change
Beh = Behavioral Processes
Exp = Experience Process
ND = Nicotine Dependence
Neg = Negative Situation
Pos = Positive Situation
Hab = Habitual Situation
Pros = Pros of smoking cessation
Cons = Cons of smoking cessation
SC = Smoking Cessation

Research hypotheses and rationale

In this study, the following research hypotheses were formulated:

Hypothesis 1: Severity of alcohol dependence has a negative direct effect on smoking cessation and indirect effect on smoking cessation through nicotine dependence

Rationale: Severity of 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. High level of severity of alcohol dependence not only affect on smoker's health but also affect on our work life. High level of alcohol consumption related to high level of nicotine dependence. According John and colleague (2003) examine relationship between current and past smoking behavior and the severity of alcohol dependence. The result present, those currently smoking 30 or more cigarettes per day are twice as likely to had a high level of alcohol dependence. Moreover, high level of alcohol dependence increases the nicotine dependence symptom. In addition, reported by Batel and colleague (1995) present relationship between severity of alcohol dependence and nicotine dependence. Consequently, alcohol and nicotine dependence may reciprocally influence and increase the severity of each other. Caponnetto and Polosa (2008) review the predictors of smoking cessation, they found current alcoholism is a negative prognostic factor for successful smoking cessation. In the present study, it is assumed that alcohol dependent smokers who have high level of severity of alcohol dependence were likely to difficult to smoking cessation.

Hypothesis 2: Stages of change have indirect effect on smoking cessation through processes of change

Rationale: People go though change behavior as a process over time. The stages represent a period of time as well as a set of tasks needed for movement to the next stage. (Norcross, Krebs, and Prochaska., 2010). Alcohol dependent smoker who try to stop smoking can be classify as the stage of behavior change. Several study employing the TTM to predict smoking cessation success have found that individuals in the contemplation and preparation stages are more likely to succeed in cessation than those in the pre contemplation stage. (Dijkstra, DeVries, Roijackers, & Van Breukelen, 1998). Zullinoa, Bessonb and Schnyderb (2000) studied the stages of change of cigarette smoking in alcohol-dependent smokers**.** The researcher assessed the stages of change for tobacco consumption and possible quitting barriers in alcohol-dependent patients, 88 consecutively were interviewed with a semi-structured schedule. The result showed that more than half of the alcohol dependent smokers (50.7%) considered the possibility of smoking cessation or had already decided to stop smoking, although the majority (83.1%) was highly dependent smokers. Positive reinforcement was factor influencing reinforcement motivation both to stop smoking as well as to continue smoking, whereas negative had no influence. As recovering alcoholic patients are often interested in smoking cessation and the introduction of nicotine treatment interventions has been shown not to jeopardize the outcome of alcohol treatment, alcohol treatment programs should include counseling for smoking cessation. Education and training for staff is essential, as their beliefs and habits remain an important barrier. Thus, stages of change has a positive indirect effect on smoking cessation through processes of change.

Hypothesis 3: Nicotine dependence has a negative direct effective on smoking cessation

Rationale: Nicotine Dependence refers to the intensity of need that the alcohol dependent smoker feel they have for a particular substance. Alcoholic smokers were more dependent on nicotine and had more internal (affective) barriers to quit smoking than smoker with no history of alcohol dependence (Novy, Hughes, & Callas, 2001) Numerous studies present alcohol dependen smokers score higher on the FTND, (Murray et al., 1995; Hayford et al., 1999; Hays et al., 1999) meet a greater number of DSM nicotine dependence criteria, (Marks et al., 1997) than smoker with no history of alcohol dependence. Moreover, several studies explain for smokers with alcohol dependence are more nicotine dependents (Little, 2000; Rose et al., 2002; Hughes, Rose, & Callas, 2000; Clark et al., 2001; Madden, & Health, 2002) For example, nicotine appears to be a more potent reinforcement in smokers who have alcohol dependence (Hughes, Rose, & Callas, 2000). Moreover, Leed-Kelly and colleague (1996) found the Fagerstrom Test for nicotine Dependence score was the predictor of quitting smoking among recovering alcoholic. Then from several reasons presented above, alcohol dependent smokers appear to be more nicotine dependents, they have more difficulty to stop smoking than general smokers. In the present study, it is assumed that alcohol dependent smokers who have high level of nicotine dependence were likely to difficult to smoking cessation.

Hypothesis 4: Processes of change have indirect effect on smoking cessation through both decisional balance and self-efficacy

Rationale: Processes of change refers to a component that was used for forcing the alcohol dependent smokers change their smoking behavior in each stage. Andersen & Keller (2002) determine relationships among stage of change and process of change among current smokers, the result shows the odds of person using helping relationship in preparation (planning to make a change in the next 30 days) versus contemplation (thinking about making a change in the next 6 months) was 9 times that of contemplation (OR=9.300, CI=1.530-56.525, p=.015). The smoker who is trying to quit is undergoing emotional turmoil and physical pain. It is important to have someone supportive at this time. Helping relationship was significant to predict preparation stage (OR=0.296, CI=0.086-0.845, p=0.0246) (Andersen, & Keller, 2002) related to quit attempts in this study.

Hypothesis 5: Self-efficacy has a positive direct effect on smoking cessation

Rationale: Self-efficacy refers to the perception of individual's belief and confidence to avoid smoking in various situations (Fava et al., 1991) such as, when he/she had a changed-mood, relaxation, stress or being in situation that is related to the self-image. Especially, stressful situation increases the urge to smoking which is negatively related to the duration of smoking and the daily consumption of cigarettes (Badr, & Moody, 2005). However, the high level of self-efficacy is related to smoking cessation, this matches with Manfredi and colleague's (2007) study which found that situational self efficacy increases the self-confidence to quit smoking. Smoker may have to learn as to how to refrain from smoking in specific negatively affecting situations so as to build a more generalized confidence, while being able to stop smoking successfully. If the smokers have low situational self-efficacy and confidence in being able to quit smoking, Boardman et. al., result of studies shows

that smokers failed to quit as they were less likely to quit than quitters who had high self-efficacy. Similarly, Martin and colleague (Martin et al., 2006) investigated the predictors of smoking cessation in patients who were in residential treatment for alcohol dependence earlier, the result showed self-efficacy in the predictors of smoking cessation among alcohol dependent smokers ($r= 0.49$, $p<0.0001$) In the present study, it is assumed that alcohol dependent smokers who have high level of self efficacy has a positive direct effect on smoking cessation.

Hypothesis 6: Decisional balance has a positive direct effect on smoking cessation

Rationale: Decisional balance refers to alcohol dependence smokers' s self-decision to stop smoking by balance of the "pros" (The positive aspect of changing behavior, the benefits of change, the reason of change) of continuing a behavior with the "cons" (The negative aspect of changing behavior, the barriers to change, the reasons not to change). Decisional balance is a measure of the importance of reason and concerns relating to making a behavior change, and is calculated by measuring both the pros and cons of smoking behavior as rated by the individual. (Velicer et al., 1990). Decisional balance changes as smokers move through the stages of change (Velicer et al., 1985). During precontemplation, the perceived benefits of smoking outweigh the perceived negatives. As the smoker progresses into the action and maintenance stages, the negative perceptions of smoking overtake the positive. Smokers in the contemplation stage should possess a decisional balance close to neutral, where the perceived pros and cons are nearly equal (Velicer et al., 1985). Lafferty, Heaney, and Chen (1999) examined the relationship of positive and negative perceptions of smoking to self-reported readiness to quit smoking among Southeast

(SE) Asian males of Cambodian, Laotian or Vietnamese descent. In order to investigate this relationship, measures of decisional balance constructs (i.e. the pros and cons of smoking) appropriate for these ethnic groups were developed. Decisional balance was calculated by subtracting the cons from the pros. Following the criteria established by Prochaska and DiClemente, subjects were categorized into four levels of readiness to quit smoking (precontemplation, contemplation, preparation/action and maintenance). The expected pattern of relationship between decisional balance and stages of change included: (1) the cons of smoking being of less importance than the pros of smoking for those smokers in the precontemplation stage, (2) the pros and cons intersecting at the contemplation stage, and (3) the cons being of greater importance than the pros in the later stages of change. The SE Asian men in this study did not exhibit these decisional balance patterns, although mean decisional balance scores for precontemplators and contemplators were significantly more positive than mean scores for those in the preparation/action and maintenance stages. Decisional balance patterns differed across the three ethnic groups included in the sample.

Scope of the study

The study is a survey research for causal relationship analysis, intending to develop and examine the causal relationship of smoking cessation among Thai alcohol dependent smokers.

Definitions of terms

Alcohol dependent smoker is a smoker who had a score of the Alcohol Use Disorders Identification Test (AUDIT) $\geq$ 20.

Regular smoker is defined as a smoker who daily smoking cigarette.

Smoking cessation is defined as Thai alcohol dependent smoker stop smoking a cigarette in the last 7 days. (7 days points prevalence abstinence)

Stages of changes are defined as the alcohol dependent smokers thought or plan to change over time from smoking to stop smoking. It was measured by Stage of Change Questionnaire (SCQ). Thai version was translated by Sineenuch Siriwong, Jintana Yunibhand, and Sunida Preechawong (2012). Four stages of change were assessed in this study as follows:

Stage 1: Pre-contemplation is defined as a stage that the alcohol dependent smokers never thinking about stop smoking in the last 6 months.

Stage 2: Contemplation is defined as a stage that the alcohol dependent smokers never thinking about stop smoking in the last 30 days.

Stage 3: Preparation is defined as a stage that the alcohol dependent smokers thinking about stop smoking in the next 30 days and plan to quit by using several methods such as decrease amount number of cigarette per day.

Stage 4: Action is defined as a stage that the alcohol dependent smokers stop smoking for less than 6 months.

Processes of changes are defined as activities and experience that alcohol dependent smokers engage in when they attempt to modify their smoking behaviors. Process of change can be into two categories include experimental and behavioral processes.

Experimental processes refer to cognitive and emotional learning, it consists of five processes include consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, and social liberation.

Behavioral processes refer to activities typical of smoking cessation behavior modification, consists of five processes include stimulus control, counter conditioning, reinforcement management, self-liberation, and helping relationships.

Processes of change were measured by the Processes of Change Questionnaire (PCQ) (Fava et al., 1991). Thai version was translated by Sineenuch Siriwong, Jintana Yunibhand, and Sunida Preechawong (2012). Each categories were summed. Higher scores indicate a greater reliance on that processes of change smoking cessation.

Decisional balance is defined as Thai alcohol dependence smokers' s self-decision to stop smoking by balancing of the "pros of smoking cessation" (The positive aspect of changing behavior, the benefits of change, the reason of change) and the "cons of smoking cessation" (The negative aspect of changing behavior, the barriers to change, the reasons not to change). There are two categories of self-decision to stop smoking, pros and cons. It was measured by Decisional Balance Questionnaire. (DBQ) (Velicer et al., 1985). Thai version was translated by Sineenuch Siriwong, Jintana Yunibhand, and Sunida Preechawong (2012). Each categories were summed. Higher scores indicate a greater reliance on each categories (pros and cons) for stop smoking.

Self-efficacy is defined as a perception of Thai alcohol dependent smokers in their ability to stop smoking in high risk situations: positive/social, negative/affective, and habit/addictive. Their level of belief or confidence were measured by the Self-

efficacy Questionnaire. (SEQ) (Fava et al., 1991). Thai version was translated by Sineenuch Siriwong, Jintana Yunibhand, and Sunida Preechawong (2012). A higher score indicated a higher level of self-efficacy.

Nicotine Dependence is defined as the degree of physical dependency on tobacco consumption that the alcohol dependent smoker feel they have for a particular substance. It measured by the Fagerstrom Test for Nicotine Dependence (FTND) scale (Heatherton et al., 1991). Score can be range from 0-10, which higher scores indicating more dependence on tobacco.

Severity of alcohol dependence is defined as level of alcohol dependency syndrome including 1) physical withdrawal symptoms, 2) affective withdrawal symptoms, 3) withdrawal relief drinking, 4) frequency of alcohol consumption, and 5) rapidity of reinstatement (speed of onset of withdrawal symptoms). The level of dependency syndrome were measured using the Severity of Alcohol Dependence Questionnaire (SADQ) (Stockwell, 1979). A higher score show a higher level of severity of alcohol dependence.

Expected outcome and benefits of the study

1. This study is the first study in Thailand to explain causal relationships between variables and smoking cessation focusing on people with co-morbid and nicotine dependence. The utility of the causal model provides significant information that nurse and health care providers can use to implement program for motivating Thai alcohol dependent smokers to smoking cessation as a usual life.

2. Expanding new knowledge of smoking cessation among Thai alcohol dependence smokers in nursing perspective. Providing knowledge base that the

researcher can be used for research in area of smoking cessation among people with co-morbid and nicotine dependence.

3. Contributing policy maker in order to construct the smoking cessation policy to support people with co-morbid alcohol and nicotine dependence by concerning stage of change, process of change, decisional balance, and self-efficacy

CHAPTER II

LITERATURE REVIEW

This section presents an integrative review of the theoretical and empirical literature describing interesting concepts and interrelationships among factors affecting smoking cessation among alcohol dependent smokers. The review covers the following topics:

1. Overview of alcohol dependence smokers
2. Smoking cessation strategies and implement for alcohol dependence smokers
3. Theory and model of addiction
4. The Transtheoretical Model
5. Nurse role to promote smoking cessation in alcohol dependence smokers
6. Smoking cessation
7. Smoking cessation protocol for alcohol dependent smokers
8. Smoking cessation in alcohol dependent smokers
9. The relationships between nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy, and smoking cessation in alcohol dependent smokers

1. Overview of alcohol dependence smokers

Smoking is common among persons with alcohol dependence or abuse with as many as 80% of persons who are alcohol dependent also being smokers. Not only is smoking common in persons with heavy alcohol consumption, but also nicotine

dependence appears more severe in smokers with a history of alcohol dependence. Smoking in alcohol dependence person is very complex and more difficult to caring than only smoking or drinking.

1.1 Prevalence of alcohol dependence smokers

It has long been recognized that there is a strong association between heavy alcohol use and cigarette smoking. Approximately 80% of alcohol dependent patients are reported to smoke cigarettes (Burling, and Ziff, 1988; Miller, and Gold, 1998.). Despite a decline of smoking in the US population in general, a recent study from a HMO (health maintenance organization) population seeking substance abuse treatment demonstrates that more than 60% of persons were active smokers (Kohn, Tsoh, and Weisner, 2003). The prevalence of smoking among substance abusers is approximately two to three times that of the general population (Burling, and Ziff, 1988). Alcoholism is estimated to be 10 times more common among smokers than among non-smokers. In addition, nicotine dependence appears more severe in smokers with a history of alcohol dependence (Marks, Hill, Pomerleau, Mudd, & Blow, 1997).

In addition, extensive research supports the observation that " smokers drink and drinkers smoke". The heaviest alcohol consumers are also the heaviest alcohol consumers are also the heaviest consumer of tobacco. The researcher showed that in a population of alcohol dependent had the prevalence of tobacco addiction reached 81%. This suggested that the severity of alcohol dependence showed that of the patients' nicotine dependence; the heavily alcohol dependent patients were also heavily nicotine dependent (Room, 2004).

1.2 Epidemiology of alcohol dependence smokers

The previous research of John and colleague (2003) estimated the probabilities of alcohol high risk drinking, alcohol abuse and alcohol dependence on grounds of smoking behavior related variables and single nicotine dependence criteria. The finding showed that the participants having smoked 30 cigarettes or more per day, onset of smoking at the aged of 17 or younger. For alcohol dependence, a logistic regression models showed an increased odds ratios for male gender, smoking for 25 years or more, no attempt to quit or cut down, continuation of smoking despite problems, craving for nicotine, withdrawal experience 1 day or longer, smoking first cigarette in the morning 5 minutes or less after waking.

1.3 Cellular mechanisms influenced by combined alcohol and cigarette smoke exposure

Molecular epidemiology studies of malignancies with both alcohol and smoke exposure as risk factors provide some insights into possible genes modulated by the combined exposures. Smoking and alcohol consumption are major risk factors for head and neck cancer (Talamini, Bosetti, La Vecchia, Dal Maso, Levi, Bidoli, et al., 2002) Xenobiotic metabolizing enzymes are felt to be important in mediating cancer susceptibility. Polymorphisms of such enzymes including arylamine *N*-acetyltransferases (NAT1 and NAT2) genotypes have been associated with laryngeal cancer risk (Henning, Cascorbi, Munchow, Jahnke, & Roots, 1999). Specifically, significant overrepresentation of homozygous NAT2 genotypes coding for rapid acetylation were reported in association with laryngeal cancer. In non-small cell lung

cancer, a role for alcohol augmenting the mutagenic effects of cigarette smoke has been suggested (Ahrendt, Chow,Yang, Wu, Zhang, Jen, et al., 2000).

Mutations in the p53 gene were present more often in tumors from alcohol drinkers who smoked cigarettes (76% of the 105 patients studied) than in nondrinkers who smoked cigarettes (42% of the patients) or in nondrinkers who did not smoke (14% of patients). Oxidant injury and antioxidant defense systems are also influenced by combined alcohol and tobacco smoke exposure.

Nicotine and alcohol interactions within both the developing and adult central nervous system (CNS) have been the subject of much investigation and are reviewed elsewhere (Soderpalm, Ericson, Olausson, Blomqvist, & Engel, 2000).

In addition, there is also a role for another important neurotransmitter, serotonin, in the interactions between nicotine and alcohol within the CNS. It is anticipated that insights gained from genetic studies will further enhance our understanding of how smoking and alcohol interact to influence CNS activity.

1.4 The effect of alcohol consumption and cigarette smoking

1.4.1 Impact on physiology

Approximately 4,000 chemical substances are generated by the chemical reactions that occur in the intense heat of a burning cigarette. A group of these chemicals, collectively known as tar, is carried into the lungs on inhaled smoke. The bloodstream then distributes the components of tar throughout the body. Certain enzymes found mainly in the liver (i.e., microsomal enzymes) convert some ingredients of tar into chemicals that can cause cancer. Long-term alcohol consumption can activate some such microsomal enzymes, greatly increasing their

activity and contributing to smoking-related cancers (U.S. Department of Health and Human Services, 1982; Garro, Espina, & Lieber, 1992**).** Microsomal enzymes are found not only in the liver but also in the lungs and digestive tract, which are major portals of entry for tobacco smoke. The esophagus may be particularly susceptible, because it lacks an efficient mechanism for removing toxic substances produced by activated microsomal enzymes. Consistent with these observations, alcohol has been shown to promote esophageal tumors in laboratory animals exposed simultaneously to specific components of tar. Finally, alcoholics frequently exhibit deficiencies of zinc and vitamin A, substances that confer some protection against cancer.

The fact that heavy alcohol use and cigarette smoking frequently occur together has major impact on development of disease. The concomitant use of tobacco and alcohol contributes to an increased incidence of several malignancies, especially head and neck cancers (Znaor, Brennan, Gajalakshmi, Mathew, Shanta, Varghese, et al., 2003). Men who both smoke and drink are nearly 38 times more likely to develop head and neck cancers than men who do neither. Talamini and colleague (2002) recently observed a similar multiplicative risk for laryngeal cancer with combined alcohol and smoking exposure in European subjects. In addition, continued alcohol and smoking exposure augments the risk for a second primary tumor in patients with a previous upper aerodigestive tract tumor (Do KA, Johnson, Doherty, Lee, Wu, Dong, et al., 2003)

Alcohol consumption and tobacco smoking also contribute to pancreatic, esophageal, and hepatocellular cancers, although synergism between the two agents is not as pronounced as with head and neck cancer. Interestingly, lung cancer is strongly associated with cigarette smoking, but is not consistently associated

with alcohol consumption (Djousse, Dorgan, Zhang, Schatzkin, Hood, D'Agostino, et al., 2002) Cardiovascular disease is also influenced in that the worst triglyceride levels are associated with the combination of heavy smoking and heavy alcohol drinking in a Mediterranean population. This demonstrates the significance of the additional health risks of smoking even in persons who have experienced the negative effects of heavy alcohol consumption.

The effect of combined alcohol and tobacco exposure on many diseases is complex and in some cases, poorly understood. Heavy alcohol consumption is associated with many disorders, whereas moderate alcohol intake has been shown to have positive health benefits. Cardiovascular disease, dementia, and hearing loss may be positively influenced by modest alcohol intake. As noted previously, smoking interferes with the positive health effects of modest alcohol consumption on heart disease (Schroder, Marrugat, Elosua, Covas., 2002)

1.4.2 Impact on psychology

There are certain psychobiological mechanisms of co-morbidity between alcohol dependence, tobacco smoking, depression and anxiety. Neurotransmitters appear to work together in a cascade of excitation or inhibition, between complex stimuli and complexes responses, leading to a rewarding feeling of well-being in the normal response. In the cascade theory of reward, a disruption of these intercellular interactions results either in anxiety anger and other "bad feelings" or in a craving for a substance that helps relieve these negative emotions. (Johnson & Breslau, 2006).

Smokers with co-morbid depressive disorders are prone to become dependent on nicotine, to progress to a more severe level of dependence, and to experience more severe nicotine withdrawal symptoms than smokers without depressive disorders (Anda et al., 1990; Johnson & Breslau, 2006). Smoking may diminish the chance of recurring depression in some people, and depression may follow smoking cessation in these subjects (Laje, Berman & Glassman, 2001). Smoking may relieve the negative effects in a person whose need for alcohol is associated with depression and anxiety (Gulliver, Kamholz, et al., 2006).

From the study of Saatcioglu, Celikel, and Cakmak (2008) evaluate the relationship between nicotine dependence and the severity of anxiety and depression among alcohol dependent person. The result showed that the mean score of the severity of anxiety and depression were high in alcohol dependent person with nicotine dependence.

2. Smoking cessation strategies and implement for alcohol dependent smokers

Until recently, there has been reluctance within the alcohol treatment community in general to address cigarette smoking when treating alcohol abuse/ dependence. In part, there has been a widely held belief that it is too difficult for persons to address both smoking cessation and alcohol abstinence. The concern that discontinuation of smoking will result in a relapse of alcohol use also commonly exists. Alcoholics anonymous, the support group many people use when discontinuing alcohol, avoids specific comment on tobacco smoking. In addition, the personnel of alcohol treatment programs are frequently recovering alcoholics who continue to smoke. Their continued use of nicotine makes it less likely that smoking cessation is addressed in

the treatment of their patients (Bobo, Slade, & Hoffman, 1995) describe a survey of 771 professionals employed in alcohol treatment programs.

About one third of respondents agreed that persons in active alcohol treatment should be urged to quit smoking. Those respondents who were currently smoking were one-half to one-third as likely to provide counseling on smoking cessation as those respondents who had never smoked. This demonstrates the fairly low priority that smoking cessation has been given in the past in treatment programs for alcohol addiction.

From previous and current smoking cessation intervention programs introduced to alcohol dependence smokers assist to improve smoking cessation integrate psychosocial and medication. The detailed of each intervention as following:

2.1 Pharmacotherapy

Pharmacological agents that reduce the reinforcing effects of alcohol and nicotine by modulating these neurotransmitter systems might have potential therapeutic value for treating nicotine and alcohol dependence and co-morbid depression in humans.

2.1.1 Nicotine replacement therapy (NRT) in combination with psychotherapy or behavioral therapy is an effective treatment for nicotine dependence. (Cummings and Hyland 2005). Five medications approved by the U.S. Food and Drug Administration (FDA) deliver nicotine in a form that does not involve the risks of smoking. NTRs are meant to be used for a short period of time and should be tapered down to a low dose before stopping. The five NRT medications, which in a

Cochrane review increased the chances of stopping smoking by 50 to 70% compared to placebo or to no treatment (Stead, Perera, et al., 2008) are transdermal nicotine patches deliver doses of the addictive chemical nicotine, thus reducing the unpleasant effects of nicotine withdrawal. These patches can give smaller and smaller doses of nicotine, slowly reducing dependence upon nicotine and thus tobacco. A Cochrane review found further increased chance of success in a combination of the nicotine patch and a faster acting form (Stead, Perera, et al., 2008). Also, this method becomes most effective when combined with other medications (gum, lozenges, sprays, and inhalers) and psychological support.

2.1.1.1 Bupropion is the only antidepressant that has been approved by the Food and Drug Administration (FDA) for treating nicotine dependence. Bupropion is a tricyclic antidepressant (TCA) that inhibits noradrenergic and dopamine uptake and, at high concentrations, inhibits the firing of noradrenergic neurons in the locus coeruleus (Ascher et al. 1995). Preclinical studies also show that bupropion might act as a noncompetitive nicotinic receptor antagonist (Slemmer et al. 2000), thereby reducing the reinforcing effects of nicotine. Slow-release bupropion aids smoking cessation among smokers with a history of major depression or alcoholism.

2.1.1.2 Varenicline as an aid to smoking cessation. Varenicline is a selective A4 β2 partial nicotinic receptor agonist that, in the presence of nicotine, acts as a relative antagonist and diminishes nicotine's reinforcing effects. In two recent trials, varenicline administration resulted in quit rates significantly higher than those achieved among placebo recipients (Nides et al. 2006; Oncken et al. 2006). Indeed,

the results of one of these studies suggest that varenicline might be more clinically effective than bupropion (Nides et al. 2006).

2.2 Group interventions

In recent years, data has emerged to suggest that inclusion of smoking cessation programs does not interfere and may, in some instances, enhance the success of alcohol treatment. Interestingly, it has been observed that long-term (10 year) abstention from alcohol and smoking are highly correlated. Initial work examining the relationship of smoking cessation to alcohol treatment programs focused on inpatient substance abuse programs. In this setting, smoking bans with and without counseling and nicotine replacement have been evaluated (Joseph, 1993). Importantly, these studies and others suggest that smoking cessation efforts during inpatient substance abuse treatment do not negatively impact abstinence from alcohol and other non-nicotine drugs of abuse and enhance smoking cessation (Burling, Burling, & Latini., 2001). Hurt and colleague (1994) demonstrated in a prospective trial involving 101 persons (50 controls, 51 in tobacco intervention group) that relapse rates for alcohol and other drugs were not different in the two groups while the smoking cessation rate at 1 year was 11.8% in the group given smoking cessation treatment and 0% in the control group. Bobo and colleague (1998) showed that simultaneous treatment of alcohol and tobacco in a residential setting did not jeopardize the participants' recovery from alcohol. These studies and others suggests that smoking cessation efforts in inpatient and residential substance abuse treatment programs as well as the outpatient setting may be practical and not diminish the efficacy of the program in terms of alcohol abstinence (Cooney, Cooney, Pilkey, Kranzler, & Oncken., 2003).

There has been data suggesting that alcoholics who continue to smoke maybe at increased risk for relapse. Stuyt (1997) reported on a group of substance abusers that received inpatient addiction treatment and were followed for 1 year after completion of their treatment. No significant effect on length of sobriety after treatment was observed in regards to gender, race, or primary drug of abuse of participants.

3. Theory and model of addiction

Many different theories and models of addiction have been proposed. Several broad categories can be used to summarize these models. The most prominent explanatory models include l) social/environment models, 2) genetic/physiological models, 3) personality/intrapsychic models, 4) conditioning/reinforcement behavioral models, and 5) an integrative biopsychosocial model included the Theory of plan behavior (TPB) and the TTM. Each of the model proposes a way of understanding addiction or a specific addictive behavior that focuses primarily on how addictions develop. Then, based on this etiology, the models propose suggestions for prevention and cessation as well as for intervention and treatment. The following review of these explanations will highlight strengths and weaknesses of each type of model in summary part.

3.1 Social/environment models

The social/environment perspective emphasizes the role of societal influences, peer pressure, social policies, availability, and family systems as mechanisms responsible for the adoption and maintenance of addictions. Certain types of drug use and individual addictive behaviours occur more frequently in some subgroups. This has encouraged researchers to examine subcultures related to drug

use and to explore the importance of environmental-contextual influences in the search for risk and protective factors (Clayton, 1992). For example, in the Muslim community, substance use is minimal due to the prescriptions laid down by the religion. Cocaine use has spaned the "crackhouse" where cocaine addicts gather; heroin addicts have created their "shooting galleries". These phenomena along \\ith the fact that drug users and abusers often have more family and friends who use drugs, make a clear case for the importance of social context in the acquisition of addictive behaviours (DiClemente, 2002:7).

Additional support for the social/environment perspective comes from data indicating that availability and social policies, such as restrictions in use and taxation, influence use and abuse of certain substances (perry & Bennetts, 1998). Policies restricting cigarette smoking and advertising have made important contributions to the declining rate of cigarette consumption. Changing the legal age for consumption of alcohol beverages has influenced use and abuse.

Some proponents of the social/environment models have concentrated on the more intimate environment of family influences as a central factor contributing to the onset of addictive behaviors. Advocates of family explanations point to problematic parental modeling of adult roles that can include difficulties with relationships, conflicted and broken marriages, and excessive use of alcohol and other drugs on the part of the parents as important influences on the child's experimenting v.ith and continuing an addictive behaviour (Chassin, Curran., Hussong, & Colder, 1996). Family system interactions can be responsible for one or more family members engaging in addictive behaviors as a result of the roles that are adopted to keep the system functioning.

Social and environmental influences clearly make a contribution both in the acquisition and cessation of addictions at a population level but often fail to explain in any comprehensive manner individual initiation or cessation.

3.2 Genetic/physiological models

Family studies indicate increasing risk ratios for individuals as the number of alcoholic relatives rises and as the number and severity of familial alcohol problems rise. Twin studies as well as in-depth assessments of children of alcoholics seem to support the importance of genetics as a contributing factor to alcoholism (Hesselbrock, Hesselbrock & Epstein, 1999).

For a long time physical dependence and addiction were understood as synonymous. Traditional markers to define drug dependence were both tolerance - the need for more of a substance to achieve the same effect - and a clear withdrawal syndrome, which included physical reactions like nausea and a craving for the substance. Proponents of the genetic/physiological explanation of addictions have used these physiological signs as critical indicators that addictions are biological and medical problems. However, not all drugs of abuse produce classic dependence syndromes of tolerance and withdrawal. Alcohol, nicotine, and heroin seem to produce such physiological dependence, whereas cocaine, amphetamines, and hallucinogens do not appear to do so. The physiological component remains an important one in addictive behaviors, particularly as related to the ingestion of a psychoactive substance. However, even for addictive behaviors that do not involve a substance such as gambling, it appears that the 'rush' or 'high' produced by the behavior is an important element (Hesselbrock et al., 1999). Because so many

different individuals can become addicted to so many different types of substances or behaviors, biological or genetic differences do not explain all the cultural, situational, and interpersonal differences among addicted individuals and addictive behaviors (Cadoret, 1992).

3.3 Personality/intrapsychic models

Addictive behaviors have often been conceptualized as a symptom of more historical, intrapsychic conflicts, often labelled disorders of personality. Proponents of this perspective point to the frequent correspondence between drug abuse and a diagnosis of antisocial personality disorder or its predecessor, juvenile delinquency, as evidence of drugs being a symptom of a larger psychological problem (Lowe et al., 1993).

Many theorists explicitly state or implicitly believe that some internal mechanism or conflict drives what can be considered a proneness to addiction. Sometimes these conflicts can be the result of environmental problems but most often are seen as internally derived and leading to a dysphoric, meaningless life style. Although it would seem logical to assume a role for internal personality dynamics in the addiction process, the evidence to date does not support the existence of an addictive personality that predictably and reliably will result in dependence on any or all of the addictive behaviours (DiClemente, 2002).

3.4 Conditioning/reinforcement models

There is a substantial body of research demonstrating the reinforcing properties of each substance of abuse (Barrett, 1985). Reinforcement models focus on the direct effects of the addictive behaviors, such as tolerance, withdrawal, and other

physiological responses/rewards, as well as the more indirect effects described in opponent process theory (Barrett, 1985).

Several phenomena in the drug culture also support the important role of conditioning and cues in the acquisition of and recovery from addictive behaviors. Le and colleague (6) found that repeated administrations of nicotine stimulate alcohol consumption. Drinking and smoking seem like automatic behavior (Room, 2004). The smokers may have no consciousness of lighting another cigarette, the drinker of refill the glass. Classical condition was used to explain this automatic behavior. Drinking may enhance craving for nicotine in cigarette smokers, and alcohol abuse or its accompanying experience could also serve as a conditioned stimulus in the sense of classical conditioning in this interaction (Burton & Tiffany, 1997).

There is substantive evidence for the role of conditioning and reinforcement effects in addictions. However, models that use only these two principles to explain acquisition and recovery appear to have difficulty explaining all the phenomena of addiction and change. Once addicted, even severe punishing consequences seem to be unable to suppress or extinguish the behavior. Even after long periods of abstinence, extinction appears problematic under certain conditions. For example, some women smokers stop smoking during pregnancy only to have the addiction reappear after the birth, despite 6-7 months of abstinence. As with the previous models, the conditioning/reinforcement ones offer some insight, but they do not explain all initiation or successful change (Marlatt & Gordon, 1985).

3.5 An integrative biopsychosocial model

3.5.1 The theory of planned behavior

The theory of planned behavior is based on a rational decision making model of behavior referred to as the theory of reasoned action (Ajzen, 1991). Ajzen introduced the theory in order to account for a domain of behaviors referred to as non-volitional behaviors, or those behaviors over which people do not have complete control.

In keeping with its assumption of behavior as rational, the theory of reasoned action proposed that the most direct antecedent of a person's behavior is his or her intention to carry it out. Such an assumption clearly excludes behaviors that people do not intend to carry out, including habitual behaviors, and also behaviors over which people do not have complete control. To cater for these limitations Ajzen introduced to the original reasoned action model the concept of perceived behavioral control, which is based on Bandura's self-efficacy concept, as the individual's perceptions of control over (or ability to perform) the behavior. He proposed that along with intention, perceived control is a direct antecedent of behavior (Moroje1e, 1997).

Within Ajzen's framework, the antecedents of intentions are proposed to be attitudes, subjective norms and perceived behavioral control. That is people intend to carry out behaviors (a) which they evaluate positively (positive attitude), and/or (b) if they perceive pressure from important others to do so (strong normative pressure) and/or (c) if they believe they have control (high perceived

control) over them. Relevant sets of beliefs are proposed to account for attitudes, subjective norms and perceptions of control, respectively.

According to this theory adolescents' drinking behavior can be explained in terms of their perceptions about their drinking or not drinking. So far, relatively few studies have applied the theory of planned behavior in the context of alcohol misuse and other problem behaviors, though studies that have been conducted have provided support for the theory.

3.5.2 The Transtheoretical Model (TTM)

The TTM of intentional behavior change attempts to bring together these divergent perspectives by focusing on how individuals change behavior and by identifying key change dimensions involved in this process (DiClemente & Prochaska, 1998).

DiClemente and Prochaska (1998) found that it is the personalpathway, and not simply the type of person or environment, that appears to be the best way to integrate and understand the multiple influences involved in the acquisition and cessation of addictions. Beginning and quitting addictive behaviors involve the individual and his other unique decisional considerations. A person's choices influence and are influenced by both character and social forces. There is an interaction between the individual and the risk and protective factors that influence whether the individual becomes addicted and whether he or she leaves the addiction. The transitions into and out of addictions do not occur without the participation of the addicted individual.

DiClemente and Prochaska (1998) explain that acquisition of an addictive behaviour and recovery from addiction require a personal journey through an intentional change process that is int1uenced at various points by the host of factors identified in the etiological models just reviewed. The stages-of change, processes of change, context of change, and markers of change identified in the TTM offer a way to integrate these diverse perspectives without losing the valid insights gained from each perspective. This is the essence of an integrative transtheoretical perspective (DiClemente, 2002).

The model has been labelled transtheoretical (across thwries) because from its inception over 20 years ago, key elements used in creating the model were derived from different theories of human behaviour and diverse views of how people change (DiClemente & Prochaska, 1998). Thus the model is an eclectic and integrative one that can be used to understand better the process involved both in the creation of an addiction and in the recovery from addiction.

4. The Transtheoretical Model

The theoretical framework of the study was guided by the TTM in order to explain and predict of smoking cessation among Thai alcohol dependent smokers. The TTM of health behavior seeks to bridge the cognitive and the behaviorist approaches by positing a series of stages in modifying behavior; in only some of these are cognitive processes pertinent. (Prochaska, 1985).

4.1 The core constructs of the TTM

The core constructs of the TTM comprises of stages of change, processes of change, decisional balance, and self-efficacy. The detail of core construct explained as following:

4.1.1 Stages of change

The stages-of-change represent points along the full course of changing. They are used to mark an individual's status in making change. Each stage of change is predictable, well-defined, takes place in a period of time, and entails an associated set of cognitions or behaviors. As mentioned, there are five distinct stages of change: precontemplation, contemplation, preparation, action, and maintenance. This section provides a description of these stages and the processes associated with each, in addition to the techniques that facilitate engagements in these processes, thus promoting movement through the stages.

4.1.1.1 Precontemplation stage is the earliest stage of change. Individuals in precontemp1ation are unaware of problem behavior or they are unwilling, or discouraged, when it comes to changing it. They engage in little activity that could shift their view of problem behavior and can be rather defensive about the targeted problem behavior (Prochaska et al., 1992). Precontemplators are not convinced that the negative aspects of the problem behavior outweigh the positive. They are not considering change in the foreseeable future. An example of a precontemplator would be a man who drinks excessively but does not see his drinking as a problem, despite the fact that it may be affecting his work and his family life (Prochaska & Velicer, 1997). In order to move ahead in the cycle of change.

precontemplators need to recognize that there is a problem and increase their awareness of its negative aspects. To mow out of this stage, they must experience cognitive dissonance, a negative affective state, and acknowledge the problem (Scholl, 2002). Key change processes for people in this stage include consciousness raising, dramatic relief, self reevaluation, environmental reevaluation, and tipping the decisional balance. Some techniques suggested in the manual to elicit these processes are psychoeducation, cognitive recognition, and use of the Timeline Follow back.

4.1.1.2 Contemplation stage is the stage that person acknowledges that he or she has a problem and begins to think seriously about solving it. Contemplators struggle to understand their problem, to see its causes, and think about possible solutions. Contemplators, however, may be far from actually making a commitment to action (Prochaska et al., 1992). For example, a contemplator might gather a lot of information about treatment programs but not actually enroll. That is often the nature of contemplation. The individual knows where he or she wants to be, and maybe even how to get there, but is not quite ready to make the commitment. Although many contemplators move on to the action stage, it is possible to spend years in the contemplation stage (Scholl, 2002). Being stuck in this stage is knovm as chronic contemplation or behavioral procrastination (Prochaska & Velicer, 1997). The early sessions in the manual are designed to assist the contemplator in examining the reasons for his or her current behavior and to tip the balance in in favour of change. The change processes most relevant to this stage include self-reevaluation, environmental reevaluation, social liberation, decisional balance, and self-efficacy. Suggested techniques to elicit these processes are values clarification, decision-making, cognitive recognition, and role clarification (Velasquez et al., 2001).

4.1.1.3 Preparation stage is the stage that persons are ready to change in the near future. They are on the verge of taking action. People in this stage may have tried and failed to change before, yet they have often learned valuable lessons from past change attempts (prochaska et al., 1992). Individuals in this stage of change need to develop a plan that will work for them. Then, they need to make firm commitments to follow through on the action option they choose (Prochaska & Velicer, 1997). The change processes most appropriate for this stage are self efficacy, self-liberation, stimulus control. counterconditioning, and helping relationships. Suggested techniques to elicit these processes are goal setting, framing, and problem solving.

4.1.1.4 Action stage is the stage that people most overtly modify their behavior. They stop smoking, remove all the desserts from the house, pour the last beer down the drain, or enter a treatment program. In short, they make the move and implement the plan for which they have been preparing (Prochaska et al., 1992). Action is the most obviously busy period and the one that requires the greatest commitment of time and energy. Changes made during the action stage are more visible to others than those made during the other stages, and therefore receive the greatest recognition. The danger is that many people, including professional therapists, can erroneously equate action with change, overlooking not only the critical work that prepares people for successful action but also the equally important (and often more challenging) efforts to maintain the changes following action (Prochaska & Velicer, 1997). Key processes that help people move forward in this stage are self-efficacy, selfliberation, stimulus control, counterconditioning, reinforcement management, and helping relationships. Suggested techniques to elicit

these processes are environmental restructuring, relaxation, reinforcement, role-plays, cognitive restructuring, and relapse prevention planning (Velasquez et al., 2001).

4.1.1.5 Maintenance stage is the final stage in the process of change (Prochaska et al., 1992). Sustaining behavior change is difficult. In the maintenance stage, the person works to consolidate the gains attained during the action stage and struggles to prevent relapse. The change process does not end v.ith the action stage. Although traditional therapy views maintenance as a static stage, the TTM sees it as a critically important continuation that can last from as little as 6 months to as long as a lifetime (Prochaska & Velicer. 1997). Without a strong commitment to maintenance, there will surely be relapse. Often. change is not completely established even after 6 months or so of action. This is particularly true if the environment is filled with cues that can trigger the problem behavior. We all know of cases where an individual who has stopped drinking relapses just when everyone thinks the problem is finally resolved. It is important to help individuals in thiss stage to practice an active and intelligent maintenance of the changes they have made. Key change processes for people in this stage include strengthening self-efficacy, self liberation, stimulus control, counterconditioning, reinforcement management, helping relationships, and social liberation. Techniques that can elicit these processes are social and communication skills enhancement and needs clarification (Velasquez et al., 2001). Stages of change showed as table 2.1.

Table 2.1: Stages of change

Constructs	Description
Precontemplation	No intention to take action within the next 6 months
Contemplation	Intends to take action within the next 6 months
Preparation	Intends to take action within the next 30 days and has taken some behavioral steps in this direction
Action	Changed overt behavior for less than 6 months
Maintenance	Changed overt behavior for more than 6 months
Termination	No temptation to relapse and 100% confidence

Smoking cessation, similarly to action stage, and progress from preparation stage. Smokers on preparation stage are the most changeable likely to progress or regress. Then effective decision making is an important for progressing to next stage with stop smoking. According to the population in this study were new cases of Thai alcohol dependent smokers after received smoking cessation intervention for one month. Therefore, stage of change in the present study including pre-contemplation, contemplation, preparation, and action stage.

4.1.2 Processes of change

In the TTM, Prochaska and DiClemente (1984) also identified 10 specific processes of change that enable people to move from one stage to the next. They can be thought of as the engines of change. These processes of change fall into two groups; experience and behavioral processes. The details explained as following:

4.1.2.1 Experiential processes

The experiential processes, follows on internal thought processes and how a person views his or her situation. These processes are most relevant in the early stages of change. It consists of five processes as follow:

4.1.2.1.1 Consciousness raising: Clients gain knowledge about themselves and the nature of the behaviour. Because clients may have been previously unaware of the negative effects of the substance use. learning more about it and its effects will help them make bener-informed decisions.

4.1.2.1.2 Dramatic relief: Emotional experience related to the problem. Clients often become motivated to make changes when their emotions are aroused by either external or internal stimuli.

4.1.2.1.3 Self-reevaluation: The recognition of how a current behavior conflicts with personal values and life goals. Through use of this process, the client performs a thoughtful and emotional reappraisal of the behavior. And visualizes the kind of person he or she might be after making a positive change.

4.1.2.1.4 Environmental reevaluation: Recognition of the effects the behavior has upon others and the environment. Clients are often motivated by the realization that their substance use has not only negatively affected themselves but also other, external areas (such as people in their lives and the environments in which they function).

4.2.1.5 Social liberation: Recognition and creation of alternatives in the social environment that encourage behavior change. This process

can also be seen as utilizing resources in the environment to alter and maintain changes in behavior.

4.1.2.2 Behavioral processes

The second group, the behavioral processes, focuses on action and behavior, and is more important in the later stages of change. It consists of five processes as follow:

4.1.2.2.1 Stimulus control: Avoidance or alteration of cues, so that the likelihood of engaging in the problem behaviour is lessened. Clients who associate alcohol or drug use with specific environments (e.g. a bar during "happy hour") are less likely to engage in substance use if they avoid those "trigger" situations (Velasquez et al., 2001).

4.1.2.2.2 Counterconditioning: Substitution of healthy-behaviors for unhealthy ones. In a situation where it is difficult for clients to alter or avoid tempting cues, an effective strategy is for clients to alter their responses to the cues. This often involves choosing healthy alternatives (such as relaxing in a stressful situation) rather than abusing substances.

4.1.2.2.3 Reinforcement management: Rewarding of positive behavior changes. This can take the form of actual "rewards" or may simply be the positive consequences resulting from behaviors that prevent alcohol or drug use. When clients experience rewards following positive steps toward altering their substance using behavior, they are more likely to continue making similar changes.

4.1.2.2.4 Self-liberation: Belief in one's ability to change, and acting on that belief by making a commitment to alter behavior. Clients often demonstrate this process by committing to substance-related change goals.

4.1.2.2.5 Helping relationships: Relationships that provide support, caring, and acceptance to someone who is attempting to make a change. Clients who have abused substances often feel alienated and alone. By engaging in this change process, clients realize that they have a support system and are not isolated in addressing their substance use.

For smoking cessation, each of the processes was related to the stages of change by a curvilinear function. Process use was at a minimum in pre-contemplation, increases over the middle stages, and then declines over the last stages. The processes differ in the stage where use reaches a peak. Typically, the experiential processes reach peak use early and the behavioral processes reach peak use late. Processes of change showed as table 2.2

Table 2.2 : Processes of change (Rossi, 1992)

Constructs	Description
Experience Processes	
Consciousness raising	Finding and learning new facts, ideas, and tips that support the healthy behavior change
Dramatic relief	Experiencing the negative emotions (fear, anxiety, worry) that go along with unhealthy behavioral risks
Self-reevaluation	Realizing that the behavior change is an important part of one's identity as a person
Environmental reevaluation	Realizing the negative impact of the unhealthy behavior or the positive impact of the healthy behavior on one's proximal social and/or physical environment
Self-liberation	Making a firm commitment to change
Behavioral Process	
Helping relationships	Seeking and using social support for the healthy behavior change
Counterconditioning	Substitution of healthier alternative behaviors and cognitions for the unhealthy behavior
Reinforcement	Increasing the rewards for the positive behavior change management and decreasing the rewards of the unhealthy behavior
Stimulus control	Removing reminders or cues to engage in the unhealthy behavior and adding cues or reminders to engage in the healthy behavior
Social liberation	Realizing that the social norms are changing in the direction of supporting the healthy behavior change

In TTM, relapse is possible (even likely) when moving through the stages-of-change (Prochaska et aI., 1992). People often "recycle" through the stages many different times before reaching success; thus, a "slip" should not be considered an utter failure, but rather a step back (Velasquez et al., 2001). Many people progress from contemplation to action to maintenance, but some will relapse. Following a relapse, individuals often regress to an earlier stage and then begin progressing through the stages yet again. Frequently, people who do relapse have a better chance of success during the next cycle (Scholl, 2002). They have often learned new ways to deal with old behaviors, and they now have a history of successes on which to build. It is important to help clients see a lapse as a temporary slip rather than a failure, and to realize that many people cycle through the stages a number of times before they are able to maintain successful behavior change (Velasquez et al., 2001). Process of change that mediate progression between the stages of change showed as table 2.3

Table 2.3: Processes of change that mediate progression between the stages of change

Precontemplation	Contemplation	Preparation	Action	Maintenance
Consciousness raising Dramatic relief Environmental reevaluation				
	Self-reevaluation			
		Self-liberation		
			Counterconditioning Helping relationships Reinforcement management Stimulus control	

4.1.3 Decisional balance: The TTM explain decision making in term of decisional balance. Decisional balance refer to individual's relative weighing of the pros and cons of changing. The pros represent the benefits of the changing or the reasons to change, and the cons represent the barriers to change or not to change. Both pros and cons of smoking were significantly related to the stages of change. The core constructs of Janis and Mann's (1977) decision-making model were used to define decisional balance for the TTM (Prochaska et al., 1994). The decisional balance showed as table 2.3.

Table 2.3 : Decisional Balance (Rossi, 1992)

Constructs	Description
Pros	Benefits of changing
Cons	Costs of changing

The decisional balance construct reflects the individual's relative weighing of the pros and cons of changing. It is derived from the Janis and Mann's model of decision making (Janis and Mann, 1985) that included four categories of pros (instrumental gains for self and others and approval for self and others).

Decisional balance changes as smokers move through the stages of change (Velicer et al., 1985). During precontemplation, the perceived benefits of smoking outweigh the perceived negatives. As the smoker progresses into the action and maintenance stages, the negative perceptions of smoking overtake the positive. Smokers in the contemplation stage should possess a decisional balance close to neutral, where the perceived pros and cons are nearly equal (Velicer et al., 1985).

The decisional balance scale involves weighting the importance of the pros and cons. A predictable pattern has been observed of how the Pros and Cons relate to the stages of change. Figure 2.1 illustrates this pattern for smoking cessation. In precontemplation, the pros of smoking far outweigh the cons of smoking. In contemplation, these two scales are more equal. In the advanced stages, the cons outweigh the Pros.

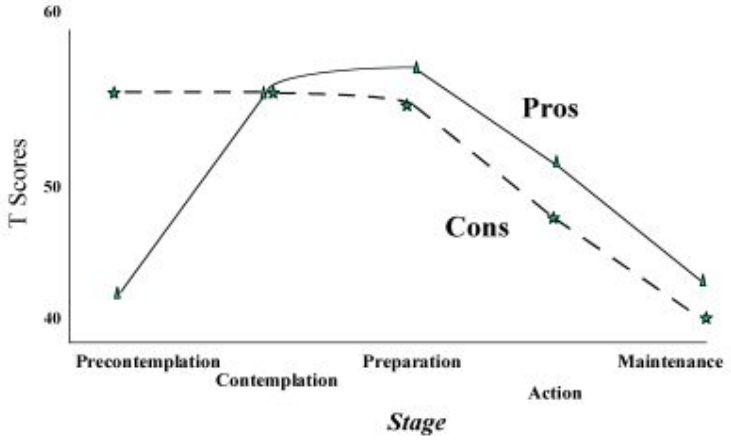

Figure 2.1: The relationship between stage and the decisional balance for an unhealthy behavior

4.1.4 Self-efficacy

The self-efficacy construct represents the situation-specific confidence people have in their ability to cope with high-risk situations without relapsing to their unhealthy or high-risk habit. This construct is represented either by a Temptation measure or a Self-efficacy measure, since both measures have the same structure (Velicer, DiClemente, Rossi & Prochaska, 1990). The Temptation/Self-efficacy measures are particularly sensitive to the changes that are involved in progress in the later stages and are good predictors of relapse (Velicer et al., 1998).

4.2 Applications of the Transtheoretical Model

The Transtheoretical Model has general implications for all aspects of intervention development and implementation. Velicer, Prochaska, Fava, Norman and Redding (1998) describe how it impacts on five areas: recruitment, retention, progress, process, and outcome.

The TTM is an appropriate model for the recruitment of an entire population. Traditional interventions often assume that individuals are ready for an immediate and permanent behaviour change. The recruitment strategies reflect that assumption and, as a result, only a very small proportion of the population participates. In contrast, the Transtheoretical Model makes no assumption about how ready individuals are to change. It recognizes that different individuals will be in different stages and that appropriate interventions must be developed for everyone. As a result, very high participation rates have been achieved.

The TTM can result in high retention rates. Traditional interventions often have very high dropout rates. Participants find that there is a mismatch between their needs and readiness and the intervention progranune. Since the progranune is not fitting their needs, they quickly dropout. In contrast, the TTM is designed to develop interventions that are matched to the specific needs of the individual. Since the interventions are individualized to their needs people much less frequently drop out because of inappropriate demand characteristics.

The TTM can provide sensitive measures of progress. Action oriented programs typically use a single, often discrete, measure of outcome. Any progress that does not reach criterion is not recognized. This is particularly a problem in the early

stages where progress typically does not involve easily observed changes in overt patterns of behavior. In contrast, the Transtheoretical Model includes a set of outcome measures that are sensitive to a full range of cognitive, emotional and behavioral changes and recognize and reinforce smaller steps than traditional action-oriented approaches.

The TTM can facilitate an analysis of the mediational mechanisms. Interventions are likely to be differentially effective. Given the multiple constructs and clearly defined relationships, the model can facilitate a process analysis and guide the modification and improvement of the intervention. For example, an analysis of the patterns of transition from o:le stage to another can determine if the intervention was more successful with individuals in one stage and not with individuals in another stage. Likewise, an analysis of process use can determine if the interventions were more successful in activating the use of some processes.

The TTM can support a more appropriate assessment of outcome. Interventions should be evaluated in terms of their impact, i.e., the recruitment rate times the efficacy. For example, a smoking cessation intervention could have a very high efficacy rate but a very low recruitment rate. This otherwise effective intervention would have very little impact on smoking rates in the population. In contrast, an intervention that is less effective but has a very high recruitment rate could have an important impact on smoking rates in the population. Interventions based on the Transtheoretical Model have the potential to have both a high efficacy and a high recruitment rate, thus dramatically increasing our potential impact on entire populations of individuals with behavioral health risks.

5. Role of nurses to promote smoking cessation in alcohol dependence smokers.

Smoking is much more common among patients with mental illness and/or substance abuse disorders than among the general population (Schroeder, 2009). The reason for these high rates of smoking include genetic susceptibility to the dopaminergic effects of nicotine exposure, relief of psychiatric symptoms, the protobacco culture of mental health treatment facilities, and the historical reluctance of mental health clinicians to address tobacco addiction as a treatable illness (Schroeder, 2009). The evidences showed that treatment of smoking cessation of mental illness and/or substance use disorders and general population are similar (Schroeder, 2009). There is the update guideline for treating tobacco use and dependence has summarized in three major ways that nurses can help smokers quit.

First, if treatment facilities exist within their system, internal referral is an option. Second, the option is to refer to toll-free telephone quitlines. Third, mental health professionals can themselves treat patients by combining counseling with one or more of the seven available forms of evidence-based pharmacotherapy, such as nicotine replacement (patch, gum, lozenge, nasal spray, or inhaler); the antidepressant bupropion, which also suppresses nicotine craving; and varenicline which is a new partial nicotine agonist that reduces the pleasurable aspect of nicotine inhalation and also reduces craving (Fiore et al., 2008; Schoeder & Sox, 2006).

Furthermore, as nurses are both public-health role models and the largest professional group in the health care (Adriaanse et al., 1991), thus, the chance of a smoker successfully quitting can be increased markedly by nurse-led tobacco control interventions (Froelicher & Thompson, 2005). Similarly to International Council of Nurses (1999) has been stated that nurses have been identified as an instrumental

partner in tobacco reduction because they are the largest health professional group, they have extensive exposure to various populations through direct client contact in a diversity of care settings, and nurses are trusted by the public.

Smoking is widely recognized as an important public health issue for the general population and in the mental health field where the rates are particularly high. Mental health nurses are well positioned to take an active role in encouraging and supporting people diagnosed with mental illness to cease smoking. Information about smoking behaviour and the attitudes of mental health nurses is necessary to develop strategies to prepare nurses for this important role.

Nurses have a huge role to play in caring for these patients and a massive amount of nursing resources goes into providing this care. Measures to help smokers stop are highly cost-effective. For example, the cost of brief advice about stopping smoking per adjusted life year is £126, the cost of a smoking cessation service is £658 and the cost of No Smoking Day is £26 (Parrot and Godfrey, 2004). This compares with reported NICE recommendations for health spending of £30,000 per life year.

In primary care, smoking cessation guidelines for health professionals recommend that nurses should be prepared to offer encouragement and support for known smokers to stop. Where possible nurses should be given sufficient practical and theoretical training to enable them to provide opportunistic advice, encourage cessation and offer advice on using NRT or bupropion. Even when the smoking status of a patient is not known, nurses are in a position to record this fact and to offer brief advice. A simple piece of advice from a health professional can be a big trigger for a quit attempt.

In secondary care settings it is highly recommended that nurses should be part of systems that record the smoking status of outpatients and inpatients to ensure that these records are kept up to date. This will allow for suitable advice to be offered to patients. Many hospitals host local smoking cessation services and these should be made available to inpatients, or advisers should offer cessation counselling to inpatients.

Many smokers stop as a result of a health problem and this places nurses in the ideal position to encourage and support them to stop. Many nurses smoke themselves and may feel uncomfortable or hypocritical talking about smoking with a patient. However, it is vital to see smoking cessation information as professional advice and to treat the subject non-judgementally. Nurses will be familiar with patients' past experiences and are well placed to be able to advise on the NHS smoking cessation services and treatments available.

Tobacco dependence was a condition that requires the same professional approach as any other. The 5 A's measure was recommended for identifying smokers and providing them with effective smoking cessation assistance:

A1: Ask	Ask the subject about his/her smoking history and usage of other tobacco products.
A2: Advice	Advise smokers to resolve to quit smoking.
A3: Assess	Assess the subject's severity of addiction and purpose in quitting smoking.
A4: Assist	Appropriately assist the subject and provide treatments so that she/he will be able to quit smoking successfully.
A5: Arrange	Arrange to have a follow-up of each smoker receiving.

A cross-sectional study of Dwye, Bradshaw & Happell (2009) was conducted to examine the smoking behavior and attitudes of mental health nurses in Queensland, Australia, through a random selection of mental health nurses (n = 289). Smoking rates (16%) in this study were lower than those for the Australian population. Smokers were significantly ($P < 0.001$) less likely to agree that health-care facilities should promote a healthy environment. All participants, but predominantly those who smoked ($P < 0.001$), supported the individual's right to smoke. Participants believed they possessed appropriate skills to deliver the antismoking message effectively, although stronger beliefs were characteristic of non-smokers. Participants who smoked perceived that their smoking status assisted in facilitating interactions with consumers ($P < 0.001$). The findings have implications for the health promotion activities of mental health nurses.

6. Smoking cessation

6.1 Definition of smoking cessation

Smoking cessation is the process of discontinuing the practice of inhaling a smoked substance (American Cancer Society, 2011). Smoking cessation is very important but not all of alcohol dependent smokers can do, and only 16.9% considered the possibility of smoking cessation or already decided to stop smoking. (Haustein, & Groneberg, 2010) Smoking cessation was assessed by asking smokers "Have you smoked a cigarette in the last 7 days?" An answer of "No" indicated that the alcohol dependent smokers has not smoking (Quitter), and an answer "Yes" indicated that the alcohol dependent smokers has successfully smoking cessation as 7 days points prevalence abstinence (Non quitter).

6.2 The measurement of smoking cessation

The measures can be broadly classified as self-report and biochemical. (Velicer, Prochaska, Rossi, & Snow, 1992) provide a summary and evaluation of these measures. A number of attempts have been made to develop a consensus about a single measure that would be employed by all investigators (Hughes et al., 2003) but with little success. The decision about which measure to employ has typically relied on logical arguments rather than any empirical evaluations of the specific measures. Self-report measures can be classified into one of three broad classes of measures (Velicer, Prochaska, Rossi, & Snow, 1992).

6.2.1 Point prevalence abstinence

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 has several advantages. For instance, point prevalence abstinence of 24 hours has the potential of biochemical validation. It can include smokers who take delayed action and quit, if measured some time after an intervention or an event. Therefore, the measure may reflect more accurately than continuous abstinence measures how smokers change in their natural environment. The immediacy of the measure decreases the potential occurrence of recall bias. It is sensitive to the early effects of interventions, such as short term attempts at quitting which are not sustained reproduced with permission of the copyright owner. Further reproduction prohibited without permission over time (Velicer et al. 2004; Velicer et al. 1992).

Point prevalence abstinence also has several disadvantages. For instance, it can define a very heterogeneous group including subjects who have quit for many years and those who have stopped smoking only for a few days. It is less stable compared to continuous abstinence and prolonged abstinence measures. It may overestimate the long-term smoking cessation rates given the high rates of relapse occurring during the first three months after quitting (U.S. Department of Health and Human Services, 1990).

6.2.2 Continuous abstinence

Continuous abstinence measures 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 et al., 2004; Velicer et al., 1992).

Continuous abstinence measures also have disadvantages. For instance, if they are used alone, they assume a linear process from smoking to nonsmoking, without relapse, which is a pattern of only a minority of smokers, thus making it inappropriate to describe most quitting behaviors. These measures cannot be validated biochemically (Velicer et al. 2004; Velicer et al., 1992). Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

6.2.3 Prolonged abstinence

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. Prolongedabstinence and continuous abstinence measures are actually measures of period prevalence. Similar to continuous abstinence, prolonged abstinence measures have the advantage of being stable over time and more appropriate for evaluating the long-term health benefits of smoking cessation (Velicer et al. 2004; Velicer et al., 1992).

Prolonged abstinence measures have the same disadvantage as continuous abstinence measures, they cannot be validated biochemically except through repeated, random testing throughout an entire study time period. The other disadvantage is that they require lengthy follow-up (Velicer et al. 2004; Velicer et al., 1992).

Comparison among outcome measures: Only one study has compared cessation outcome measures. Velicer and colleague (2004) reproduced with permission of the copyright owner. Further reproduction prohibited without permission. Prochaska (1985) used data collected in three population-based studies to compare four smoking-cessation outcome measures:

(1) 24-hour point prevalence abstinence,

(2) 7-day point prevalence abstinence,

(3) 30-day prolonged abstinence, and

(4) 6-month prolonged abstinence (Velicer et al. 2004).

The first three measures showed correlations coefficients of 0.98 and above with each other. Although lower, the correlation coefficients of these three measures with the 6-month prolonged abstinence were 0.82 and higher. Considering these

results the authors concluded that "for practical purposes, the first three measures will result in the same conclusions when used as outcome measures in smoking cessation studies" (Velicer et al., 2004). For example, if someone is continually abstinent for a 6-month period, they should also be counted as abstinent on the other three measures. However, someone could be abstinent for 30 days at the point of assessment and not be abstinent for all 6 months, so the mean for 30 days should be higher than the mean for 6 months. Figure 2.2 illustrates the overlap of the measure. From this perspective, it is logical to expect high correlations. It is also logical to expect that the mean for 24-hour point prevalence will be the highest of the four measures and the means will decrease as the length of time increases.

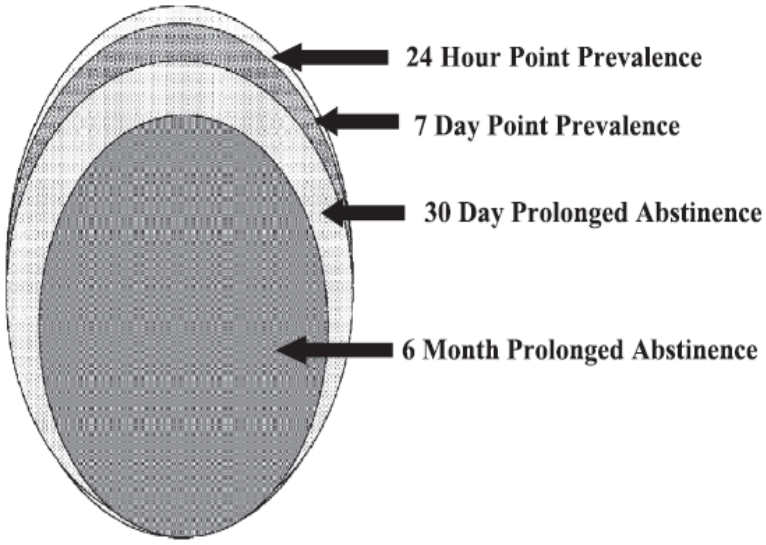

Figure 2.2 : The four outcome measures viewed as overlapping sets within the universe of quitters. (Prochaska., & Velicer, 2004)

7. Smoking cessation protocol for alcohol dependent smokers

There are three setting that have been used smoking cessation protocol include; 1) drug dependence treatment center, 2) general hospital, and 3) quitline service center. The details explained as following:

7.1 Smoking cessation protocol in drug dependence treatment center

Patients in substance abuse treatment frequently smoke cigarettes. Substance abuse treatment programs too often ignore tobacco use (Baca & Yahne, 2008)**.** Many patients have expressed interest in stopping smoking, although they may be ambivalent about smoking cessation during substance abuse treatment. Percentages of smokers in substance abuse treatment in Switzerland, United States, Australia, Canada, and England have ranged from 80% to 98% (Bernstein & Stoduto, 1999; Best et al., 1998; Hser, McCarthy, & Anglin, 1994; Tacke, Wolff, Finch, & Strang, 2001; Walsh, Bowman, Tzelepis, & Lecathelinais, 2005; Zullino, Besson, & Schnyder, 2000). From integrative review of Baca and Yahne (2008) found that smoking cessation during substance abuse treatment does not impair outcome of the presenting substance abuse problem, and smoking cessation may actually enhance outcome success.

Treating nicotine dependence requires a comprehensive approach, similar to treating most other forms of drug dependence. Combined therapy, with both medication and counseling, is considered to be the optimal approach and numerous forms of medication and counseling are now available (Reid, Selzer,& Rotrosen, 2006). Moreover, the effectiveness of cigarette smoking cessation treatment at substance use disorder programs has been examined and documented in several

studies over the last decade including a recently completed multi-site study supported by the NIDA-funded National Drug Abuse Treatment Clinical Trials Network. These studies have reported smoking cessation quit rates of 10-15% at the end of treatment (Prochaska et al., 2004) that, while somewhat lower than in the general public.

The recent reviews have also concluded that smoking cessation is an important clinical goal for substance abuse treatment (Baca & Yahne, 2009; Prochaska, 2010; Schroeder & Morris, 2010). Most notably, the US Public Health Service has published the clinical practice guideline, Treating Tobacco Use and Dependence: 2008 Update, which recommends that all health care providers counsel their patients about tobacco use and provide interventions—ranging from counseling to medications—to help patients quit smoking (Fiore, et al., 2008). The guideline specifically addresses substance use treatment providers, recommending that they deliver smoking cessation interventions to their clients.

The previous research indicates that concurrent treatment for tobacco and other substances is effective, and combining treatments has been found the most useful and successful way to treat concurrent addictions (U.S. Department of Health and Human Services, 2007). Because of the "synergistic" benefit of integrating smoking cessation into substance abuse treatment (Baca & Yahne, 2009), some treatment providers are supportive of integrating the two (Fuller et al., 2007).

There are 7 Drug dependence treatment centres in all part of Thailand. The Ministry of Interior and Ministry of Public Health had started to set up medical facility and rehabilitation center for drug addiction for the first time in Thailand. This first facility was located at Klong 5, Tumbol Rungsit, Amphur Thunyaburi,

Pratumtani province and was named “The Government Opium Treatment Centre. Its operation began in January 1st, 1959 with two sections. First section was withdrawal treatment facility that could accommodate 1,000 patients, second section was rehabilitation facility that could accommodate 3,000 patients. Thanyarak hospital was opened for addict patients in January 1st, 1967.

At present, Thanyarak institute also focused on developing the academic work such as doing research and developing knowledge and technology in medical science about addiction. Standard criteria to determine the treatment system had also been developed. It provides both academic and treatment services for both outpatient and inpatient with facility of 200 beds for treatment and 600 beds for rehabilitation.

Thanyarak institute use the therapeutic community (TC), drug treatment programs operate in national governmental networks and as free standing non-government organizations. As, Johnson and colleague. (2008) evaluate of therapeutic community drug abuse treatment success in Peru and Thailand. The results showed that the TC drug abuse treatment approach produced positive effects on drug use among clients and residents of TC programs in Peru and Thailand six months after treatment, regardless of the length of stay in the program.

Furthermore, Verachai , Punjawatnun , and Perfas (2003) study of drug dependence treatment by therapeutic community (TC) in Thanyarak Institute on Drug Abuse from 1986 to 2000. There were 278 cases who completed the TC program (males 261 or 93.9%, females 17 or 6.1%). The program course is at least one and a half year. The average duration of treatment in TC for the completion group was 27.6 +/- 7.1 months. The mean age was 30.9 +/- 6.4 years. About half of them had had a

high school education. The majority (84.6%) of them were i.v. heroin addicts. The average drug-use duration was 9.8 +/- 5.7 years. After they completed the program, the clients were followed-up for five years. 203 cases (73.0%) were abstinent from drugs. Of this figure 21 cases (7.6%) had died during the follow-up from illness and accidents not directly related to relapsing to drugs. 75 cases (27.0%) relapsed to drugs. There were no significant differences between the abstinent and relapse cases in age, education, marital status, characteristic of addiction, previous treatment data and I.Q. Duration of treatment in the abstinent cases was longer (3.7 months) than the relapse cases. Significant differences ($p < 0.05$) were found in some personality characteristics. The relapse cases were neurotic-introversion personality type and had abnormal scores with low or high scores in hypersensitive character. They were likely to be easily stimulated to go back to using drugs. Although the TC program required much time and material resources to operate, the results of treatment were highly effective. The results of this study provide the rational to expand this TC program in order to provide more opportunities to the increasing demands for an effective treatment intervention for Thai addicts.

In addition, Boochanan (2007) determine the predictors and multivariate predictors model of smoking cessation in terms of 7-day point prevalence and continuous abstinence rates at 24 weeks in Thai patients. Methods: Correlational research was conducted by collecting data from medical records as prospective and retrospective fashions during October 1, 2004 to January 31, 2007 at outpatients smoking cessation clinics of Thanyarak Institute, Rajavithi Hospital and Ramathibadi Hospital. The Results found that predictors analyzed by univariate logistic regression

for higher 7-day point prevalence abstinence rates at 24 weeks were: ircreasing age, married/living with partner statuses, widowed/divorced/separated statuses, bachelor's degree graduate or upper, concurrent chronic illnesses, smoked 11-20 cigarettes per day, smoked at least 11 years, one previous quit attempt, [is more than or equal to] 2 previous quit attempt, at least 7 sessions of visiting the clinician, types of pharmacotherapy and duration of using pharmacotherapy. Predictors for higher continuous abstinence rates were: all above predictors for 7-day point prevalence abstinence, except number of visiting sessions. After performing backward stepwise logistic regression procedures built multivariate logistic regression model, predictors related to 7-day point prevalence abstinence rate were: one previous quit attempt [Odds ratio (OR) = 2.92, 95%CI =1.41-6.06]; [is more than or equal to] 2 previous quit attempts (OR =3.55, 95%CI = 1.37-9.22); used one first or second line pharmacotherapies as part of treatment (OR = 4.57 , 95%CI = 1.55-13.47); used combinations of first and/or second line pharmacotherapies as part of treatment (OR = 6.41, 95%CI = 1.31-31.27). For continuous abstinence rate at 24 weeks, predictors associated with smoking cessation were: one previous quit attempt (OR =2.97, 95% CI = 1.38-6.39); [is more than equal to] 2 previous quit attempts (OR = 3.19, 95% CI = 1.18-8.56); used one of first or second line pharmacotherapies as part of treatment (OR = 4.83, 95%CI = 1.57-14.85); used combinations of first and/or second line pharmacotherapies as part of treatment (OR = 10.29, 95%CI = 2.06-51.45).

7.2 Smoking cessation protocol general hospital

There are two important issues to consider regarding smoking intervention for alcohol-dependent smokers: effects on smoking behavior (i.e., abstinence from

tobacco) and effects on alcohol treatment outcomes (i.e., abstinence or reduction of alcohol use) (Kodl, Fu, & Joseph, 2006). The clinical practice guidelines also call for the integration of smoking cessation services. Most notably, the US Public Health Service has published the clinical practice guideline, Treating Tobacco Use and Dependence: 2008 Update, which recommends that all health care providers counsel their patients about tobacco use and provide interventions—ranging from counseling to medications—to help patients quit smoking (Fiore, et al., 2008). Hospital systems that have successfully integrated smoking cessation treatment programs into the routine care provided to smokers have found that the following common practices were integral to their achievement. These practices are summarized in the following eight steps as following:

7.2.1 Assign a multidisciplinary team to develop the program.

7.2.2 Recruit physician champion.

7.2.3 Assess current level of interventions and set measurable smoking cessation goals.

7.2.4 Appoint cessation counselor or counseling team.

7.2.5 Add tobacco status to initial vital sign assessment.

7.2.6 Include cessation pharmacotherapy in hospital formulary.

7.2.7 Acquire hospital-wide approval and integration of standing orders for cessation counseling and pharmacotherapy.

7.2.8 Provide department specific in-services for staff to detail tobacco cessation procedures including resources available to staff, patients and visitors.

7.3 Smoking cessation protocol in quitline service

The evidence suggests that smokers are more likely to quit successfully, using evidence-based counseling or medication treatment instead of trying to quit on their own (Fiore et al., 2008). Quitline (defined as telephone-based support services, including proactive or reactive counseling or the provision of other information to those calling a helpline with the aim of helping smokers to quit) provide such evidence-based counseling (Stead, Perera, & Lancaster, 2006). Evidences prove that quitline is an effective service to reduce the burden of excess deaths and diseases related to the use of tobacco products. This method is convenient, accessible, inexpensive, and cover all groups of population (Zhu & Anderson, 2000). The study also found that most smokers preferred quitline model rather than face-to-face program. Due to their flexibility, availability and convenience, state quitlines have the potential to assist diverse groups of tobacco users in quitting smoking (Borland & Segan, 2006).

In Thailand, the institute providing such service is Thailand National Quitline (TNQ) or Quitline 1600. It is the project of Sangsukthai Foundation cooperated with three organizations, including Ministry of Public Health, Health Security Officer, and Office of Health Promotion Fund. It aims to promote health and support the control of tobacco consumption across the country by providing effective and comprehensive quitline service. The TNQ services (Figure 2.3) provide reactive and proactive behavioral counseling to help callers (both smokers and their relatives) and referrals from any treatment programs to develop and follow a plan to quit smoking. They also may offer self-help cessation literature upon request. The TNQ reactive services to callers include 1) advice or brief interventions to those who are

proxy or general public, and 2) intensive counseling, approximately 30 minutes, to a smoker who has some level of intention to quit by helping him/her understand tobacco addiction, increase self-efficacy and confidence to quit, set quit plan, and determine a quit date. The TNQ proactive services include 1) callback to referrals, and 2) support and follow up calls to those smokers who have set the quit date 6 times in one year. No pharmacotherapeutic cessation aids are officially used in conjunction with the TNQ. The service runs from Monday to Friday, 7:30 am to 8:00 pm. At other times there is a callback service. The TNQ also vary in addressing varied populations such as youth, adult, elderly, pregnant women, persons with illnesses (Thailand National Quitline, 2010).

Evaluating quitlines is to determine how many callers actually quit using tobacco and to what extent, if any, this can be attributed to the quitline's services. Outcome data help to justify the program's efforts and to inform the field about whether certain interventions are actually working (Centers for Disease Control and Prevention, 2012). Many quitlines have been evaluated the effectiveness of their service such as Arkansa Quitline in United States, North American Quitline Consortium [NAQC], Indiana Tobacco Quitline, Korea Quitline, etc. The effectiveness of quitline have been proved in the studies such as Willemsen et al. (2008) found that the clients were satisfied with quitline service at high level and 83% of the clients explained that quitline service met their expectation. Arkansa Quitline was evaluated during July 2010 to June 2011. It found that among all 13,144 clients, 45% of them were able to stop smoking continuously for 30 days.

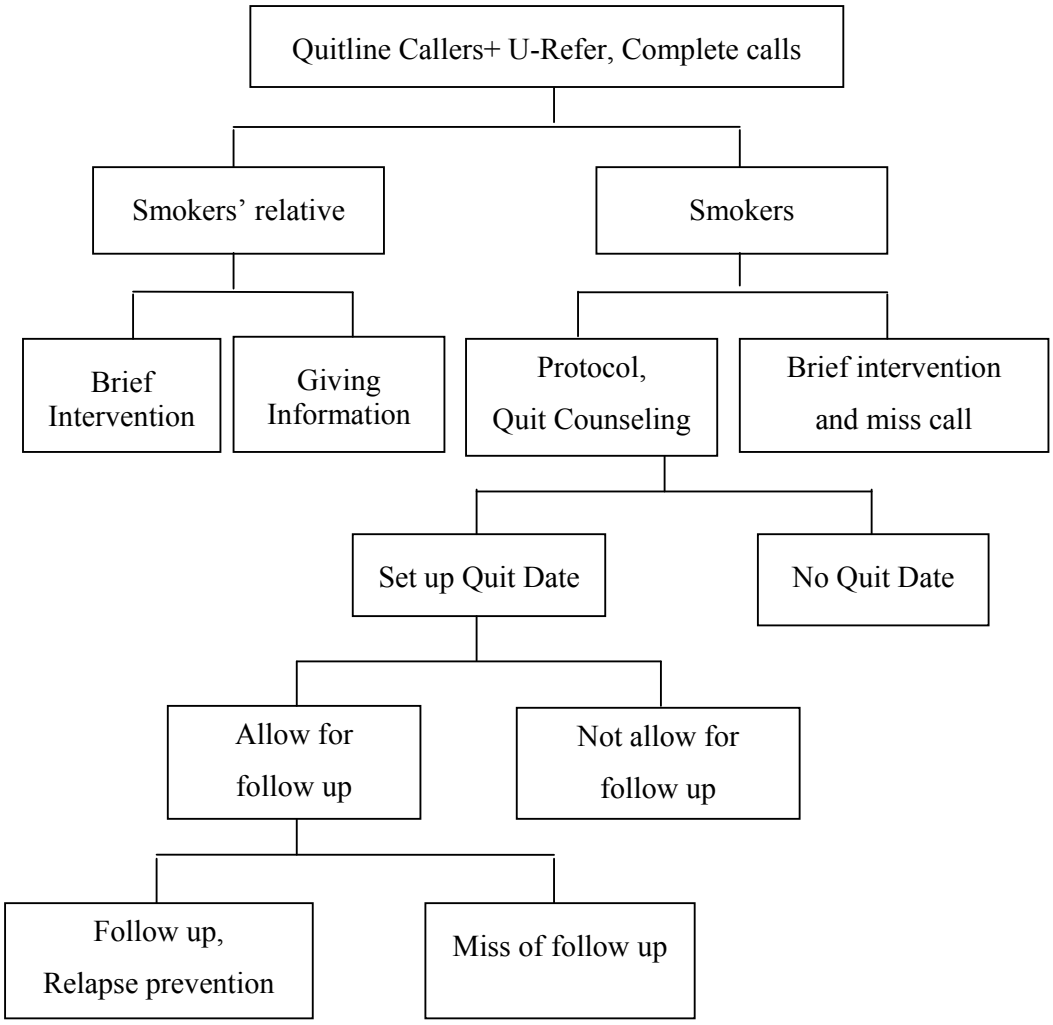

Figure 2.3: Service processes of Thailand National Quitline

8. Smoking cessation in alcohol dependence smokers

There are many studies investigated smoking cessation among alcohol dependence smokers. For instance, Hughes (1993) studied the treatment of smoking cessation in smokers with alcohol/drug problems. In a study on nicotine gum, the 38 subjects (12% of the sample) who self-reported a past but not present history of alcohol/drug problems appeared more dependent on nicotine, were less likely to stop

smoking (I year quit rates = 7 vs. 19%) but appeared to benefit more from nicotine replacement therapy (+I0 vs. +I % increase in I year quit rates with nicotine vs. placebo gum) than subjects without this history.

Hage and colleague (2005) investigated the possible impact of treatment of alcohol dependence on smoking. The researcher studied 144 smokers in an alcohol treatment center for whom 6- month. The result showed that 18 participant reported not smoking at 6 months. Quitters at 6 months were significantly more likely to be low dependent smokers than were continuing smokers and were significantly more likely to report no drinking during the past 28 days at the end of 1 month's treatment (93%) than continuing smokers (62%).

Friend and Pagano (2005) study smoking cessation and alcohol consumption in individuals in treatment for alcohol use disorders. The purpose of this study was to examine the relationship between smoking cessation and alcohol consumption using data from Project MATCH. Of the 1,307 participants who smoked at any point during the study, 160 (12%) quit. Quitters consumed less alcohol than those who continued smoking. In addition, quitters demonstrated a significant reduction in alcohol consumption at the time of smoking cessation, which was sustained for six months post-cessation. These findings suggest that individuals in treatment for alcohol use disorders who are motivated to stop smoking can safely be encouraged to do so without jeopardizing their sobriety.

Knudsen and Studts (2010) examined counselors' implementation of brief interventions that are consistent with the U.S. Public Health Service's (PHS) clinical practice guideline, Treating Tobacco Use and Dependence, Data were collected from

2,067 counselors via mailed surveys. The result showed that the implementation of recommended brief interventions during intake was significantly lower among counselors reporting greater barriers to smoking cessation services within their organizational context. Perceived managerial support for smoking cessation services was positively associated with implementation. Counselors with greater knowledge of the PHS guideline and who believed in the positive impact of smoking cessation interventions on sobriety reported greater implementation. Relative to counselors who have never been tobacco users, current tobacco users reported significantly lower implementation of these brief interventions.

9. The relationship between nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy, and smoking cessation in alcohol dependent smokers

9.1 The relationship between nicotine dependence and smoking cessation

Nicotine Dependence refers to the intensity of need that the alcohol dependent smoker feel they have for a particular substance. Alcoholic smokers were more dependent on nicotine and had more internal (affective) barriers to quit smoking than smoker with no history of alcohol dependence (Novy, Hughes, & Callas, 2001) Numerous studies present alcohol dependen smokers score higher on the FTND, (Murray et al., 1995; Hayford et al., 1999; Hays et al., 1999) meet a greater number of DSM nicotine dependence criteria, (Marks et al., 1997) than smoker with no history of alcohol dependence. Moreover, several studies explain for smokers with alcohol dependence are more nicotine dependents (Little, 2000; Rose et al., 2002; Hughes, Rose, & Callas, 2000; Clark et al., 2001; Madden, & Health, 2002) For example, nicotine

appears to be a more potent reinforcement in smokers who have alcohol dependence (Hughes, Rose, & Callas, 2000). Moreover, Leed-Kelly and colleague found the Fagerstrom Test for nicotine Dependence score was the predictor of quitting smoking among recovering alcoholic. Then from several reasons presented above, alcohol dependent smokers appear to be more nicotine dependents, they have more difficulty to stop smoking than general smokers. In the present study, it is assumed that alcohol dependent smokers who have high level of nicotine dependence were likely to difficult to smoking cessation.

9.2 The relationship between severity of alcohol dependence and smoking cessation

Severity of 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. High level of severity of alcohol dependence not only affect on smoker's health but also affect on our work life. High level of alcohol consumption related to high level of nicotine dependence. According John and colleague (2003) examine relationship between current and past smoking behavior and the severity of alcohol dependence. The result present, those currently smoking 30 or more cigarettes per day are twice as likely to had a high level of alcohol dependence. Moreover, high level of alcohol dependence increases the nicotine dependence symptom. In addition, reported by Batel and colleague (1995) present relationship between severity of alcohol dependence and nicotine dependence. Consequently, alcohol and nicotine dependence may reciprocally influence and increase the severity of each other. Caponnetto and Polosa (2008) review the predictors of smoking cessation, they found current alcoholism is a negative

prognostic factor for successful smoking cessation. In the present study, it is assumed that alcohol dependent smokers who have high level of severity of alcohol dependence were likely to difficult to smoking cessation.

9.3 The relationship between stages of change and smoking cessation

People go though change behavior as a process over time. The stages represent a period of time as well as a set of tasks needed for movement to the next stage. (Norcross, Krebs, and Prochaska., 2010). Alcohol dependent smoker who try to stop smoking can be classify as the stage of behavior change. Several study employing the TTM to predict smoking cessation success have found that individuals in the contemplation and preparation stages are more likely to succeed in cessation than those in the pre contemplation stage. (Dijkstra, DeVries, Roijackers, & Van Breukelen, 1998). Zullinoa, Bessonb & Schnyderb (2000) studied the stage of change of cigarette smoking in alcohol-dependent smokers**.** The researcher assessed the stage of change for tobacco consumption and possible quitting barriers in alcohol-dependent patients, 88 consecutively were interviewed with a semi-structured schedule. The result showed that more than half of the alcohol dependent smokers (50.7%) considered the possibility of smoking cessation or had already decided to stop smoking, although the majority (83.1%) was highly dependent smokers. Positive reinforcement was factor influencing reinforcement motivation both to stop smoking as well as to continue smoking, whereas negative had no influence. As recovering alcoholic patients are often interested in smoking cessation and the introduction of nicotine treatment interventions has been shown not to jeopardize the outcome of alcohol treatment, alcohol treatment programs should include counseling for smoking

cessation. Education and training for staff is essential, as their beliefs and habits remain an important barrier. Thus, stage of change has a positive indirect effect on smoking cessation through processes of change.

9.4 The relationship between processes of change and smoking cessation

Process of change smoking cessation refers to a component that was used for forcing the alcohol dependent smokers change their smoking behavior in each stage. Andersen & Keller (2002) determine relationships among stage of change and process of change among current smokers, the result shows the odds of person using helping relationship in preparation (planning to make a change in the next 30 days) versus contemplation (thinking about making a change in the next 6 months) was 9 times that of contemplation (OR=9.300, CI=1.530-56.525, p=.015). The smoker who is trying to quit is undergoing emotional turmoil and physical pain. It is important to have someone supportive at this time. Helping relationship was significant to predict preparation stage (OR=0.296, CI=0.086-0.845, p=0.0246) (Andersen, & Keller, 2002) related to quit attempts in this study.

9.5 The relationship between decisional balance and smoking cessation

Decisional balance refers to alcohol dependence smokers' s self-decision to stop smoking by balance of the "pros" (The positive aspect of changing behavior, the benefits of change, the reason of change) of continuing a behavior with the "cons" (The negative aspect of changing behavior, the barriers to change, the reasons not to change). Decisional balance is a measure of the importance of reason and concerns relating to making a behavior change, and is calculated by measuring both the pros and cons of smoking behavior as rated by the individual. (Velicer et al., 1990).

Decisional balance changes as smokers move through the stages of change (Velicer et al., 1985). During precontemplation, the perceived benefits of smoking outweigh the perceived negatives. As the smoker progresses into the action and maintenance stages, the negative perceptions of smoking overtake the positive. Smokers in the contemplation stage should possess a decisional balance close to neutral, where the perceived pros and cons are nearly equal (Velicer et al., 1985). Lafferty, Heaney & Chen (1999) examined the relationship of positive and negative perceptions of smoking to self-reported readiness to quit smoking among Southeast (SE) Asian males of Cambodian, Laotian or Vietnamese descent. In order to investigate this relationship, measures of decisional balance constructs (i.e. the pros and cons of smoking) appropriate for these ethnic groups were developed. Decisional balance was calculated by subtracting the cons from the pros. Following the criteria established by Prochaska and DiClemente, subjects were categorized into four levels of readiness to quit smoking (precontemplation, contemplation, preparation/action and maintenance). The expected pattern of relationship between decisional balance and stages of change included: (1) the cons of smoking being of less importance than the pros of smoking for those smokers in the precontemplation stage, (2) the pros and cons intersecting at the contemplation stage, and (3) the cons being of greater importance than the pros in the later stages of change. The SE Asian men in this study did not exhibit these decisional balance patterns, although mean decisional balance scores for precontemplators and contemplators were significantly more positive than mean scores for those in the preparation/action and maintenance stages. Decisional balance patterns differed across the three ethnic groups included in the sample.

9.6 The relationship between self-efficacy and smoking cessation

Self-efficacy refers to the perception of individual's belief and confidence to avoid smoking in various situations (Fava et al., 1991) such as, when he/she had a changed-mood, relaxation, stress or being in situation that is related to the self-image. Especially, stressful situation increases the urge to smoking which is negatively related to the duration of smoking and the daily consumption of cigarettes (Badr, & Moody, 2005). However, the high level of self-efficacy is related to smoking cessation, this matches with Manfredi and colleague's (2007) study which found that situational self efficacy increases the self-confidence to quit smoking. Smoker may have to learn as to how to refrain from smoking in specific negatively affecting situations so as to build a more generalized confidence, while being able to stop smoking successfully. If the smokers have low situational self-efficacy and confidence in being able to quit smoking, Boardman et. al., result of studies shows that smokers failed to quit as they were less likely to quit than quitters who had high self-efficacy. Similarly, Martin and colleague (Martin et al., 2006) investigated the predictors of smoking cessation in patients who were in residential treatment for alcohol dependence earlier, the result showed self-efficacy in the predictors of smoking cessation among alcohol dependent smokers ($r= 0.49$, $p<0.0001$) In the present study, it is assumed that alcohol dependent smokers who have high level of self efficacy has a positive direct effect on smoking cessation.

In summary, there are inconsistencies in the research finding regarding relationships between significance variables and smoking cessation among alcohol dependent smokers. According to smoking problem among Thai alcohol dependent smokers. Therefore, this study aimed to examine causal relationships between

nicotine dependence, severity of alcohol dependence, stage of change, process of change, decisional balance, self efficacy and smoking cessation. The conceptual framework to explain smoking cessation in the present study was guided by the TTM and literature review.

CHAPTER III

METHODOLOGY

This chapter described the methodology used in the present study. In this chapter, the research design, setting, population and sample, instrumentation, protection of the right of human subjects, pilot study, data collection, and data analysis were detailed.

Research design

Survey research for causal analysis was designed to examine the causal relationships among variables including nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy, and smoking cessation among Thai alcohol dependent smokers.

Research setting

In Thailand, The data records of co morbid alcohol and nicotine dependence were separated. Most of alcohol dependence smokers received smoking cessation intervention from three main settings as follows: 1) drug dependence treatment centers 2) general hospitals and 3) smoking cessation services.

Population and samples

Population

In this study, the target population was Thai alcohol dependent smokers who receive smoking cessation intervention from health care providers at the outpatient department of alcohol dependence treatment center and Thailand National Quitline.

Samples

The participants for this study were Thai alcohol dependent smokers who received smoking cessation intervention from health care providers as new cases for 1 month. All potential participants from two clinical settings at the outpatient alcohol dependence services (Princess Mother National Institute on Drug Abuse Treatment and Bangkok Naval hospital) and Thailand National Quitline were met with the inclusion criteria as described below.

The following criteria were used to select the samples in this study:

1) Having a score of the Alcohol Use Disorders Identification Test (AUDIT) ≥ 20

2) Age ≥ 18 years

3) Able to understand and communicate in the Thai language.

4) Willing to participate in this study

Criteria for exclusion from the study include:

1) Being with psychiatric symptom that effect/disturb to concentrate for answer the questionnaire.

2) Being with another substance abuse exclude alcohol and tobacco.

Sample size

The sample size was estimated from the number of parameter for estimation (Hair, et al., 2006). Hair and colleagues (2006) have suggested a sample size of 200 to provide a sound basic estimation. However, a model with more constructs may require more parameter to be estimated. A minimum appropriate ratio was of at least 10 respondents for each estimated parameter. According to Kline (1998), the best

sample should be 20 respondents for each free parameter in the structural equation modeling analysis. In this study, the hypothesized model contained 37 free parameters. Thus, a sample size of 370-720 was required to match the complexity of the structural equation modeling. In addition, 5 % of the total sample was added to take into account missing data. Therefore, a total sample of 470 alcohol dependent smokers was recruited, 458 of which had usual data while data from 12 were unusual and therefore delete for analysis.

The sample was recruited from one drug dependence treatment center (Department of Medical services, Ministry of Public Health), one general hospital and one smoking cessation service. The participants were recruited from outpatient alcohol dependence treatment clinic and smoking cessation services who met the inclusion criteria as described above. Therefore, 195 cases were selected from the Princess Mother National Institute on Drug Abuse Treatment (Department of Medical services, Ministry of Public Health), 131 cases were selected from Bangkok Naval hospital (Naval Medical Department, Royal Thai Navy) and 131 cases were selected from Thailand National Quitline.

Sampling technique

The following steps were followed to select participants in this study. Three main research settings of this study were drug dependence treatment center (Department of Medical services, Ministry of Public Health), general hospital, and smoking cessation services. The detail of participants showed in table 3.1

Stage1. Selected research setting

1.1 Randomly selected one drug dependence treatment center (Department of Medical services, Ministry of Public Health) from all drug dependence treatment centers in Thailand (7 drug dependence treatment centers including Thanyarak Chiang Mai hospital, Thanyarak Maehongson hospital, Thanyarak Khonkaen hospital, Thanyarak Udonthani hospital, Thanyarak Songkhla hospital, Thanyarak Pattani hospital and Princess Mother National Institute on Drug Abuse Treatment).

1.2 Randomly selected one general hospital. Military hospitals were included in this step because several research studies present drinking and smoking behavior mostly occurs in Military base. Bangkok Naval hospital was random selected as research setting.

1.3 Thailand National Quitline was selected as research setting because it is particularly setting to provide smoking cessation service.

Stage2. In each setting, a convenience sampling technique was used for selected participants based on the inclusion criteria.

Table 3.1: The participants in each research setting

Research setting	Number	Percent
Drug dependence treatment center	195	50
General hospital	131	25
Thailand National Quitline	131	25

Instrumentation

Research instruments

The instruments in this study consisted of: 1) the demographic characteristics questionnaire, 2) Fagerstrom Test for Nicotine Dependence (FTND), 3) The Severity of Alcohol Dependence Questionnaire (SADQ), 4) Stage of change Questionnaire (SCQ), 5) Processes of Change Questionnaire (PCQ), 6) Self-efficacy Questionnaire (SEQ), 7) Decisional balance questionnaire (DBQ) and 8) Smoking Cessation Questionnaire (SCQ). A description of each instrument is presented as follows:

1. **The demographic characteristics questionnaire** measured demographic data including sex, age, education, health status, and smoking status.

2. **Fagerstrom Test for Nicotine Dependence (FTND)**

The FTND was developed by Heatherton and colleague (1991), and used to measure nicotine dependent. It consisted of 6-items which are multiple choices. The FTND was translated into Thai version by Ministry of Public Health. The range of score is 0-10. The interpretation of the score has been classified into three groups as follows:

Scoring

Total score of FTND	**Interpretation**
7 - 10 scores	Highly dependent (High level).
4 - 6 scores	Moderately dependent (Medium level).
< 4 scores	Minimally dependent (Low level).

Validity and Reliability

The FTND was tested for validity and reliability in a study of Sineenuch Siriwong and colleague (2012). Reliability of the FTND Thai version reported Cronbach's alpha coefficiency was .729 from 30 Royal Thai Navy personnel smokers. In the present study, reliability of the FTND reorted Cronbach's alpha co-efficiency was .75 from 30 Thai alcohol dependent smokers who had the same characteristics of the sample.

3. The Severity of Alcohol Dependence Questionnaire (SADQ)

The SADQ was developed by Stockwell and colleague (1983). It designed to measure severity of dependence on alcohol as formulated by Edwards and Gross (1976) and Edwards (1978) nicotine dependent. The SADQ consisted of 20-items which are 4-point Likert-scale, ranging from "almost never" to "nearly always". Resulting in a corresponding score of 0 to 3. The range of score is 0-60. The interpretation of the score has been classified into five groups as follows:

Scoring

Total scores of SADQ	**Interpretation**
≥ 45 scores	very severe dependence
31-44 scores	severe dependence
20-30 scores	moderate dependence
4-19 scores	mild dependence
0-3 scores	Low dependence

Validity and Reliability

The SADQ was accepted for permission and translation into Thai version from Stockwell by mail. The translation processes were translated by using a back translation

technique and reviewing the quality of the translation from Language Institute of Chulalongkorn University. The content validity was tested by five experts in alcohol dependence (two physicians, two nurses expert in alcohol dependence smoker, and one advance practice nurse in psychiatric nursing). The content validity index was .95.

In the present study, reliability of the SADQ Thai version reported Cronbach□s alpha co-efficiency was .91 from 30 Thai alcohol dependent smokers who had the same characteristics of the sample.

4. Stage of change questionnaire (SCQ)

An algorithm of two to three items was used to determine the participants' stage of change for stop smoking, consistent with algorithms developed for adults (DiClemente et al., 1991; Velicer, Prochaska, Rossi, & Snow, 1992). The first two questions pertained to the participants' intentions to stop smoking. Participants were first asked whether they intended to quit within the next 6 months (Question 1) and then whether they intended to quit within the next 30 days (Question 2). The third question addressed participants' quit attempts within the past year. Stage of change was classified as follows:

(1) Participants were placed into the Precontemplation stage if they were not considered stop smoking within the next 6 months

(2) Participants were placed into the Contemplation stage if they intended to stop smoking within the next 6 months.

(3) Participants were placed into the Preparation stage if they intended to stop smoking within the next 30 days

(4) Participants were placed into the Action stage if they indicated having successfully stop smoking within the last 6 months.

5. Processes of Change Questionnaire (PCQ)

Processes of Change Questionnaire is the 40-times long-form version developed and validated by Fava, Rossi, Velicer, and Prochaska (1991). This instrument included the 10 processes of change: environmental re-evaluation, self-reevaluation, consciousness raising, social liberation, dramatic relief, reinforcement management, counter-conditioning, stimulus control, self-liberation and helping relationship. Alpha coefficients were considered good to excellent for two- items scale and ranged from .67 to .90 with a mean of .80. The participants responded to each item on a five- points Likert scale (1= never; 2 = seldom, 3 = occasionally; 4 = often, 5 = repeatedly).

Scoring

To obtain a mean overall process of change, sum scores from all items and divided by 40. To obtain a mean Experiential process score, sum items from all experiential subscales and divided by 20 (This included item 2, 6, 7, 8, 9, 10, 11, 17, 20, 21, 24, 25, 30, 31, 32, 34, 35, 36, 38 and 39). To obtain a mean Behavioral process score, sum items from all Behavioral subscales and divided by 20 (This included item 1, 3, 4, 5, 12, 13, 14, 15, 16, 18, 19, 22, 23, 26, 27, 28, 29, 33 and 37).

Experiential Process	**PCQ item**	**Behavioral Process**	**PCQ item**
Consciousness Raising	6, 8, 10, 17	Reinforcement Management	12, 19, 22, 33
Dramatic Relief	11,30, 31, 32	Counter Conditioning	5, 26, 27, 28
Environmental Reevaluation	9, 21, 34, 39	Helping Relationship	1, 3, 14, 40
Self Reevaluation	25, 35, 36, 38	Self Liberation	10. 4, 13, 16, 18
ocial Liberation	2, 7, 20, 24	Stimulus Control	15, 23, 29, 37

Mean scores of PCQ	Interpretation
0-1.00 scores	Never
1.01-2.00 scores	Seldom
2.01-3.00 scores	Occasionally
3.01-4.00 scores	Often
4.01-5.00 score	Repeatedly

Validity and Reliability

Prior studies produced an internal consistency reliability of α = .944 for the overall PCQ (Sineenuch Siriwong and colleague, 2012). The reliability of PCQ in this study was α =.954.

6. Self-efficacy Questionnaire (SEQ)

A 20-items measure assessed self-efficacy to refrain from smoking in various situations developed by Velicer, DiClemente, Rossi, and Prochaska (1990). The scale consists of three situational factors: positive/social, negative/affective, and habit/ addictive.

Scoring

Participants were asked to indicate how belief or confident they were that they could avoid smoking in each situation using a Likert scale that ranged from 0 (not at all confident) to 5 (extremely confident), with higher scores indicated greater self-efficacy. The range of self-efficacy score was between 0-100 points and with higher scores indicated greater self-efficacy.

Mean scores of SEQ	Interpretation
0-1.00 scores	Never
1.01-2.00 scores	Seldom
2.01-3.00 scores	occasionally
3.01-4.00 scores	Often
4.01-5.00 score	Repeatedly

Validity and Reliability

The internal consistency and reliability in Sineenuch Siriwong and colleague (2012) was $\alpha = .934$. The reliability of SEQ in this study was $\alpha = .962$.

7. Decisional Balance Questionnaire (DBQ)

A 20-items questionnaire assessed 10 pros of smoking and 10 cons of smoking (Velicer et al., 1985). Participants rated how important each statement was to them on a 5-points Likert scale from (1) "Not Important" to (5) "Extremely Important".

Scoring

The range of decision balance score was between 20-100 points. A sample pros of smoking was "After not smoking for a while, a cigarette makes me feel great." A sample cons of smoking was "I'm foolish to ignore the warnings about cigarettes". To get the average number of Pros endorsed, added up the total number of points from the items and divided by 10 (Pros of smoking 2, 4, 7, 9, 11, 14, 16, 17, 19, and 20) To get the average number of Cons endorsed, added up the total number of points from the items and divided by 10 (Cons of smoking 1, 3, 5, 6, 8, 10, 12, 13, 15 and 18).

Mean scores of DBQ	**Interpretation**
0-1.00 scores	Never
1.01-2.00 scores	Seldom
2.01-3.00 scores	Occasionally
3.01-4.00 scores	Often
4.01-5.00 score	Repeatedly

Validity and Reliability

The internal consistency and reliability in Sineenuch Siriwong and colleague (2012) was $\alpha = .845$. The reliability of DBQ in this study was $\alpha = .877$.

8. Smoking cessation

Smoking cessation was measured by questionnaire asking whether participant were stop smoking in the last 7 days. The participants were asked to respond to the following question: Have you smoked a cigarette in the last 7 days? An answer of "yes" indicated that the participant has not quitting smoking (Quitter), and an answer of "no" indicated that the participant has successfully quitting smoking (Non quitter).

Table 3.2: Summary of validity and reliability

Variables	Instrument/Indicators	Validity	Reliability	Number of items
Nicotine Dependentce	Fagerstrom Test for Nicotine Dependence (FTND)	Goodness of fit χ^2 = .00, χ^2/df = 0.00, p-value = 1.00, RMSEA = 0.00	.75	6
Severity of alcohol dependence	Severity of alcohol dependence questionnaire (SADQ)	CVI=.95	.91	20
Process of Change	Process of change questionnaire (PCQ)	Goodness of fit χ^2 = .00, χ^2/df = 0.00, p-value = 1.00, RMSEA = 0.00	.954	40
Decision Balance	Decision Balance Questionnaires (DBQ)	Goodness of fit χ^2 = .00, χ^2/df = 0.00, p-value = 1.00, RMSEA = 0.00	.87	20
Self-Efficacy	Self-Efficacy Questionnaires (SEQ)	Goodness of fit χ^2 = .00, χ^2/df = 0.00, p-value = 1.00, RMSEA = 0.00	.90	20

Protection of the rights of human subjects

Prior to data collection, ethics approval sought from the human research Board of the Royal Thai Navy Medical Department number RLM 006/55 and the ethic review committee research board of Princess Mother National Institute on Drug Abuse Treatment (PMNIDAT)

The permission letter for data collection from the Faculty of Nursing, Chulalongkorn University was sent to the director of the Princess Mother National Institute on Drug Abuse Treatment, Bangkok Navy hospital and Thailand National

Quitline. The potential subjects who met the study criteria were informed the purpose, procedure, benefits, and risks of the study. The participants were informed the process of data collection. They could refuse to answer any specific question which made them feel uncomfortable. Moreover, the subjects were assured that they could terminate their participation at any time. They were assured that their willingness to participate in the study had no implications for the health care services that they will receive. Their decision to discontinue participating in the study were affect their relationship with health care providers or their access to any services available at the hospital/smoking cessation services. Confidentiality of data collection was ensured both during data collection and after collection.

Data collection

1) A letter asking for the permission to collect the data from the Faculty of Nursing, Chulalongkorn University was sent to the Princess Mother National Institute on Drug Abuse Treatment, Bangkok Navy hospital and Thailand National Quitline and the director in each research setting.

2) After permission was approved, the researcher made appointments with the personnel through the research assistants in every research settings and informed them about related objectives and process of the study.

3) Research assistants who work at each unit were trained to complete the questionnaires of alcohol dependent smoker who meet criteria.

4) The researcher and research assistants selected participants by convenience sampling technique and congruence with the inclusion criteria.

5) The participants were given clear explanation about the study objectives, process of the study and the right to participate in the study.

6) The participants were interviewed question dealing the demographic characteristics questionnaire, Fagerstrom Test for Nicotine Dependence (FTND), The Severity of Alcohol Dependence Questionnaire (SADQ), Stage of change Questionnaire (SCQ), 5) Processes of Change Questionnaire (PCQ), Self-efficacy Questionnaire (SEQ), Decisional balance questionnaire (DBQ) and Smoking Cessation Questionnaire (SCQ). The interview took about 25-30 minutes to complete.

7) After finish each interview, the researcher and research assistants examined the questionnaires for completion of the data.

Data analysis

Data analysis included the application of descriptive and inferential statistics. Descriptive statistics (i.e. frequency, percentage, mean, and stand deviation) were applied to delineate characteristics of the sample using the Statistical Package of the Social Science for Personal Computer (SPSS/PC) version 13. Linear Structural Relationship (LISREL) version 8.72 was employed for the path analysis. An alpha level of .05 was set as the accepted level of significance for this study. The processes used for data analysis are described in the following section.

1. All data were double-checked to confirm the accuracy of the data file. The researcher used a frequency table to verify incorrectly keyed category variable. In addition, a summary of descriptive statistics was used to check in range of variables for incorrectly keyed category numeric values, number of sample, mean, maximum and minimum values.

2. Missing data and outlier were investigated. A total of 458 questionnaires were selected for accuracy data check. The researcher found that there were twelve

questionnaires with missing values (2.55%) (12 questionnaires were repeated answer = 8 and incomplete = 4). Although the SPSS and other programs provided many ways dealing with missing data such as listwise deletion, pairwise deletion, mean replacement, regression replacement and maximum likelihood, it has separate statistical product with more complicate interpretation. Mayers and colleague (2006) have suggested that if the remaining sample size is sufficient and so long as the respondents with missing data do not differ in any way from those with complete data, the researcher could exclude the case of missing data from all analysis. Thus, the cases of missing values were removed from this analysis.

As for outliers, the data set must be checked for both univariate and multivariate outliers. A box plot was used to detect a univariate outlier. For multivariate analysis, the outliers were detect by Mahalanobis distance. In this study, no case had a value of outlier in each variable. As a result, a total sample of 458 alcohol dependent smokers remained in the data analysis.

3. Descriptive statistics, including frequencies, means and standard deviation were used to describe the demographic data and other variables in the study.

4. The assumptions underlying multivariate analysis for structural equation modeling were tested, including normality, homoscedasticity, the linearity of relationship and multicollinearity.

5. The measurement models were tested for construct validity by confirmatory factor analysis.

6. The hypothesized path model was tested. LISREL program was used to estimate the parameters of the path model and test relationship among variables of this study.

7. The overall model fit to the empirical data were tested by chi-square value X^2, the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Error of Approximation (RMSEA).

CHAPTER IV

RESULTS

This chapter presents the findings of the study. A description of the participant's demographic, background characteristics and the seven major study variables were presented. The preliminary analysis, the confirmatory factor analysis of the measurement model and analysis of the hypothesized model were also illustrated.

1. Characteristics of the study participants

1.1 Demographic characteristics of the participants

The demographic characteristic of the participants were described in table 4.1. The results show average ages of alcohol dependent smokers is 38.67 years, the youngest participant age is 18 years, and the oldest age is the 67 years, most of them completed high school (46.06%).

Table 4.1: Demographic characteristics of the study participants (n=458)

Characteristics	Number	Percentage
Age (years) Min=18, Max=67, Mean=38.94, SD=10.70		
Education		
Primary/High school	211	46.06
Certificate	129	28.16
Bachelor degree	105	22.93
Higher than Bachelor degree	6	1.31
Missing	7	1.52
Smoking status		
Non quitters	300	65.50
Quitters	158	34.49

1.2 Smoking Characteristics

In this study, the alcohol dependent smoker began smoking at the average age of 18.91 years (SD=3.75), the maximum 35 years and minimum 13 years. Most of them were regular smokers (86.02%), while 13.97% were occasional smokers. More than half of them smoked ≤ 10 cigarettes per day (56.66%) and nearly half of them had time to first cigarette in the morning within 5 minutes after get up (45.16%). The detail show in table 4.2.

Table 4.2: Smoking characteristics among alcohol dependent smokers (n =300)

Smoking Characteristics	**Non-quitter (N=300)**	
	Number	**Percentage**
Age at smoke initiation (years) Min=13, Max=35, Mean=18.91, SD=3.75		
Duration of smoking (year) Min=2, Max=51, Mean=19.97, SD=10.64		
Type of smokers		
Regular smokers	240	86.02
Occasional smokers	39	13.97
Number of cigarette per day (cigarettes)		
≤ 10	170	56.66
11-20	99	33.00
21-30	25	8.33
≥ 31	6	2.00
Time to first cigarette in the morning		
< 5 min	126	45.16
6-30 min	80	28.67
31-60 min	24	8.60
> 60 min	49	17.56

1.3 Nicotine dependent level

Most of alcohol dependent smokers were classified in low nicotine dependent level tested by FTND (43.33%). The detail show in table 4.3

Table 4.3: Nicotine dependent level (n=300 smokers)

Nicotine dependent Level	Number	Percentage
Very low dependence	75	25
Low dependence	103	43.33
Medium dependence	49	16.33
High dependence	65	21.66
Very high dependence	8	2.66

1.4 Severity of alcohol dependence

Half of alcohol dependent smokers were classified in mild alcohol dependence (55.46%). Comparison between group of quitter and non quitter. The detail show in table 4.4

Table 4.4: Severity of alcohol dependence (n=458)

Severity of alcohol dependence	Quitter (n=158)		Non-Quitter (n=300)		Total (458)	
	Number	Percentage	Number	Percentage	Number	Percentage
Low dependence	24	15.18	18	6.00	42	9.17
Mild dependence	88	55.69	166	55.33	254	55.46
Moderate dependence	26	16.46	63	12.00	89	19.43
Severe dependence	16	10.13	42	14.00	58	12.66
Very severe dependence	4	2.53	11	3.66	15	3.28
Total	158	100	300	100	458	100

1.5 Stages of change

The majority of alcohol dependent smokers' s stage of change was in action stage (40.61%), pre-contemplation stage (31.22%), contemplation stage (16.59%) and preparation stage (11.57%). The detail show in table 4.5

Table 4.5: Stages of change in alcohol dependence smokers (n=458)

Stage of change	Number	Percentage
Pre contemplation	143	31.22
Contemplation	76	16.59
Preparation	53	11.58
Action	186	40.61

2. Characteristics of the continuous variables

The five continuous variables in the currents study include nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, and self-efficacy. The detail regarding characteristics of each variable was present as follow:

2.1 Nicotine dependence

The total score of the nicotine dependence ranged from 0.00-9.00 points with a mean of 2.628 (SD=2.503) The score has a positive skewness value (.413), thus indicating that most of the participants had scores of nicotine dependence lower than the mean score. The kurtosis value of nicotine dependence was negative value (-1.132), thus suggesting that the nicotine dependence scores were shaped like a flattened curve. Base on the mean score, skewness, and the kurtosis value, it could be

concluded that the participants as a whole had a low dependency of nicotine dependence. The detail show in table 4.6.

2.2 Severity of alcohol dependence

The total score of the severity of alcohol dependence ranged from 0.00-54.00 points with mean of 17.296 (SD=12.047) The score has a positive skewness value (.885), thus indicating that most of the participants had scores of severity of alcohol dependence lower than the mean score. The kurtosis value of severity of alcohol dependence was positive value (.243), thus suggesting that the severity of alcohol dependence scores were shaped like a peaked curve. Base on the mean score, skewness, and the kurtosis value, it could be concluded that the participants as a whole had a severity of alcohol dependence as mild dependence level. The detail show in table 4.6.

Table 4.6: Min, max, mean, SD, skewness, kurtosis, and the interpretation of nicotine dependence and severity of alcohol dependence (n=458)

Characteristics	Min	Max	Mean	SD	Skewness (SE=.114)	Kurtosis (SE=.228)	Interpretation
Nicotine dependence	.00	9.00	2.62	2.50	.41	-1.13	Low dependency
Severity of alcohol dependence	.00	54.00	17.29	12.05	.89	.24	Mild dependence

2.3 Processes of change

The total score of the processes of change ranged from 1-5 points with a mean of 2.89 (SD=.72) The score has a positive skewness value (.30), thus indicating that most of the participants had scores of process of change lower than the mean

score. The kurtosis value of process of change was positive value (.40), thus suggesting that the process of change were shaped like a peaked curve. Base on the mean score, skewness, and the kurtosis value, it could be concluded that the participants as a whole were classified in the process of change as occasional group. More details in sub dimensions of process of change are presented in table 4.7.

Table 4.7: Min, max, mean, SD, skewness, kurtosis, and the interpretation of process of change (n=458)

Characteristics	Min	Max	Mean	SD	Skewness	Kurtosis	Interpretation
Processes of change	1	5	2.89	.72	.30	.40	Occasionally
Experiential Process	1	5	2.95	.77	.34	.21	Occasionally
Behavioral process	1	5	2.79	.73	.34	.29	Occasionally

2.4 Decisional balance

The total score of the decisional balance ranged from 1-5 points with a mean of 2.79 (SD=.67) The score has a positive skewness value (.61), thus indicating that most of the participants had scores of decisional balance lower than the mean score. The kurtosis value of decisional balance was positive value (1.59), thus suggesting that the decisional balance scores were shaped like a peaked curve. Base on the mean score, skewness, and the kurtosis value, it could be concluded that the participants as a whole were classified decisional balance as occasional group. More details in sub dimensions decisional balance are presented in table 4.8.

Table 4.8: Min, max, mean, SD, skewness, kurtosis, and the interpretation of decisional balance (n=458).

Characteristics	Min	Max	Mean	SD	Skewness	Kurtosis	Interpretation
Decisional balance	1	5	2.79	.67	.61	1.59	occasionally
Pros	1	5	2.49	.79	.37	.75	occasionally
Cons	1	5	3.08	.81	.35	.14	Often

2.5 Self-efficacy

The total score of the self-efficacy ranged from 1-5 points with a mean of 2.99 (SD=.89) The score has a positive skewness value (.48), thus indicating that most of the participants had scores of self efficacy lower than the mean score. The kurtosis value of self efficacy was positive value (.05), thus suggesting that the self efficacy scores were shaped like a peaked curve. Base on the mean score, skewness, and the kurtosis value, it could be concluded that the participants as a whole were classified self efficacy in occasional group. More details in sub dimensions self efficacy are presented in table 4.9.

Table 4.9: Min, max, mean, SD, skewness, kurtosis, and the interpretation of self-efficacy (n=458).

Characteristics	Min	Max	Mean	SD	Skewness	Kurtosis	Interpretation
Self-efficacy	1	5	2.99	.89	.48	.05	occasionally
positive/social	1	5	3.00	.90	.51	-.03	occasionally
negative/affective	1	5	2.95	.97	.32	-.32	occasionally
Habit/addictive	1	5	3.02	.98	.18	-.28	Often

3. Preliminary Analysis

Before future analysis with structural equation model analysis with dichotomous dependent variable was conducted, homoscedasticity, multicolinearity and outlier were test in order to ensure that these were no violation of the underlying assumption. The results of homoscedasticity, multicollineaity and outlier testing are present.

3.1 Dichotomous dependent variable

Smoking cessation was a dependent variable and was measured by questionnaire asking whether participant were stop smoking in the last 7 days. The participants were asked to respond to the following question: Have you smoked a cigarette in the last 7 days? An answer of "yes" indicated that the participant has not stop smoking (non quitter), and an answer "no" indicated that the participant has stop smoking. (quitter). As mentioned, the smoking cessation as a dichotomous variable.

3.2 Multicollinearity

The simple correlation among the continuous variables were detected multicollinearity, Bivariate multicollinearity occurs when correlations of any variables are greater than ± 0.90 (Tabachnick & Fidell, 2001). In the study, evidence of multicollinearity was not found, with correlation coefficients among the variables ranging from –.63 to .44. Thus, there correlation coefficients indicated no multicollinearity. The detail showed in table 4.10.

Table 4.10 Bivariate relationships among nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy and smoking cessation.

	SOC1	SOC2	SOC3	SOC4	ND	PCS	SE	DB	SC	SCD
SOC1	1									
SOC2	-.301**	1								
SOC3	-.244**	-.161**	1							
SOC4	-.557**	-.369**	-.299**	1						
ND	.360**	.245**	.157**	-.627**	1					
PCS	-.169**	.002	-.004	.161**	-.179**	1				
SE	-.275**	-.074	-.156**	.417**	-.378**	.325**	1			
DB	-.109*	.007	.012	.090	.001	.206**	.069	1		
SC	-.489**	-.324**	-.263**	.878**	-.733**	.161**	.436**	.088	1	
SCD	.489**	.324**	.263**	-.878**	.733**	-.161**	-.436**	-.088	-1.000**	1
Mean	.3122	.1659	.1157	.4061	.4381	2.8871	2.9872	2.7870	.34	.66
SD	.46391	.37243	.32024	.49164	.41730	.72276	.88771	.67118	.476	.476

*p<.05, p<.01

Note:

SOC1	=	Precontemplation	SOC2	=	Contemplation	SOC3	=	Preparation
SOC4	=	Action	SE	=	Self-efficacy	PCS	=	Processes of change
DB	=	Decisional balance	SC	=	Smoking cessation	SCD	=	Smoking cessation (Dummy)

4. Finding of research questions and hypothesis testing

4.1 Research question 1: What are the relationships between nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy and smoking cessation in alcohol dependent smokers?

The relationships between nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self-efficacy and smoking cessation

Bivariate Pearson correlations were used to evaluate relationships among nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, self efficacy and smoking cessation (see table 4.10). The result showed that a low positive correction existed between smoking cessation and processes of change ($r = .161$, $p < .01$), low negative correction existed between smoking cessation and nicotine dependence ($r = -.733$, $p < .01$). In additional, stage of change (action stage) had a high positive correlation with smoking cessation ($r = .878$, $p < .01$) and a high negative correlation with nicotine dependence ($r = -.733$, $p < .01$). Decisional balance had low positive correlation with process of change smoking cessation ($r = .206$, $p < .01$). Self-efficacy had moderate positive correlation with smoking cessation ($r = .436$, $p < .01$), stage of change (action stage) ($r = .417$, $p < .01$) and moderate negative correlation with nicotine dependence ($r = -.378$). In term of severity of alcohol dependence had positive low correlation with nicotine dependence ($r = -.3787$, $p < .01$). However, the results also revealed that there was no significant correlation between smoking cessation and decisional balance ($r = .08$, $p > .05$).

4.2 Research question 2: Does the hypothesized model explain the smoking cessation of alcohol dependent smokers including nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance, and self-efficacy, and does it adequately fit the data?

4.2.1 Hypothesis testing

4.2.1.1 Measurement model testing

Before testing the hypothesized model, factor analysis was conducted to examine factor loading for each items and the goodness-of-fit indices of the measurement model and the data. In this study, three measurement model were tested including processes of change, decisional balance and self-efficacy. The results of confirmatory factor analysis (CFA) revealed that the three measurement models and had good overall model fit. The detail showed in table 4.11.

Table 4.11 Goodness of fit statistics of the measurement models

Measurement	χ^2	df	χ^2/df	p-value	RMSEA
Process of change	0.00	0	0	1.00	0.000
Smoking cessation					
Decisional balance	0.00	0	0	1.00	0.000
Self-efficacy	0.00	0	0	1.00	0.00

Abbreviations: χ^2, Chi-square; df, degree of freedom; RMSEA, Root Mean Square Error of Approximation; GFI, Goodness of fit Index; AGFI, Adjust Goodness of Fit Index

4.2.2 Model identification

The hypothesized path model was draw from the TTM and empirical literature. LISREL statistics was used to test this structural equation model. Identification structural equation is a crucial process before testing a model. In the hypothesized model, there were 7 variables and 37 free parameters.

4.2.3 Model testing

From the hypothesized model, the exogenous variable were nicotine dependence, severity of alcohol dependence and stages of change, while processes of change, decisional balance, self-efficacy, and smoking cessation served as endogenous variables. The process of model testing is present as follow:

In the initially hypothesized model (see figure 4.1), the researcher fix 6 parameters. The result show in the fix index statistics were within an acceptable range (see table 4.12). Additionally, the largest (1.65) and smallest (-1.23) standardized residuals were less than ± 2. The initial hypothesized model cannot explained (R^2=.00) the variance of smoking cessation. The diagnostics suggest the hypothesized model provided a bad fit with the data. In order to decrease χ^2 values, the modification indices, standardized residuals, and expected value suggested through the That-Epsilon metric (TE) and The-Delta (TD) was used. Therefore, the proposed model was refitted to get a suitable model that fit the data.

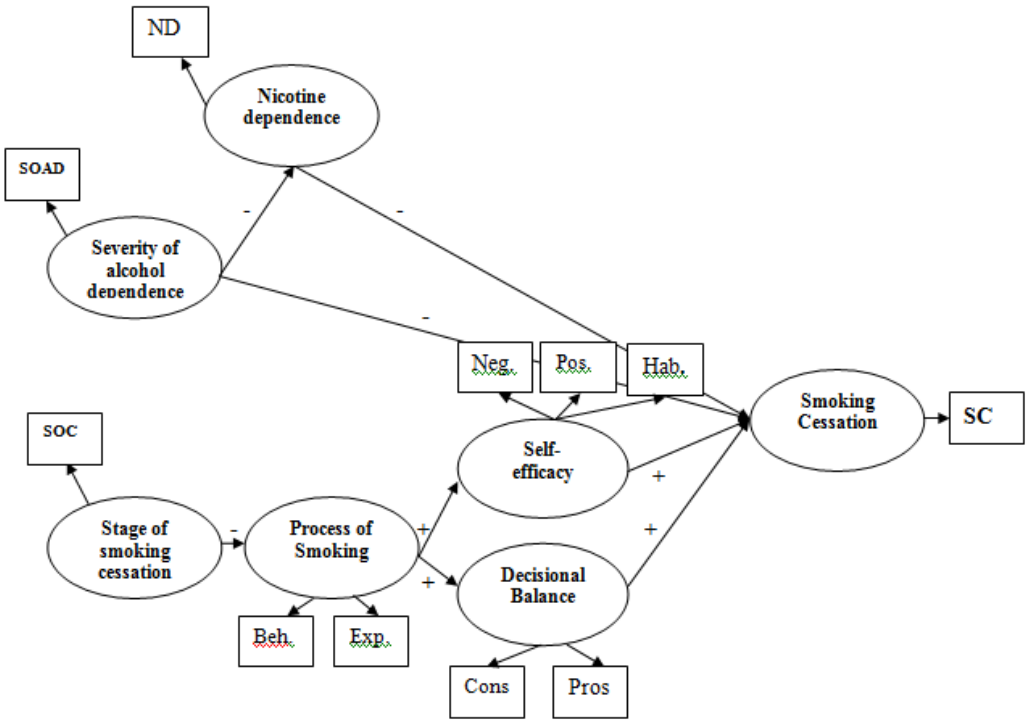

Figure 4.1: The hypothesized model of smoking cessation in alcohol dependence smokers

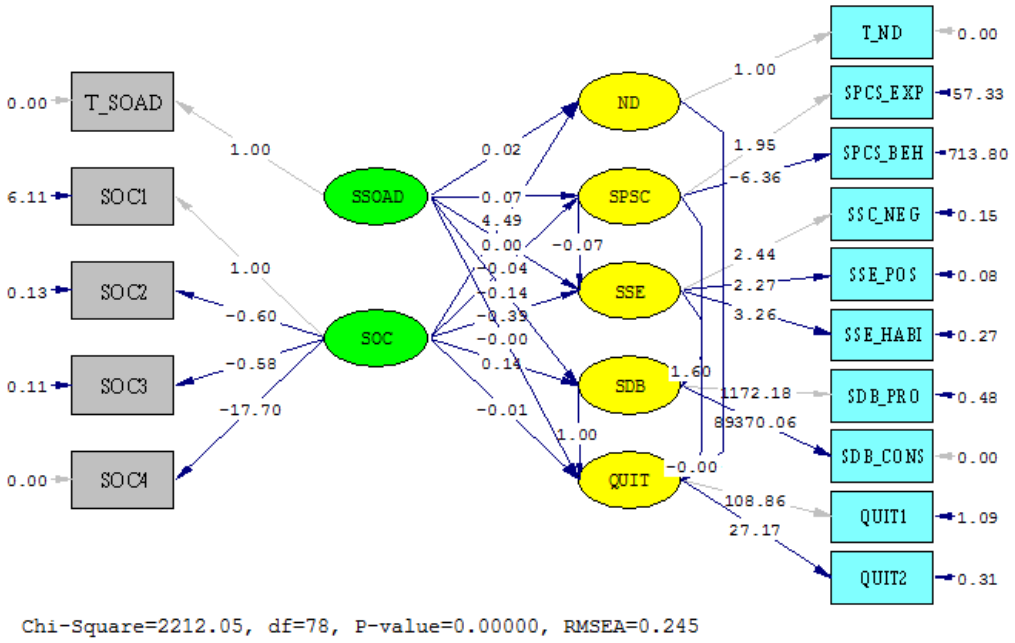

Figure 4.2: The initial hypothesized model of smoking cessation in alcohol dependence smokers

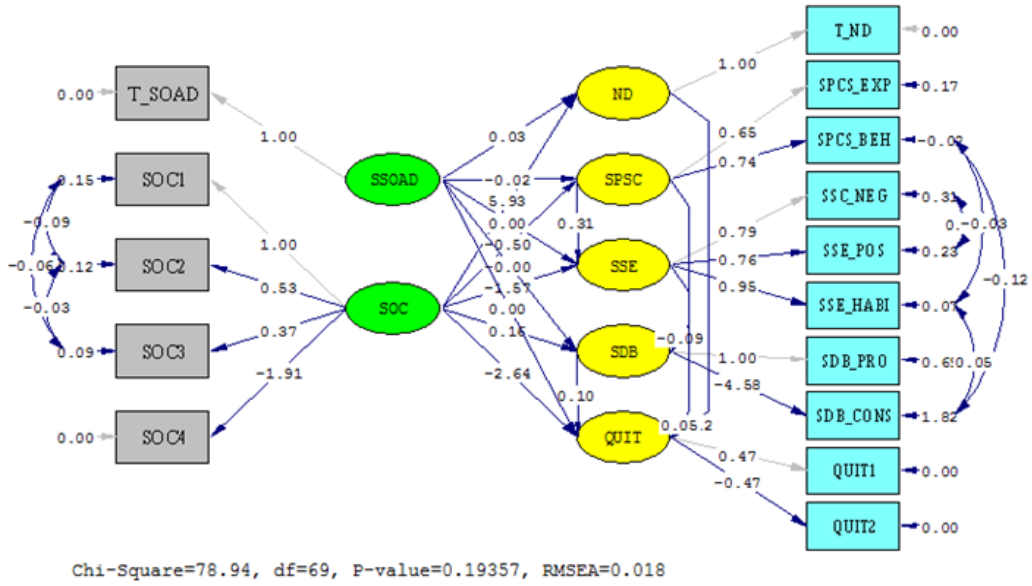

Figure 4.3: The final model of smoking cessation in alcohol dependence smokers

Table 4.12: Standardized path coefficients, standard error (SE), and T-value of parameters of the model of smoking cessation in alcohol dependent smokers (n=458).

Path diagram	Standardized path coefficients	SE	T-value
Beta			
Nicotine dependence ⟶ Smoking cessation	-.12	.01	-11.54
Process of change ⟶ Decisional balance	-.09	.03	-2.79
Process of change ⟶ Self efficacy	.31	.05	6.70
Self efficacy ⟶ Smoking cessation	.05	.02	2.31
Decisional balance ⟶ Smoking cessation	.10	.04	2.77
Gamma			
Severity of alc. Dep. ⟶ Nicotine dependence	.03	.00	3.50
Severity of alc. Dep. ⟶ Process of change	-.02	.00	-3.68
Severity of alc. Dep. ⟶ Self efficacy	.00	.00	.81
Severity of alc. Dep. ⟶ Decisional balance	.00	.00	-.27
Severity of alc. Dep. ⟶ Smoking cessation	-.00	.00	-.45
Stage of change ⟶ Nicotine dependence	5.93	.54	10.92
Stage of change ⟶ Process of change	-.50	.19	-2.67
Stage of change ⟶ Self efficacy	-1.57	.21	-7.40
Stage of change ⟶ Decisional balance	.16	.06	2.54
Stage of change ⟶ Smoking cessation	2.64	.21	12.45

The results of model testing are summarized in accordance with the hypothesized model as follows: (see table 4.13)

1. Severity of alcohol dependence had non-significant direct effect on smoking cessation (.00, $p>.05$). This result did not supported the hypothesized model, which indicated that severity of alcohol dependence should have a direct effect on smoking cessation. However, severity of alcohol dependence had significant indirect effect on smoking cessation (-.04, $p<.01$) through nicotine dependence. This result supported the hypothesis model.

2. Stages of change had a negative indirect effect on smoking (-.13, $p<.001$) through processes of change. This result did not support the hypothesized model, which indicated that stage of change should have a positive indirect effect on smoking cessation.

3. Nicotine dependence had negative direct effect on smoking cessation (-.29, $p<.001$). Therefore, this result supported the hypothesis model.

4. Processes of change had positive indirect effect (.01, $p>.05$) on smoking cessation though decisional balance and self efficacy. This result did not supported the hypothesized model, which indicated that processes of change should have positive indirect effect on smoking cessation though decisional balance and self efficacy.

5. Self-efficacy had positive direct effect on smoking cessation (.05, $p<.01$). This result supported the hypothesis model.

6. Decisional balance had positive direct effect on smoking cessation (.01, $p<.001$). This result supported the hypothesis model.

Table 4.13: Summary the total, direct, and indirect effect of causal variables on affected variable (n=458)

Causal variables	Affected variables														
	Nicotine dependence			Process of change			Decisional balance			Self efficacy			Smoking cessation		
	TE (SD)	DE (SD)	IE (SD)	TE (SD)	DE (SD)	IE (SD)	TE (SD)	DE (SD)	IE (SD)	TE (SD)	DE (SD)	IE (SD)	TE (SD)	DE (SD)	IE (SD)
Nicotine dependence	-	--	-	-	-	-	-	-	-	-	-	-	-.12*** (.01)	-.12*** (.01)	-
Process of change	-		-	-		-	-		-	-	-	-	.01 (.01)	-	.01 (.01)
Decisional balance	-	-	-	- .09*** (.03)	.09*** (.03)	-	-	-	-	-	-	-	.10*** (.04)	.10*** (.04)	-
Self efficacy	-	-	-	.31*** (.05)	.31*** (.05)	-	-	-	-	-	-	-	.05* (.02)	.05** (.02)	-
Severity of alcohol dependence	.03*** (.01)	.03*** (.01)	-	- .20*** (.01)	- .02*** (.01)	-	.02 (.00)	.00 (.00)	.02* (.00)	-.01 (.00)	.00 (.00)	- .01** (.00)	-.03 (.00)	.00 (.00)	-.04** (.00)
Stage of change	5.93*** (.54)	5.93*** (.54)	-	-.50** (.19)	-.50** (.19)	-	.20** (.08)	.16** (.06)	.01 (.02)	- .45*** (.23)	- 1.57*** (.21)	-.04* (.06)	- 3.40*** (.25)	- 2.64*** (.21)	- .76*** (.10)
	R^2=.407			R^2=.063			R^2=.177			R^2=.292			R^2=.826		

*Significant at .05 level; **Significant at .01 level; ***Significant at .001; TE=total effects; DE=Direct effects; IE=indirect effects

Table 4.14: The goodness of fit statistics among the initially hypothesized model of smoking cessation in alcohol dependent smokers

	χ^2	p-value	χ^2/df	RMSEA	GFI	AGFI	Smallest s. Largest s.	R^2
Initial Model	2212.053	0.00	28.36	0.25	0.33	-0.02	-	-
Final Model	78.94	0.19	1.14	0.018	0.97	0.96	-0.40 0.72	.82

Abbreviations: X^2, Chi-square; df, degree of freedom; RMSEA, Root Mean Square Error of Approximation; GFI, Goodness of fit Index; AGFI, Adjust Goodness of Fit Index; Smallest s, Smallest standardized residual; Largest s, Largest standardized residual;

Summary

The descriptive statistic characteristic of the variables investigated in the current study have been explained. The preliminary analysis reported did not violate the assumption for SEM analysis. The hypothesized causal model of smoking cessation among Thai alcohol dependent smokers was analyzed and modified. The modified causal model fit the empirical data of smoking cessation among Thai alcohol dependent smokers. Although two of the research hypotheses were not support and one of the research hypotheses was partial support. All the variables in the model explained approximately 82% of the variance in smoking cessation.

CHAPTER V

DISCUSSION, IMPLICATIONS, AND RECOMMENDATION

This chapter provides the discussion of the study findings. It includes a discussion of summary, the characteristics of the participants and study variables, hypothesis testing, implications for nursing, and recommendations for future research.

1. Summary

The purpose of this survey research for causal relationship study was to develop and test a model to explanation that influences nicotine dependence, severity of alcohol dependence, stages of change smoking cessation, processes of change smoking cessation, decisional balance and self-efficacy on smoking cessation among Thai alcohol dependent smokers. The conceptual framework has been developed base on the relevant literature and is guided by the principles of the Trans-theoretical Model (TTM). A consecutive sample of 458 alcohol dependent smokers were collected from the outpatient alcohol dependence service at Princess Mother National Institute on Drug Abuse Treatment and Bangkok Naval hospital and the alcohol dependent smokers who received smoking cessation intervention from Thailand National Quit-line. Data collection was carried out from October 2011- March 2012.

The instruments used in this study includes the demographic characteristics questionnaire, Fagerstrom Test for Nicotine Dependence (FTND), The Severity of Alcohol Dependence Questionnaire (SADQ), Stage of change Questionnaire (SCQ), Processes of Change Questionnaire (PCQ), Self-efficacy Questionnaire (SEQ), Decisional balance questionnaire (DBQ) and Smoking Cessation Questionnaire

(SCQ). All participants responded to a set of eight questionnaires in structured interview format. The validity and reliability of the instruments were examined. A LISREL version 8.72 was used to test the Structural Equation Model.

The findings revealed that the hypothesized model fit the empirical data and could explain 82% of the variance of smoking cessation (χ^2 = 78.94, df = 69, p=.19, χ^2/df = 1.14, RMSEA = 0.02, GFI = 0.98, AGFI = 0.96). The results of the final model testing are summarized according to the research hypothesizes as follows:

The results of model testing are summarized in accordance with the hypothesized model as follows:

1. Severity of alcohol dependence had non-significant direct effect on smoking cessation (.00, p>.05). This result did not supported the hypothesized model, which indicated that severity of alcohol dependence should have a direct effect on smoking cessation. However, severity of alcohol dependence had significant indirect effect on smoking cessation (-.04, p<.01) through nicotine dependence. This result supported the hypothesis model.

2. Stages of change had a negative indirect effect on smoking (-.13, p<.001) through processes of change. This result did not support the hypothesized model, which indicated that stage of change should have a positive indirect effect on smoking cessation.

3. Nicotine dependence had negative direct effect on smoking cessation (-.29, p<.001). Therefore, this result supported the hypothesis model.

4. Processes of change had positive indirect effect (.01, p>.05) on smoking cessation though decisional balance and self efficacy. This result did not supported

the hypothesized model, which indicated that processes of change should have positive indirect effect on smoking cessation though decisional balance and self efficacy.

5. Self-efficacy had positive direct effect on smoking cessation (.05, $p<.01$). This result supported the hypothesis model.

6. Decisional balance had positive direct effect on smoking cessation (.01, $p<.001$). This result supported the hypothesis model.

2. Characteristics of the study participants

The majority of alcohol dependent smokers age mean 38.67 years (SD = 10), minimum 18 years, maximum 67 years, half of them were classified in mild alcohol dependence (55.46%), most of them completed high school (46.06%). The alcohol dependent smokers began smoking at the age mean 18.91 years, maximum 35 year and minimum 13 year. Half of them were regular smokers (86.02%), only 13.97% were occasional smokers. About 60 percents smoked ≤ 10 cigarettes per day (56.66%) and nearly half of them had time to first smoking in the morning more than 60 minutes (17.56%). Most of them were classified in low nicotine dependent level tested by FTND (43.33%).

3. Hypothesis testing in overall model and relationship

The study findings revealed that the hypothesized model fit the empirical data and could explain 82% of the variance of smoking cessation by nicotine dependence, severity of alcohol dependence, stages of change, processes of change, decisional balance and self efficacy. The results showed that four of six hypotheses

were fully supported by the empirical data obtained in the study, whereas one hypotheses was only partially supported, and one hypothesis was rejected. The discussion of the hypothesis testing were presented as follows:

Severity of alcohol dependence had a negative direct effect on smoking cessation and indirect effect on smoking cessation through nicotine dependence.

Severity of alcohol dependence had non-significant direct effect on smoking cessation (.00, p>.05). This result did not supported the hypothesized model, which indicated that severity of alcohol dependence should have a direct effect on smoking cessation.

Interestingly, the findings of this study indicated that the severity of alcohol dependence had a non significant direct effect on smoking cessation. This maybe because of drinking patterns. Smokers or nonsmokers did not differ with respect to percent heavy drinking days (Morissette et al., 2008). The lever of alcohol as high and very high dependence that related to the level of alcohol tolerance

In this study showed that alcohol dependent smokers who have high level of severity of alcohol dependence were likely to difficult to smoking cessation. High level of alcohol consumption related to high level of nicotine dependence. According John and colleague (2003) examine relationship between current and past smoking behavior and the severity of alcohol dependence. The result present, those currently smoking 30 or more cigarettes per day twice as likely to had a high level of alcohol dependence. Moreover, high level of alcohol dependence increase the nicotine dependence symptom. In addition, reported by Batel and colleague (1995) present relationship between severity of alcohol dependence and nicotine dependence.

Consequently, alcohol and nicotine dependence may reciprocally influence and increase the severity of each other. Caponnetto and Polosa (2008) review the predictors of smoking cessation, they found current alcoholism is a negative prognostic factor for successful smoking cessation. Base on review of evidences related to severity of alcohol dependence and quitting smoking among alcohol dependent smokers. Otherwise, heavy drink is associate with heavy smoking (Batel, Passione, Maitre, & Rueff, 1995) Alcohol dependence smokers had experienced higher level of nicotine withdrawal after quitting smoking (Mark, Hill, Pomerleau, Mudd, & Blow, 1997) and researcher suggest that alcohol consumption, particularly among heavier drinker, may interfere with quitting smoking. This the knowledge support the finding that severity of alcohol dependence had non-significant direct effect on smoking cessation (.00, $p>.05$). However, severity of alcohol dependence had significant indirect effect on smoking cessation (-.04, $p<.01$) through nicotine dependence.

Severity of alcohol dependence had an indirect effect on smoking cessation through nicotine dependence in alcohol dependent smokers

Severity of alcohol dependence had significant indirect effect on smoking cessation (-.04, $p<.01$) through nicotine dependence. This result supported the hypothesis model.

Based on review of evidences related to severity of alcohol dependence and quitting smoking among alcohol dependent smokers. Heavy drinking is associated with heavy smoking (Batel, Pessione, Maitre, & Rueff, 1995) Alcohol dependent smokers had experienced higher levels of nicotine withdrawal after quitting smoking (Mark, Hill,

Pomerleau, Mudd, & Blow, 1997), and researchers suggest that alcohol consumption, particularly among heavier drinkers, may interfere with quitting smoking. Moreover, heavy drinkers who smoker are less likely to attempt to quit smoking and are less successful when they do try to quit (Breslau, Peterson, Schultz, Anderski, & Chilcoat, 1996)

Morissette et al. (2008) studies of difference between daily smokers, chippers, and nonsmokers with co-occurring anxiety and alcohol-use disorders, they found daily smokers reported higher levels of alcohol dependence, average drinks per drinking occasion, and peak blood concentration levels in a day than nonsmokers. Current clinical opinion is that alcohol dependent smokers need to address their alcohol problem prior to or concordant with attempting to quitting smoking (Bowman, & Walsh, 2003; Hurt et al., 1993; Hurt, 2002; Kalman, 1998; Sussman, 2002) A number of empirical evidence have support that alcohol dependent smokers with higher level of alcohol dependence severity have less ready to quit or less confident in their quitting smoking. (John et al., 2003)

Stage of change smoking cessation have indirect effect on smoking cessation through processes of change in alcohol dependent smokers.

Stage of change had a negative indirect effect on smoking (-.76, $p<.001$) through processes of change smoking cessation. This result did not supported the hypothesized model, which indicated that stage of change should have a positive indirect effect on smoking cessation.

Bobo and college (1996) Demographic and drug use history variables did not predict quit attempts, but two baseline tobacco use variables did, specifically the Fagerstrom Test for Nicotine Dependence and stage of readiness to quit smoking, $p <$ .Ol. Participants with high or very high nicotine dependence scores were significantly

less likely than those with moderate or low scores to attempt smoking cessation. Compared to those in precontemplation at baseline, those in the preparation stage of readiness to change were about 12 times more likely to make a serious quit attempt.

Nicotine dependence has a negative direct effective on smoking cessation in alcohol dependent smokers

Nicotine dependence had negative direct effect on smoking cessation (-.12, $p<.001$). Therefore, this result supported the hypothesis model.

According to the study findings, nicotine dependence had a significant negative direct effect (-.12, $p<.001$) on smoking cessation, thus it indicating that alcohol dependent smokers with a lower level of nicotine dependence were more likely to stop smoking. Numerous studies have confirmed that nicotine dependence was the most powerful negative effect of smoking cessation (Godtfredsen et al., 2001; Breslau and Johnson 2000). Many previous studies have shown the patients that had a higher nicotine dependence level had lower abstinence rates. Bobo and college (1996) also found alcoholic smokers with low Fagerstrom scores and those who indicate they are in the contemplation or preparation stage of readiness to change are far more likely to make a quit attempt than more nicotine-dependent clients and those who express no interest in quitting for at least 6 months, moreover quit rates also were somewhat higher in those who averaged fewer cigarettes per day at baseline and had smoked regularly for 5 years or less.

Stage of change smoking cessation have indirect effect on smoking cessation through processes of change in alcohol dependent smokers.

Stage of change had a negative indirect effect on smoking (-.76, $p<.001$)

through processes of change smoking cessation. This result did not supported the hypothesized model, which indicated that stage of change should have a positive indirect effect on smoking cessation. Bobo and college (1996) Demographic and drug use history variables did not predict quit attempts, but two baseline tobacco use variables did, specifically the Fagerstrom Test for Nicotine Dependence and stage of readiness to quit smoking, p < .Ol. Participants with high or very high nicotine dependence scores were significantly less likely than those with moderate or low scores to attempt smoking cessation. Compared to those in precontemplation at baseline, those in the preparation stage of readiness to change were about 12 times more likely to make a serious quit attempt.

Processes of change smoking cessation had indirect effect on smoking cessation through decisional balance and self-efficacy in alcohol dependent smokers.

Process of change smoking cessation had positive indirect effect (.01, p>.05) on smoking cessation though decisional balance and self efficacy. This result did not supported the hypothesized model, which indicated that processes of change should have positive indirect effect on smoking cessation though decisional balance and self efficacy.

Process of change smoking cessation. These processes included overt consisted of and covert activities that lead to progress though stages. Prochaska and colleague (1988) developed ten scales to measure the frequency of process use: consciousness raising, dramatic relief, Environmental reevaluation, self-reevaluation, social liberation, self liberation, helping relationships, counter conditioning, stimulus

control, and reinforcement management. In this study, process of change smoking cessation had a significant positive indirect effect on smoking cessation though decisional balance and self efficacy.

Decisional balance has a positive direct effect on smoking cessation in alcohol dependent smokers.

Decisional balance had positive direct effect on smoking cessation (.01, $p<.001$). This result supported the hypothesis model.

The findings of the present study revealed that decisional balance did not have a significant direct effect on smoking cessation. Decision balance is a measure of importance of the reasons and concerns relating to making a change in behavior. Valicer et al. (1985) found that the structure of the decision to change Smoking behavior consisted of only two constructs, the pros (positive aspects) and the Cons (negative aspects) of change. As individuals progress though the stages of Change, the cons of smoking began to increase as the pros came down. In the Contemplation stage, there is a crossover where the cons become equal to the pros. The cons are higher than the pros in the action stage, but both become less important As individuals move from action to maintenance (Prochaska et al.,1994). However, the mean score of the cons (mean=31.0,SD=8.3) was higher than the pros (mean=25.7, SD=7.9). It was consistent with the reason for stop smoking in this group that fear of Illness (34.4%) was the most common reason for quitting smoking.

Self-efficacy has a positive direct effect on smoking cessation in alcohol dependent smokers.

Self efficacy had positive direct effect on smoking cessation (.05, $p<.01$). This result supported the hypothesis model.

Several studies have reported positive associations between high self-efficacy and successful cessation (Hill et al.,1994;Dijkistra and wolde , 2004). In this study, self-efficacy had a significance positive direct effect on smoking cessation.

Several studies have reported positive associations between high self-efficacy and successful cessation (Hill et al.,1994;Dijkistra and wolde , 2004). In this study, self-efficacy had a significance positive direct effect on smoking cessation.

Self-efficacy is defined as the belief in one's ability to perform necessary for a desired outcome (Bandura, 1982, 1997) Numerous studies have demonstrated that self-efficacy is a robust predictor of quit smoking (Stuart, Borland, & McMurray, 1994; Boardman, Catley, Mayo, & Ahluwalia, 2005) For example, Boardman et. al.'s result of longitudinal study shows that smokers failed to quit were less likely than quitters to report high self-efficacy.

Martin and colleague (Martin et al., 2006) investigated the predictors of quitting smoking among patients early in residential treatment for alcohol dependence, the result showed that the self-efficacy was the predictor of quitting smoking among alcohol dependent smokers ($r= 0.49$, $p<0.0001$) Alcohol dependent smokers who believe they have the ability to succeed in quitting smoking are more motivated to try to quit.

Mamfredi and colleagues (2007) conducted a study to examine a path model of smoking/ cessation in women smokers of low socio-economic status. They conducted on the data from 644 women smokers aged 18-45 years who had participated in an early experimental evaluation of a smoking cessation program, were still smokers at the 2-month post intervention survey and completed an interview 6 months later. Self-efficacy enhanced quitting indirectly by increasing immediacy of plan to quit (B=0.07) and confidence in one's ability to quit (B=0.49), however self-efficacy did not significantly directly influence quitting smoking.

3 Implication for nursing

The implications of this study focuses on the implications for nursing science, nursing practice, nursing education and nursing research as follows:

Implications for nursing science

-The finding supports the TTM and empirical literature that nicotine dependence, severity of alcohol dependence, stage of change smoking cessation, process of change smoking cessation, decisional balance, and self efficacy in alcohol dependent smokers. Thus, this study has contributed the new knowledge that can explain the influence of each variable in the whole model on smoking cessation in Thai alcohol dependent smokers. Furthermore, the findings provide knowledge that offers for development of interventions to promote smoking cessation in Thai alcohol dependent smokers.

Implications for nursing practice

Stage of change smoking cessation had direct effect on smoking cessation. Then, smoking cessation intervention should develop base on the specific stage of change smoking cessation such as smoking cessation intervention for alcohol dependent smokers in pre-contemplation stage, smoking cessation intervention for alcohol dependent smokers in contemplation stage, smoking cessation intervention for alcohol dependent smokers in preparation stage, smoking cessation intervention for alcohol dependent smokers in action stage and smoking cessation intervention for alcohol dependent smokers in maintenance stage.

Nicotine dependence and severity of alcohol dependence have negative direct effect on smoking cessation among alcohol dependent smokers. Assessing nicotine dependence and severity of alcohol dependence should be done before giving smoking cessation intervention for this population.

Implications for nursing education

The finding in this study suggests nicotine dependence, severity of alcohol dependence, stage of change smoking cessation, process of change smoking cessation, decisional balance and self efficacy influence smoking cessation in alcohol dependent smokers. Nursing education can use this finding to generate new perspectives and new option in teaching and learning about promoting smoking cessation among alcohol dependent smokers. Moreover, nursing curriculum in the field of mental health and psychiatric nursing should be included the causal model of smoking cessation for alcohol dependent smokers. This will strong support the cessation behavior change approach in nursing.

Implications for nursing research

Based on the results of this study, suggestions for future research are as follows:

- Selecting variables for study as proposed in the causal model of smoking cessation in alcohol dependent smokers. The variables include nicotine dependence, severity of alcohol dependence, stage of change smoking cessation, process of change smoking cessation, decisional balance and self efficacy. The causal model of smoking cessation could be used for guiding future study in co morbid nicotine and other substance abuse such as amphetamine, cannabis or ice.

- The results of this study present only some part of the pattern of drinking and smoking among alcohol dependent smokers. Then, the knowledge of smoking pattern among co morbid nicotine, alcohol and other substance abuse should be examined. The results will be guided for developing effective smoking cessation in specific substance abuse group.

- In this study included the alcohol dependent smokers who met alcohol cessation center and alcohol dependent smokers who met smoking cessation service. The difference of smoking cessation rate between the alcohol dependent smokers occurred with alcohol cessation clinic and smoking cessation service should be studied.

- This study did not mention on the intensity of smoking cessation. Future study should examine relationship or the effect of level of smoking cessation intensity and smoking cessation among alcohol dependent smokers.

- This majority of participants was male (male: n=422, female: n=36).

Therefore, the study could not examine any variations in nicotine dependence, severity of alcohol dependence, stage of change smoking cessation, process of change smoking cessation, decisional balance and self efficacy for smoking cessation by gender. The future research should include genders equally both of male and female.

Implication for health care policy

- From research finding, there is the relationship between level of alcohol dependence and level of nicotine, therefore, smoking cessation intervention can be provided within the time of providing alcohol cessation treatment. The integrated knowledge will be beneficial for collaboration of health care providers in order to expand their science.

- The knowledge can be the guideline for both smoking cessation center and alcohol cessation center in taking care of alcohol dependent smokers. This strategies can be a new innovation cost effective of organization in increased potential care.

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APPENDICES

APPENDIX A

INSTRUMENTS

APPENDIX A

คำชี้แจง แบบสอบถามฉบับนี้จัดทำขึ้นเพื่อใช้ในการเก็บรวบรวมข้อมูลเกี่ยวกับแบบจำลองเชิงสาเหตุการเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์ โดยแบ่งเป็น 6 ส่วนดังนี้

เครื่องมือที่ใช้

ส่วนที่ 1	ข้อมูลทั่วไปและข้อมูลด้านสุขภาพ	จำนวน 4	ข้อ
ส่วนที่ 2	แบบสอบถามแบนแผนการสูบบุหรี่	จำนวน 9	ข้อ
ส่วนที่ 3	แบบสอบถามกระบวนการเปลี่ยนแปลงเพื่อการสูบบุหรี่	จำนวน 40	ข้อ
ส่วนที่ 4	แบบวัดประสิทธิภาพในการเลิกบุหรี่	จำนวน 20	ข้อ
ส่วนที่ 5	แบบสอบถามความสมดุลในการตัดสินใจเลิกหรือสูบบุหรี่	จำนวน 20	ข้อ
ส่วนที่ 6	แบบสอบถามความรุนแรงของการติดแอลกอฮอล์	จำนวน 20	ข้อ

ส่วนที่1 ข้อมูลทั่วไปและข้อมูลด้านสุขภาพ

คำชี้แจง โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย / ลงในเครื่องหมาย □ หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

1. เพศ □ ชาย □ หญิง
2. อายุ……..ปี
3. ระดับการศึกษาสูงสุด
   - □ประถมศึกษา/มัธยมศึกษา □ อนุปริญญา/ประกาศนียบัตรวิชาชีพ
   - □ ปริญญาตรี □ สูงกว่าปริญญาตรี
4. ท่านมีโรคประจำตัวต่างๆต่อไปนี้หรือไม่
   - □ ไม่มี
   - □ มี ถ้ามีกรุณาทำเครื่องหมาย / หน้าโรคที่ท่านเป็น
     - □ โรคมะเร็ง □ โรคเบาหวาน
     - □ โรคตับ □ โรคระบบภูมิคุ้มกัน
     - □ โรคไต □ โรคภูมิแพ้/โรคระบบทางเดินหายใจ
     - □ ภาวะเจ็บป่วยทางอารมณ์และจิต□ โรคทางระบบประสาท
     - □ โรคระบบย่อยอาหาร/กระเพาะอาหาร□ โรคระบบกระดูกและกล้ามเนื้อ
     - □ โรคระบบหัวใจและหลอดเลือด ความดันโลหิตสูง ไขมันในเลือดสูง

ส่วนที่ 2 แบบสอบถามแบบแผนการสูบบุหรี่ ปริมาณการติดนิโคติน และปริมาณการติดบุหรี่

1. ปัจจุบันท่านยังคงสูบบุหรี่อยู่หรือไม่ (ถ้าไม่สูบข้ามไปตอบแบบสอบถามส่วนที่3)
   ☐ ไม่สูบบุหรี่แล้ว โดยเลิกมานาน....ทำเครื่องหมาย
      ☐ โดยเลิกสูบมาอย่างน้อย 7 วัน
      ☐ โดยเลิกสูบมานานกว่า 7 วันขึ้นไป แต่ยังไม่ถึง 30 วัน
      ☐ โดยเลิกสูบมานานกว่า 30 วันขึ้นไป แต่ยังไม่ถึง 90 วัน
      ☐ โดยเลิกสูบมานานกว่า 90 วันขึ้นไป แต่ยังไม่ถึง 6 เดือน
      ☐ เลิกสูบนานกว่า 6 เดือน
   ☐ ยังสูบบุหรี่อยู่ แต่วางแผนจะเลิกสูบใน 30 วันข้างหน้า
   ☐ ยังสูบบุหรี่อยู่ แต่วางแผนจะเลิกสูบใน 6 เดือนข้างหน้า
   ☐ ยังสูบบุหรี่อยู่ และตลอด 6 เดือนที่ผ่านมาก็ยังไม่คิดที่จะเลิกสูบ
2. ลักษณะการสูบ
   ☐ สูบเป็นประจำทุกวัน ☐ ไม่ได้สูบทุกวัน ☐ อื่นๆ
3. ชนิดของบุหรี่ที่สูบ
   ☐ บุหรี่ไทย ☐ บุหรี่นอก ☐ ยาเส้นมวนเอง
   ☐ อื่นๆ ระบุ .....
4. โดยปกติท่านสูบบุหรี่กี่มวนต่อวัน
   ☐ 10 มวนหรือน้อยกว่า ☐ 11-20 มวน
   ☐ 21-30 มวน ☐ 31 มวนขึ้นไป

   ท่านสูบบุหรี่มานาน.....ปี (เริ่มสูบมวนแรกอายุ.....ปี)
5. หลังตื่นนอนตอนเช้าท่านสูบบุหรี่มวนแรกเมื่อใด
   ☐ ภายใน 5 นาทีหลังตื่นนอน ☐ ช่วงระยะเวลา 6-30 นาที
   ☐ 31-60 นาที หลังตื่นนอน ☐ หลังจากตื่นนอน 60 นาทีขึ้นไป
6. ท่านพบว่าเป็นความยากลำบากที่ต้องระงับการสูบบุหรี่ในสถานที่ห้ามสูบ เช่น วัด ห้องสมุด ฯลฯ
   ☐ ใช่ ☐ ไม่ใช่
7. บุหรี่มวนใดเป็นมวนที่เลิกยากที่สุดของท่าน
   ☐ มวนแรกในตอนเช้า ☐ ทุกมวน

ส่วนที่ 3 แบบสอบถามกระบวนการเปลี่ยนแปลงการสูบบุหรี่

<u>คำชี้แจง</u> ประสบการณ์ต่อไปนี้มีผลต่อการสูบ/เลิกบุหรี่ ให้ท่านคิดถึงประสบการณ์ที่คล้ายคลึงกับประสบการณ์เหล่านี้ซึ่ง**<u>ท่านกำลังประสบหรือประสบมาเมื่อเดือนที่แล้ว</u>** จากนั้นให้คะแนนความถี่ของประสบการณ์เหล่านั้น โดยทำเครื่องหมาย / ลงในช่องที่ตรงกับสิ่งที่เกิดขึ้นกับท่านในรอบ 1 เดือนที่ผ่านมา เพียงคำตอบเดียว

1 = ไม่เคยเกิดขึ้นเลย 2 = เกิดขึ้นนานครั้ง 3 = เกิดขึ้นบางครั้ง
4 = เกิดขึ้นบ่อยครั้ง 5 = เกิดขึ้นเป็นประจำ

ข้อ	ข้อความ	ความถี่ของประสบการณ์			
		1	2	3	4
1	คนสำคัญในชีวิตของฉันยอมรับฉันเหมือนเดิม ไม่ว่าฉันจะสูบบุหรี่หรือไม่				
2	ฉันเห็นป้าย “ห้ามสูบบุหรี่” ในอาคารสาธารณะ				
3	ฉันสามารถเปิดเผยประสบการณ์การสูบบุหรี่ของฉันกับบุคคลที่สำคัญในชีวิตฟังอย่างน้อยหนึ่งคน				
4	ฉันบอกกับตัวเองว่าฉันสามารถเลือกที่จะสูบหรือไม่สูบบุหรี่ก็ได้				
5	ฉันทำกิจกรรมที่ออกแรงแทนการสูบบุหรี่				
6	ฉันจำได้ว่ามีบทความเกี่ยวกับปัญหาของการเลิกบุหรี่				
7	ฉันสังเกตเห็นว่ามีบริเวณเฉพาะสำหรับผู้สูบบุหรี่ในที่สาธารณะ				
8	ฉันจำประโยชน์ของการเลิกสูบบุหรี่ที่มีคนเคยบอกฉันโดยตรงได้				
9	ฉันกำลังพิจารณาความเชื่อที่ว่าบุคคลที่เลิกสูบบุหรี่ช่วยทำให้โลกใบนี้น่าอยู่ขึ้น				
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40	ฉันมีคนที่รับฟังฉันเมื่อฉันต้องการพูดคุยเกี่ยวกับการสูบบุหรี่ของฉัน				

ส่วนที่ 4 แบบวัดประสิทธิภาพในการเลิกบุหรี่

คำชี้แจง ข้อความต่อไปนี้เกี่ยวข้องกับทางเลือกในการสูบบุหรี่ จงให้คะแนนประสิทธิภาพของตัวเองในการที่จะเลิกสูบบุหรี่ในสถานการณ์ต่อไปนี้ โดยทำเครื่องหมาย / ลงในช่องที่ตรงกับสิ่งที่เกิดขึ้นกับท่านในรอบ 1 เดือนที่ผ่านมา เพียงคำตอบเดียว

1 = ไม่มั่นใจเลยแม้แต่น้อย 2 = ไม่ค่อยมั่นใจ 3 = มั่นใจปานกลาง

4 = มั่นใจมาก 5 = มั่นใจมากเป็นอย่างยิ่ง

ข้อ	ข้อความ	ความถี่ของประสบการณ์			
		1	2	3	4
1	ขณะที่ฉันนั่งดื่มอยู่ที่บาร์หรือคอกเทลเลาจน์				
2	เมื่อฉันต้องการสูบบุหรี่				
3	เมื่อฉันกำลังขุ่นข้องหมองใจเนื่องจากสิ่งต่างๆรอบตัวไม่เป็นไปตามที่ฉันต้องการ				
4	เมื่อฉันอยู่กับสามี/ ภรรยาหรือเพื่อนที่กำลังสูบบุหรี่				
5	เมื่อมีการโต้เถียงหรือความขัดแย้งในครอบครัวของฉัน				
6	เมื่อฉันกำลังมีความสุขและต้องการเฉลิมฉลอง				
7	ขณะที่ฉันกำลังโกรธมาก				
8	เมื่อมีสิ่งมากระทบกระเทือนจิตใจฉันอย่างรุนแรง เช่น การประสบอุบัติเหตุหรือสูญเสียบุคคลในครอบครัว				
9	เมื่อฉันเห็นคนสูบบุหรี่อย่างมีความสุข				
10	ขณะที่ฉันกำลังดื่มกาแฟและพูดคุยหรือพักผ่อน				
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20	เมื่อฉันอยู่กับเพื่อนในงานเลี้ยงสังสรรค์				

ส่วนที่ 5 แบบสอบถามความสมดุลในการตัดสินใจเลิกหรือสูบบุหรี่

<u>คำชี้แจง</u> ข้อความต่อไปนี้เกี่ยวข้องกับทางเลือกในการสูบบุหรี่ จงให้คะแนนข้อความต่างๆ ว่ามีความสำคัญต่อการตัดสินใจสูบบุหรี่ของท่านมากน้อยเพียงใด โดยทำเครื่องหมาย / ลงในช่องที่ตรงกับสิ่งที่เกิดขึ้นกับท่านในรอบ 1 เดือนที่ผ่านมา เพียงคำตอบเดียว

1 = ไม่สำคัญแม้แต่น้อย 2 = สำคัญเล็กน้อย 3 = สำคัญปานกลาง

4 = สำคัญมาก 5 = สำคัญมากเป็นอย่างยิ่ง

ข้อ	ข้อความ	ความถี่ของประสบการณ์			
		1	2	3	4
1	การสูบบุหรี่ทำให้มีความสุข				
2	การสูบบุหรี่ของฉันมีผลต่อสุขภาพของผู้อื่น				
3	ฉันรู้สึกชอบภาพลักษณ์ของคนสูบบุหรี่				
4	บุคคลรอบตัวฉันจะเดือดร้อนหากฉันเจ็บป่วยเนื่องจากสูบบุหรี่				
5	ฉันรู้สึกผ่อนคลาย และมีความสุขมากขึ้นเมื่อได้สูบบุหรี่				
6	เนื่องจากฉันสูบบุหรี่มาอย่างต่อเนื่อง บางคนจึงคิดว่าฉันคงไม่สามารถเลิกสูบบุหรี่ได้				
7	เมื่อฉันพยายามเลิกสูบบุหรี่ ฉันจะกลายเป็นคนที่หงุดหงิดง่าย สร้างความเดือดร้อนใจให้คนรอบข้าง				
8	การสูบบุหรี่มีผลเสียต่อสุขภาพของฉัน				
9	บุคคลในครอบครัวและเพื่อนๆ พอใจที่เห็นฉันสูบบุหรี่อย่างมีความสุข มากกว่าที่จะเห็นฉันมีความทุกข์จากการพยายามเลิกบุหรี่				
10	ฉันรู้สึกอายที่ติดบุหรี่				
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20	การสูบบุหรี่ช่วยคลายเครียด				

ส่วนที่ 6 แบบสอบถามความรุนแรงของการติดแอลกอฮอล์

<u>คำชี้แจง</u> คุณดื่มสุราหนักหรือไม่ในช่วง 6 เดือนที่ผ่านมา ☐ ดื่ม ☐ ไม่ดื่ม

กรุณาระบุเดือนและปีที่ดื่มหนัก: เดือน: ……..…….. ปี: ……..…….

หากดื่ม กรุณาตอบคำถามต่อไปนี้ทุกข้อโดยขีดเครื่องหมาย / ในข้อที่ตรงกับความรู้สึกของท่านที่สุด

1 = ไม่เคยเลย หรือ แทบจะไม่เคย 2 = บางครั้ง 3 = บ่อยๆ 4 = เกือบสม่ำเสมอ

ข้อ	ข้อความ	ความถี่ของประสบการณ์			
		1	2	3	4
1	หลังจากดื่มไปเพียงหนึ่งถึงสองแก้ว ฉันรู้สึกว่าอยากดื่มอีกสักสองสามแก้ว				
2	วันรุ่งขึ้นหลังจากการดื่มสุรา สิ่งแรกที่เกิดขึ้นในตอนเช้าคือมือของฉันสั่น				
3	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันตื่นขึ้นมาโดยมีเหงื่อโทรมกาย				
4	วันรุ่งขึ้นหลังจากการดื่มสุรา สิ่งแรกที่เกิดขึ้นในตอนเช้าคือตัวของฉันสั่นอย่างรุนแรงถ้าฉันไม่ได้ดื่มสักหนึ่งแก้ว				
5	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันกลัวการตื่นนอนในตอนเช้ามาก				
6	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันรู้สึกกลัวการพบเจอผู้คนในตอนเช้า				
7	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันรู้สึกสิ้นหวังเมื่อฉันตื่นขึ้น				
8	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันรู้สึกกลัวมากเมื่อฉันตื่นขึ้น				
9	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันอยากดื่มอีกในตอนเช้า				
10	วันรุ่งขึ้นหลังจากการดื่มสุรา ฉันมักจะดื่มสุราสองสามแก้วแรกให้เร็วที่สุดเท่าที่จะเป็นไปได้ในตอนเช้าอยู่เสมอ				
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20	ฉันจะกระหายการดื่มสุราอย่างมาก				

APPENDIX B

(Population sample / Participant information sheet)

APPENDIX B

ข้อมูลสำหรับประชากรตัวอย่างหรือผู้เข้าร่วมในการวิจัย

(Population sample / Participant information sheet)

1. ชื่อโครงการวิจัย เรื่อง แบบจำลองเชิงสาเหตุการเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์
2. ชื่อผู้วิจัย นาวาตรีหญิง ยุวดี วงษ์แสง นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
3. สถานที่ปฏิบัติงาน วิทยาลัยพยาบาลกองทัพเรือ

   โทรศัพท์ที่ทำงาน 02-4752614 โทรศัพท์ที่บ้าน 044-357116

   โทรศัพท์เคลื่อนที่ 081-8206048 E-mail: Yvongsng@hotmail.com
4. ข้อมูลที่เกี่ยวข้องกับการให้คำยินยอมในการวิจัยประกอบด้วย คำอธิบายดังนี้

   4.1 โครงการนี้เกี่ยวข้องกับการศึกษาแบบจำลองเชิงสาเหตุการเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์

   4.2 วัตถุประสงค์ของการวิจัย เพื่อศึกษาอิทธิพลระหว่างตัวแปร ระยะของการเปลี่ยนแปลงพฤติกรรม กระบวนการเปลี่ยนแปลงพฤติกรรม การชั่งน้ำหนักเพื่อการตัดสินใจ การรับรู้ความสามารถในตนและสิ่งล่อใจระดับความรุนแรงของการติดแอลกอฮอล์ ระดับความรุนแรงของการติดนิโคติน และการหยุดสูบบุหรี่ในผู้สูบบุหรี่ไทยที่ติดแอลกอฮอล์
5. การวิจัยนี้เป็นการวิจัยเชิงสำรวจที่กระทำในผู้สูบบุหรี่ที่ติดแอลกอฮอล์ตามคุณสมบัติที่กำหนดไว้คือ ประชากรตัวอย่างเป็นผู้ติดแอลกอฮอล์ที่สูบบุหรี่ ไม่มีอาการจากการขาดสุรา และมีอายุมากกว่า 18 ปีขึ้นไป รวมทั้งมีสติสัมปชัญญะดี เข้าใจภาษาไทย และยินดีให้ความร่วมมือในการตอบแบบสอบถาม โดยที่ผู้วิจัยคาดว่าไม่มีความเสี่ยงใดๆ เกิดขึ้นกับประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัยและผลการวิจัยที่ตีพิมพ์จะไม่มีชื่อของประชากรตัวอย่าง หรือผู้มีส่วนร่วมในการวิจัย
6. เครื่องมือที่ใช้ในการเก็บข้อมูลประกอบด้วย ข้อมูลทั่วไปและข้อมูลด้านสุขภาพ แบบสอบถามแบนแผนการสูบบุหรี่ แบบสอบถามระยะการเปลี่ยนแปลงพฤติกรรม แบบสอบถามกระบวนการเปลี่ยนแปลงเพื่อการเลิกสูบบุหรี่ แบบวัดประสิทธิภาพในการเลิกบุหรี่ แบบสอบถามความสมดุลในการตัดสินใจเลิกหรือสูบบุหรี่ แบบสอบถามความรุนแรงของการติดแอลกอฮอล์ และ แบบสอบถามการเลิกบุหรี่

7. ประชากรตัวอย่างหรือผู้เข้าร่วมวิจัยสามารถปฏิเสธที่จะเข้าร่วมหรือสามารถถอนตัวจากโครงการวิจัยได้ตลอดเวลาโดยการปฏิเสธที่จะเข้าร่วมการวิจัยครั้งนี้โดยไม่มีผลต่อ การได้รับการบริการหรือการดูแลจากบุคลากรในทีมสุขภาพที่ได้รับแต่ประการใด

8. ระหว่างดำเนินการเก็บข้อมูล ผู้ร่วมวิจัยสามารถถาม หรือปฏิเสธการตอบคำถามได้

9. หากผู้วิจัยมีข้อมูลเกี่ยวกับประโยชน์และโทษเกี่ยวกับการวิจัยครั้งนี้ ผู้วิจัยจะแจ้งให้ประชากรตัวอย่าง หรือผู้มีส่วนร่วมในการวิจัยทราบโดยไม่ขัดข้อง

10. การวิจัยครั้งนี้ไม่มีการจ่ายค่าตอบแทนให้แก่ประชากรตัวอย่าง หรือผู้มีส่วนร่วมในการวิจัย

11. ผลการวิจัยจะนำเสนอในภาพรวม ส่วนชื่อและที่อยู่ ประชากรตัวอย่าง หรือ ผู้เข้าร่วมวิจัยจะได้รับการปกปิดอยู่เสมอ เก็บไว้เป็นความลับ ยกเว้นว่าได้รับคำยินยอมไว้ โดยระเบียบและกฎหมายที่เกี่ยวข้องเท่านั้น จึงเปิดเผยข้อมูลแก่สาธารณชนได้ ในกรณีที่ผลการวิจัยได้รับการตีพิมพ์

12. จำนวนประชากรตัวอย่าง หรือผู้เข้าร่วมในการวิจัยครั้งนี้ 470 คน

13. ความเสี่ยงที่อาจได้รับ อาสาสมัครจะมีความเสี่ยงเล็กน้อยที่ไม่มากกว่าความเสี่ยงในชีวิตประจำวัน เช่น ท่านจะเสียเวลาในการตอบแบบสอบถาม ซึ่งอาจทำให้รู้สึกไม่สะดวกไม่สบายบ้าง

14. ประโยชน์ที่อาจได้รับ อาสาสมัครจะไม่ได้รับประโยชน์ใดๆ โดยตรงจากการเข้าร่วมในการวิจัย ครั้งนี้ แต่ผลการศึกษาที่ได้ จะนำไปวิเคราะห์ถึงรูปแบบความสัมพันธ์เชิงสาเหตุเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์ เพื่อพัฒนาแนวทางการให้การส่งเสริม และพัฒนาแนวทางการดูแลรักษาผู้ป่วย ร่วมทั้งการพัฒนารูปแบบการให้บริการเพื่อการเลิกบุหรี่ของสถานพยาบาล/หน่วยให้การบริการเพื่อการเลิกบุหรี่ต่อไป

15. การติดต่อกับผู้วิจัยในกรณีที่มีปัญหาเกี่ยวกับโครงงานวิจัย สามารถ ติดต่อได้ 24 ชั่วโมง กับผู้วิจัย คือ นาวาตรีหญิงยุวดี วงษ์แสง หมายเลขโทรศัพท์ 081-8206048

APPENDIX C

Population sample / Participant Information Sheet

APPENDIX C

Population sample / Participant Information Sheet

1. Title: Causal model of smoking cessation among Thai alcohol dependent smokers.

2. Researcher name: Lcdr. Yuwadee Vongsang WRTN. Faculty of Nursing, Chulalongkorn University

3. Work place Royal Thai Navy College of Nursing

Office: 02-4752614 Home: 044-357116

Mobile phone: 081-8206048 E-mail: Yvongsang@hotmail.com

4. Information relevant to informed consent form of this study consists of

4.1. This study focuses on the causal relationship of smoking cessation.

4.2. The objectives of the study is to examine the causal relationship between level of nicotine dependent, severity of alcohol dependence, exposure to smoking cessation intervention, quit attempt, helping relationship, self-efficacy and smoking cessation.

5. This study is descriptive research. The study will investigate through alcohol dependent smokers at smoking cessation clinic/unite with high expectation of no harm and risk of participant's health. Participants' name will be placed by code number. Specific name in the acknowledgement will not be directed links with the research environment.

6. Participants can refuse and withdraw from the study at any point of time without jeopardizing the survivors' care.

7. During answer questionnaires, participants can ask doubtful questions or refuse to answer some questions.

8. If the researcher finds whatever benefit or harm relevant to this study, she will inform me without hesitation.

9. I understood all research process of collecting data, benefit or harm due to participation in this study. I agreed to participate in this study.

11. No payment.

12. The research finding will be presented as a whole picture. Name and address of the participants will be kept as a secret. Except in case of receiving permission by Law, all information will be revealed to publish by publication.

13. The number of the participants is 470 persons.

14. In case of the participants feel uncomfortable during answer questionnaires, the researcher will:

14.1 Stop interviews in advance and psychological support.

14.2 Consult psychologist to assess psychological consequence and counseling.

14.3 Consult psychiatrist for appropriate intervention and treatment.

15. Researcher will be available for all participants 24 hours when they need help or in trouble, contact by mobile phone: 081-8206048.

APPENDIX D

Human subject approval

คณะกรรมการพิจารณาจริยธรรมการวิจัย
สถาบันบำบัดรักษาและฟื้นฟูผู้ติดยาเสพติดแห่งชาติบรมราชชนนี กรมการแพทย์
60 ถ.พหลโยธิน ต.ประชาธิปัตย์ อ.ธัญบุรี จ.ปทุมธานี โทร 02-5310080-8 ต่อ 499, 492

เอกสารรับรองจริยธรรมโครงการวิจัย

1. ชื่อวิทยานิพนธ์ / โครงการวิจัย

ชื่อเรื่อง (ภาษาไทย)....แบบจำลองเชิงสาเหตุการเลิกสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์.....

ชื่อเรื่อง (ภาษาอังกฤษ) ....CAUSAL MODEL OF SMOKING CESATION AMONG ....THAI ALCOHOL DEPENDENT-SMOKERS.....

2. ชื่อผู้วิจัย (นาย, นาง,นางสาว).....น.ต.หญิงชุวดี วงษ์แสง.....

หลักสูตร .....พยาบาลศาสตรดุษฎีบัณฑิต.....

คณะ .....พยาบาลศาสตร์.....

3. หน่วยงานที่สังกัด.....จุฬาลงกรณ์มหาวิทยาลัย.....

4. ผลการพิจารณาของคณะกรรมการจริยธรรมการวิจัย :

คณะกรรมการจริยธรรมการวิจัย ได้พิจารณารายละเอียดวิทยานิพนธ์ /โครงการวิจัยเรื่องดังกล่าวข้างต้นแล้ว ในประเด็นที่เกี่ยวกับ

1) การเคารพในศักดิ์ศรี และสิทธิของมนุษย์ที่ใช้เป็นตัวอย่างการวิจัย

2) วิธีการอย่างเหมาะสมในการได้รับความยินยอมจากกลุ่มตัวอย่างก่อนเข้าร่วมโครงการวิจัย (Informed consent) รวมทั้งการปกป้องสิทธิประโยชน์และรักษาความลับของกลุ่มตัวอย่างในการวิจัย

3) การดำเนินการวิจัยอย่างเหมาะสม เพื่อไม่ก่อความเสียหายต่อสิ่งที่ศึกษาวิจัย ไม่ว่าจะเป็นสิ่งที่มีชีวิต หรือไม่มีชีวิต

คณะกรรมการจริยธรรมการวิจัย มีมติเห็นชอบดังนี้

(✓) รับรองโครงการวิจัย

( ) ไม่รับรอง

5. วันที่ที่ให้การรับรอง.....4..... เดือน...มกราคม.....พ.ศ....2556.....

วันที่ที่หมดอายุ .....3.....เดือน....มกราคม..... พ.ศ....2557.....

ลงนาม ..... ลงนาม .....

(... นพ.ดำรง ... ลักขณาภิชนรัช ...) (..... นางสาวนา....นิลบรรพ์.....)

ประธานคณะกรรมการพิจารณาจริยธรรมการวิจัย เลขาฯคณะกรรมการพิจารณาจริยธรรมการวิจัย

ทั้งนี้ การรับรองนี้มีเงื่อนไขดังที่ระบุไว้ด้านหลังทุกข้อ (ดูด้านหลังของเอกสารรับรองโครงการวิจัย)

1. ผู้วิจัยต้องยินยอมให้คณะกรรมการฯเข้าตรวจสอบการดำเนินงานได้ตลอดเวลา
2. คณะกรรมการฯมีสิทธิระงับหรือให้ยุติโครงการหากเห็นว่าโครงการวิจัยไม่เคารพในสิทธิ ไม่ปกป้องสิทธิประโยชน์ของอาสาสมัครหรือเห็นว่าอาจเกิดอันตรายต่ออาสาสมัครได้

แบบเอกสารที่ RF 11

เอกสารรับรองโครงการวิจัย
โดย
กรรมการวิจัยและจริยธรรมการวิจัยในมนุษย์ กรมแพทย์ทหารเรือ
RLM 006/56

ชื่อโครงการ	แบบจำลองเชิงสาเหตุการเสียสูบบุหรี่ในผู้สูบไทยที่ติดแอลกอฮอล์
ชื่อหัวหน้าโครงการ/หน่วยงานที่สังกัด	น.ต.หญิง ธุวดี วงษ์แสง
รหัสโครงการ	RP 004/56
สถานที่ทำวิจัย	โรงพยาบาลและหน่วยแพทย์ สังกัด กองทัพเรือ
เอกสารที่รับรอง	☑ โครงการวิจัย ☐ โครงการวิจัยที่ขออนุมัติแก้ไขเพิ่มเติม ☑ หนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย ☑ เอกสารชี้แจงผู้เข้าร่วมการวิจัย ☑ อื่นๆ....รายงานความก้าวหน้าของโครงการวิจัย
รับรองโดย	คณะกรรมการวิจัยและจริยธรรมการวิจัยในมนุษย์ กรมแพทย์ทหารเรือ
วันที่รับรอง	20 มีนาคม 2556
วันหมดอายุ	21 มิถุนายน 2556

พลเรือตรี
ประธานคณะกรรมการวิจัยและจริยธรรมการวิจัยในมนุษย์ พร.

APPENDIX E

LISREL Printout for model testing

BIOGRAPHY

My name is Lcdr.Yuwadee Wongsaeng WRTN. I was born in April 10, 1977, at Nakornrachasima province, Thailand. I graduated Bachelor of Science (Nursing) in 1999 from Mahidol University and Master of Science (Mental and Psychiatric Nursing) in 2005 from Chulalongkorn University. I study Doctor of Philosophy (Nursing) at Chulalongkorn University in 2008.

I received fund for studied from Thai Royal Navy College of Nursing. My experience, I worked as register nurse in 1999-2001 at Queen Sirikit hospital, Chonburi province.