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PREDICTING FACTORS OF QUITTING SMOKING

AMONG THE ROYAL THAI NAVY PERSONNEL

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สินีนุช ศิริวงศ์: ปัจจัยทำนายการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ (PREDICTING FACTORS OF QUITTING SMOKING AMONG THE ROYAL THAI NAVY PERSONNEL): อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ.ดร.จินตนา ยูนิพันธุ์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: ผศ. ดร. สุนิดา ปรีชาวงษ์, 160 หน้า.

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อ ศึกษาปัจจัยทำนายการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ การวิจัยนี้เป็นการวิจัยแบบสหสัมพันธ์ (correlation research) โดยใช้แบบสอบถามการรายงานตนเองตามกรอบแนวคิดทฤษฎีการเปลี่ยนแปลง (Transtheoretical model ของ Prochaska และ DiClemente, 1983 กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้คือข้าราชการกองทัพเรือที่มีความพยายามในการเลิกบุหรี่ได้อย่างน้อย 24 ชั่วโมงในปีที่ผ่านมา กลุ่มตัวอย่างจำนวน 553 คน คัดเลือกโดยการสุ่มตัวอย่างแบบมีขั้นตอน เก็บรวบรวมข้อมูลโดยใช้ แบบประเมินข้อมูลส่วนบุคคล ภาวะสุขภาพ พฤติกรรมการสูบบุหรี่ กระบวนการเปลี่ยนแปลง การรับรู้สมรรถนะตนเอง การสมดุลในการตัดสินใจ แบบวัดความเครียด แบบวัดปริมาณการติดนิโคติน และการบริโภคเครื่องดื่มแอลกอฮอลล์ วิเคราะห์ข้อมูลโดยใช้สถิติการวิเคราะห์ข้อมูลโดยใช้สถิติพรรณนา และการวิเคราะห์ถดถอยโลจิสติ ที่ระดับนัยสำคัญทางสถิติ .05

ผลการวิเคราะห์พบว่าปัจจัยทำนายการเลิกบุหรี่ของข้าราชการกองทัพเรือมีดังนี้ ระยะเวลาในการเลิกบุหรี่ (length of quit attempt: OR=1.05, 95%CI=1.04-1.06) และการสนับสนุนการเลิกบุหรี่ของครอบครัว (family support: OR=1.51, 95%CI=1.06-2.15 การปลูกจิตสำนึก (consciousness raising: OR=1.5, 95%CI=1.06-2.15), การปลดปล่อยตนเอง (social liberation: OR=.81, 95%CI= 73-.90), การใคร่ครวญผลต่อตนเอง (self reevaluation OR=.84: 95%CI=.0.75-0.94), และการให้เรียนรู้สิ่งตรงกันข้าม (counter condition: OR=1.15, 95%CI=1.03-1.29) ปัจจัยทำนายทั้ง 6 ปัจจัยนี้สามารถอธิบา ยโอกาสในการเลิกบุหรี่ของข้าราชการกองทัพเรือได้ร้อยละ 56.5

สาขาวิชา __พ ยาบาลศาสตร์__   ลายมือชื่อนิสิต...
ปีการศึกษา __2554__   ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก.......................................
                            ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม.......................................

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      THE ROYAL THAI NAVY PERSONNEL ADVISOR:
      ASSOC.PROF. JINTANA YUNIBHAND, Ph.D., CO-ADVISOR:
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     The purpose of this study was to identify predicting factors of quitting smoking among the Royal Thai Navy Personnel. The study used a cross-sectional, descriptive correlational research design using self-reported questionnaires based on Transtheoretical model (Prochaska and DiClemente, 1983). Multi-stage random sampling was employed to obtain the sample of RTN personnel who had quit smoking for at least 24 hours in the past year. Data were analyzed using descriptive and inferential statistic of 553 RTN personnel was used to analyze the predictors. Descriptive statistics were used to evaluate characteristics health status, smoking and quitting characteristics, The alcohol use disorders identification test (AUDIT) self stress test, Fagerstrom Test for Nicotine Dependence (FTND), processes of change, decision balance, and self-efficacy. Logistic regression analysis was used to calculate odds ratios with 95% confidence interval of abstinence rates for each variable. And the level of any statistical tests was established at $p = 0.05$

     The results indicated that the predicting factors of quitting smoking among the Royal Thai Navy were length of past quit attempt (OR=1.05, 95% CI=1.04-1.06), family support (OR=1.51, 95% CI=1.06-2.15), conscious raising (OR=1.5, 95% CI =1.06-2.15), social liberation (OR=.81, 95% CI=.73-.90), self-reevaluation (OR=.84, 95% CI=.0.75-0.94),counter condition (OR=1.15, 95% CI=1.03-1.29). The best equation of logistic regression explained to 56.5% of the variance in quitting smoking among the RTN personnel.

Field of Study : Nursing Science Student's Signature

Academic Year : 2011   Advisor's Signature

                    Co-advisor's Signature

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CHAPTER I

INTRODUCTION

Background and significance of the study

Approximately one person dies every six seconds due to smoking. The consequences associated with smoking provide compelling reasons for addressing one of the largest public health threats the world has ever faced. Smoking accounts for the deaths of nearly six million people a year. Five million of those deaths were current and past smokers, and 600,000 deaths were individuals that had never smoked, but were exposed to second-hand smoke. Unless urgent action is taken, the annual death toll could rise to more than eight million by 2030 (World Health Organization, 2011).

The health benefits of quitting smoking can be detected as early as 20 minutes after quitting smoking (Rigotti et al., 2003). The immediate health benefits of quitting smoking are substantial. Heart rate and blood pressure, which are abnormally high while smoking, begin to return to normal. Within a few hours of the last cigarette, the level of carbon monoxide in the blood begins to decline. Within a few weeks, people that quit smoking have improved circulation and respiratory functions. After several months of quitting, people can expect substantial improvements in lung function (U.S. Department of Health and Human Services, 2008). In the long term, quitting smoking reduces the risk of cancer and other diseases, such as heart disease and chronic obstructive pulmonary disease (COPD) caused by smoking (Department of Health and Human Services, 2010). In addition, quitting smoking before middle age could

prevent more than 90% of the risks attributed to smoking with mortality rates similar to those that have never smoked (Centers for Disease Control and Prevention, 2011).

In Thailand, smoking is a major public health problem that demands attention, Moreover, smoking is the second most significant risk factor affecting health, with approximately 42,000 Thais dying from smoking-related diseases annually over the last two decades (Sittipunt, 2008) Over one-fourth (27.2%) of the Thai population smoke, the majority of whom are males (45.6%) and a smaller percentage (3.1%) are females. Also, concerning was the gender disparity with males having a 10 fold prevalence compared with women (Benjakul et al., 2007). Thais report being exposed to smoking in the workplace (27.2%) and at home (39.1%) (Global Adult Tobacco Survey, 2009).

Smoking among the Royal Thai Navy (RTN) personnel has been a focus of concern. Smoking prevalence in the military is higher than in the general population, who smoke before entering military service (Joseph et al., 2005; Owen, 2003). The rate of smoking has significantly fluctuated in the RTN ranging from 28.5% in 2002 (Joseph et al., 2005), to 13.37% in 2006, and to 15.77% in 2007 (The Royal Thai Naval Medical Department, 2008). Military leaders have expressed concern about the impact of smoking on the fitness and performance of military personnel (Zadoo, Fengler, and Catterson, 1993). Specifically, smoking impairs athletic performance, increases physical injuries during training, increases basic military training failures, and results in increases in illnesses (Bahrke, Baur, Poland, and Connors, 1998; Messecar, 2001). All of these negative outcomes affect the ability of the RTN to protect the national interests of the sea and to maintain peace within the country. Furthermore, the mortality rates among the RTN personnel in 2007 were attributed to

smoking behavior such as cancer (10.92%), pulmonary disease (5.04%), congestive heart failure (9.24%), ischemic heart disease and myocardial infarction (5.88%) (The Royal Thai Naval Medical Department, 2008). Nelson, Pederson, and Lewis (2009) have suggested that culture shapes tobacco use and question whether the military attracts smokers or promotes smoking as a normative behavior in adapting to the military environment. Because the military culture differs from the general population (Nichter, 2003), an understanding of quitting smoking and of the factors associated with quitting smoking among the military culture is an important area of research.

Quitting smoking can be defined as any attempt made by an individual to achieve that goal (Fagan et al., 2007; Richardson, 2002). Quitting smoking often requires multiple attempts (Li, et al., 2010; U.S. Department of Health and Human Services, 2000), pointing to the difficulty of quitting smoking and smoking cessation. Only 2-4% of people are successful in quitting smoking on the first attempt (Pierce and Gilpin, 2010) and only 4.7% remain abstinent after one year of quitting (Thorne, et al., 2008). About 60% of current smokers plan to, or are thinking about quitting smoking, with half having made an attempt to quit in the last 12 months (Centers for Disease Control and Prevention, 2009). Quitting smoking outcome ranged from 24 hours to one year (Velicer, et al, 2004). The smokers that have quit for longer than 7 days are much more likely to succeed in quitting smoking than those that have not quit for very long (Bancej et al., 2007).

Thailand have initiated many quitting smoking projects to dedicate their good spirit to his Majesty the King for his 80 year anniversary in 2007 and the RTN undertook a quit smoking campaign of their own in the "Say Good Bye to Smoke" project with the Thai Health Promotion Foundation. The activity based on the

tobacco Products control Act, B.E, 2535 and the Non- smokers Health Protection Act, B.E, 2535, which included providing health services to encourage people to quit smoking, such as the purvey quit clinic, a quit line service, creating a smoke free environment in the workplace and motivating RTN personnel to participate in quitting smoking by providing rewards to those that have successfully quit smoking for at least 6 months. The results of this campaign indicated that a small proportion (28.72%) of all RTN smokers volunteered to participate at Somdejprapinklao Hospital and Queen Sirikit Hospital. At a six months follow up period, 472 (11%) of those participating had quit smoking (The Royal Thai Naval Medical Department, 2008), a rate slightly higher than spontaneous quit rates of 2% to 4% reported by others (Pierce and Gilpin, 2001; Stapleton, 1998). However, smoking prevalence among RTN personnel remain high compared with smoking prevalence and quit rates. The RTN has lost enormous budgets annually because of smoking related illnesses, medical treatment, including lost productivity in RTN beneficiaries. For example, cost was estimated at13,265 baht per person per year for chronic obstructive pulmonary disease and 17,746 baht per person per year for coronary heart disease (Leartsakulpanitch, Nganthavee, and Salole, 2007).

As mentioned above, the RTN is still faced with a low number of people that have been able to quit smoking and the RTN personnel still faced health problems related to smoking. To date, the transtheoretical model (TTM) has been used in many quitting smoking interventions to maintain the longest period of quitting smoking (Prochaska et al., 1994). The TTM has been successfully applied to many health behavior studies. The TTM was used to predict quitting smoking success and it was found that individuals in the contemplation and preparation stages were more likely to

succeed in quitting smoking than those in the pre-contemplation stage (Dijkstra et al., 1998; Fava et al., 1995; Perz, DiClemente, and Carbonari, 1996).

A general trend has been uncovered whereby experiential processes of changes were used more extensively earlier in the stage progression, whereas behavioral processes tended to peak later in the stage continuum, around the time of action and maintenance (Perz et al., 1996). Consistent relationships between the movement through the stages and the decisional balance have also been found, in that early in the process, the pros of smoking tend to outweigh the cons, and many factors both Western and Asian have been seen to play a crucial role in relation quitting smoking among adults such as age, sex, marital status, and socio-economic status (Hyland, et al. 2004; Ferguson, et al. 2003; Godtfredsen, et al.2001; Khuder, et al. 1999, Osler and Prescott 1998,), health status, weight, BMI, and level of alcohol consumption (Gilman, et al. 2003; Godtfredsen, et al. 2001), duration of abstinence at the previous quit attempt, number of past quit attempts, and level of nicotine dependence (Falba, et al. 2004; Ferguson, et al. 2003; Godtfredsen, et al. 2001; Osler, et al. 1999; Jaen, et al. 1999; Osler and Prescott, 1998; Honjo et al., 2010; Tsai, Lin, and Tsai, 2011; Li et.al, 2010; Yasin et al., 2011), religious beliefs (Yang et al., 2009; Wee et al., 2011), health status and diagnosis of disease (Honjo et al, 2010; Tsai et al., 2011), and health concern for family members (Yang et al., 2009). A study of military personnel found that the predictors of successful quitting smoking were less nicotine dependence and less use of alcoholic beverages, while the strongest predictors of relapse were strong cravings and stress (Faue et al., 1997). This review was remarkable in that there were many factors related to quitting smoking. Some that fit some groups and may not be related to other groups. Consequently nursing

interventions for quitting smoking should be designed by using specific factors along with an actual stage of change.

Nurses play a key role and are ideally placed to encourage smokers to quit smoking; and recognizing the differentiate of individuals who were at different stages of readiness to quit smoking. An understanding the predicting factors of quitting smoking among the RTN personnel was important for nurses. These predictors might predict an individual's ability to quit and maintain their quitting smoking in order to better target disparate populations and guide smoking cessation interventions for military members focusing on the unique demands of military life (Denton, 2008).

Research Question

What are the predicting factors of quitting smoking among Royal Thai Navy personnel?

Purpose of the study

To identify the predicting factors of quitting smoking among Royal Thai Navy Personnel.

Theoretical framework

According to the Transtheoretical Model (TTM), intentional behaviors, including addiction, are multi-faceted and no single perspective (biological, social, or psychological) can account for why individuals develop and change behaviors (DiClemente, 2003).

The TTM of behavior change was developed by Prochaska and DiClemente after a comprehensive analysis of psychotherapy literature (Prochaska and DiClemente, 1982, 1983). Data obtained from individuals that had quit smoking through self-directed procedures (DiClemente and Prochaska, 1982). Research based

on TTM indicated that common principles of health behavior change exist (Redding et al., 2000). The model describes the relationships among stages of change, processes of change, decisional balance, and self-efficacy and temptation.

The TTM conceives of behavior change as a progression through a series of five stages of change:, pre-contemplation, contemplation, preparation, action and maintenance, as opposed to conceiving of behavior change as an event. In other words, individuals do not change their behavior all at once, but rather change their behavior incrementally. They also did not typically move from stage to stage linearly, but experience progression and regression, often recycling back through a previous stage before moving forward again. In addition to the stages of change, several other constructs are incorporated into the model, including the processes of change, decisional balance, situational confidence, and situational temptation. The cognitive, emotional, behavioral, and interpersonal techniques, strategies and activities that individuals use to progress through the stages of change are called the processes of change. The ten processes of change are as follows: consciousness raising, dramatic relief, self-reevaluation, environmental reevaluation, social liberation, helping relationships, counterconditioning, reinforcement management, stimulus control, and self -liberation. Decisional balance refers to the relative weighing of the pros and cons of behavior change. The pros represent the benefits of changing or the reasons to change, and the cons represent the barriers to change or the reasons not to change. Self- efficacy refers to situational confidence and situational temptation refer to the self-efficacy construct proposed by Bandura (1977, 1982). Situational confidence is the situation-specific confidence one has that he or she can cope with high-risk situations without relapsing, and situational temptation is the intensity of the urges

one has to engage in a specific behavior in a difficult situation. (Prochaska et al., 1997; Redding et al.,2000)

Several of the constructs described in the TTM were derived from other theories of health behavior change. For example, the decisional balance construct was very similar to the benefits/barriers construct presented in the Health Belief Model, and the situational confidence and temptation construct was based on the self-efficacy concept presented by Bandura (1977, 1982). However, the TTM integrated these constructs with others and describes specific relationships among and between these constructs. The TTM was purposely developed through the conscious incorporation of other behavior change theories, building upon the strengths of the previous theories (Redding, et al., 2000). Research based on the TTM and the processes of change indicated that different processes of change were used to progress through the stages of change, and that successful behavior change was dependent upon using specific processes at specific stages (Redding, et al., 2000). Prochaska et al. (1992) found that in earlier stages of change, individuals employ cognitive, affective, and evaluative processes like consciousness raising, dramatic relief, environmental reevaluation, and self-reevaluation, in order to progress through the stages of change. However This study was designed to the predictor of quitting smoking from TTM constructs including personal factors. The conceptual framework for the study showed as follows:

Demographic Factors - Age - Marital Status - Income - Education	
Health Related Factors - Health Status - Body Mass Index	
Smoking and quitting history characteristics -Age at smoke initiation -Number of cigarettes per day -Length of past quit attempt	
Stress	
Alcohol Consumption	
Nicotine Dependent	
Family support	
The RTN smoking control policy	
Processes of Change **-** Consciousness Raising - Dramatic Relief - Environmental Reevaluation - Self Reevaluation - Social Liberation - Helping Relationships - Self Liberation - Stimulus Control - Counter Conditioning - Reinforcement Management	
Decision Balance	
Self-Efficacy	

Quitting Smoking

Figure 1.1: The Conceptual Framework

Hypotheses with rationales

      1.   Demographic factors were predictors of quitting smoking.

         1.1 Age

         Rationale: Older age was found to be a significant predictor of the proability of smoking cessation (Hymowitz et al., 1997). There is some evidence that age of smokers is related to quitting smoking and also that a younger age of starting smoking (before 20 age) was associated with a reduced probability of cessation or lower quit rates (Sohn et al.,2007) Some researchers have argued that older age is a positive predictor of cessation and that it is highly correlated with health problems, also an important potential predictor of cessation (Osler and Prescott, 1998).

         1.2 Marital Status

         Rationale: Many studies have reported that marital status is a predictor of quitting smoking. (Senore et al.,1998; O' Loughlin et al.,1997). The postulated explanation was that marriage offers positive support, which may help quitters remain non-smokers.   Osler and Prescott also reported that having a non-smoking spouse or cohabitant was associated with successful of quitting smoking (Osler and Prescott, 1998).

         1.3 Income

         Rationale: Quitting smoking is difficult for poor people within several reasons, while financial status is reported to be strongly associated with reduced success in quitting smoking (Gilman et al., 2003; D'Angelo et al., 2001; Jaen et al.,1999). A study among adult smokers in Britain found the smokers that reported

positive socioeconomic factors for quitting smoking, including higher income (Hymowitz et al., 1997), less often unemployed (Osler and Prescott 1998), and older age with a lower income, were less likely to quit smoking (Chandola, 2004).

1.4 Education

Rationale: Education has a documented correlation with smoking and quitting smoking. However, these differences in education and smoking were not observed prior to the 1964 Surgeon General's report, which released the first public warning that smoking causes death. That report was considered to be the reason that there was an educational difference among smokers and nonsmokers. People with more education levels were more likely to quit smoking than illiterates (Gira, Assefa, and Deribew, 2010; Yang, et al., 2009).

2. Health related factors were predictors of quitting smoking.

2.1 Health status

Rationale: A history of smoking related medical conditions are associated with quitting smoking. Several studies have confirmed that the presence of impaired lung function (Godtfredsen et al., 2001), hospitalization (Dale et al., 1997), hypertension (Hyman et al., 1996), and smoking related medical conditions (Hill et al., 1994) were positively associated with quitting smoking. Contrary to the expectation that people in poorer health would be more likely to quit, one study in a low-income, low-education community found that being in good or excellent health predicted early cessation (O'Loughlin et al.,1997). The investigators of this study argued that smokers in good health may endure withdrawal symptoms more easily than smokers in poor health status.

2.2 Body Mass Index

Rationale: Smoking may help people lose weight and a majority of smokers who quit gain weight (Robert et al.,1997). The metabolic effects of smoking cessation are incompletely understood but include increased appetite, disinhibited eating, and decreased thermoregulation (Hatsukami et al., 1993; Hudmon, and Gritz, 1999). Because the effects of cessation on weight are well known in the general population, anxiety about weight gain is an important barrier to smoking cessation especially in women (Robert et al. 2000; Meyers et al. 1997).

3. Smoking and quitting history characteristics were predictors of quitting smoking.

3.1 Age at smoke initiation

Rationale: Numerous studies have documented that the age at smoke initiation could predict the ability to quit smoking. When young people become smokers they are more likely to become addicted, and continue through adulthood (Chen et al., 2006). As such, research tends to support the premise that reducing early onset smoking can reduce the adult prevalence of smoking (Severson, 2006). It has been well documented that the majority of smokers report that they began smoking during adolescence or around 14 years of age (Stockdale et al., 2005). Some estimates claim that upwards of 85-90% of adult smokers began smoking before the age of 18 (Severson, 2006). It has also been reported that the social pressure to smoke was cited as the number one reason that students smoked cigarettes (Stockdale et al., 2005). 25% of adults initiated smoking at 18 years of age or after they entered college (Stockdale et al., 2005).

3.2 Number of cigarettes per day

Rationale: The number of cigarettes per day is a predictive of successful cessation. Studies have reported that reducing smoking consumption daily can increase the likelihood of successful cessation because the level of addiction decreases (Lee et al., 2007).

3.3 Length of past quit attempt

Rationale: A history of past quit attempt was an important indicator of the success of future quitting among both adult and adolescent smokers (Etter,2002; Hymowitz et al., 1991; Murray et al., 2000; and Zhu et al., 1999). Both the number and duration of previous unassisted quit attempts were important predictors of subsequent long-term cessation. However, that had made any quit attempts that lasted longer than 5 days were much more likely to succeed than those that had not sustained the cessation of smoking for that long. Specifically, among women that smoke (Borrelli et al., 2002), the length of previous quit attempts significantly predicted quitting vs. smoking. Women with longer previous quit attempts were 36% more likely to quit than to continue smoking. Conversely, reported shorter periods of abstinence on prior quit attempts were markedly associated to relapse. (Gervey et al., 1992) A positive history of previous quit attempts should be exploited to boost motivation, because if a smoker has managed to quit in the past it is more likely that he or she would be successful in a future quitting attempt. In particular, given that the longer a smoker remains abstinent (>5 days), the more likely he or she is to succeed in a subsequent attempt, the physician might reinforce any effort to extend abstinence, at least as practice for the next attempt. Also, it is

important to elicit what led to previous relapses, in order to identify ways to prevent future relapse (Murray et al., 2000; Borrelli et al., 2002).

4. **Stress**

Rationale: Smoking was used to cope with psychological stress (U.S. Department of Health and Human Services 1990). It is reasonable that psychological stress may impact quitting smoking. Two studies have reported that lower levels of stress or lower depression scores predicted a higher probability of quitting smoking (Wiecha et al., 1998; D'Angelo et al., 2001). In addition, there were not having a current psychiatric diagnosis (Ferguson et al., 2003) but also having a lower neuroticism score (Kaprio and Koskenvuo, 1988) have positively associated with quitting smoking.

5. **Alcohol consumption**

Rationale: Several studies (Hyland et al., 2004; Osler et al., 1999) have confirmed this hypothesis by reporting that less frequent or smaller amounts of alcohol intake were positively associated with quitting smoking. Another possible explanation for the negative association between alcohol consumption and quitting smoking was that smokers who that found it more difficult to quit, may try to use both smoking and drinking as coping strategies or responses to the negative affect (Hill et al., 1994).

6. **Nicotine dependence**

Rationale: Numerous studies confirmed that nicotine dependence was the most powerful negative predictor of quitting smoking (Breslau, and Johnson 2000; Godtfredsen et al., 2001). The measures of nicotine dependence most frequently used in past studies include quantity of cigarettes smoked per day, time to the first cigarette

of the day, and daily smoking. Subjects with lower cigarette consumption, those that took a longer time to get to the first cigarette in the morning, and those that were not daily smokers, were more likely to quit. Although the negative association between the quantity of cigarettes smoked per day and quitting smoking has been well established, the relationship appears to be non-linear. In a 5-year cohort study, Godtfredsen et al. reported that heavy smokers (>25 g/day) at baseline were more likely to reduce their tobacco consumption than moderate smokers (15-24 g/day), while moderate smokers were more likely to quit (Godtfredsen et al., 2001)

7. Family support

Rationale: Many authors consider that family support is a key of quitting smoking. Marital status is usually examined in this context, although the measure does not consider partner's smoking status and being married does not necessarily imply greater social support. Cross-sectional and prospective population studies have found people that are married have higher quit rates than people that are divorced, separated or widowed (Chandola et al., 2004; Ferri, 1993;Waldron and Lye, 1989). Chandola et al. (2004), using data from the British Household Panel Survey (BHPS), examined five different types of general support ranging from instrumental aid to emotional support and determined that perceived social support was predictive of nonsmoking status at follow up. Other research has shown that the existence of a supportive partner (Coppotelli and Orleans, 1985; Gulliver, Hughes, and Solomon, 1995) assessing both general and smoking specific social support and supportive friends (Morgan, Ashenberg, and Fisher, 1988) looking at just smoking specific support predicts success in quitting smoking.

8. The RTN smoking control policy

Rationale: Because quitting smoking is influenced by the policy existing. Perception of smoking control policy is significant related with quitting smoking. It was a significant predictor of smoking cessation. Smokers who had a household measure of home smoking rules, smoking ban had 30% greater odds of reporting a quit attempt during the period and workplace smoking ban had 64% better odds of making a quit attempt relative to those whose workplace had no ban (Biener et al., 2010).

9. **Processes of change was a predictor of quitting smoking**

Rationale: Processes of change include overt and covert activities that lead to progress through the stages. Ten scales were developed by Prochaska et al.,1988 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 (Prochaska et al.,1988). These 10 processes are used differentially by smokers within a specific stage of change from pre-contemplation to maintenance quitting smoking. All of the processes of change had a positive direct effect on self-efficacy and quitting smoking.

10. Decision Balance was a predictor of quitting smoking

Rationale: Decisional balance is a measure of the importance of the reasons and concerns related to making a change in behavior. Velicer et al. (1985) found that the structure of the decision to change smoking behavior consisted of only two constructs, pros (positive aspects) and cons (negative aspects) of change. The cons of smoking began to increase as the pros come down. The cons were higher than

the pros in the action stage, but both become less important as individuals move from action to maintenance (Prochaska et al., 1994). As individuals progress through the stages of change, in the contemplation stage, there was a crossover where the cons become equal to the pros. Therefore, decisional balance had a positive direct effect on self-efficacy.

11. Self-efficacy was a predictor of quitting smoking

Rationale: Self-efficacy is a perception of abilities to avoid relapse in various situations. The higher order factor represented how perceptions of temptations to smoke change over time. Numerous studies have rvealed that self-efficacy was a predictor of quitting smoking/cessation (Stuart, Borland, and Mc Murray, 1994) Furthermore, a longitudinal study was reported that self-efficacy was significantly associate with longest abstinence or longest stop smoking. (Martin et al.,2006). Carey and Kalra (1993) examined data from a sample of smokers over a 12-month period. Those that had successfully quit for 12 months had increased levels of self-efficacy, whereas those that continued smoking, or even attempted abstinence but relapsed, had showed decreased self-efficacy. Therefore, self-efficacy would be a predictor of quitting smoking.

The scope of the study

This study describes the characteristics of the predicting factors in quitting smoking among the RTN personnel and examined the relationships among the demographic data (age, marital status, income and education), health related factors (health status, body mass index (BMI) and exercise), smoking and quitting history (ages at smoke initiation, number of cigarettes per day, and length of past quit attempts), stress, alcohol consumption, nicotine dependent, family support, the

RTN smoking control policy, ten processes of change, decision balance and self-efficacy among the Royal Thai Navy Personnel that had experiences of quitting smoking for at least 12 months.

Operational definitions

The operational definitions for the constructs of the TTM as applied to quitting smoking attempt among the RTN personnel were described below.

Quitting smoking was defined as the RTN personnel self-report of not smoking in the last seven days. The participants were asked to respond to the following question: Have you smoked in the past seven days? If the RTN personnel reported that he or she had not smoked for the last seven days, they were considered to be abstinence or quitting smoking. If they were report smoking, it was indicated that they had not quit smoking, or they were considered to have had a relapse.

Stages of change were defined as the RTN personnel's thought or plan to change over time from smoking to quitting smoking. This was measured with the SCQ and was associated with the readiness to change that occurred over five stages: The stages were identified as:

Stage 1 : Pre-contemplation was defined as the stage at which the RTN personnel thought about quitting smoking in the last 6 months.

Stage 2 : Contemplation was defined as the stage at which the RTN personnel thought about quit smoking in the last 30 days.

Stage 3 : Preparation was defined as the stage at which the RTN personnel thought about quitting smoking in the next 30 days and planned to quit by using several methods, such as decreasing the number of cigarettes per day.

Stage 4 : Action was defined as the stage at which the RTN personnel had quit smoking for less than 6 months.

Stage 5 : Maintenance was defined as the stage at which the RTN personnel had quit smoking for more than 6 months.

Processes of change was defined as a component that was used for forcing the RTN personnel to change their smoking behave or at each stage. It was measured by the POC. The POC questionnaire represented those activities that the RTN personnel engaged in to alter their feelings, thoughts, and behaviors toward a particular problem.

Consciousness-raising was defined as increasing information about oneself and one's problem. This was defined as the component that was used for forcing the RTN personnel to change their smoking behavior at each stage. It was measured with the PCQ and was associated with the processes of change.

Dramatic Relief was defined as the RTN personnel experiencing and expressing feelings about problem behavior and solutions.

Environmental Reevaluation was defined as the RTN personnel combining both affective and cognitive assessments of how the presence or absence of a smoking habit affected their social environment. It also included the awareness that the RTN personnel could serve as a positive or negative role model for others.

Self-reevaluation was defined as the RTN personnel combining both cognitive and affective assessments of his or her self-image with and without smoking.

Social Liberation was defined as the RTN personnel requiring an increase

in social opportunities or alternatives especially for people that were relatively deprived or oppressed.

Counter Conditioning was defined as the RTN personnel requiring the learning of healthier behaviors that were substituted for problem behaviors such as nicotine replacement being substituted for cigarettes.

Helping Relationships was defined as the RTN personnel combining caring, trust, openness and acceptance as well as support for quitting smoking.

Reinforcement Management was defined as the RTN personnel providing The consequences for taking steps in a particular direction.

Self-liberation was defined as the RTN personnel believing and announcing the capacity of quit smoking to others and promising to do.

Stimulus Control was defined as the RTN personnel removing cues for smoking and adding prompts for healthier alternatives or quitting smoking. Avoidance, environmental re-engineering, and self-help groups could provide stimuli that support change and reduce risks for relapse.

Length of past quit attempts was defined as the maximum number of days during which that the RTN personnel tried to quit smoking in the past.

Nicotine Dependence was related to the intensity of the need that the RTN personnel felt they had for a particular substance. Nicotine dependence was defined as the level of severity of nicotine dependence, and measured by the Fagerstrom Test for Nicotine Dependence (FTND) scale (Heatherton et al., 1991).

Alcohol consumption was defined as level of severity of alcohol use, measured by the Thai AUDIT, a 10-item inventory with a score range between 0 and 40 that queried patients about the amount of alcohol consumption, frequency, severity, alcohol-related injuries, and social consequences of drinking.

Stress was defined as a level of the severity of symptoms, behavior or feeling happen in each situation using a 20- item of Self Stress Test (SST) Thai version was developed by The Mental Health Department, Ministry of Public Health for assessing stress problems.

Health status was defined the current status of the RTN personnel's health which, included the status of their wellness, fitness, and underlying disease, symptoms or injuries.

Body Mass Index (BMI) was defined as a measure of the RTN personnel's weight in relation to height; to calculate one's BMI, weight in kilograms is divided by the square of one's height in inches.

Exercise was defined as the individual sports or activities that the RTN personnel practiced to maintain their fitness, or to increase their skill or relaxation.

Family support was define as the perception of the RTN personnel of spouse and family members' aid or providing for or maintaining their quitting smoking by supplying money or necessities.

The RTN smoking and control policy was defined the perception of the RTN personnel regarding the RTN rules and regulations for controlling smoking such as declaring the public and workplaces specified in the schedule as no-smoking areas or providing a cessation clinic in the RTN.

Royal Thai Navy Personnel was defined as commissioned and non-commissioned officers on active duty and that worked in 4 divisions of the Royal Thai Navy, including the head quarters, forces, logistics and education.

Expected benefits

1. The expected benefit from this study allowed the researcher to better understand the predictors of the RTN personnel in quitting smoking and added to the knowledge base for developing a quitting smoking program tailor made for this group.

2. The nurses enhanced the tailor-made nursing intervention for this group by manipulating the significant predicting factors to maintain quitting smoking behavior among the RTN personnel as long as they were able.

3. Nurses, stakeholders and the RTN policy makers should make predicting factors a concern and should initiate quitting smoking projects that are supported by this evidences; they should also promote the intention to quit smoking and encourage the RTN smokers to join quitting smoking projects.

4. The outcomes of this study can be generalized to other groups of militaries, such as the Royal Thai Armed Forces, the Royal Thai Army, and the Royal Thai Air-Force.

CHAPTER II

LITERATURE REVIEW

This study aimed to identify the predicting factors of quitting smoking among the RTN personnel. The review of theoretical and empirical literature was into five sections including,

1. Quitting Smoking Situations in the Military

    1.1 Quitting Smoking Situations in the Royal Thai Military

    1. 2 The Prevalence of smoking in the US. Military and trends

    1.3 Effects of Smoking on the Military Population

    1.4 Smoking Cessation Intervention in Military Personnel

2. Measurement of quitting smoking

    2.1 Point prevalence abstinence

    2.2 Continuous abstinence

    2.3 Prolonged abstinence

    2.4 Comparison among outcome measures

3. Factors related to quitting smoking

    3.1 Factors related to quitting smoking in Western populations

    3.2 Factors related to quitting smoking in Asian populations

4. Nurses' role in quitting smoking

5. Transtheoretical Model

1. Quitting Smoking Situations in the Military

    1.1 Quitting Smoking Situations in the Royal Thai Military

        In 2005, after the WHO announced its motto, "World No Tobacco Day" for "Health Professionals and Tobacco Control," the professional health network of Thai society set up a smoke-free hospital project and promoted quitting among health professionals. The Royal Thai Army (RTA) and the RTA Medical Department have partaken in this project. The activities in this project consisted of organized smoking areas and smoke-free workplaces, making the military a smoke-free zone by providing smoke-free signs in all places, providing health education to the RTA officers, organized quitting smoking clinics, and researching for the prevalence of smoking and quit rates among RTA personnel. Eleven army hospitals joined in this project and found that some RTA personnel were able to stop smoking after joining the project (Pannee Pantaewan, 2011). However, the health promotion plan of the Royal Thai Armed Forces began in 2004, with the support of the Thai Health Promotion Fund when the Royal Thai Armed Forces started a vigorous campaign to reduce the numbers of the soldiers smoking following the King's Royal Comment about the health of the people. In 2006, the Ministry of Defense set up a smoke-free project under the responsibility of the Directorate of Personnel, so each Army unit including the Army hospital, followed this project to support the Non-Smokers Health Protection Act, BE.2535. Suansomjit (2007) characterized the activities as follows:

        - Survey and organize smoke-free zones and smoking areas

        - Survey the prevalence of smoking of the RTA personnel and other workers in the military workplaces

- Set up activities to increase physical exercise for supporting the quitting of smoking among the military

- Launch smoke-free projects for each military unit

In 2006, the Royal Thai Navy (RTN) initiated campaigns for the RTN Forces to stop smoking. The activities followed the Tobacco Products Control Act, B.E, 2535 and Non-Smokers Health Protection Act, BE. 2535, which included providing health services to support the forces to encourage quitting smoking, such as organized quitting smoking clinics, quit-line services, and promoting a smoke-free environment in the RTN workplaces. The results showed that 472 Navy forces were able to stop smoking.

In 2007, the RTN continued the project and activities in every unit of the RTN forces; namely "Say Good Bye to Smoke," a project which dedicated their good spirit to celebrate the His Majesty the King's 80th Birthday Anniversary, 5th December 2007. The project encouraged the RTN personnel to quit smoking and motivated them with some rewards for those that had successfully quit smoking at for least 6 months. The results of this campaign indicated that 28.72% of all RTN smokers volunteered to participate at the RTN Medical Department Hospitals, such as Somdejprapinklao Hospital, and Queen Sirikit Hospital.

1. 2 The Prevalence of smoking in the U.S. military and trends

The prevalence of smoking in the military was at 32%. The highest rate of smoking in the US Army was 38% of Army personnel compared with 36% of Marine Corps personnel, 32% of Navy personnel, and 23% of Air Force personnel (Bray et al., 2005). Studies indicated that military recruits were particularly vulnerable to

smoking initiation and that smoking rates increased between recruitment and active duty (Chisick, Poindexter, and York, 1998).

Approximately 38% of smokers in the military began smoking after enlistment. One such study found that tobacco use was 2-4 times as high among men in active duty as with male recruits, and another study estimated that about 50% of recruits used tobacco in the year before their enlistment (Ames, Cunradi, and Moore, 2002). Junior-enlisted personnel showed the highest rates of smoking in the military among those junior personnel who smoked; 40% reported initiating after joining the military Contributing factors to the high rate of smoking in the military included: stress management, boredom, anxiety, and sleep deprivation. Forty-two percent of smokers in the military reported that the number of places to buy cigarettes at their installation made it easy to smoke, and a similar percentage reported that most of their friends in the military smoked.

Trends in military smoking indicated that the overall prevalence of heavy smoking among military personnel declined significantly from 13% in 2002 to 11% in 2005 (Bray et al., 2005). Military personnel that smoked were more likely to be male, single, white, enlisted, between the ages of 18 and 20, and to have low levels of education. Documents have revealed that the tobacco industry has used unique strategies to target the military market for decades.

1.3 Effects of Smoking on the Military Population

It has been found that the military personnel that smoked were less productive and did not perform as well on physical fitness tests relative to nonsmoking personnel (Conway, Cronan, 1988; Bahrke et al., 1988). In a study on how smoking status and

weight predicted fitness levels among a military population, smoking was a stronger and more consistent predictor of physical fitness than weight.

Military smokers were more likely to miss duty days because of illness, experience significantly more training injuries, and were more likely to be discharged within the first year of service relative to nonsmoking personnel. It was estimated that the DOD spends about $875 million per year on healthcare for smoking-related illnesses and lost productivity in DOD beneficiaries (Bray et al., 2005).

Tobacco use exposed smokers to numerous dangerous substances, including nicotine, CO, and other toxicants collectively known as "tar" (technically, nicotine-free, dry particulate matter; Federal Trade Commission, 2000). The following section explors some of the adverse health effects and consequences associated with cigarette smoking.

Nicotine Dependence

Nicotine was the major psychoactive constituent in tobacco, and acute effects of nicotine administration such as increased systolic blood pressure and increased heart rate (APA, 2000).

Cardiovascular and Respiratory Disease

CO exposure was linked to cardiovascular and respiratory disease, the second and third leading causes of death for smokers (cancer was the first leading cause of death; CDC, 2008). Indeed, cardiovascular disease and respiratory illness account for approximately 126,000 and 92,900 tobacco-related deaths each year, respectively (CDC, 2008a).

Cancer

Smokers were exposed to 4800 different chemicals, of which 69 were

considered carcinogens. The "tar" in cigarette smoke contains sixty-nine known carcinogens, including PAHs and TSNs (Hoffman et al., 2001). Cancer, specifically, lung cancer, was the leading cause of death for smokers (CDC, 2005).

Chronic Lung Disease

More than 80% of cases of COPD in the United States were attributed to smoking. Smoking also increased the risk of respiratory infection, including pneumonia, and resulted in greater disability from viral respiratory tract infection. Pulmonary disease caused by smoking includes the overlapping syndromes of chronic bronchitis, emphysema, and airway obstruction (US Surgeon General, 2004). Smoking also causes premature onset of decline in lung function and accelerates the age-related decline. Sustained smoking abstinence results in a return of the rate of lung-function decline to that of a person that has never smoked (US Surgeon General, 2004).

Exposure to secondhand smoke was a well-established cause of death, illness, and annoyance in nonsmokers (US Surgeon General, 2007). Secondhand smoke contains the same toxic constituents as mainstream smoke, some of which are present in higher concentrations than in mainstream smoke. Some constituents of secondhand smoke persisted at high concentrations for many hours after smoking has ceased (Singer et al., 2003; Singer et al., 2002). In nonsmoking adults, secondhand-smoke exposure was associated with an increased risk of lung cancer and acute myocardial infarction (MI) and a 20–30% excess risk of coronary heart disease (Chen, and Boreham, 2002).

1.4 Smoking Cessation Intervention among Military Personnel

The Department of Defense (DOD) only allowed military personnel to smoke in specified areas in its buildings. Recruits were not allowed to smoke during basic

training; cigarettes are no longer significantly discounted in commissaries; and advertising was forbidden in service publications. Despite these regulations, nearly 10% of military newspapers contain tobacco advertisements. Tobacco control messages in military newspapers are less prevalent than other health issues, and use less effective messaging strategies (Haddock, 2005).

Many smokers in the military reported trying to quit. In 2005, 67% of those that reported smoking in the past year tried to quit smoking. Fourteen percent of smokers in the military successfully quit in 2005; 53% tried to quit but continued smoking; and 33% did not try to quit (Bray et al., 2005). Of those that continued to smoke, 23% said they planned to quit in the next 30 days, and 40% said that they intended to quit in the next six months.

The interventions for smoking cessation in military emphasize policy implementation. In the U.S., the Department of Defense (DoD) addressed prevention and smoking reduction by mandating smoke-free workplaces and cessation support for military personnel. For example, the U.S. Navy prohibits tobacco use during recruit training for the entire 8 week duration of basic training. This study investigated the impact of the Navy's no smoking policy on the smoking behavior of male recruits at graduation from basic training (Conway et al., 2004). Besides a ban on smoking during recruit training, a policy on smoking and other health risk behaviors was established, for example, designed nonsmoking areas and smoking cessation campaigns, smoke-free workplace, encouragement of healthcare providers to refrain from smoking on duty, and distribution of information to new personnel on the health consequences of smoking and encouragement to quit (Joseph et al., 2005).

In contrast with the study among infantry battalion members, the short-term impact of army smoking policies included restrictions on areas in which smoking was permitted, education regarding the hazards of smoking, and encouraging the role of health professionals—emphasizing cessation; and it was revealed that it had little or no impact on 73% of the smokers. Seventy-eight percent of soldiers received question from army healthcare providers regarding their use of cigarettes, but only 30% of current smokers had been suggested to quit or cut down on smoking (Carroll et al., 1989).

Another study examined relapse prevention interventions after the recruits were banned from smoking during an 8-week Navy basic training program. The three interventions consisted of the following:

(1) Training smoking ban and health education

(2) Standard treatment and post-recruit training with regular

motivational mailings

(3) Telephone helpline groups receiving standard treatment and access

to a toll-free telephone help line after recruit training

The results indicated that the three groups did not differ in smoking prevalence rates. However, there was a decline of 20% points of current smokers after one year. Therefore, recruit training may be an external motivation for smokers that desire to quit (Conway et al., 2004).

KIesges et al. (2006) conducted a tailored, longer intervention and added preventing nonsmokers from initiating tobacco use or assisting those wishing to remain abstinent from smokeless tobacco use in a population of military personnel in the U.S. The results indicated that the smokers that received intervention were 1.16

times (7-day point prevalence) and 1.23 times (continuous abstinence) more likely to be abstinent than the controls from smoking cigarettes at a 1-year follow-up, and the cassation rate difference was 1.60% and 1.73% for point prevalence and continuous abstinence. Smokeless tobacco users were 1.33 times more likely than the controls to be continuously abstinent. The program, however, had no impact on smoking initiation which should prevent the factors to smoking such as stress, boredom, and alcohol intake.

Educational intervention on tobacco use had a short-term effect on tobacco use and intention to quit among 151 U.S. Army infantry soldiers. The intervention consisted of tobacco health hazards and effects on military readiness, preparing and approaches to quitting, and maintaining abstinence and resources for quitting. The education content was structured from session one of the ACS fresh start program, a four-session quit smoking program. After one month, the results demonstrated a · decline in tobacco use in more than half of tobacco users; 14% quit and 37% decreased their use; however 46% stayed the same. Eighty percent had positive thoughts or actions toward quitting tobacco use (Morgan, 2001).

In contrast with the result of 557 men in Naval basic training about the short period of education could not affect on the cessation in the intervention group when compared with the control group. Consequently, more rigorous programs are needed to reduce the numbers of smokers. Company commanders should not use smoking as a motivational tool with the recruits and might prohibit the company commanders from smoking in front of the recruits. Education programs for company commanders on the hazards of smoking and the effects of modeling and reinforcement may help them to become better role models for becoming a smoke-free organization (Cronan

et al., 1989). Bushnell et al., (1997) evaluated the effectiveness of two behavioral interventions when adding nicotine replacement therapy to smoking cessation among 512 active-duty military, family, retirees, and DOD civilians in the US. The tobacco cessation programs w.ere the American Cancer Society (ACS); the Fresh Start program; four weekly 1-hour large group sessions; and the Vanderbuilt University Medical Center (VUMC) behavior counseling program, which used a relapse prevention model. In both programs, nicotine replacement was offered free of charge to all subjects. The results indicated that 57% of most smokers demonstrated a high level of nicotine dependence. The more intensive programs were effective at the end of program and at 3 months, but there was a relapse rate after 3 months and 6-month follow-up. There was no difference in the program effect for the active duty participants.

In Thailand, the evidence of smoking cessation interventions among Thai military conscripts, focusing on the individual level and interpersonal level, revealed that the effect of the program could not be sustainable. The study of the conscripts at the Chulachomklao Royal Military Academy infantry battalion, which used peer motivation by training 12 nonsmoking to persuade and motivate their friends to quit smoking, revealed that the intervention group could quit smoking after a period of 2 weeks, 1 month, 3 months, 6 months, and I year more than the non-peer motivation group. After 1 month, the cessation rate was 50%, but after 3 months, the program reduced the number of privates that quit to only 25.89%. This study suggested that physicians and peers should motivate smokers at least every month, and a tobacco control campaign should be conducted for the entire unit to encourage them to quit smoking (Suansomjit et al., 1998).

Prommobol (2003) applied a health belief model and a life skill development smoking cessation program to encourage quitting smoking cigarettes among the conscripts at Adisorn fort, in Saraburi province in Thailand. The experimental group participated in health education program activities for four weeks. The results indicated that the experimental group demonstrated more change in their perceived severity of the disease, decision-making skills in relation to stopping stop smoking, and in the lower number of cigarettes smoked per day more than the control group. Self-control technique was system intervention with four follow-ups over 24 months. Individualized and interactive expert system computer reports were sent to the smokers at 0, 3, and 6 months. At 24 months, the effect of the expert system reached a 25.6% point prevalence and 12% prolonged abstinence, which was 30% and 56% greater than the control condition. Abstinence rates at each 6-month follow-up was significantly greater in the expert system than in the comparison condition.

Thungproun (2004) studied a stage mismatched intervention consisting of action-oriented information and activities directed at smokers that were ready to quit smoking. The data were measured three times, which consisted of smoking status, intention and motivation to quit, and smoking behavior and smoking history, including TTM variables. The results failed to support the value of matching interventions to a smoker's stage of change because more individuals in the stage-mismatched group reported a stronger mean intention to quit and greater overall motivation to quit and advancement in stage change than in the stage-matched group. It was indicated a stage-matched used to examine smoking reduction and cessation among army conscripts at Phanurangsri Fort, Rajburi province, and found that the smoking reduction and cessation behavior of the experimental group was significantly

better than the comparison group (p<0.05); however, none of the two sample groups was able to quit smoking (prempasai, 2008). However, for the non-commissioned officers at Kavila military camp in Chiang Mai, the study applied the concept of Glasgow's self-management program on smoking behavior, which was comprised of five sessions in six weeks and revealed that smoking behavior among the experimental group significantly decreased after receiving the self-management program (Thungproun, 2004).

2   Measurement of quitting smoking

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.

- 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 as follows.

- 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).

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 as follows.

- 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).

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. Prolonged

abstinence 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).

2.4 Comparison among outcome measures

Only one study has compared cessation outcome measures. Velicer and Prochaska 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).

3. Factors related to quitting smoking

3.1 Factors related to quitting smoking in western populations

Several authors have also attempted to determine additional factors that are related to successfully quitting smoking. Collectively, the results of these studies indicate that the following factors re predictors of successful quitting of smoking: male gender, older age, higher income, less frequent alcohol consumption, lower daily cigarette consumption, longer time to first cigarette in the morning, initiation of smoking after age 20, a history of past quit attempts, a strong desire to quit smoking and a high motivation level, the absence of other smokers in the household and decreased time spent with smokers, college education, social pressures to quit, and greater confidence in ability to quit (Hymowitz et al., 1997). The selected factors are as follows.

Age

Many studies have reported that older age was a significant predictor of smoking cessation (Gerrit et al., 2004; Khuder et al., 1999; Osler and Prescott, 1998), while others have found conflicting results. For example, two birth cohorts followed for 10 to 16 years, the Copenhagen City Heart Study and the Glostrup Population Study, reported that younger and older smokers were more likely to quit than middle-aged smokers (40-49 years), although this difference did not reach statistical significance (Osler et al., 1999). Some researchers have argued that the reason older age was a positive predictor of smoking cessation was that it was highly correlated with health problems, also an important potential predictor of cessation (Osler and Prescott 1998). Consequently, the effect of age may be weakened in the absence of illness. However, older age was predictive of quitting smoking even after adjustment

for hospitalization in the follow-up of the cohort from the First U.S National Health and Nutrition Examination Survey (McWhorter et al., 1990).

Marital Status

Many studies have reported that marital status was a predictor of quitting smoking independent of the smoking status of the partner (O'Loughlin et al., 1997; Senore et al., 1998). The postulated explanation was that marriage offers positive support that may help quitters remain non-smokers. In a longitudinal study of non-hospitalized adults with cardiovascular dwaseases (CVD), Rice et al. reported a significant positive effect of being married on quitting smoking even when adjusted for a measure of social support. However, Hymowitz and colleagues (1997) reported that the presence of a wife that smoked was actually a significant predictor of reduced cessation among men in the usual care group of a multiple risk factor intervention trial. Similar results were reported by Cohen and Lichtenstein (1990) who observed that partners of successful quitters were more likely to reinforce and participate actively in the smoker's quit efforts compared with partners of non-quitters. Osler and Prescott also reported that having a non-smoking spouse or cohabitant was associated with successful quitting of smoking (Osler and Prescott, 1998).

Health Status/Having a smoking-related disease

Having a smoking-related disease was believed to be a strong motivation for quitting smoking (Dale et al., 1997; Godtfredsen et al., 2001). Therefore, a history of smoking related medical conditions should be associated with quitting smoking. Several studies have confirmed that the presence of impaired lung function (Godtfredsen et al., 2001), hospitalization during follow-up (Dale et al., 1997), hypertension (Hyman et al. 1996), and smoking-related medical conditions (Hill et al.,

1994) are positively associated with quitting smoking. However, contrary to the expectation that people in poorer health would be more likely to quit, one study in a low-income, low-education community found that being in good or excellent health predicted early cessation (O'Loughlin et al., 1997). The investigators of this study argued that smokers in good health may endure withdrawal symptoms more easily than smokers in poor health. More research is needed to explore this issue.

Socioeconomic

Low socioeconomic status was reported to be strongly associated with reduced success in quitting smoking (D'Angelo et al., 2001; Gilman et al., 2003; Jaen et al., 1999). Reported positive socioeconomic factors for quitting smoking included higher income (Hymowitz et al. 1997), being less often unemployed (Osler, and Prescott 1998), older age at the termination of schooling (Jaen et al. 1999), being of a non-manual social class (Jaen et al. 1999), and higher education (Gilman et al., 2003; D'Angelo et al., 2001).

Nicotine dependence

Numerous studies have confirmed that nicotine dependence is the most powerful negative predictor of quitting smoking (Breslau and Johnson 2000; Godtfredsen et al., 2001). Measures of nicotine dependence most frequently used in past studies include quantity of cigarette smoked per day, time to the first cigarette of the day, and daily smoking. Subjects with lower cigarette consumption, longer time to the first cigarette in the morning, and those that were not daily smokers were more likely to quit. Although the negative association between the quantity of cigarettes smoked per day and quitting smoking has been well established, the relationship appears to be non-linear. In a 5-year cohort study, Godtfredsen et al. (2001) reported

that heavy smokers (>25 grams/day) at baseline were more likely to reduce their tobacco consumption than moderate smokers (15-24 grams/day), while moderate smokers were more likely to quit smoking (Godtfredsen et al., 2001).

Smoking habits

Additional smoking-related factors of cessation which have been reported include not inhaling (Godtfredsen et al., 2001; Osler et al., 1999) and smoking types of tobacco other than cigarettes, such as cigars (Hymowitz et al., 1997; Osler et al. 1999). The explanations were that inhalation increases the quantity of nicotine absorbed (Rebagliato, 2002) and that cigars contain less nicotine than cigarettes (Jarvwas, 1994).

Psychological stress and disorders

Because smoking was often used to cope with psychological stress (U.S. Department of Health and Human Services 1990). It is reasonable to assert that psychological distress and disorders may impact quitting smoking. Two studies have reported that lower levels of stress or lower depression scores predict a higher probability of quitting smoking (D'Angelo et al., 2001; Wiecha et al., 1998,). In addition, not having a current psychiatric diagnosis (Ferguson et al., 2003) and having a lower neuroticism score (Kaprio and Koskenvuo, 1988) have also been positively associated with quitting smoking.

Self-efficacy

The recognition of the impact of self-efficacy on behavioral change has increased along with the development of behavioral change theories. As discussed above, self-efficacy was the pivotal component of Social Cognitive Theory, which was widely used for the development of public health interventions. Furthermore,

several studies have reported a positive association between high self-efficacy and successful cessation (Dijkstra and Wolde, 2004).

Although psychological characteristics such as stress, depression, and self-efficacy have been shown to be associated with quitting smoking. The number of published articles regarding these issues was quite small compared with other factors of quitting smoking. Thus, more research was needed to estimate the role of psychological characteristics in quitting smoking.

3.2 Factors related to quitting smoking in the Asian Population

Eastern philosophy and religion influence the Asian culture. The historical, socio-economic, and sociological factors impacting Asian peoples differ from the Western and European countries. Thus, the predictors of quitting smoking for non-Asians may not apply to the population of interest.

The review of the factors related to quitting smoking among the Asian population were summarized as follows.

Number of cigarettes smoked per day

Number of cigarettes smoked per day was a face valid measure of dependence on nicotine (Heatherton et al., 1991). Nicotine dependence was recognized as a determinant of the maintenance of smoking and inability to quit. The term nicotine dependence was preferred over tobacco dependence because abundant scientific evidence was available to document the addictive quality of nicotine (Harwoo et al., 2007). It was possibly the successful quitting of smoking as a result of lower nicotine intake, and it was consistent with previous studies (Chandola et al., 2004). The other factors were length of previous quit attempts (Hagimoto et al., 2010; Li, et al., 2009; Li et al., 2011; Wee et al., 2011),

Length of previous quit attempt were associated with abstinence outcome. Intuitively, smokers that have experienced long periods of previous abstinence might be more successful because they could draw on their past success (Lowell, Glover, Sachs, Schroeder, Offord et al., 2012) Also related to dependence was the duration of past quit attempts. The finding that short previous past attempts (less than a week) was associated with reduced success while longer attempts (six months or more) was associated with increased success compared with no previous attempts (Hyland et al., 2006).

Age, and age at smoking initiation,

Age, and age at smoking initiation tend to be positively related to successfully quitting smoking. In several population-based studies, older smokers were more likely to make a successful quit attempt and were less likely to relapse (Li et al., 2010; Li et al., 2011). Related to development and maturity of age, older smokers were more likely to have health problems related to smoking, and smoking-related health problems appear to increase motivation to quit (Ward, Klesges, and Halpern, 1997). The effect of age on outcome appears to be independent of health status. However, the way of life of the Asian family was quite different than the Western family. An Asian family has a strong bond and this provides for growth and opportunity within the family. There was a large extended family in the same house or same area. Children learned early in life that the family was central and the primary unit and the behavior of individual members was a reflection on the entire family. As a result, elders need to quit smoking in order to be good role models for the new generation. Additionally, an older age of initiation of smoking was also found to be a predictor of quitting smoking (Honjo, et al., 2010; Wee et al., 2011; Yang et al., 2009). The majority of studies to

date have found age at smoking initiation to be a potent predictor of subsequent smoking behavior, including progression to daily smoking, development of nicotine dependence, and the inability to stop smoking (Miller et al., 2006). This is consistent with previous studies (Chandola et al., 2004).

Intention to quit smoking and self-efficacy

Intention to quit smoking and self-efficacy were significant factors in terms of changing the habit or behavior, especially in people with a negative attitude toward quitting smoking. Regarding the TTM, behavior change as a progression through a series of five stages of change, including pre-contemplation, contemplation, preparation, action and maintenance, as opposed to conceiving of behavior change as an event. In other words, individuals did not change their behavior all at once, but rather changed their behavior incrementally. A majority of the smokers had the intention to quit smoking and the process of change had an increasing trend across the stages (Prochaska, 1994). Intention to quit was a key predictor of the propensity to quit and smoking cessation, Norman, et al. (2006) reported that individuals that had the self-confidence that they could resist the urge to smoke across a variety of "high risk" situations have high self-efficacy and are less likely to relapse. In addition, the TTM employed an overall confidence score to assess an individual's self-efficacy. The self-efficacy construct represents the situation-specific confidence that people have that they can cope with high-risk situations without relapsing to their unhealthy or high-risk habit. A change in the level of self-efficacy could predict a lasting change in behavior if there were adequate incentives and skills. Consequently self-efficacy was a predictor for maintaining quitting smoking, while in the west, it was only a trend, because in the west, most smokers that want to quit and have not done so

continue to smoke because they find quitting too difficult to achieve by willpower alone (Li, 2010). Some evidence was found for health status and diagnosis of disease, health concern for family members, and religious beliefs in relation to quitting smoking in these smokers in Asian countries.

Concern health

The most common and perhaps the most important reason for quitting smoking appeared to concern health (Suwala et al., 2005). Most smokers have an increased desire to quit smoking with advancing age perhaps due to increasing concern over health (Tsai et al., 2011). An important consideration was that smokers may have received additional smoking cessation interventions as a result of more contact with healthcare providers. This was true for people that had a new functional impairment after the initiation of the study and was the strongest predictor of changing smoking status. These findings were generally in line with observations made by Honjo et al. (2010), who have observed that new health concerns (the initiation of a prescribed drug and the development of a new disease) were significant predictors of changing smoking status in 40–59 year old Japanese. In addition, family health concerns was a predicting factor for Asian smokers. The Asian family has certain expectations for their children and parents, who want nothing but the best for their children. The home was the major setting where children are exposed to secondhand smoke. Children that have lived in homes where smoking was allowed have higher levels of cotinine, a biological marker for secondhand smoke exposure, than children that have lived in homes where smoking was not allowed. Many smokers make great sacrifices for their children and for the family's benefit. If they knew how harmful secondhand smoke was to their families, they would take steps to

protect them, such as opening a window, limiting smoking rooms, instituting home smoking restrictions, and quitting smoking for the family's health (CDC, 2007).

Religious belief

Religious belief was the only culturally-related factor associated with quitting smoking. Asia was the world's largest and most populous continent, with millions of different people following a wide variety of different religions. Asia was the birthplace of most of the world's mainstream religions and notably has the largest number of Muslims in the world. When tobacco was introduced in Islamic countries and Muslims began smoking, they, in fulfillment of their religious duty, started to examine the sharia ruling on smoking. Some Muslim groups based their views on the general harm caused by tobacco to its smokers. Sharia was the moral code and religious law of Islam. Then, smoking was a sin because of the Islamic *sharia* was founded on the admissibility of everything useful and the prohibition of all harmful things. If usefulness and harm were combined in one thing, but the harm was greater than the use, and the ruling was prohibited (Al-Birry, 2011). On the other hand, still others allowed smoking and ruled that it was permissible on the basis of the general principle that all things are originally permissible unless otherwise prohibited (Al-Birry, 2011). Smoking was still the significant problem in Muslim-majority countries (Wee, et al., 2011; Yasin, et al., 2011) and Malaysian studies have found that the highest proportion of the Asian population practiced the Islamic faith (Ghouri, Atcha, and Sheikh, 2005). Consequently, fasting month was a good opportunity for quitting smoking among Muslim's smokers. Fasting means abstinence from doing something. According to religious scholars, it was an abstinence from food, drink, and sexual intercourse, carried out from dawn till sunset, for the purpose of gaining God's

Content. Religious approaches are used as one of the control measures for reducing smoking prevalence, particularly during the fasting month.

4. Nurses' role in quitting smoking

Nurses have a key role to play in influencing the health of patients. Nurses were ideally placed to encourage smokers to give up. Even the most basic intervention by a health professional could have a profound effect on encouraging a smoker to stop or to seek help for quitting smoking.

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 treatments.
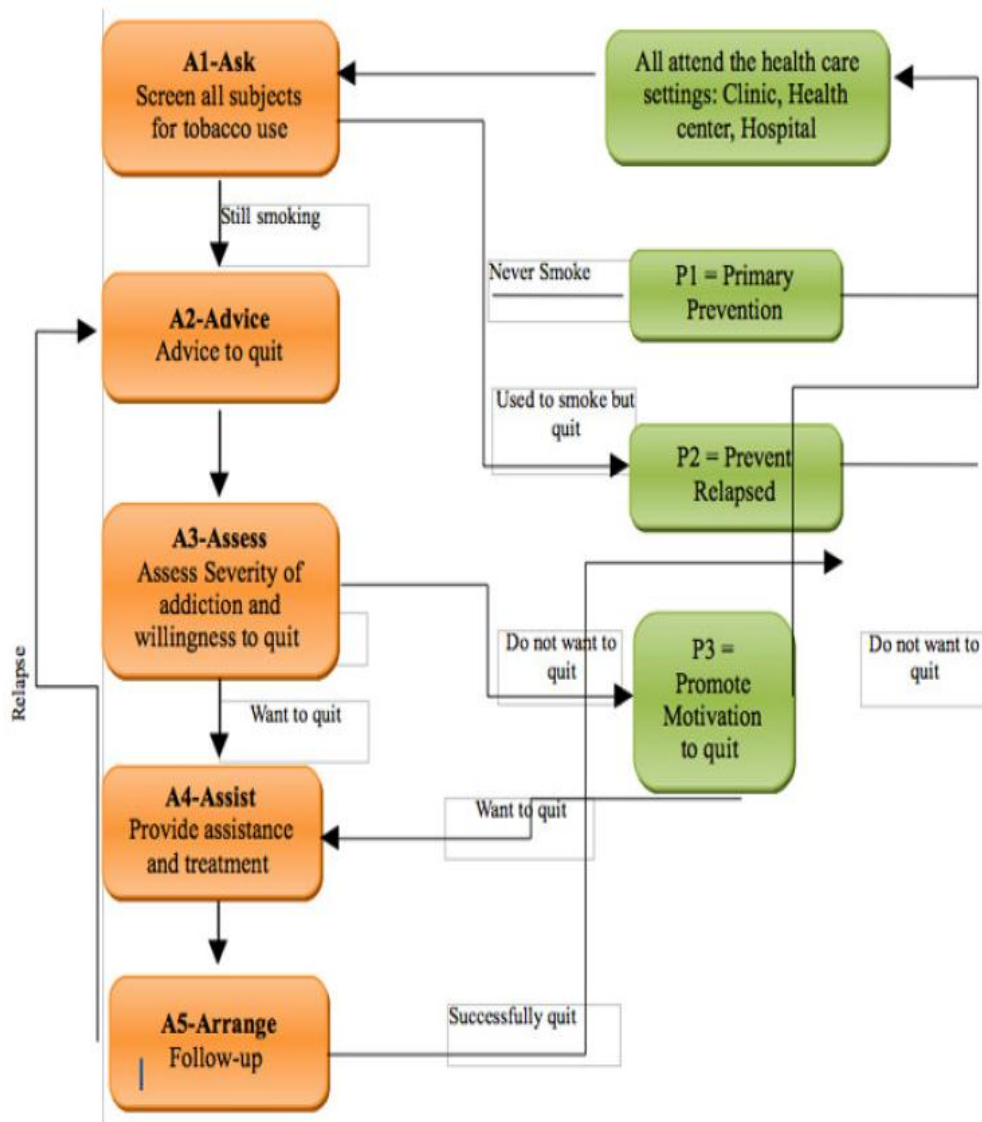
Figure 2.1 Guidelines of Treatment for Tobacco dependence

(**Clinical Practice Guideline (CPG) For Tobacco Cessation Treatment In Thailand 2009
for Physicians and Health Professionals**)

Nurses' role in general populations

The interventions that were documented in the therapeutic and medications in general populations derived from pharmacotherapeutic sources as follows:

Self-Help

Self-help treatment relies on a range of strategies such as video or paper-based support materials. Trials of self-help compared it with either a brief letter, or no information, self-help with brief contact, or advice, or self-help plus NRT, or NRT alone, or individualized self-help materials, additional written materials or video-based resources.

The main results were that self-help can improve quitting smoking rates, but the effect was small, while adding self-help to other forms of therapy such as NRT has no significant effect on quit rates (Lancaster, and Stead, 2005). Tailoring self-help materials may help more than standard material; however, the impact was small when compared with other forms of therapy. In the absence of such materials, self-help was likely to fail, while tailoring materials to individuals' needs increases the likelihood they will quit, although self-help was only slightly more effective than providing no support whatsoever (Lancaster, and Stead, 2005).

Group Therapy

Over 100 forms of group therapy have been described in the literature. The functions of group therapy were to analyze motives for group members' behavior provide an opportunity for social learning, to generate emotional experiences, and to impart information and teach new skills (Lancaster and Stead, 2005).

Alternative therapies

Acupuncture was a form of traditional Chinese therapy using needles to stimulate particular points in the body. Acupuncture has been reviewed for its capacity to improve quitting smoking by reducing symptoms people experience when quitting smoking. In addition to acupuncture, evidence regarding acupressure, laser

therapy and electrical stimulation has been reviewed. However, the existing evidence does not support their use.

Pharmacotherapy

NRT was available in a range of methods of administration, including gum, patch, inhalers, intranasal sprays, and sublingual tablets. These vary in dosage and duration of delivery per administration, and may require different treatment regimens. The evidence, however, clearly shows that NRT in any form was significantly more effective than either placebo or no NRT at increasing rates of quitting smoking (Silagy et al., 2004).

NRT Gum

The evidence related to NRT gum indicates that efficacy of therapy was inhibited by acidic beverages and coffee. NRT gum was also associated with gastric side effects and transference of dependency (Silagy et al., 2004).

NRT Patch

Nicotine patches come in a range of strengths and are worn for various hours of therapy per day for the duration of a quitting smoking program. Evidence from a large systematic review indicated that wearing a patch for 16 hours during waking hours was as effective as a 24-hour patch. The same review identified that continuing NRT patch therapy beyond 8 weeks was no more effective than 8-week duration of therapy.

4. The Transtheoretical Model

The Transtheoretical Model (TTM) was a model of intentional change. It was a model that focuses on the decision-making of the individual. Other approaches to health promotion have focused primarily on social influences on behavior or on

biological influences on behavior. For smoking, an example of social influences would be peer influence models (Flay, 1985) or policy changes (Velicer, et al., 1994). An example of biological influences would be nicotine regulation models (Velicer, et al., 1992) and replacement therapy (Fiore et al., 1994). Within the context of the TTM, these are viewed as external influences, impacting through the individual.

The model involved emotions, cognitions, and behavior. Also the TTM involved a reliance on self-reports. For example, in quitting smoking, self-reports have been demonstrated to be very accurate (Velicer et al., 1992). Accurate measurement requires a series of unambiguous items that the individual could respond to accurately with little opportunity for dwastortion. Measurement issues were very important and one of the critical steps for the application of the model involves the development of short, reliable, and valid measures of the key constructs.

Stages of Change*:* Regression occurs when individuals revert to an earlier stage of change. Relapse was one form of regression, involving regression from action or maintenance to an earlier stage. However, people can regress from any stage to an earlier stage. The bad news was that relapse tends to be the rule when action was taken for most health behavior problems. The good news was that for smoking and exercise only about 15% of people regress all the way to the pre-contemplation stage. The vast majority regress to contemplating or preparation.

In a recent study (Velicer et al., 1995), it was demonstrated that the distribution of smokers across the first three stages of change was approximately identical across three large representative samples. Approximately 40% of the smokers were in the pre-contemplation stage, 40% were in the contemplation stage, and 20% were in the preparation stage. However, the distributions may be different in

different countries. A recent paper (Etter, Perneger, and Ronchi, 1997) summarized the stage distributions from four recent samples from different countries in Europe (one each from Spain and the Netherlands, and two from Switzerland). The distributions were similar across the European samples but very different in the American samples. In the European samples, approximately 70% of the smokers were in the pre-contemplation stage, 20% were in the contemplation stage, and 10% were in the preparation stage. While the stage distributions for quitting smoking have now been established in multiple samples, the stage distributions for other problem behaviors are not as well known. This was particularly true for countries other than the United States.
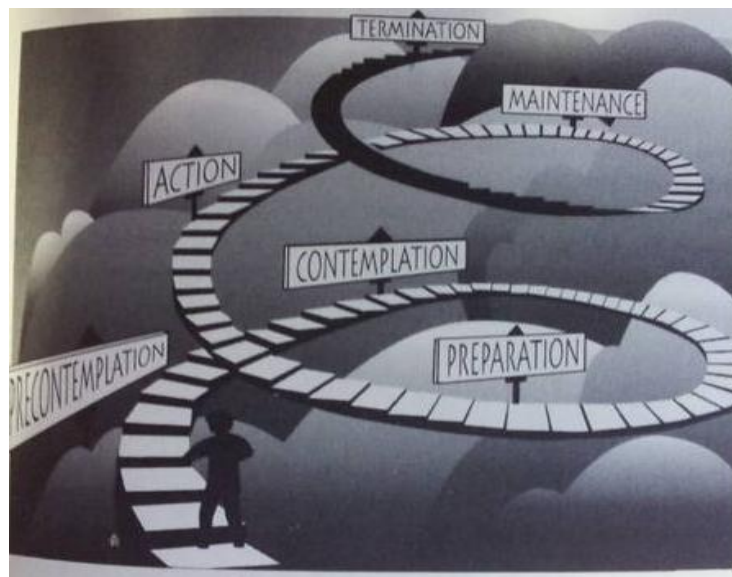
Figure 2.2 The spiral of change Prochaska, Norcross and Diclemente, 1994

Processes of Change was the covert and overt activities that people use to progress through the stages. Processes of change provides important guides for intervention programs, since the processes were the independent variables that people need to apply, or be engaged in, to move from stage to stage. Ten processes

(Prochaska and DiClemente, 1983; Prochaska et al.,1988) have received the most empirical support in our research to date. The first five were classified as experiential processes and were used primarily for the early stage transitions. The last five were labeled behavioral processes and were used primarily for later stage transitions as follows.

Consciousness Raising involves increased awareness about the causes, consequences, and cures for a particular problem behavior. Interventions that can increase awareness include feedback, education, confrontation, interpretation, bibliotherapy, and media campaigns.

Dramatic Relief initially produces increased emotional experiences followed by reduced affect if appropriate action can be taken. Psychodrama, role playing, grieving, personal testimonies, and media campaigns are examples of techniques that can move people emotionally.

Environmental-reevaluation combines both affective and cognitive assessments of how the presence or absence of a personal habit affects one's social environment, such as the effect of smoking on others. It can also include the awareness that one can serve as a positive or negative role model for others. Empathy training, documentaries, and family interventions can lead to such re-assessments.

Social Liberation requires an increase in social opportunities or alternatives, especially for people that are relatively deprived or oppressed. Advocacy, empowerment procedures, and appropriate policies can produce increased opportunities for minority health promotion, gay health promotion, and health promotion for impoverished people. These same procedures can also be used to help

all people change such as smoke-free zones, salad bars in school lunches, and easy access to condoms and other contraceptives.

Self-reevaluation combines both cognitive and affective assessments of one's self-image with and without a particular unhealthy habit, such as one's image as a couch potato or an active person. Value clarification, healthy role models, and imagery are techniques that can move people evaluatively.

Stimulus Control removes cues for unhealthy habits and adds prompts for healthier alternatives. Avoidance, environmental re-engineering, and self-help groups can provide stimuli that support change and reduce risks for relapse. Planning parking lots with a two-minute walk to the office and putting art displays in stairwells are examples of reengineering that can encourage more exercise.

Helping Relationships combine caring, trust, openness and acceptance as well as support for the healthy behavior change. Rapport building, a therapeutic alliance, counselor calls, and buddy systems can be sources of social support.

Counter Conditioning requires the learning of healthier behaviors that can substitute for problem behaviors. Relaxation can counter stress; assertion can counter peer pressure; and nicotine replacement can substitute for cigarettes.

Reinforcement Management provides consequences for taking steps in a particular direction. While reinforcement management can include the use of punishments, we found that self-changers rely on rewards much more than punishments. So reinforcements are emphasized, since a philosophy of the stage model was to work in harmony with how people change naturally. Contingency contracts, overt and covert reinforcements, positive self-statements, and group recognition were procedures for increasing reinforcement and the probability that healthier responses will be repeated.

Self-liberation was both the belief that one can change and the commitment and recommitment to act on that belief. New Year's resolutions, public testimonies, and multiple rather than single choices can enhance self-liberation or what the public calls willpower. Motivation research indicates that people with two choices have greater commitment than people with one choice; those with three choices have even greater commitment; four choices do not further enhance will power. So with smokers, for example, three excellent action choices they can be given are cold turkey, nicotine fading, and nicotine replacement.

For quitting smoking, 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. The relationships between constructs of the TTM were shown in Table 2.1

Table 2.1 The Relationships between constructs of the Transtheoretical model

Stage	Definition	Decisional Balance	Processes o change	Self-efficacy	Temptation
Pre-Contemplation	Individuals are either unaware of or believe their behavior was not problematic. They have no intention of changing their behavior.	The Cons scale was significantly higher than Pros scale.	Consciousness raising, Dramatic relief, Environmental reevaluation	Self efficacy was at its lowest.	Temptation was at its highest.
Contemplation	Individuals become aware of their problematic behavior, but have not committed to changing	The Pros scale increases, but the Cons scale remains high.	Self-reevaluation and Social liberation	Self-efficacy was increasing.	Temptation was decreasing.
Preparation	Individuals intend to change their behaviors within the next month.	The Pros and Cons scales are getting closer together.	Helping relationships, Self liberation, Stimulus control, and Counter-conditioning	Self-efficacy continues to increase.	Temptation continues to decrease.
Action	Individuals are actively modifying their behaviors, experiences, environment	Pros scale becomes significantly higher than the Cons scale.	Reinforcement management	Self efficacy was at its highest	Temptation was at its lowest.
Maintenance	Individuals have maintained their new behavior for at least six months and focus on relapse prevention.	The Pros scale continues to remain higher than the Cons.	All of the processes	Self-efficacy continues to be high.	Temptation continues to below.

Decisional Balance: The Decisional Balance construct reflected the individual's relative weighing of the pros and cons of changing. It was derived from Janis and Mann's model of decision-making (Janis and Mann, 1985), which included four categories of pros (instrumental gains for self and others and approval for self and others). The four categories of cons were instrumental costs to self and others and disapproval from self and others. However, an empirical test of the model resulted in

a much simpler structure. Only two factors, the pros and cons, were found (Velicer et al., 1985). In a long series of studies (Prochaska et al., 1994), this much simpler structure has always been found.

The Decisional Balance scale involves weighting the importance of the pros and cons. A predictable pattern has been observed concerning how the pros and cons are related to the stages of change. In Contemplation, these two scales were more equal. In the advanced stages, the Cons outweigh the Pros.
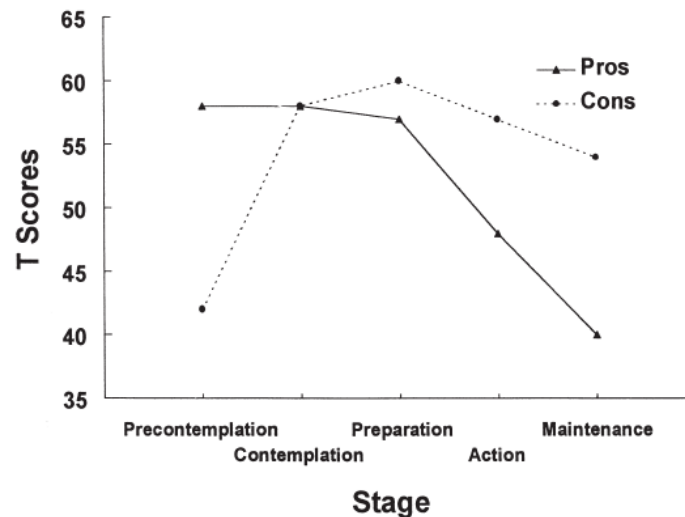
Figure 2.3   Pattern of change for the decisional Balance scales across the stages of change for smoking cessation (Velicer, Norman,Fava, and Prochaska, 1999)

Self-efficacy/Temptations: The Self-efficacy construct represents the situation-specific confidence that people have that they can cope with high-risk situations without relapsing to their unhealthy or high-risk habit. This construct was adapted from Bandura's self-efficacy theory (Bandura, 1977, 1982). This construct was represented either by a Temptation measure or a Self-efficacy construct.

The Situational Temptation Measure (DiClemente, 1981, 1986; Velicer et al., 1990) reflects the intensity of urges to engage in a specific behavior when in the midst of difficult situations. It was in effect, the converse of self-efficacy and the same set of items can be used to measure both, using different response formats. The Situational Self-efficacy Measure reflects the confidence of the individual not to engage in a specific behavior across a series of difficult situations.

Both the Self-efficacy and Temptation measures have the same structure (Velicer et al., 1990). In our research we typically found three factors reflecting the most common types of tempting situations: negative affect or emotional distress, positive social situations, and craving. The Temptation/Self-efficacy measures were particularly sensitive to the changes that are involved in progress in the later stages and are good predictors of relapse.

CHAPTER III

METHODOLOGY

This chapter describes the research design and methodologies used in the present study. The research design, population, sampling technique and sample selection, instrumentations, protection of human subjects, data collection, and data analysis procedure were included.

Research design

The study used a cross-sectional, descriptive correlational research design using self-reported questionnaires. The purpose of study was to identify predicting factors of quitting smoking among the Royal Thai Navy personnel.

Population and sample

Population of the study: The population for this study was the RTN personnel who had quit smoking for at least 24 hours in the last year. Data were retrieved and documented during July 15, to September 15, 2011.

Sample and Settings:

A multistage sampling technique was used. The sample for this study consisted of the RTN personnel. The samples were randomly selected by a simple lottery method without replacement. This samples represented the RTN personnel population. After the RTN units were selected, the researcher directly contacted the General directors of those unit and provided information regarding this study.

Inclusion criteria

The target population in the present study was the RTN personnel. The following criteria were used to select the participants.

1) Subjects were active duty both commission and non-commission officers, work for the RTN.

2) Subjects had quitting smoking experiences at least 24 hours in the last year.

3) Willing to participate in this study

Exclusion criteria

Having health problems including mental problems or handicapped was used for excluding samples from this study.

Sample size

The sample size was determined by two criteria.

First, the variance of the dependent variable (quitting smoking) will take into account based on Hsieh et al. (1998) formula as follow:

$$n_1 = \frac{P(1-P)(Z_{1-\alpha/2}+Z_{1-\beta})^2}{[B(1-B)(P_0-P_1)^2]}$$

Where,

n_1 was the required total sample size

P   was the overall event rate as $(1-B)P_1 + BP_2$

B   was the proportion of the sample with $X = 1$

P_0 and P_1 were the event rates at $X = 0$ and $X = 1$, respectively.

$Z_{1-\alpha/2}$ was the standard normal distribution at confidence level 95% ($\alpha/2 = 0.025$)

$Z_{1-\beta}$ was the standard normal distribution at confidence level I used 1.65 and -0.84

(for ß = 0.20 or power = 0.80).

Based on Hyland et al. (2006) showed Odd ratio (OR) increase 50% for testing logistic regression hypothesis, which was H_0: $\beta_1 = \ln(1) = 0$ and alternative (H_A): $\beta_1 = \ln(0.85)$. They revealed that the proportion of event in current smoker in USA $[P_0 = P(Y = 1) \mid x = 0]$ equal to 0.08, and calculating P_1 the following formula

$$P_0 = P(Y = 1) \mid x = 0 = \frac{(OR) \times P_0}{(1- P_0) + (OR) \times P_0}$$

$$P_1 = P(Y = 1) \mid x = 1 = \frac{0.85 \times 0.08}{(1-0.08) + (0.85 \times 0.08)} = 0.07$$

Then $P = (1-B)P_0 + BP_1$ equal to $P = (1-0.5)0.08 + (0.5 \times 0.07) = 0.07$

By calculation the sample size (n_1) the following formula

$$n_1 = \frac{0.07\,(1-0.07)(1.65 + 0.84\,)^2}{[0.5(1-0.5)(0.08-0.07)^2]} = 404$$

When there was more than one covariate in the model, Whittemore (1981) had shown that, for continuous, normal covariates X, the variance of b_1 in the multivariate setting with p covariates, $\mathrm{var}_p(b_1)$, could be approximated by inflating the variance of b_1 obtained from the one parameter model, $\mathrm{var}_1(b_1)$, by multiplying by $1/(1-p^2_{1.23\ldots p})$ where $p_{1.23\ldots p}$ is the multiple correlation coefficient relating X_1 with X_2, …, X_p. That is, approximately

$$\mathrm{var}_p(b_1) = \mathrm{var}_1(b_1)/(1 - p^2_{1.23\ldots p}),\ p^2_{1.23\ldots p} \text{ know as } R^2$$

Following the relationship of the variances, by calculation the following formula:

$$n_p = n1/ (1- R^2)$$

where n_p and n_1 were the sample size required for a logistic regression model with p and 1 covariates, respectively.

By calculation the sample size (n_p) the following formula, when $R^2 = 0.22$ (Hyland et al., 2006)

$$n_p = 404/ (1-0.22) = 517$$

Second, In this study, the researcher considered that an estimate of the sample and add 10% (Hair et al., 1998) to arrive at a true population value. Thus, 52 cases were added, bringing the total sample size 570.

Sampling procedure

A multistage sampling technique was used. The sample for this study consisted of the RTN personnel. The sample was randomly selected by a simple lottery method without replacement. This sample represented the RTN personnel population. After the RTN unit was selected, the researcher directly contacted the General directors of those unit and provide information regarding this study.

The following steps were followed in order to obtain subjects:

The RTN organization was divided into four divisions according to the job description (1) Head quarters (2) Forces (3) Logistics (4) Education. The samples in this study used multistage random sampling as follows (figure 3.1)

Stage 1 According to the number of the RTN personnel approximately 54,000. The smoking rate was approximately 20% of the RTN population, so the RTN personnel have approximately 14,800 smokers and/or ex-smokers. The RTN organization was divided in 4 divisions including Head of quarter, Forces, Logistics, and Education divisions.

The number of the RTN smokers from the previous study approximately 14,800 including Head of quarter (700 in 13 units) Forces (9,800 in 6 units), Logistic (3,200 in 10 units) and Education (1,100 in 3 units).

Stage 2: Two the RTN unit was randomly selected from each division.

Stage 3: Calculate the proportion between all of samples. 570 samples was included in this research and the numbers of the RTN personnel in each division. The participants were selected by convenience sampling technique.
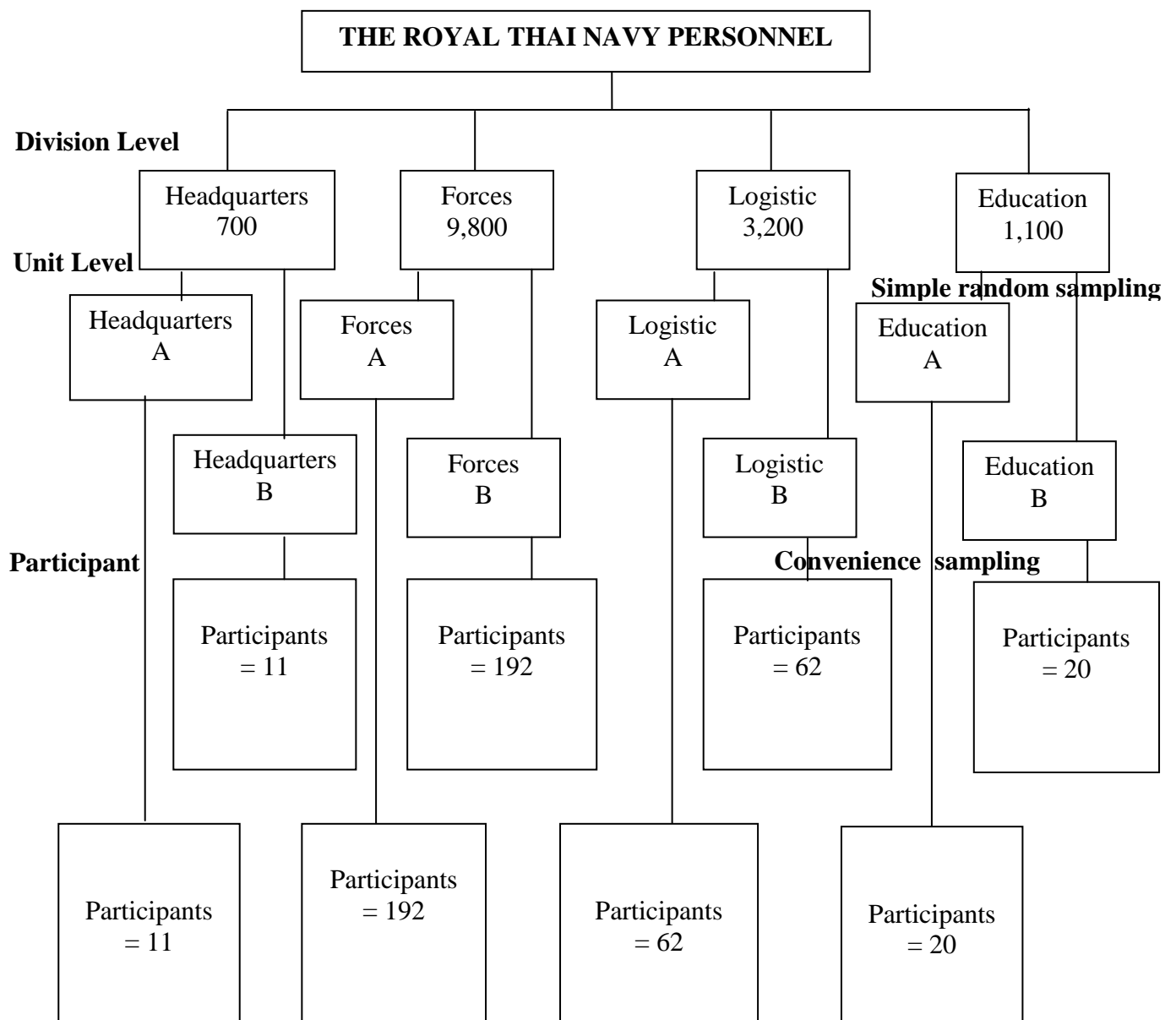
Figure 3.1: The sampling selection with multi-stage random sampling

Instrumentations

The questionnaires were specially designed based on the conceptual framework, tested and improved by the professional. Three instruments were Thai standard measurements, The Alcohol Use Disorders Identification Test (AUDIT), Self Stress Test (SST), and Fagerstrom Test for Nicotine Dependence (FTND). They were develop in to Thai version by Ministry of Public Health. In this study, reliability for AUDIT, SST, and FTND reported that Cronbach's alpha coefficiency were .750, .911, .729 respectively from 30 the RTN personnel who had the same characteristic of the sample. The content validity index by six experts in quitting smoking area and one expert in instrument development area were .94, .94, .95 respectively.

The Alcohol Use Disorders Identification Test (AUDIT) measured alcohol consumption consisted of a 10-item measured assessing alcohol problems across three major domains, hazardous use (quantity and frequency), dependence symptoms (impaired control over drinking), and harmful use (alcohol related injuries). Respondents were asked to report about their current use, problems in the past year, and any history of others being concerned about their drinking The resulting range of score was from zero to forty, where a score of eight or greater indicates problematic drinking. In the six-country development study by the World Health Organization (WHO) of the AUDIT, alcohol behavior questions demonstrated internal consistency Cronbach's alpha coefficient of .93, and alcohol consequences had an alpha of .81 (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT is useful screening tool for alcohol use disorders in a variety of setting, including primary care clinics, emergency rooms, psychiatric hospitals, and workplaces, and was appropriate for administration through interview or computerized self-report (Babor, Higgins-

Biddle, Saunders, & Monteiro, 2001). The AUDIT in Thai version was developed by The Mental Health Department, Ministry of Public Health, Thailand, classified into four groups as follow:

0 – 7	scores	=	Low risk Drinker
8-15	scores	=	Hazardous Drinker
16-19	scores	=	Harmful Use
≥ 20	scores	=	Alcohol Dependence

Self Stress Test (SST) consisted of a 20-item measured assessing stress problems. The scale consisted of symptom, behavior or feeling. Participants will be asked to indicated that how frequency that symptom, behavior or feeling happen in each situation using a Likert scale that ranged from 0 (not at all happen) to 3 (always happen), with higher scores indicating greater stress. Self Stress Test Thai version was developed by The Mental Health Department, Ministry of Public Health, Thailand. It was classified into five groups as follow:

0 - 5	scores	=	Error or misunderstand
6 - 17	scores	=	Normal/No stress
18 - 25	scores	=	Mild stress
26 - 29	scores	=	Moderate stress
≥ 30	scores	=	High stress

Fagerstrom Test for Nicotine Dependence (FTND) measured nicotine dependent consisted of a 6-item measure Fagerstrom Test for Nicotine both developed a measures of nicotine dependence in adults (Fagerstrom, 1978) Heatherton et al., 1991). The reliability of this scale was relatively low in this sample of smokers (α

=0.75). The Fagerstrom Test for Nicotine Dependence (FTND) was classified into three groups as follow:

> 7 - 10   scores =   Highly dependent   (High level).
>
> 4 - 6   scores =   Moderately dependent (Medium level).
>
> < 4   scores =   Minimally dependent   (Low level).

For processes of change questionnaire (PCQ), decisional balance questionnaire (DBQ) and self-efficacy Questionnaire (SEQ). These three questionnaire were accepted for permission and translation into Thai version from Prochaska , Jame (appendix G). The translation processes were translated by using a back translation technique and reviewing the quality of the quality of the translation from Language Institute of Chulalongkorn University. In this study, reliability of PCQ, DBQ, and SEQ reported that Cronbach's alpha co-efficiency were .944, .845, .934 respectively from 30 the RTN personnel who had the same characteristic of the sample. The content validity index by six experts in quitting smoking area and one expert in instrument development area were .92, .85, .93 respectively.

Processes of Change Questionnaire (PCQ)

A 40-item questionnaire assessed ten processes of change in a well statistically defined and highly reliable manner including

> 1. Consciousness Raising namely 6, 8, 10 and 17
>
> 2. Dramatic Relief namely 11,30, 31 and 32
>
> 3. Environmental Reevaluation namely 9, 21, 34 and 39
>
> 4. Social Liberation namely 2, 7, 20 and 24
>
> 5. Self Reevaluation namely 25, 35, 36 and 38
>
> 6. Stimulus Control namely 15, 23, 29 and 37

7. Helping Relationship namely 1, 3, 14 and 40

8. Counter Conditioning namely 5, 26, 27 and 28

9. Reinforcement Management 12, 19, 22 and 33

10. Self Liberation namely 4, 13, 16 and 18

The subjects respond to each item on a five-point Likert scale of current frequency of use in the past month (1= never; 2 = seldom, 3 = occasionally; 4 = often, 5 = repeatedly). The range of process of change score was between 40-200 points. A confirmatory analysis (LISREL) supported the 10-process measurement model (Prochaska et al., 1988).

Decisional Balance Questionnaire (DBQ)

A 20-item questionnaire assessed 10 pros of smoking (odd items) and 10 cons of smoking (even items) (Velicer et al., 1985). Participants rated how important each statement affected to the RTN personnel quitting smoking. It was a 5-point Likert scale from (1) "Not Important" to (5) "Extremely Important." The range of decision balance score was between 20-100 points. A sample pros of smoking, "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".

Self-efficacy Questionnaire (SEQ)

A 20-item measure assessed self-efficacy to refrain from smoking in various situations (Velicer, DiClemente, Rossi, & Prochaska, 1990). Participants were asked to indicate how confident they were that they could avoid smoking in each situation using a Likert scale that ranged from 1 (not at all tempted) to 5 (extremely tempted). The range of self-efficacy score was between 20-100 points and with higher scores indicating greater self-efficacy.

Length of past quit attempt

Length of past quit attempt was used by an item "How many longest days had the RTN personnel ever quitted smoking in the past?" which measured by number of day to quit attempt.

Family support

Family support was measured by asking for the perception of the RTN personnel on a degree of family members supported for quitting smoking by using 4 rating scales from (1 = no support, 2 = slightly support, 3 = very support and 4 = extremely support).

The RTN smoking control policy

The RTN smoking control policy was measured by asking for the perception of the RTN personnel on the RTN smoking control policies by using 5 rating scales from (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = slightly agree, and 5 = Strongly agree).

Quitting smoking

Quitting smoking was measured by questionnaire asking whether participant were quitting 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 (smoker), and an answer "no" indicated that the participant has successfully quitting smoking (ex-smoker).

Table 3.1   Reliability Coefficients for Instruments (n=30)

Variables	Indicators or instruments	Cronbach's Alpha	Validity	Number of Items
Process of Change	Process of Change Questionnaires (PCQ), (Sub-dimension)	.944	.92	40
	- Consciousness Raising	.853		4
	- Dramatic Relief	.893		4
	- Environmental Reevaluation	.849		4
	- Social Liberation	.853		4
	- Self Reevaluation	.843		4
	- Stimulus Control	.753		4
	- Helping Relationships	.869		4
	- Counter Conditioning	.856		4
	- Reinforcement Management	.830		4
	- Self Liberation	.912		4
Decision Balance	Decision Balance Questionnaires (DBQ)	.845	.85	20
Self-Efficacy	Self-Efficacy Questionnaires (SEQ)	.934	.93	20
Nicotine Dependent	Fagerstrom Test for Nicotine Dependence (FTND),	.729	.95	6
Alcohol Consumption	The Alcohol Use Disorders Identification Test (AUDIT),	.750	.94	11
Stress	Self Stress Test (STT).	.911	.94	20

Data collection

       1) A letter asked for the permission to collect the data from the Faculty of Nursing, Chulalongkorn University was sent to the Royal Thai Naval Medical Department and the general director in each the RTN unit in the research settings.

       2) After permission was approved, the researcher made an appointment with the RTN personnel through the RTN research assistants in every research setting and informed them relating the objectives, processes of the study.

       3) Research assistants were the RTN personnel who worked at the RTN unit. They were trained to complete the questionnaires of the RTN personnel who met criteria.

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

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

       6) The participants were asked to sign the informed consent form before data collection.

       7) The participants were asked to complete the questionnaires. It took 25-30 minutes for participants to complete all the questionnaires in each time.

       8) The researcher and research assistants were examined the uestionnaires for completeness of the data. Participants were asked to answer any missing items.

Response rate of questionnaires

From the target population in this study was 570 RTN personnel participants who met the inclusion criteria at the four divisions of the RTN organization, informed consent was obtained from those prior to beginning the study. The overall response rate was 97%, which were 553 out of 570 participants.

Protection of Human Subjects

This study was conducted with the approval of the Chulalongkorn University Institutional Review Board (IRB), the Human Research Board of the Royal Thai Navy Medical Department and the potential settings. Both written and verbal informed consents were obtained in Thai on the same date as the data collection. The informed consent form were explained the purpose of the study, benefits, risks, types of questionnaires, time and tasks to be completed. Permission was obtained from participants before the start of data collection. At the RTN unit, the participants received inform related to the purpose of the study and their right to refuse this participation. If the participants did not want to answer the questionnaires, they had right to withdraw themselves from the study at any time without penalty. Their names did not use in the data; rather a code number was used to ensure confidentiality. There did not harm to the participants in this study. There neither cost nor any payment to participants in the study.

Data analysis

Data was analyzed were using descriptive and inferential statistic as follows:

1. Descriptive statistics (i.e., mean, standard deviation, median, percent and frequency were used to evaluate baseline characteristics including demographics, health status, smoking status, quitting smoking, and smoking cessation.

2. Logistic regression analysis was used to calculate odds ratios with 95% confidence interval of abstinence rates for each variable, with statistical level at $\alpha = 0.05$.

CHAPTER IV

RESULTS

The purpose of this correlational research was to identify predicting factors of quitting smoking among the Royal Thai Navy personnel.

The participants in this study were the 553 RTN personnel who had quit smoking for at least 24 hours in the last year. The data analysis is presented as follows:

Part 1: The study of demographic and characteristics of the RTN personnel by using descriptive statistics: frequency, percentage, means, and standard deviation.

Part 2: Predicting factors of quitting smoking among the RTN personnel.

4.1 The RTN personnel characteristics

The sample was the RTN personnel who had who had quit smoking for at least 24 hours in the last year. 553 of the RTN personnel were recruited during July 15, 2011- September 15, 2011 from 4 divisions of the RTN, including the head quarters, forces, logistics and education. All data were completed by 553 RTN personnel who met the inclusion criteria, logistic regression analyses were used to determine the abstinence rate differences among the RTN characteristic variables and odds ratios for quitting smoking. The 439 RTN personnel who are smoking at present were called smokers, and ex-smokers means the 114 RTN personnel who were not smoking for at least 7 days.

4.1.1 Demographic characteristics

Demographic characteristics of the patients were described in table 4.1. The results showed that 39.4% of the RTN personnel age group was between 25-40 years of age, (married status (49.2%), income sufficiency (58%), and work duration in Navy ≤ 10 (38.9%), 11-20 years (37.1%). More than half of them completed high school (59.1%)

Table 4.1 Demographic characteristics (n = 553)

Demographic		Number	Percentage
Age (years)			
	≤ 24	188	34.0
	25-40	218	39.4
	41-60	147	6.6
Status			
	Single	255	46.1
	Married	272	49.2
	Widowed/ Divorced/Separated	26	4.7
Education level			
	Junior high school/High school	327	59.1
	Diploma degree	148	26.8
	Bachelor degree	71	12.8
	Higher than Bachelor degree	7	1.3
Income			
	Sufficiency and saving	51	9.2
	Sufficiency	321	58.0
	Insufficiency, a few debt	135	24.4
	Insufficiency, a lot of debt	46	8.3
Work duration (years) Mean=13.6817, SD= 10.05429, Range= 0.5-40			
	≤ 10	215	38.9
	11-20	205	37.1
	> 20	133	24.1

4.1.2 Health status characteristics

About sixty percents of The RTN personnel health status reported no disease. 39.4% had disease and the most symptoms that they faced were respiratory symptom such as cough, sputum, tired, dyspnea (64.2%) followed by cardio vascular disease (7.6%) and respiratory disease (6.3%). The RTN personnel had exercises (55.7%) and 47.6% had body mass index (BMI) at normal level (18.5-22.99 kg/m^2) and 33.5% were at a higher level (23.00-27.49 kg/m^2).

Table 4.2   Health status characteristics (n = 553)

Health status	Number	Percentage
Past illness		
No disease	335	60.6
Having disease	218	39.4
Type of diagnosis of disease or symptoms*		
Cardio Vascular disease (CVD)	42	7.6
Respiratory disease	35	6.3
Respiratory Symptom	355	64.2
Exercise Behavior		
No exercise	245	44.3
Having exercise	308	55.7
BMI (kg/m2) Mean= 23.41, SD= 4.17729 Range 14.36 - 55.49		
≤18.5	32	5.8
18.5-22.99	263	47.6
23.00-27.49	185	33.5
≥27.50	73	13.2

*Multiple responses

4.13   Smoking Characteristics

In this study, 73.6% of the RTN personnel were smokers and 26.4% were ex-smokers who were stopped smoking more than seven days. The majority of the RTN personnel's stage change was in pre-contemplation stage (41.0%), action stage (24.1%), preparation stage (19.3%), contemplation stage (13.2%), and 2.4% was in maintenance stage. 62.9% of RTN personnel started smoking at age ≤ 20 years and 80.8% started smoking before serving the RTN, the number of cigarette smoked per day were ≤ 10 cigarettes (50.8%) and more than 10 cigarettes (49.2), while the number of year smoking were more than 10 cigarettes (51.5%). The majority of RTN personnel were regular smokers (56.2%). The most of three co-activities with smoking were driving (91.9%), drinking alcohol (91.0%) and having activities in bathroom (84.3%). Even though most of the RTN didn't have relative smoked (69.8%) and pregnancy women or children at home (71.1%). They preferred smoking at their office more than at home (56.8%).

Table 4.3   Smoking and quitting history among RTN personnel (n = 553)

Smoking Characteristics	Number	Percentage
Smoking status		
Current smokers	407	73.6
Ex-smokers	146	26.4
Stage of change N = 553		
Pre contemplation	227	41.0
Contemplation	73	13.2
Preparation	107	19.3
Action	133	24.1
Maintenance	13	2.4

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Table 4.3   Smoking and quitting history among RTN personnel (Con't)

Smoking Characteristics	Number	Percentage
Aged at smoke initiation (years) Mean=19.62, SD= 4.40 Range= 10 - 41)		
≤ 20	348	62.9
> 20	205	37.1
Place for smoking initiation		
Before serving Navy	447	80.8
In Navy	106	19.2
Type of smokers		
Regular smokers	311	56.2
Occasional smokers	242	43.8
Number of years smoking (years)	268	48.5
≤ 10	285	51.5
> 10		
Number of cigarette per day (cigarettes) Mean= 11.04, SD= 6.04, Range= 1- 40		
≤ 10	335	60.6
11-20	192	34.7
21-30	20	3.6
≥ 31	6	1.1

Table 4.3   Smoking characteristics among the RTN personnel (Con't)

Smoking characteristics	Number	Percentage
Smoking time*		
Driving	508	91.9
Alcohol drinking	503	91.0
In Bathroom	466	84.3
In the Morning	460	83.2
Free time/ Loneliness	460	83.2
Feeling bad mood	457	82.6
With coffee	443	80.1
Have relative Smoke		
Yes	167	30.2
No	386	69.8
Have pregnancy women or children at home		
Yes	163	29.5
No	390	70.5

(*multiple reponse)

4.14   Quitting Smoking Characteristics

The most of the RTN personnel had quit attempts 3-5 times (59.7%).
Length of the longest quit attempt was $\leq$ 7 days (17.7%). The 3 major reasons for
trying to quit were fear of severe illness (34.4%), family request (22.4%), and waste
money (19.5%) respectively. The 3 major reasons for relapse were effect of mood

change, irritate (27.7%), with Alcohol consumption (28.9%) and try only one cigarette (24.2%). Resource for quitting smoking was healthcare provider (89.5%), mass media (87%), and workplace organization (86.1%) respectively. The most of the RTN personnel had never accessed to cessation clinic (88.4%),

Table 4.4   Quitting smoking characteristics

Quitting Smoking Characteristics	Number	Percentage
Number of quit attempt (times) Mean=2.82, SD=1.58, Range=1-10		
1-2 times	204	36.9
3-5 times	330	59.7
> 5 times	19	3.4
Length of the past quit attempt (days) Mean=542.06, SD=1058.580, Range = 1-9490		
≤7 days	98	17.7
8-30 days	42	7.6
31-60 days	22	4.0
>90 days	33	6.0
Major reason for trying to quit		
Fear of severe illness	190	34.4
Waste money	108	19.5
Family request	124	22.4

(*multiple reponse)

Table 4.4   Quitting smoking characteristics (Con't)

Quitting smoking characteristics	Number	Percentage
Major reason for relapse		
Mood change, irritate	153	27.7
With Alcohol consumption	160	28.9
Thinking success try only one	134	24.2
Quitting smoking resources*		
Healthcare Provider	495	89.5
Workplace Organization	476	86.1
Family	470	85
Mass Media	481	87
Poster	457	82.6
Accessed to Cessation Clinic		
No	489	88.4
Yes	64	11.6

4.1.5 Stress

The majority of the RTN personnel had normal stress scores (59.2%),

lower than normal scores (21.7%) and low level of stress (15%).

Table 4.5   Stress score level (n = 553)

Stress score level	Number	Percentage
Below normal	120	21.7
Normal	327	59.1
Low level of stress	83	15.0
Medium level of stress	10	1.8
High level of stress	13	2.4

4.1.6   Alcohol consumption

Most of the RTN personnel had low dependence of alcohol (59%), and

medium dependence of alcohol (34.9%).

Table 4.6   Alcohol consumption level (n = 553)

Alcohol consumption level	Number	Percentage
Low risk drinker	91	16.5
Hazardous Drinker	184	33.3
Harmful use	115	20.8
Alcohol dependence	163	29.5

4.1.7 Nicotine dependent level

Nicotine dependent level was in medium level (47.9% from 403 smokers).

Table 4.7   Nicotine dependent Level (n=403 smokers)

Nicotine dependent Level	Number	Percentage
Low level	176	43.7
Medium level	193	47.9
High level	34	8.9

4.1.8   Family support for quitting smoking

Most of the RTN personnel had family support for quitting smoking 39.1% of them had very support, slightly support (31.5%) and extremely support (22.4%).

Table 4.8   Family support for quitting smoking (n = 553)

Family support for quitting smoking	Number	Percentage
No support	39	7.1
Slightly support	174	31.5
Very support	216	39.1
Extremely support	124	22.4

4.1.9   Idea to the RTN smoking control policies

The majority of the RTN personnel undecided to agree or disagree with the RTN smoking control policies (3.8%), while 29.1% and 26.8% of them were slightly agree and strongly agree respectively.

Table 4.9   Idea to the RTN smoking control policies (n = 553)

Idea to the RTN smoking control policies	Number	Percentage
Strongly disagree	21	3.8
Disagree	25	4.5
Undecided	198	35.8
Slighty agree	161	29.1
Strongly agree	148	26.8

4.1.10 Processes of change, Decision balance, and Self efficacy

The highest mean scores of processes of change were Consciousness raising (12.2), social liberation (13.6) and environment reevaluation (12.0) respectively. The highest mean scores of decision balance were cons of decision balance (31.0) and the highest mean scores of self-efficacy were habitual/craving situations (20.0), negative affect situations (19.5)

Table 4.10 Processes of change, Decision balance, and Self efficacy (n = 553)

Variable	Mean	Std. Deviation
Processes of Change	116.8	28.5
Consciousness raising	12.5	3.8
Dramatic Relief	11.8	3.8
Environmental Reevalution	12.0	3.6
Social Liberation	13.6	3.5
Self Reevalution	10.9	3.6
Stimulus control	9.6	3.7
Helping Relationship	10.8	3.4
Counter Conditioning	11.0	3.7
Reinforcement Management	12.1	3.7

Table 4.10 Processes of change, Decision balance, and Self efficacy (con't)

Variable	Mean	Std. Deviation
Decision Balance	56.7	12.9
Pros of decision balance	25.7	7.9
Cons of decision balance	31.0	8.3
Self-Efficacy	56.6	16.5

4.2 Multivariate predictors of quitting smoking

4.2.1 Preliminary analysis

Prior to further analysis, selected continuous variables were examined under the general statistic assumption for multiple logistic regression analysis, including dichotomous dependent variable, outlier and multicollinearity (Tabachnick and Fidell, 2001).

Dichotomous dependent variable

Quitting smoking was a dependent variable and was defined as the RTN personnel self-report of not smoking in the last seven days. The participants were asked to respond to the following question: Have you used any tobacco in the past seven days? If the RTN personnel reported that he/she was smoking free for the past seven days, they were consider to be abstinence or quitting smoking. As previous mentioned, the quitting smoking as a dichotomous variable.

Outlier

There should be no outlier in the data, which was achieved by converting the independent variables to a standardized Z score at 3.29 or greater could be deleted (Tabachnick and Fidell, 2001) (As shown in Appendix E)   there were 11 participants

who were *Z* score ≥ 3.29 and 5 participants absence *Z* score, total 16 participant were deleted from the data.

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 and Fidell, 2001). Evidence of multicollinearity was not found, with correlation coefficients among the predictor variables ranging from − .06 to .73 (Appendix E).

4.2.2 Predictors model of quitting smoking

Logistic regression was performed to test for the difference in odds for quitting smoking between smoker and ex-smoker, after controlling for covariates. The Hosmer and Lemeshow goodness-of-fit test, which tested the null hypothesis that the model was consistent with observed data, was used to evaluate the model fit. The null hypothesis was not rejected [χ^2 (8, *N*= 537) = 3.98, *p* = .86], indicating the model was consistent with the data.

After entering factors of quitting smoking in each step of the forward logistic regression analysis (Table 4.11). The results found six factors that had significant found to predict quitting smoking with a significant with 95% confident level (p = .05) including family support, length of quit attempt, sub-dimension of process of change namely consciousness raising, social liberation, self-reevaluation and counter conditioning.

1. Family support was determined to be significant (p = .023) with odds ratio of 1.51 (95% CI = 1.06-2.15). It means that RTN personnel with family support were 1.51 times more likely to quit smoking than RTN personnel who was not quitting smoking.

2. Length of quit attempt was determined to be significant (p < .001) with odds ratio of 1.05 (95% CI = 1.04-1.06). It means that RTN personnel with length of quit attempt were 1.05 times more likely to quit smoking than RTN personnel who did not quit smoking.

3. Consciousness raising was determined to be significant (p = .001) with odds ratio of 1.17 (95% CI = 1.07-1.29) It means that RTN personnel with consciousness raising were 1.17 times more likely to quit smoking than RTN personnel who who did not quit smoking.

4. Social liberation was determined to be significant (p < .001) with odds ratio of .81 (95% CI =.73-.90). It means that RTN personnel with social liberation were .81 times more likely to quit smoking than RTN personnel who did not quit smoking.

5. Self reevaluation was determined to be significant (p = .003) with odds ratio of . 84 (95% CI =.75-.94). It means that RTN personnel with self reevaluation were .84 times more likely to quit smoking than RTN personnel who did not quit smoking.

6. Counter Conditioning was determined to be significant (p = .016) with odds ratio of 1.15 (95% CI = 1.03-1.29) It means that RTN personnel with counter conditioning were 1.15 times more likely to quit smoking than RTN personnel who did not quit smoking.

Therefore, the best equation of logistic regression for explaining 56.5% of the variance in quitting smoking was:

In [odds] =   -3.37 + 0.41 (Family support) + 0.05 (Length of quit attempt)

+ 0.16 (Consciousness raising) − 0.21 (Social liberation)

− 0.17 (Self reevaluation) + 0.14 (Counter Conditioning).

Table 4.11   Predictors model of quitting smoking among RTN personnel (n = 537)

Variable	β	S.E.	Wald	AOR	95% CI	p-value
Family support	.41	.18	5.17	1.51	1.06-2.15	.023*
Length of past quit attempt	.05	.01	88.09	1.05	1.04-1.06	.000*
Consciousness raising	.16	.05	10.84	1.17	1.07-1.29	.001*
Social liberation	-.21	.06	14.29	.81	0.73-.90	.000*
Self-reevaluation	-.17	.06	8.83	.84	0.75-.94	.003*
Counter conditioning	.14	.06	5.85	1.15	1.03-1.29	.016*
Constant	-3.37	.73	21.48			.000*

(a) Forward stepwise logistic regression was used to explore important predictors and to calculate the adjusted odds ratios (AOR) with 95% confidence interval for quitting smoking at baseline.

-2 Log Likelihood = 315.40

Cox & Snell R Square = 0.36

Nagelkerke R Square = 0.565

*p-value < 0.05

β: regression coefficient

S.E.: standard error

CHAPTER IV

RESULTS

The purpose of this correlational research was to identify predicting factors of quitting smoking among the Royal Thai Navy personnel.

The participants in this study were the 553 RTN personnel who had quit smoking for at least 24 hours in the last year. The data analysis is presented as follows:

Part 1: The study of demographic and characteristics of the RTN personnel by using descriptive statistics: frequency, percentage, means, and standard deviation.

Part 2: Predicting factors of quitting smoking among the RTN personnel.

4.1 The RTN personnel characteristics

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4.1.1 Demographic characteristics

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Demographic		Number	Percentage
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	41-60	147	6.6
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	Widowed/ Divorced/Separated	26	4.7
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	Diploma degree	148	26.8
	Bachelor degree	71	12.8
	Higher than Bachelor degree	7	1.3
Income			
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	Sufficiency	321	58.0
	Insufficiency, a few debt	135	24.4
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Work duration (years) Mean=13.6817, SD= 10.05429, Range= 0.5-40			
	≤ 10	215	38.9
	11-20	205	37.1
	> 20	133	24.1

4.1.2 Health status characteristics

About sixty percents of The RTN personnel health status reported no disease. 39.4% had disease and the most symptoms that they faced were respiratory symptom such as cough, sputum, tired, dyspnea (64.2%) followed by cardio vascular disease (7.6%) and respiratory disease (6.3%). The RTN personnel had exercises (55.7%) and 47.6% had body mass index (BMI) at normal level (18.5-22.99 kg/m^2) and 33.5% were at a higher level (23.00-27.49 kg/m^2).

Table 4.2 Health status characteristics (n = 553)

Health status	Number	Percentage
Past illness		
No disease	335	60.6
Having disease	218	39.4
Type of diagnosis of disease or symptoms*		
Cardio Vascular disease (CVD)	42	7.6
Respiratory disease	35	6.3
Respiratory Symptom	355	64.2
Exercise Behavior		
No exercise	245	44.3
Having exercise	308	55.7
BMI (kg/m2) Mean= 23.41, SD= 4.17729 Range 14.36 - 55.49		
≤18.5	32	5.8
18.5-22.99	263	47.6
23.00-27.49	185	33.5
≥27.50	73	13.2

*Multiple responses

4.13   Smoking Characteristics

In this study, 73.6% of the RTN personnel were smokers and 26.4% were ex-smokers who were stopped smoking more than seven days. The majority of the RTN personnel's stage change was in pre-contemplation stage (41.0%), action stage (24.1%), preparation stage (19.3%), contemplation stage (13.2%), and 2.4% was in maintenance stage. 62.9% of RTN personnel started smoking at age $\leq$ 20 years and 80.8% started smoking before serving the RTN, the number of cigarette smoked per day were $\leq$ 10 cigarettes (50.8%) and more than 10 cigarettes (49.2), while the number of year smoking were more than 10 cigarettes (51.5%). The majority of RTN personnel were regular smokers (56.2%). The most of three co-activities with smoking were driving (91.9%), drinking alcohol (91.0%) and having activities in bathroom (84.3%). Even though most of the RTN didn't have relative smoked (69.8%) and pregnancy women or children at home (71.1%). They preferred smoking at their office more than at home (56.8%).

Table 4.3   Smoking and quitting history among RTN personnel (n = 553)

Smoking Characteristics	Number	Percentage
Smoking status		
Current smokers	407	73.6
Ex-smokers	146	26.4
Stage of change N = 553		
Pre contemplation	227	41.0
Contemplation	73	13.2
Preparation	107	19.3
Action	133	24.1
Maintenance	13	2.4

Table 4.3   Smoking and quitting history among RTN personnel (Con't)

Smoking Characteristics	Number	Percentage
Aged at smoke initiation (years) Mean=19.62, SD= 4.40 Range= 10 - 41)		
≤ 20	348	62.9
> 20	205	37.1
Place for smoking initiation		
Before serving Navy	447	80.8
In Navy	106	19.2
Type of smokers		
Regular smokers	311	56.2
Occasional smokers	242	43.8
Number of years smoking (years)	268	48.5
≤ 10	285	51.5
> 10		
Number of cigarette per day (cigarettes) Mean= 11.04, SD= 6.04, Range= 1- 40		
≤ 10	335	60.6
11-20	192	34.7
21-30	20	3.6
≥ 31	6	1.1

Table 4.3   Smoking characteristics among the RTN personnel (Con't)

Smoking characteristics	Number	Percentage
Smoking time*		
Driving	508	91.9
Alcohol drinking	503	91.0
In Bathroom	466	84.3
In the Morning	460	83.2
Free time/ Loneliness	460	83.2
Feeling bad mood	457	82.6
With coffee	443	80.1
Have relative Smoke		
Yes	167	30.2
No	386	69.8
Have pregnancy women or children at home		
Yes	163	29.5
No	390	70.5

(*multiple reponse)

4.14   Quitting Smoking Characteristics

The most of the RTN personnel had quit attempts 3-5 times (59.7%). Length of the longest quit attempt was ≤ 7 days (17.7%). The 3 major reasons for trying to quit were fear of severe illness (34.4%), family request (22.4%), and waste money (19.5%) respectively. The 3 major reasons for relapse were effect of mood

change, irritate (27.7%), with Alcohol consumption (28.9%) and try only one cigarette (24.2%). Resource for quitting smoking was healthcare provider (89.5%), mass media (87%), and workplace organization (86.1%) respectively. The most of the RTN personnel had never accessed to cessation clinic (88.4%),

Table 4.4   Quitting smoking characteristics

Quitting Smoking Characteristics	Number	Percentage
Number of quit attempt (times) Mean=2.82, SD=1.58, Range=1-10		
1-2 times	204	36.9
3-5 times	330	59.7
> 5 times	19	3.4
Length of the past quit attempt (days) Mean=542.06, SD=1058.580,Range = 1-9490		
≤7 days	98	17.7
8-30 days	42	7.6
31-60 days	22	4.0
>90 days	33	6.0
Major reason for trying to quit		
Fear of severe illness	190	34.4
Waste money	108	19.5
Family request	124	22.4

(*multiple reponse)

Table 4.4 Quitting smoking characteristics (Con't)

Quitting smoking characteristics	Number	Percentage
Major reason for relapse		
Mood change, irritate	153	27.7
With Alcohol consumption	160	28.9
Thinking success try only one	134	24.2
Quitting smoking resources*		
Healthcare Provider	495	89.5
Workplace Organization	476	86.1
Family	470	85
Mass Media	481	87
Poster	457	82.6
Accessed to Cessation Clinic		
No	489	88.4
Yes	64	11.6

4.1.5 Stress

The majority of the RTN personnel had normal stress scores (59.2%),

lower than normal scores (21.7%) and low level of stress (15%).

Table 4.5   Stress score level (n = 553)

Stress score level	Number	Percentage
Below normal	120	21.7
Normal	327	59.1
Low level of stress	83	15.0
Medium level of stress	10	1.8
High level of stress	13	2.4

4.1.6   Alcohol consumption

Most of the RTN personnel had low dependence of alcohol (59%), and

medium dependence of alcohol (34.9%).

Table 4.6   Alcohol consumption level (n = 553)

Alcohol consumption level	Number	Percentage
Low risk drinker	91	16.5
Hazardous Drinker	184	33.3
Harmful use	115	20.8
Alcohol dependence	163	29.5

4.1.7 Nicotine dependent level

Nicotine dependent level was in medium level (47.9% from 403 smokers).

Table 4.7   Nicotine dependent Level (n=403 smokers)

Nicotine dependent Level	Number	Percentage
Low level	176	43.7
Medium level	193	47.9
High level	34	8.9

4.1.8 Family support for quitting smoking

Most of the RTN personnel had family support for quitting smoking 39.1% of them had very support, slightly support (31.5%) and extremely support (22.4%).

Table 4.8   Family support for quitting smoking (n = 553)

Family support for quitting smoking	Number	Percentage
No support	39	7.1
Slightly support	174	31.5
Very support	216	39.1
Extremely support	124	22.4

4.1.9 Idea to the RTN smoking control policies

The majority of the RTN personnel undecided to agree or disagree with the RTN smoking control policies (3.8%), while 29.1% and 26.8% of them were slightly agree and strongly agree respectively.

Table 4.9   Idea to the RTN smoking control policies (n = 553)

Idea to the RTN smoking control policies	Number	Percentage
Strongly disagree	21	3.8
Disagree	25	4.5
Undecided	198	35.8
Slighty agree	161	29.1
Strongly agree	148	26.8

4.1.10 Processes of change, Decision balance, and Self efficacy

The highest mean scores of processes of change were Consciousness raising (12.2), social liberation (13.6) and environment reevaluation (12.0) respectively. The highest mean scores of decision balance were cons of decision balance (31.0) and the highest mean scores of self-efficacy were habitual/craving situations (20.0), negative affect situations (19.5)

Table 4.10 Processes of change, Decision balance, and Self efficacy (n = 553)

Variable	Mean	Std. Deviation
Processes of Change	116.8	28.5
Consciousness raising	12.5	3.8
Dramatic Relief	11.8	3.8
Environmental Reevalution	12.0	3.6
Social Liberation	13.6	3.5
Self Reevalution	10.9	3.6
Stimulus control	9.6	3.7
Helping Relationship	10.8	3.4
Counter Conditioning	11.0	3.7
Reinforcement Management	12.1	3.7

Table 4.10 Processes of change, Decision balance, and Self efficacy (con't)

Variable	Mean	Std. Deviation
Decision Balance	56.7	12.9
Pros of decision balance	25.7	7.9
Cons of decision balance	31.0	8.3
Self-Efficacy	56.6	16.5

4.2 Multivariate predictors of quitting smoking

4.2.1 Preliminary analysis

Prior to further analysis, selected continuous variables were examined under the general statistic assumption for multiple logistic regression analysis, including dichotomous dependent variable, outlier and multicollinearity (Tabachnick and Fidell, 2001).

Dichotomous dependent variable

Quitting smoking was a dependent variable and was defined as the RTN personnel self-report of not smoking in the last seven days. The participants were asked to respond to the following question: Have you used any tobacco in the past seven days? If the RTN personnel reported that he/she was smoking free for the past seven days, they were consider to be abstinence or quitting smoking. As previous mentioned, the quitting smoking as a dichotomous variable.

Outlier

There should be no outlier in the data, which was achieved by converting the independent variables to a standardized Z score at 3.29 or greater could be deleted (Tabachnick and Fidell, 2001) (As shown in Appendix E)   there were 11 participants

who were *Z* score ≥ 3.29 and 5 participants absence *Z* score, total 16 participant were deleted from the data.

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 and Fidell, 2001). Evidence of multicollinearity was not found, with correlation coefficients among the predictor variables ranging from − .06 to .73 (Appendix E).

4.2.2 Predictors model of quitting smoking

Logistic regression was performed to test for the difference in odds for quitting smoking between smoker and ex-smoker, after controlling for covariates. The Hosmer and Lemeshow goodness-of-fit test, which tested the null hypothesis that the model was consistent with observed data, was used to evaluate the model fit. The null hypothesis was not rejected [χ^2 (8, *N*= 537) = 3.98, *p* = .86], indicating the model was consistent with the data.

After entering factors of quitting smoking in each step of the forward logistic regression analysis (Table 4.11). The results found six factors that had significant found to predict quitting smoking with a significant with 95% confident level (p = .05) including family support, length of quit attempt, sub-dimension of process of change namely consciousness raising, social liberation, self-reevaluation and counter conditioning.

1. Family support was determined to be significant (p = .023) with odds ratio of 1.51 (95% CI = 1.06-2.15). It means that RTN personnel with family support were 1.51 times more likely to quit smoking than RTN personnel who was not quitting smoking.

2. Length of quit attempt was determined to be significant (p < .001) with odds ratio of 1.05 (95% CI = 1.04-1.06). It means that RTN personnel with length of quit attempt were 1.05 times more likely to quit smoking than RTN personnel who did not quit smoking.

3. Consciousness raising was determined to be significant (p = .001) with odds ratio of 1.17 (95% CI = 1.07-1.29) It means that RTN personnel with consciousness raising were 1.17 times more likely to quit smoking than RTN personnel who who did not quit smoking.

4. Social liberation was determined to be significant (p < .001) with odds ratio of .81 (95% CI =.73-.90). It means that RTN personnel with social liberation were .81 times more likely to quit smoking than RTN personnel who did not quit smoking.

5. Self reevaluation was determined to be significant (p = .003) with odds ratio of . 84 (95% CI =.75-.94). It means that RTN personnel with self reevaluation were .84 times more likely to quit smoking than RTN personnel who did not quit smoking.

6. Counter Conditioning was determined to be significant (p = .016) with odds ratio of 1.15 (95% CI = 1.03-1.29) It means that RTN personnel with counter conditioning were 1.15 times more likely to quit smoking than RTN personnel who did not quit smoking.

Therefore, the best equation of logistic regression for explaining 56.5% of the variance in quitting smoking was:

In [odds] =   -3.37 + 0.41 (Family support) + 0.05 (Length of quit attempt)

+ 0.16 (Consciousness raising) − 0.21 (Social liberation)

− 0.17 (Self reevaluation) + 0.14 (Counter Conditioning).

Table 4.11   Predictors model of quitting smoking among RTN personnel (n = 537)

Variable	β	S.E.	Wald	AOR	95% CI	p-value
Family support	.41	.18	5.17	1.51	1.06-2.15	.023*
Length of past quit attempt	.05	.01	88.09	1.05	1.04-1.06	.000*
Consciousness raising	.16	.05	10.84	1.17	1.07-1.29	.001*
Social liberation	-.21	.06	14.29	.81	0.73-.90	.000*
Self-reevaluation	-.17	.06	8.83	.84	0.75-.94	.003*
Counter conditioning	.14	.06	5.85	1.15	1.03-1.29	.016*
Constant	-3.37	.73	21.48			.000*

(a) Forward stepwise logistic regression was used to explore important predictors and to calculate the adjusted odds ratios (AOR) with 95% confidence interval for quitting smoking at baseline.

-2 Log Likelihood = 315.40

Cox & Snell R Square = 0.36

Nagelkerke R Square = 0.565

*p-value < 0.05

β: regression coefficient

S.E.: standard error

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APPENDICES

APPENDIX A

HUMAN SUBJECT APPROVAL

แบบเอกสารที่ RF 11

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เอกสารรับรองโครงการวิจัย
โดย
กรรมการวิจัยและจริยธรรมการวิจัยในมนุษย์ กรมแพทย์ทหารเรือ
RLM 014/54

</div>

ชื่อโครงการ	ปัจจัยทำนายการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ
ชื่อหัวหน้าโครงการ/ หน่วยงานที่สังกัด	นาวาโทหญิง สินีนุช ศิริวงศ์ วิทยาลัยพยาบาลกองทัพเรือ ศวก. พร.
รหัสโครงการ	RP 026/54
สถานที่ทำวิจัย	หน่วยขึ้นตรง กองทัพเรือ
เอกสารที่รับรอง	☑ โครงการวิจัย ☑ โครงการวิจัยที่ขออนุมัติแก้ไขเพิ่มเติม ☑ หนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย ☑ เอกสารชี้แจงผู้เข้าร่วมการวิจัย ☐ อื่นๆ...
รับรองโดย	คณะกรรมการวิจัยและจริยธรรมการวิจัยในมนุษย์ กรมแพทย์ทหารเรือ
วันที่รับรอง	11 กรกฎาคม 2554
วันหมดอายุ	10 ตุลาคม 2554

ลงนาม พลเรือตรีหญิง..

(จิรภา ชัยเลิศ)

ประธานคณะกรรมการวิจัยและจริยธรรมการวิจัยในมนุษย์ พร./

รอง จก.พร.

APPENDIX B

LIST OF THE EXPERTS

LIST OF EXPERTS

1. **Captain Wichai Manassirivittaya, MD**

   Smoking cessation expert, Royal Thai Naval Medical Department

2. **Police Major General Jantana Vivathasiri, MD**

   Smoking cessation expert , Police General Hospital

3. **Associate Professor Dr. Orasa Panpakdee**

   Smoking cessation expert , Department of Nursing, Faculty of Medicine,

   Ramathibodi Hospital, Mahidol University

4. **Associate Professor Chanchai Sitipunt, MD.**

   Smoking cessation expert, Department of Medicine, Faculty of Medicine,

   Chulalongkorn University

5. **Assistant Professor Dr. Nattaporn Lhaothong**

   Statistics expert, Faculty of Education, Chulalongkorn University

6. **Assistant Professor Dr. Lukana Termsirikulchai**

   Smoking cessation expert, Faculty of Public Health, Mahidol University

7. **Mr. Katha Bunditarnukul**

   Smoking cessation expert, Smoke Free Pharmacy Organization

APPENDIX C

INFORMED CONSENT FORM AND

PARTICIPANTS INFORMATION SHEET

Patient/participant information sheet

1. Title: Predicting factors of quitting smoking among the Royal Thai Navy Personnel

2. Researcher Name: Commander Sineenuch Siriwong

3. Office: College of Nursing, Royal Thai Navy, Bangkok, Thailand

Office:	02-475-2535	Home:	02-503-6902
Mobile Phone**:** 084-266-2535		E-mail:	asine17@yahoo.com

4. Information relevant to informed consent form of this study

I am a graduate student in nursing science at Chulalongkorn University, doing a doctoral dissertation on Predicting factors of quitting smoking among Royal Thai Navy Personnel. The purpose of this information was to tell you about the researcher and to allow you to make a clear decision about whether you would like to participate or not.

4.1 The objectives of this study is to identify the predicting factors of quitting smoking among the Royal Thai Navy personnel.

4.2 The benefits of the conducting this study will help nurses, health care providers and policy makers to undertand what are predicting factors of quitting smoking among Royal Thai Navy Personnel.

4.3 The participants are the RTN personnel who had quit attempt at least 24 hour in thet last year. A multi- stage sampling technique will use to indentify the samples.

4.4 Participants will participate in the study. After that they will have suggested the details and the method of the study. Participants will have been asked to answer questionnaires dealing with personal data, regimen complexity, health beliefs, cognitive function, social support, and medication adherence behavior. It will take about 35 minutes for participants to answer questionnaires.

4.5 The possibility of suffering chances such as fatigue and tiredness may occur. Participants will be asked to take a rest after filling out each questionnaire, and they will be informed that they can take a break whenever they feel tried or uncomfortable. The researcher will observe the participants and checks for tiredness and fatigue.

4.6 Participation in the study will be strictly voluntary and participants may drop out of the study at any time, without penalty. This study will not impact participants' health and expenditure, if they are not participating in the study. Participants always directly contact to the researcher.

4.7 The information of the study will be presented the summary of findings as a whole. Each participant will be assigned a number and his or her name will not be connected with this study in any way when the results are reported. The researcher will make every effort to keep the participants' identities confidential. Only the researcher will have accessed to the participants' information. However, this information will be disclosed upon court order.

4.8 The total number of participants in this study is approximately 570.

ข้อมูลสำหรับประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย

(Participant information sheet)

1. ชื่อโครงการวิจัย เรื่อง ปัจจัยทำนายการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ

2. ชื่อผู้วิจัย   นาวาโทหญิง สินีนุช ศิริวงศ์ นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

3. สถานที่ปฏิบัติงาน   วิทยาลัยพยาบาลกองทัพเรือ ถนนสมเด็จพระเจ้าตากสิน แขวงบุคคโล

                        เขต ธนบุรี กรุงเทพมหานคร 10600

                        โทรศัพท์ที่ทำงาน   02-475-2535

                        โทรศัพท์ที่บ้าน   02-503-6902

                        โทรศัพท์เคลื่อนที่   084-266-2535

                        E-mail: asine17@yahoo.com

4. คำชี้แจงของผู้วิจัย

        ข้าพเจ้า นาวาโทหญิง สินีนุช ศิริวงศ์ นักศึกษาปริญญาเอก สาขาพยาบาลศาสตร์ คณะ พยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย กำลังทำการวิจัยเรื่องปัจจัยทำนายการเลิกสูบบุหรี่ของ ข้าราชการกองทัพเรือ โดยเอกสารฉบับนี้จัดทำเพื่อบอกเล่าเกี่ยวกับข้อมูลของผู้วิจัยและการ ดำเนินการวิจัย ซึ่งท่านจะสามารถเข้าใจ และตัดสินใจแสดงความประสงค์ในการเข้าร่วมหรือไม่เข้า ร่วมในการวิจัยครั้งนี้ได้

        4.1 วัตถุประสงค์ของการวิจัยครั้งนี้ เพื่อศึกษาปัจจัยทำนายการเลิกสูบบุหรี่ของข้าราชการ กองทัพเรือ

        4.2. ประโยชน์ของงานวิจัยครั้งนี้ ทำให้พยาบาลและผู้เกี่ยวข้องเข้าใจถึงปัจจัยต่างๆ ที่มีผล ทั้งทางตรงและทางอ้อมต่อพฤติกรรมการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ เพื่อใช้เป็นแนว ทางการให้การพยาบาล และส่งเสริมให้กำลังพลสามารถเลิกบุหรี่ได้อย่างมีประสิทธิภาพ

        4.3 ในงานวิจัยครั้งนี้ผู้เข้าร่วมในการวิจัยเป็นกำลังพลกองทัพเรือที่มีประวัติการสูบบุหรี่ และเคยมีความพยายามในการเลิกสูบบุหรี่อย่างน้อย 24 ชั่วโมงในปีที่ผ่านมา

        4.4 ผู้เข้าร่วมในการวิจัยจะได้รับการชี้แจงจากผู้วิจัยวัตถุประสงค์ และกระบวนการเก็บ ข้อมูล ซึ่งกลุ่มตัวอย่างจะให้ข้อมูลโดยตอบแบบสอบถามข้อมูลส่วนบุคคล ประวัติการสูบบุหรี่ และ การเลิกบุหรี่ ซึ่งรวมระยะเวลาในการตอบแบบสอบถามดังกล่าวใช้เวลาประมาณ 30 นาที และมี การติดตามพฤติกรรมการเลิกสูบบุหรี่ในอีก 3 เดือนข้างหน้าผ่านช่องทางที่ผู้เข้าร่วมในการวิจัยได้ ให้ความยินยอมไว้ เช่น ทางโทรศัพท์, จดหมายอิเล็กทรอนิกส์ (e-mail) หรือ สอบถามโดยตรงกับ ผู้วิจัย

4.5 ผู้เข้าร่วมในการวิจัย มีสิทธิในการปฏิเสธการเข้าร่วมหรือสามารถถอนตัวจากการศึกษา ได้ตลอดเวลา ทั้งนี้การปฏิเสธจะไม่ก่อให้เกิดอันตราย หรือผลกระทบใดต่อผู้มีส่วนร่วมในการวิจัย และจะไม่มีผลรบกวนต่อการได้รับการบริการต่างๆที่จะได้รับตามปกติ ตลอดจนไม่มีค่าใช้จ่ายใดๆ

4.6 หากผู้เข้าร่วมในการวิจัยมีข้อสงสัยให้สอบถามเพิ่มเติมได้จากผู้วิจัย โดยสามารถติดต่อ ผู้วิจัยได้ตลอดเวลาที่ นาวาโทหญิง สินีนุช ศิริวงศ์ และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์ หรือโทษเกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ผู้เข้าร่วมในการวิจัยทราบอย่างรวดเร็ว เพื่อให้ผู้เข้าร่วมใน การวิจัยทบทวนว่ายังสมัครใจจะอยู่ในงานวิจัยหรือไม่

4.7 ข้อมูลที่ได้จากการสัมภาษณ์ของเข้าร่วมวิจัยจะถูกนำไปรวมกับข้อมูลของผู้เข้าร่วมคน อื่นๆ ที่เข้าร่วมในการศึกษา โดยข้อมูลจะถูกเก็บเป็นความลับและผู้วิจัยใช้รหัสแทนชื่อนามสกุล ของผู้เข้าร่วมในการวิจัยในแบบบันทึกข้อมูล หากผู้วิจัยตีพิมพ์ผลการศึกษา ผู้วิจัยจะไม่มีการระบุ ชื่อของผู้เข้าร่วมในการวิจัย ไม่ว่ากรณีใดๆ

4.8 จำนวนของผู้เข้าร่วมในการวิจัยโดยประมาณ 570 คน

หนังสือให้ความยินยอมเข้าร่วมในโครงการวิจัย

ทำที่...

วันที่...

ข้าพเจ้า...อายุ..................ปี บ้านเลขที่.....................ถนน...............................

แขวง/ตำบล...........................เขต/อำเภอ..จังหวัด............................ขอทำหนังสือนี้

ให้ไว้ต่อหัวหน้าโครงการวิจัยเพื่อเป็นหลักฐานแสดงว่า

        ข้อ 1 ข้าพเจ้าได้รับทราบโครงการวิจัยของ นาวาโทหญิงสินีนุช ศิริวงศ์ เรื่อง ปัจจัยทำนายการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ

        ข้อ 2 ข้าพเจ้ายินยอมเข้าร่วมโครงการวิจัยด้วยความสมัครใจ โดยมิได้มีการบังคับขู่เข็ญหลอกลวงแต่ประการใด และพร้อมจะให้ความร่วมมือในการวิจัย

        ข้อ 3 ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยเกี่ยวกับวัตถุประสงค์ของการวิจัย วิธีการวิจัย ประสิทธิภาพ ความปลอดภัย อันตรายหรืออาการที่อาจจะเกิดขึ้น รวมทั้งประโยชน์ที่จะได้รับจากการวิจัยโดยละเอียดแล้วจากเอกสารการวิจัยที่แนบท้ายหนังสือให้ความยินยอมนี้

        ข้อ 4 ข้าพเจ้าได้รับการรับรองจากผู้วิจัยว่า จะเก็บข้อมูลส่วนตัวของข้าพเจ้าเป็นความลับ และจะเปิดเผยเฉพาะผลสรุปการวิจัยเท่านั้น

        ข้อ 5 ข้าพเจ้ารับทราบแล้วว่า ข้าพเจ้ามีสิทธิจะบอกเลิกการร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการร่วมโครงการวิจัยจะไม่มีผลกระทบต่อการได้รับบรรดาค่าใช้จ่าย ค่าชดเชยและค่าทดแทนตามข้อ5 ทุกประการ

        ข้อ 6 หัวหน้าวิจัยได้อธิบายเกี่ยวกับรายละเอียดต่างๆของโครงการ ตลอดจนประโยชน์ของการวิจัยรวมทั้งความเสี่ยงและอันตรายต่างๆที่อาจเกิดขึ้นในการเข้าโครงการนี้ให้ข้าพเจ้าได้ทราบ และตกลงรับผิดชอบตามคำรับรองในข้อ 5 ทุกประการ

        ข้าพเจ้าได้อ่านและเข้าใจข้อความตามหนังสือนี้โดยตลอดแล้ว เห็นว่าถูกต้องตามเจตนาของข้าพเจ้า จึงได้ลงลายมือชื่อไว้เป็นสำคัญ พร้อมกับหัวหน้าผู้วิจัยและต่อหน้าพยาน

ลงชื่อ...ผู้ยินยอม

(...)

ลงชื่อ...ผู้วิจัย

(...)

ลงชื่อ...พยาน

(...)

ลงชื่อ...พยาน

(...)

หมายเหตุ กรณีผู้ยินยอมตนให้ทำวิจัย ไม่สามารถอ่านหนังสือได้ ให้ผู้วิจัยอ่านข้อความในหนังสือให้ความยินยอมนี้ให้แก่ผู้ยินยอม

ให้ทำวิจัยฟังจนเข้าใจดีแล้ว ให้ผู้ยินยอมตนให้ทำวิจัยลงนาม หรือพิมพ์ลายนิ้วมือรับทราบในการให้ความยินยอมดังกล่าวด้วย

APPENDIX D

RESEARCHES INSTRUMENT

แบบสอบถาม

เรื่อง   ปัจจัยที่มีผลต่อการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ

ของ นาวาโทหญิง สินีนุช ศิริวงศ์

นิสิตหลักสูตรพยาบาลศาสตรดุษฎีบัณฑิต (นานาชาติ) คณะพยาบาลศาสตร์

จุฬาลงกรณ์มหาวิทยาลัย

คำชี้แจง

แบบสอบถามฉบับนี้จัดทำขึ้นเพื่อใช้ในการเก็บรวบรวมข้อมูลเกี่ยวกับปัจจัยที่มีผลต่อการเลิกสูบบุหรี่ของข้าราชการกองทัพเรือ โดยแบ่งเป็น 10 ส่วน ดังนี้

เครื่องมือที่ใช้

ส่วนที่ 1	ข้อมูลทั่วไป	จำนวน	10	ข้อ
ส่วนที่ 2	แบบสอบถามข้อมูลด้านสุขภาพ	จำนวน	2	ข้อ
ส่วนที่ 3	แบบสอบถามแบบแผนการสูบบุหรี่	จำนวน	20	ข้อ
ส่วนที่ 4	แบบสอบถามประสบการณ์การเลิกบุหรี่	จำนวน	10	ข้อ
ส่วนที่ 5	แบบสอบถามปริมาณการติดนิโคติน	จำนวน	8	ข้อ
ส่วนที่ 6	แบบประเมินความเครียด	จำนวน	6	ข้อ
ส่วนที่ 7	แบบสอบถามกระบวนการเปลี่ยนแปลงพฤติกรรมการเลิกสูบบุหรี่	จำนวน	40	ข้อ
ส่วนที่ 8	แบบสอบถามความมั่นใจที่จะหลีกเลี่ยงการสูบบุหรี่	จำนวน	20	ข้อ
ส่วนที่ 9	แบบสอบถามความสมดุลในการตัดสินใจเลิกสูบบุหรี่	จำนวน	20	ข้อ
ส่วนที่ 10	แบบสอบถามปริมาณการบริโภคเครื่องดื่มแอลกอฮอล์	จำนวน	10	ข้อ

ส่วนที่ 1   ข้อมูลทั่วไป

<u>คำชี้แจง</u>   โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย ✓

ลงในช่อง ☐ หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

1. เพศ

     ☐ ชาย   ☐ หญิง

2. อายุ

     ☐ น้อยกว่า 24 ปี   ☐ 25-40 ปี   ☐ 41-60 ปี

3. ระดับการศึกษาสูงสุด

     ☐ ประถมศึกษา/ มัธยมศึกษา   ☐ อนุปริญญา/ประกาศนียบัตรวิชาชีพ

     ☐ ปริญญาตรี   ☐ สูงกว่าปริญญาตรี

4. สถานภาพสมรส

     ☐ โสด   ☐ คู่

     ☐ หม้าย/หย่า/แยกกันอยู่

6. สถานภาพทางเศรษฐกิจในครอบครัวของท่าน

     ☐ มีเหลือเก็บ   ☐ พอกินพอใช้

     ☐ มีหนี้สินเล็กน้อย   ☐ มีหนี้สินมาก

<u>ส่วนที่ 2</u>   แบบสอบถามข้อมูลสุขภาพ

<u>คำชี้แจง</u>   โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย ✓

ลงในช่อง ☐ หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

1. ท่านมีโรคประจำตัวต่างๆ ต่อไปนี้หรือไม่

☐ ไม่มี

☐ มี   ถ้ามีกรุณาทำเครื่องหมาย ✓ หน้าโรคที่ท่านเป็น (ตอบได้มากกว่า 1 ข้อ)

☐ โรคมะเร็ง

☐ โรคเบาหวาน

☐ โรคระบบหัวใจและหลอดเลือด ความดันโลหิตสูง ไขมันในเลือดสูง

☐ โรคระบบทางเดินหายใจ

☐ โรคทางระบบประสาท

☐ อื่นๆ ระบุ ....

3.   ท่านออกกำลังกายเป็นประจำใช่หรือไม่

☐ ไม่ใช่

☐ ใช่ ระบุประเภทกีฬา/กิจกรรม ....

ระยะเวลาออกกำลังกายโดยเฉลี่ย ....ครั้ง/สัปดาห์

4.   น้ำหนัก .... กิโลกรัม

5.   ส่วนสูง .... เซนติเมตร

<u>ส่วนที่ 3</u>   แบบสอบถามข้อมูลการสูบบุหรี่

<u>คำชี้แจง</u>   โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย ✓
ลงในช่อง ☐ หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

1. ท่านเริ่มสูบบุหรี่เมื่ออายุเท่าใด

☐ < 20 ปี

☐ 20 – 39 ปี

☐ ≥ 40 ปี

2. ท่านเริ่มสูบบุหรี่เมื่อใด

☐ ก่อนรับราชการ/เข้าเป็นนักเรียนทหาร

☐ ขณะรับราชการ/เข้าเป็นนักเรียนทหาร

2. ท่านสูบบุหรี่มานานกี่ปี

☐ น้อยกว่า 5 ปี   ☐ 5-10 ปี   ☐ 11-15 ปี

☐ 16-20 ปี   ☐ มากกว่า 20 ปี

3. โดยเฉลี่ยท่านสูบบุหรี่วันละกี่มวน

☐ น้อยกว่า 10 มวน วัน

☐ 11-20 มวน วัน

☐ 21-30 วัน

☐ 31 วัน

4. จำนวนปีที่สูบบุหรี่

☐ น้อยกว่า 10 ปี

☐ มากกว่า 10 ปี

5. ลักษณะการสูบบุหรี่ของท่าน

☐ สูบเป็นประจำทุกวัน

☐ ไม่ได้สูบทุกวัน

6 ลักษณะบุหรี่ที่ท่านใช้สูบเป็นประจำ

☐ บุหรี่ซอง/บุหรี่โรงงานทั้งในและต่างประเทศ

☐ บุหรี่มวนเอง : มวนเองจากใบ/กระดาษชนิดต่างๆ

☐ บุหรี่อื่นๆ บุหรี่พื้นเมือง อาทิ เช่น ขี้โย รวมทั้งซิการ์ และไปป์

7. โดยทั่วไปท่านสูบบุหรี่ในช่วงเวลาใด (ตอบได้มากกว่า 1 ข้อ)

- ☐ หลังตื่นนอนตอนเช้า
- ☐ ขณะ/หลังดื่มกาแฟ
- ☐ ขณะขับรถ
- ☐ เวลาหงุดหงิดหรืออารมณ์เสีย
- ☐ หลังเลิกงาน

- ☐ ขณะเข้าห้องน้ำ
- ☐ หลังรับประทานอาหารขณะดื่มสุรา
- ☐ เวลาเครียด ใช้ความคิด
- ☐ เวลาเหงาๆ/ ว่าง/ รู้สึกผ่อนคลาย
- ☐ อื่นๆ ....

9. ในบ้าน/ที่พักอาศัยของท่านมีหญิงตั้งครรภ์/ เด็ก อาศัยอยู่หรือไม่

- ☐ ไม่มี
- ☐ มี จำนวน .... คน

<u>ส่วนที่ 4</u>   แบบสอบถามประสบการณ์การเลิกสูบบุหรี่

<u>คำชี้แจง</u>   โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย ✓

ลงในช่อง ▢ หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

1. ท่านได้รับข้อมูลข่าวสารการเลิกสูบบุหรี่ (จากแหล่งใด (ตอบได้มากกว่า 1)

     ▢ พยาบาล, แพทย์ หรือ บุคลากรทางด้านสุขภาพแนะนำ

     ▢ การรณรงค์ของหน่วยงาน / ต้นสังกัด / ผู้บังคับบัญชา

     ▢ บุคคลใกล้ชิด / ครอบครัว / เพื่อน

     ▢ สื่อต่างๆ เช่น โทรทัศน์ / วิทยุ / หนังสือพิมพ์ / อินเตอร์เนต

     ▢ เอกสารเผยแพร่ / แผ่นโปสเตอร์ประชาสัมพันธ์

2. ท่านเคยใช้บริการการเลิกบุหรี่หรือไม่

     ▢ ไม่เคยใช้บริการ

     ▢ เคย ใช้บริการ ระบุจำนวนครั้งที่เคยใช้บริการ .... ครั้ง

3. การสูบบุหรี่ในช่วงชีวิตที่ผ่านมา ท่านเคยพยายามเลิกสูบบุหรี่.............ครั้ง

ระยะเวลาที่เลิกสูบบุหรี่ได้นานที่สุด .... ปี .... เดือน .... วัน

4. วิธีการที่เคยใช้ในการเลิกสูบบุหรี่ครั้งที่เลิกได้นานที่สุด คือ

     ▢ เลิกสูบทันที   ▢ ค่อยๆ ลดจำนวนลง

     ▢ ใช้ยาช่วยในการเลิก   ▢ อื่นๆ ระบุ...

5. สาเหตุสำคัญที่สุด 3 อันดับแรก ที่ทำให้ท่านเคยพยายามเลิกสูบบุหรี่ในอดีต (โปรดเรียง ตามลำดับความสำคัญ จาก 1- 3)

     .... กลัวการเกิดโรคร้ายแรงต่อตนเองและครอบครัว

     .... กลัวตาย

     .... กลัวสังคมรังเกียจ/ ต่อต้าน/ ไม่ยอมรับ

     .... กฎหมายเข้มงวดมากขึ้น

     .... ทำให้เสียบุคลิกภาพ เช่น ฟันเหลือง กลิ่นปาก แก่เร็ว

     .... เห็นอันตรายของบุหรี่

     .... สิ้นเปลืองค่าใช้จ่าย

     .... ครอบครัว/บุคคลใกล้ชิด ไม่อยากให้สูบ

     .... มีปัญหาสุขภาพที่จำเป็นต้องเลิก

     .... ต้องการเป็นตัวอย่างที่ดีแก่ครอบครัว/ผู้ร่วมงาน/สังคม

     .... เห็นการรณรงค์ของสื่อ

     .... อื่นๆ ระบุ...

6. สาเหตุที่สำคัญที่สุด 3 อันดับแรก ที่ทำให้ท่านเลิกสูบบุหรี่ไม่สำเร็จ และกลับไปสูบบุหรี่อีก (โปรดเรียงตามลำดับความสำคัญ จาก 1- 3)

.... รู้สึกหงุดหงิด/ฉุนเฉียว/ โกรธง่าย

.... รู้สึกเครียด

.... ไม่มีสมาธิในการทำงาน

.... นอนไม่หลับ

.... เห็นคนอื่นสูบแล้วอยากสูบ

.... ดื่มสุรา/แอลกอฮอล์แล้วต้องสูบ

.... เพื่อเข้าสังคม

.... คิดว่ามวนเดียวไม่เป็นไร

.... อื่นๆ ระบุ...

7 ท่านยังคงสูบบุหรี่อยู่หรือไม่ (ถ้าไม่สูบไม่ต้องตอบแบบสอบถามปริมาณการติดนิโคติน ให้ข้ามไปทำส่วนที่ 7)

☐ ไม่สูบบุหรี่ โดยเลิกสูบมานานกว่า 6 เดือน

☐ ไม่สูบบุหรี่ โดยเลิกสูบมานานกว่า 90 วัน แต่ยังไม่ถึง 6 เดือน

☐ ไม่สูบบุหรี่ โดยเลิกสูบยังไม่ถึง 90 วัน

☐ ยังสูบบุหรี่อยู่ แต่วางแผนจะเลิกสูบใน 30 วันข้างหน้า

☐ ยังสูบบุหรี่อยู่ แต่วางแผนจะเลิกสูบใน 6 เดือนข้างหน้า

☐ ยังสูบบุหรี่อยู่ และตลอด 6 เดือนที่ผ่านมาก็ยังไม่มีความคิดที่จะเลิกสูบ

ส่วนที่ 5   แบบสอบถามปริมาณการติดนิโคติน
Fagerstrom Test for Nicotine Dependence (FTND)

คำชี้แจง   โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย ✓ ลงในช่อง
หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

1. หลังตื่นนอนตอนเช้า ท่านสูบบุหรี่มวนแรกเมื่อใด
- ☐ ภายใน 5 นาที หลังตื่นนอน
- ☐ 6-30 นาที หลังตื่นนอน
- ☐ 31-60 นาที หลังตื่นนอน
- ☐ หลังจากตื่นนอน 60 นาที ขึ้นไป

2. ท่านพบว่าเป็นความยากลำบากที่ต้องระงับการสูบบุหรี่ในสถานที่ห้ามสูบ เช่น วัด
ห้องสมุด โรงภาพยนตร์ เป็นต้น
- ☐ ใช่   ☐ ไม่ใช่

3. บุหรี่มวนไหนเป็นมวนที่เลิกยากที่สุดในการเลิกของท่าน
- ☐ มวนแรกในตอนเช้า   ☐ ทุกมวน

4. ท่านสูบบุหรี่วันละกี่มวน
- ☐ น้อยกว่า 10 มวน   ☐ 11-20 มวน
- ☐ 21-30 มวน   ☐ 31 มวน หรือมากกว่า

5. ท่านสูบบุหรี่จัดในชั่วโมงแรกหลังตื่นนอน มากกว่าช่วงอื่นของวัน
- ☐ ใช่   ☐ ไม่ใช่

6. ท่านยังสูบบุหรี่แม้ในขณะป่วยที่ต้องอยู่บนเตียงตลอดวัน
- ☐ ใช่   ☐ ไม่ใช่

<u>ส่วนที่ 6</u>   แบบประเมินความเครียด
Self Stress Test (STT)

<u>คำชี้แจง</u>   ในระยะเวลา 2 เดือนที่ผ่านมานี้ ท่านมีอาการ พฤติกรรม หรือความรู้สึกต่อไปนี้
เกิดขึ้นมากน้อยเพียงใด โปรดทำเครื่องหมาย ✓ ลงในช่องที่แสดงระดับอาการที่
เกิดขึ้นกับตัวท่านให้ตรงตามความเป็นจริงมากที่สุด

ไม่เคยเลย	หมายถึง	อาการหรือพฤติกรรมนั้นๆ ไม่เคยเกิดขึ้นกับตัวท่านเลย
เป็นครั้งคราว	หมายถึง	อาการหรือพฤติกรรมนั้นๆ เกิดขึ้นกับตัวท่านบ้าง แต่ไม่บ่อย
เป็นบ่อยๆ	หมายถึง	อาการหรือพฤติกรรมนั้นนั้นๆ เกิดขึ้นกับตัวท่านบ่อย
เป็นประจำ	หมายถึง	อาการหรือพฤติกรรมนั้นนั้นๆ เกิดขึ้นกับตัวท่านเป็นประจำ

อาการ พฤติกรรม หรือความรู้สึก	ไม่เคยเลย	เป็นครั้งคราว	เป็นบ่อยๆ	เป็นประจำ
1. นอนไม่หลับเพราะคิดมากหรือกังวลใจ				
2. รู้สึกหงุดหงิด รำคาญใจ				
3. ทำอะไรไม่ได้เลย เพราะประสาทตึงเครียด				
18. ตื่นเต้นง่ายกับเหตุการณ์ที่ไม่คุ้นเคย				
19. มึนงงหรือเวียนศีรษะ				
20. ความสุขทางเพศลดลง				

ส่วนที่ 7   แบบสอบถามกระบวนการเปลี่ยนแปลงพฤติกรรมการเลิกสูบบุหรี่
(Process of Change Questionnaires (PCQ)

<u>คำชี้แจง</u>   โปรดทำเครื่องหมาย ✓ เพียงคำตอบเดียว ลงในช่องที่ตรงกับสิ่งที่เกิดขึ้นกับท่าน
ในรอบ 1 เดือนที่ผ่านมา

1 = ไม่เคย   หมายถึง   ไม่เคยมีเหตุการณ์นั้นๆ เกิดขึ้นเลย

2 = นานๆ ครั้ง   หมายถึง   เคยมีเหตุการณ์นั้นๆ เกิดขึ้นบ้างแต่น้อยครั้ง

3 = เป็นบางครั้ง หมายถึง   เคยมีเหตุการณ์นั้นๆ เกิดขึ้นบ้างแต่ไม่บ่อย

4 = บ่อยครั้ง   หมายถึง   มีเหตุการณ์นั้นๆ เกิดขึ้นบ่อยๆ

5 = เป็นประจำ   หมายถึง   มีเหตุการณ์นั้นๆ เกิดขึ้นตลอดเวลา

ข้อ	ข้อความ	ความถี่ของเหตุการณ์				
		1	2	3	4	5
1	ฉันจดจำบทความที่บอกถึงปัญหาของการเลิกสูบบุหรี่ได้					
2	ฉันจดจำข้อมูลที่ผู้อื่นบอกเกี่ยวกับประโยชน์ของการเลิกสูบบุหรี่ได้					
3	ฉันนึกถึงข้อมูลที่ได้จากบทความและ โฆษณาเกี่ยวกับวิธีการเลิกสูบบุหรี่					
⋮						
⋁						
38	ฉันให้รางวัลกับตัวเองเมื่อฉันไม่สูบบุหรี่					
39	ฉันคาดหวังว่าผู้อื่นต้องชื่นชมและให้รางวัลเมื่อฉันไม่สูบบุหรี่					
40	ฉันได้รับรางวัลหรือคำชื่นชมจากผู้อื่นเมื่อฉันไม่สูบบุหรี่					

ส่วนที่ 8   แบบสอบถามความมั่นใจที่จะหลีกเลี่ยงการสูบบุหรี่
(Self-Efficacy Questionnaires (SEQ))

<u>คำชี้แจง</u>   ท่านมีความมั่นใจเพียงใดที่จะหลีกเลี่ยงการสูบบุหรี่ในสถานการณ์ต่างๆ
ดังต่อไปนี้ โปรดทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความรู้สึกของท่านเพียงคำตอบเดียว

1 = หมายถึง <u>ไม่มีความมั่นใจ</u>ที่จะไม่สูบบุหรี่ในสถานการณ์นั้นๆ เลย   (คิดเป็น0%)

2 = หมายถึง มีความ<u>มั่นใจเพียงเล็กน้อย</u>ที่จะไม่สูบบุหรี่ในสถานการณ์นั้นๆ (คิดเป็น25%)

3 = หมายถึง มีความมั่นใจ<u>ปานกลาง</u>ที่จะไม่สูบบุหรี่ในสถานการณ์นั้นๆ (คิดเป็น50%)

4 = หมายถึง มีความมั่น<u>ใจมาก</u>ที่จะไม่สูบบุหรี่ในสถานการณ์นั้นๆ   (คิดเป็น75%)

5 = หมายถึง มีความมั่นใจที่จะ<u>ไม่สูบบุหรี่ในสถานการณ์นั้นๆ</u> เลย   (คิดเป็น100%)

ข้อ	สถานการณ์	ระดับความมั่นใจ				
		1	**2**	**3**	**4**	**5**
1	เมื่อฉันอยู่ที่บาร์หรือสถานเริงรมย์และกำลังดื่มของมึนเมา					
2	เมื่อฉันเกิดความต้องการสูบบุหรี่					
3	เมื่อฉันไม่ได้สิ่งที่ต้องการและรู้สึกคับข้องใจ					
18	เมื่อฉันรู้สึกซึมเศร้าอย่างมาก					
19	เมื่อฉันรู้สึกวิตกกังวลและเครียดอย่างมาก					
20	เมื่อฉันรู้สึกว่าจะไม่ได้สูบบุหรี่ไปชั่วระยะเวลาหนึ่ง					

ส่วนที่ 9   แบบสอบถามความสมดุลในการตัดสินใจเลิกสูบบุหรี่
Decision Balance Questionnaires (DBQ)

คำชี้แจง สถานการณ์ข้อความต่างๆ   ดังต่อไปนี้มีความสำคัญต่อการตัดสินใจเลิกสูบบุหรี่ของท่าน
ในระดับใด โปรดทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความรู้สึกของท่านเพียงคำตอบเดียว

    1   =   หมายถึง   <u>ไม่มีความสำคัญ</u>ต่อการตัดสินใจเลิกสูบบุหรี่

    2   =   หมายถึง   มีความสำคัญ<u>เล็กน้อย</u>ต่อการตัดสินใจเลิกสูบบุหรี่

    3   =   หมายถึง   มีความสำคัญ<u>ปานกลาง</u>ต่อการตัดสินใจเลิกสูบบุหรี่

    4   =   หมายถึง   มีความสำคัญ<u>มาก</u>ต่อการตัดสินใจเลิกสูบบุหรี่

    5   =   หมายถึง   มีความสำคัญ<u>มากที่สุด</u>ต่อการตัดสินใจเลิกสูบบุหรี่

ข้อ	ข้อความ	ระดับความสำคัญ				
		1	2	3	4	5
1	การสูบบุหรี่เป็นสิ่งที่น่าพอใจ					
2	การสูบบุหรี่ของฉันมีผลต่อสุขภาพของผู้อื่น					
3	ฉันชอบมาด/ท่าทางของผู้ที่สูบบุหรี่					
18	ฉันโง่มากที่ละเลยต่อคำเตือนเรื่องพิษภัยของการสูบบุหรี่					
19	เมื่อได้สูบบุหรี่อีกครั้งทำให้ฉันรู้สึกดีขึ้นมาก หลังจากได้หยุดสูบบุหรี่มาระยะหนึ่ง					
20	ร่างกายของฉันจะแข็งแรงขึ้นตั้งแต่ตอนนี้ถ้าฉันไม่สูบบุหรี่					

ส่วนที่ 10 แบบสอบถามข้อมูลการบริโภคเครื่องดื่มแอลกอฮอล์
The Alcohol Use Disorders Identification Test (AUDIT)

<u>คำชี้แจง</u> โปรดตอบแบบสอบถามต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย ✓ ลงในช่อง
หน้าข้อความที่ตรงกับตัวท่านมากที่สุด

ปัจจุบันท่านดื่มแอลกอฮอล์หรือไม่ ☐ ไม่ดื่ม ☐ ดื่ม

หากท่านตอบว่าดื่ม กรุณาตอบคำถามดังต่อไปนี้ หากไม่ดื่มกรุณาข้ามไปทำแบบสอบถามส่วน
ต่อไป

1 ดื่มมาตรฐาน [เบียร์ 1 แก้ว (285 ม.ล.) มีแอลกอฮอล์ 5 %] **หรือ** [ไวน์ 1 แก้วเล็ก (100 ม.ล.) มีแอลกอฮอล์ 12 %] **หรือ** [เหล้า 1 แก้ว (30 ม.ล.) มีแอลกอฮอล์ 40 %]

1.ท่านดื่มเครื่องดื่มแอลกอฮอล์บ่อยแค่ไหน

☐ ไม่เคยเลย ☐ เดือนละครั้ง ☐ 2-4 ครั้ง ☐ 2-3 ครั้ง ☐ 4 ครั้งขึ้นไป
                        หรือน้อยกว่า   ต่อเดือน   ต่อสัปดาห์   ต่อสัปดาห์

2.ในวันที่ท่านดื่มตามปกติ ท่านดื่มกี่ดื่มมาตรฐาน (เปรียบเทียบดื่มมาตรฐานตามรูปข้างต้น)

☐1-2 ดื่ม ☐3-4 ดื่ม ☐5-6 ดื่ม ☐5-6 ดื่ม ☐10 หรือมากกว่า

9. ท่านหรือใครบางคนเคยได้รับบาดเจ็บจากการดื่มของคุณหรือไม่

☐ไม่เคยเลย ☐ เคย แต่ไม่ใช่เมื่อปีที่แล้ว ☐ เคย เมื่อปีที่แล้ว

10. เคยมีเพื่อน ญาติพี่น้อง แพทย์ พยาบาล หรือเจ้าหน้าที่สาธารณสุขอื่นๆ แสดงความห่วงใย
เกี่ยวกับการดื่ม ของท่าน หรือเคยแนะนำให้ท่านลดการดื่มบ้างหรือไม่

☐ไม่เคยเลย ☐ เคย แต่ไม่ใช่เมื่อปีที่แล้ว ☐ เคย เมื่อปีที่แล้ว

APPENDIX E

RESULT OF STATISTICS ANALYSIS

Table 4.12   Comparison Mean and Standard deviation between processes of change and stage of change (N = 553)

Variables	Stage of change				
	PC **M** **(SD)**	**C** **M** **(SD)**	**P** **M** **(SD)**	**A** **M** **(SD)**	**M** **M** **(SD)**
Process of change					
Consciousness raising	12.10	12.62	11.82	13.55	12.08
	(3.62)	(3.93)	(3.87)	(3.47)	(4.72)
Dramatic Relief	11.59	11.69	11.60	12.11	12.5
	(3.79)	(3.93)	(3.73)	(3.59)	(4.50)
Self-reevaluation	11.56	12.14	11.96	12.37	13.42
	(3.67)	(3.46)	(3.67)	(3.33)	(4.52)
Environmental revaluation	13.31	13.62	14.25	13.08	13
	(3.53)	(3.43)	(3.68)	(3.39)	(4.75)
Social liberation	10.77	10.84	10.18	11.62	10.25
	(3.52)	(3.49)	(3.86)	(3.34)	(4.90)
Helping relationships	9.24	9.50	9.19	10.52	9.92
	(3.49)	(3.71)	(3.59)	(4.00)	(4.70)
Counter conditioning	10.77	10.62	10.35	11.38	11.33
	(3.26)	(3.18)	(3.71)	(3.34)	(4.14)
Reinforcement management	10.46	11.09	10.53	11.69	12
	(3.63)	(3.59)	(3.54)	(3.76)	(4.99)
Stimulus control	11.30	12.36	11.70	13.2	12.17
	(3.70)	(3.83)	(3.54)	(3.39)	(4.97)
Self liberation	11.91	12.79	11.80	13.82	14.08
	(3.58)	(4.13)	(3.88)	(3.63)	(5.32)

Table 4.13   Comparison Mean and Standard deviation between self-efiicacy and stage of change and (N = 553)

Variables	Stage of change				
	PC M (SD)	C M (SD)	P M (SD)	A M (SD)	M M (SD)
Total of self-efficacy of Quitting Smoking	52.9 (15.52)	57.43 (16.91)	56.29 (17.22)	59.48 (15.01)	62.92 (22.31)
Positive Affect / Social Situations	16.06 (4.91)	17.24 (5.481)	16.94 (5.57)	18.16 (4.66)	17.33 (7.06)
Negative Affect Situations	17.98 (5.70)	19.83 (6.211)	19.17 (6.27)	20.85 (5.93)	22.08 (7.72)
Habitual / Craving Situations	18.86 (5.86)	20.35 (6.346)	20.18 (6.38)	20.47 (5.48)	23.5 (8.23)

Table 4.14   Comparison Mean and Standard deviation between decision balance and stage of change (N = 553)

Variables	Stage of change				
	PC M (SD)	C M (SD)	P M (SD)	A M (SD)	M M (SD)
Total Decision Balance	55.41 (13.21)	55.12 (13.90)	57.14 (13.68)	59.59 (9.89)	53.25 (14.60)
Pro	25.46 (7.13)	24.26 (8.07)	25.06 (8.08)	28.38 (7.55)	21.75 (8.72)
Con	29.96 (8.53)	30.87 (8.53)	32.08 (8.57)	31.20 (7.35)	31.50 (9.52)

Table 4.15   Correlation matrix among continuous variables predicting quitting smoking (n = 537)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Stress	1																
2.Self efficacy	-.02	1															
3.Nicotine dependent	.20	-.01	1														
4.Alcohol consumption	.17	.09	.13	1													
5.RTN smoking control policy	-.05	.25	-.07	-.02	1												
6.Family Support	-.02	.02	.01	.09	.23	1											
7.Consciousness Raising	-.03	.27	-.00	.07	.25	.18	1										
8.Dramatic Relief	.09	.27	-.02	.05	.37	.21	.55	1									
9.Environmental Reevaluation	.08	.33	-.03	.05	.37	.18	.61	.72	1								
10.Social Liberation	.07	.25	-.03	.01	.33	.20	.49	.59	.63	1							
11.Self Reevaluation	.10	.24	.03	.09	.29	.26	.51	.69	.71	.47	1						
12.Stimulus Control	.02	.23	-.01	.07	.15	.19	.39	.53	.55	.35	.64	1					
13.Helping Relationship	.06	.28	.03	.05	.18	.24	.50	.43	.45	.43	.44	.50	1				
14.Counter Conditioning	.00	.25	-.06	.01	.32	.23	.49	.63	.64	.50	.61	.66	.46	1			
15.Reinforcement Management	.02	.34	-.07	.10	.34	.23	.61	.68	.73	.60	.65	.53	.45	.61	1		
16.Self Liberation	-.01	.38	-.13	.03	.33	.18	.64	.56	.60	.49	.56	.45	.49	.58	.67	1	
17.Length of quit attempt	.02	.09	.01	-.04	.06	-.01	.04	.10	.08	.02	.03	.10	.06	.07	.05	.11	1

Table 4.16 Odd ratio and 95% confidence interval of demographic factors associated with 7-day point quitting smoking (n = 553)

Demographic characteristics	Ex-smoker (N = 114)		Smoker (N = 439)		Crude OR	95% CI	p-value
	N	(%)	N	(%)			
Age (years)							
≤ 24	29	(25.4)	159	(36.2)	Reference		
25-40	52	(45.6)	166	(37.8)	1.26	0.65-2.44	.50
41-60	33	(28.9)	114	(26.0)	1.41	0.51-3.91	.51
Marital Status							
Single	44	(38.6)	211	(48.1)	Reference		
Married	66	(57.9)	206	(46.9)	1.50	0.87-2.60	.15
Widowed/ Divorced/Separated	4	(3.5)	22	(5.0)	0.79	0.25-2.56	.79
Education level							
Junior high school/ High school	68	(59.6)	259	(59.0)	Reference		
Diploma degree	24	(21.1)	124	(28.2)	0.69	0.41-1.18	.17
Bachelor degree	20	(17.5)	51	(11.6)	1.37	0.74-2.55	.32
Higher than Bachelor degree	2	(1.8)	5	(1.1)	1.21	0.21-6.91	.83

Table 4.17 Odd ratio and 95% confidence interval of demographic factors associated with 7-day point quitting smoking (n = 553)

Demographic characteristics	Ex-smoker (N = 114)		Smoker (N = 439)		Crude OR	95% CI	p-value
	N	(%)	N	(%)			
Work duration (years)							
≤ 10	40	(35.1)	175	(39.9)	Reference		
11-20	46	(40.4)	159	(36.2)	0.80	0.45-1.44	.46
> 20	28	(24.6)	105	(23.9)	0.58	0.21-1.59	.29
Income							
Save	17	(14.9)	34	(7.7)	2.09	0.82-5.32	.13
Sufficiency	57	(50.0)	264	(60.1)	0.90	0.41-2.00	.80
A few debt	31	(27.2)	104	(23.7)	1.26	0.55-2.90	.60
A lot debt	9	(7.9)	37	(8.4)	Reference		

Table 4.18 Odd ratio and 95% confidence interval of health related predictor

associated with 7-day point quitting smoking (n = 553)

Health status	Ex-smoker (N = 114)		Smoker (N = 439)		Crude OR	95% CI	p-value
	N	(%)	N	(%)			
Past illness							
Having disease	69	(60.5)	173	(60.6)	0.99	0.65-1.53	.99
No disease	45	(39.5)	266	(39.4)	Reference		
Exercise behavior							
No exercise	61	(53.5)	192	(43.7)	Reference		
Having exercise	53	(46.5)	247	(56.3)	1.17	0.76-1.81	.47
BMI (kg/m^2)							
≤ 18.5	5	(4.4)	27	(6.2)	Reference		
18.5-22.99	46	(40.4)	217	(49.4)	1.17	0.41-3.29	.77
23.00-27.49	44	(38.6)	141	(32.1)	1.46	0.51-4.19	.48
≥ 27.50	19	(16.7)	54	(12.3)	1.63	0.52-5.11	.40

   * BMI: Body Mass Index

Table 4.19 Odd ratio and 95% confidence interval of smoking and quitting history predictors associated with 7-day point quitting smoking (n = 553)

Smoking Characteristics	Ex-smoker (N = 114)		Smoker (N = 439)		Crude OR	95% CI	p-value
	N	(%)	N	(%)			
Aged at smoke initiation (years)							
< 20	52	(45.6)	234	(53.3)	Reference		
20-39	59	(51.8)	196	(44.6)	1.06	0.65-1.74	.06
≥ 40	3	(2.6)	9	(2.1)	0.00	0.00	.000
Initiated for smoking							
Before serving for Navy	85	(74.6)	362	(82.5)	Reference		
In Navy	29	(25.4)	77	(17.5)	1.64	0.97-2.79	.07
Number of cigarette per day							
≤ 10	80	(70.2)	255	(58.1)	Reference		
11-20	30	(26.3)	162	(36.9)	0.61	0.42-1.16	.16
21-30	3	(2.6)	17	(3.9)	0.71	0.21-2.86	.71
≥ 31	1	(0.9)	5	(1.1)	0.90	0.13-10.46	.90
Year of smoking (years)							
≤ 10	53	(46.5)	215	(49.0)	Reference		
> 10	61	(53.5)	224	(51.0)	1.02	0.64-1.64	.93
Type of smoker							
Regular smoker	49	(43.0)	262	(59.7)	Reference		
Occasional smoker	65	(57.0)	177	(40.3)	1.81	1.11-2.95	.02
Have relative smoke							
Yes	34	(29.8)	133	(30.3)	0.98	0.62-1.55	.93
No	80	(70.2)	306	(69.7)	Reference		
Have pregnancy or child at home							
Yes	31	(27.2)	129	(29.4)	1.13	0.71-1.80	.61
No	80	(72.8)	310	(70.6)	Reference		
Accessed to Cessation Clinic							
Yes	16	(14.0)	48	(10.9)	0.75	0.40-1.38	.35
No	98	(86.0)	391	(89.1)	Reference		
Social support for quitting smoking							
No support	4	(3.5)	35	(8.0)	Reference		
Slightly support	29	(25.4)	145	(33.0)	1.78	0.58-5.45	.32
Very support	55	(48.2)	161	(36.7)	2.96	0.99-8.83	.05
Extremely support	26	(22.8)	98	(22.3)	2.50	0.80-7.84	.12
Number of quit attempt (times)							
1-2	35	(30.7)	169	(38.5)	Reference		
3-5	73	(64.0)	257	(58.5)	1.43	0.91-2.25	.12
> 5	6	(5.3)	13	(3.0)	2.20	0.78-6.24	.14
Idea to the RTN smoking control policies							
Strongly disagree	5	(4.4)	16	(3.6)	Reference		
Disagree	5	(4.4)	20	(4.6)	0.73	0.18-2.99	.66
Undecided	32	(28.1)	166	(37.8)	0.56	0.19-1.67	.30
Slightly agree	36	(31.6)	125	(28.5)	0.88	0.30-2.57	.81
Strongly agree	36	(31.6)	112	(25.5)	.94	0.32-2.78	.92

BIOGRAPHY

Commander Sineenuch Siriwong was born on August 26, 1969 in Bangkok. She finished her bachelor degree in Nursing Science, The Royal Thai Navy College of Nursing, 1991, bachelor degree in Law faculty of Law, Thammasat University, 1997, and master degree in Adult Nursing, Faculty of Nursing, Mahidol University, 1997. She worked as a registered nurse in general medical ward from 1994-1995, from 1995-present, she is an instructor in The Royal Thai Navy College of Nursing.