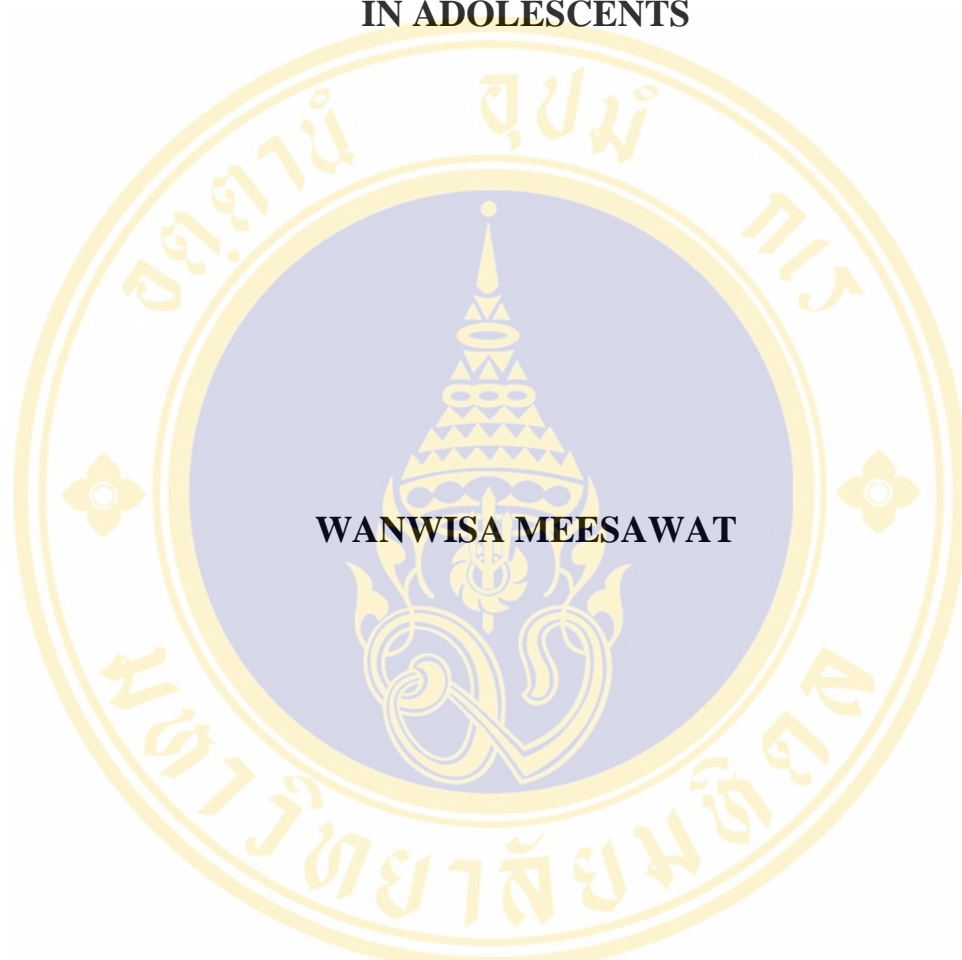


**RELATIONSHIPS BETWEEN SENSE OF COHERENCE,
SPIRITUAL WELL-BEING AND SMOKING BEHAVIOR
IN ADOLESCENTS**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF NURSING SCIENCE
(PSYCHIATRIC-MENTAL HEALTH NURSING)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**

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Thesis
Entitled

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WELL-BEING AND SMOKING BEHAVIOR IN ADOLESCENTS**

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ABSTRACT

This study was descriptive correlational research which aimed at investigating the relationships between a sense of coherence, spiritual well-being and smoking behavior in adolescents. In addition, The Salutogenic Model of Health of Antonovsky was used the conceptual framework here. The sample consisted of 433 Thai adolescents who were studying in Mathayomsuksa 4, 5, and 6 and in the first-, second-, and third-year vocational certificate under the Basic Education Office and Vocational Educational Office in Muang District, Nakhon Si Thammarat Province, in the academic year 2004. The sample was selected using multi-stage random sampling. The instruments of this study consisted of four questionnaires as follows: 1. general characteristics data questionnaire; 2. smoking behavior questionnaire; 3. sense of coherence questionnaire; and 4. spiritual well-being questionnaire. The Chi-square and logistic regression were used for data analysis.

The results of this study showed that 66.3 % of the smoker group started smoking between the age of 15 and 19 years. The Chi-square analysis revealed that a sense of coherence and spiritual well-being were significantly related to smoking behavior ($p < .05$). In addition, the logistic regression analysis indicated that low sense of coherence group was 2.08 times more likely to smoke when compared to the high sense of coherence group (OR = 2.08, 95%CI = 1.27-3.39), and the low spiritual well-being group was 1.94 times more likely to smoke when compared to the high spiritual well-being group (OR = 1.94, 95%CI = 1.21-3.11).

Based on these findings, it is recommended that psychiatric nurses and related personnel working with adolescents should have more awareness to help adolescents avoid or reduce smoking behavior by promoting a sense of coherence and spiritual well-being among them.

**KEY WORDS: SENSE OF COHERENCE / SPIRITUAL WELL-BEING /
SMOKING BEHAVIOR / ADOLESCENTS**

90 pp.

ความสัมพันธ์ระหว่างความเข้มแข็งในการมองโลก ความผาสุกทางจิตวิญญาณ และพฤติกรรมการสูบบุหรี่ในวัยรุ่น (RELATIONSHIPS BETWEEN SENSE OF COHERENCE, SPIRITUAL WELL-BEING AND SMOKING BEHAVIOR IN ADOLESCENTS)

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บทคัดย่อ

การศึกษานี้เป็นการวิจัยเชิงบรรยายแบบศึกษาความสัมพันธ์มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างความเข้มแข็งในการมองโลก ความผาสุกทางจิตวิญญาณ และพฤติกรรมการสูบบุหรี่ในวัยรุ่น โดยใช้กรอบแนวคิดจากทฤษฎีแหล่งกำเนิดสุขภาพของแอนโทนีเฟล็กเป็นแนวทางในการศึกษา กลุ่มตัวอย่างเป็นวัยรุ่นที่กำลังศึกษาในระดับมัธยมศึกษาตอนปลายและกำลังศึกษาในระดับประกาศนียบัตรวิชาชีพ(ป.ว.ช.) ซึ่งอยู่ในสังกัดสำนักงานคณะกรรมการศึกษาขั้นพื้นฐานและสังกัดสำนักงานคณะกรรมการอาชีวศึกษาศึกษาในเขตอำเภอเมืองจังหวัดนครศรีธรรมราช ปีการศึกษา 2547 จำนวน 433 คน เลือกกลุ่มตัวอย่างด้วยวิธีการสุ่มแบบหลายขั้นตอน เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลมี 4 ส่วน ได้แก่ แบบสอบถามข้อมูลทั่วไป แบบสอบถามพฤติกรรมการสูบบุหรี่ แบบประเมินความเข้มแข็งในการมองโลก และแบบประเมินความผาสุกทางจิตวิญญาณ วิเคราะห์ข้อมูลโดยใช้สถิติบรรยาย ไคสแคว์ และการวิเคราะห์ถดถอยโลจิสติก

ผลการศึกษาพบว่า ในกลุ่มวัยรุ่นที่สูบบุหรี่ ส่วนใหญ่(66.3%) เริ่มสูบบุหรี่ในช่วงอายุ 15-19 ปี จากการวิเคราะห์โดยใช้ไคสแคว์ พบว่าความเข้มแข็งในการมองโลกและความผาสุกทางจิตวิญญาณ มีความสัมพันธ์กับพฤติกรรมการสูบบุหรี่ ($P<.05$) และเมื่อวิเคราะห์ถดถอยโลจิสติก พบว่ากลุ่มที่มีความเข้มแข็งในการมองโลกต่ำจะมีพฤติกรรมการสูบบุหรี่ได้ 2.08 เท่า ของกลุ่มที่มีความเข้มแข็งในการมองโลกสูง ($OR=2.08$, $95\%CI=1.27-3.39$) และกลุ่มที่มีความผาสุกทางจิตวิญญาณต่ำจะมีพฤติกรรมการสูบบุหรี่ได้ 1.94 เท่า ของกลุ่มที่มีความผาสุกทางจิตวิญญาณสูง ($OR=1.94$, $95\%CI=1.21-3.11$)

ผู้วิจัยมีข้อเสนอแนะให้พยาบาลจิตเวชและบุคลากรที่เกี่ยวข้องกับวัยรุ่นควรตระหนักถึงการช่วยป้องกันการสูบบุหรี่ในวัยรุ่น โดยให้ความสำคัญกับการส่งเสริมความเข้มแข็งในการมองโลกและความผาสุกทางจิตวิญญาณของวัยรุ่นร่วมด้วย

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CHAPTER I

INTRODUCTION

Background and significance of the study

Adolescence is a period of transition from childhood to adulthood. It is a period in which individuals undergo drastic changes physically, intellectually, emotionally, and socially. Physically, they have a rapid development of weight and height (Sidney, 1997: 133). Their muscles grow dramatically, and their sexual organs begin to function (Sriruen Kaewsangwan, B.E.2540: 331). Thus, most adolescents pay a great deal of attention to their changes (Chaweewan Sukhpanpotharam, B.E.2527: 24-25). In addition, adolescents undergo intellectual development when their brain becomes fully developed, enabling them to use logics and reasoning. However, they can be different depending on the quality of their brain, heredity, and environmental factors which facilitate intellectual development (Sriruen Kaewsangwan, B.E.2540: 347). Adolescents begin to think about their future, have their own imagination and attitudes, and become inquisitive. As they are undergoing transformation from children to adults, they can be confused with their own duties and functions. Sometimes they might want to become adults, while other times they may want to be children (Jantima Pruegsananon, B.E.2538: 112). As a result, they become sensitive and easily confused (Sriruen Kaewsangwan, B.E.2540: 336). Erikson (1968: 131) points out that adolescents have the highest degree of mental confusion when compared to individuals of other age groups. In addition, socially they want to be accepted by their peer and others in society. At present, daily living tends to emphasize the significance of material gains. In particular, in Muang District, Nakhon Si Thammarat Province, is an urban society in which considerable changes continuously take place. It has witnessed economic and social expansion as well as technological and communicational advancements while becoming more and more westernized. In short, an urban society in Muang District, Nakhon Si Thammarat Province, has had more and more material prosperities, making adolescent residents who already have mental and emotional confusion even more confused. They can also

experience mental conflicts, anxious, and stressed. Consequently, they may use inappropriate ways to avoid or solve their problems and express problematic behaviors (Lakana Sariwat, B.E.2545: 116) such as committing suicide, harming others, racing cars, or abusing substances which is most commonly found at present (Tweed, 1998: 29). Smoking cigarettes is one form of substance abuse commonly found among adolescents.

Smoking causes a significant social problem because it is legal. It is also the most commonly found form of substance abuse. Previous studies have revealed that the number of smokers in the world has increased by 2% every year, especially in the developing countries. Moreover, about 52% of tobacco consumption takes place in Asia, and it is expected that the rate of smoking will continue to increase (Foundation for Non-Smoking Campaign, B.E.2547). As for Thailand, studies indicate that individuals tend to begin smoking when they become adolescents, with the average ages of 16 to 18 years (Chuanpis Bunyaratavej, B.E.2528: 26; Pojanee Laoamata, B.E.2532: 5; Somchai Chuenta, B.E.2528: 26). Similarly, it has been found that the largest group of regular smokers begin the habit when they are about 16 to 19 years, accounting for 55.9% of the total (National Statistics Office, 1999: 9), and the most frequently found abused substance in school is cigarette (Tosaporn Poomkam, B.E.2542: 10; Kamolporn Suansomjit et al., B.E.2541: 220). When considering the effects of smoking on adolescents, it has been found that smoking is the cause of such serious diseases as coronary artery disease, lung cancer, emphysema, etc. In addition to smokers themselves, smoking also harms people who are around them, or second-hand smokers (The World Bank, 1999, cited in Prapapan Devakul na Ayudhya, B.E.2543: 3). This also affects smokers' economic status as they have to spend money buying cigarettes to smoke each day, and the government has to spend money on medical care of those who suffer from smoking-related diseases. Individuals also lose a chance to work to earn their living, and their families and society may have to suffer the smokers' untimely death (Theera Limsila, B.E.2537: 133). Moreover, smoking also leads to other forms of substance abuse such as alcohol, cocaine, heroin, opium, and marijuana (Medical Department, Ministry of Public Health, B.E.2540, cited in Nongnuch Boonyu, B.E.2541: 2). If the country is full of adolescent smokers or adolescents who are addicted to other drugs, the society will become weak, and it will

be impossible for the country to develop. In brief, smoking in adolescents is a significant problem which can lead to health, economic, and social problems.

Smoking in adolescents causes a great concern. At present, even though a law has been passed to prohibit a sale of cigarettes to adolescents younger than 18 years of age, and even though numerous anti-smoking campaigns have been taken place, a great number of adolescents still smoke. Therefore, understanding different bodies of knowledge relating to the smoking phenomenon among adolescents is deemed crucial to enable related personnel to better understand adolescents and use such knowledge to more effectively take care of adolescents. Previous studies on causes of smoking behavior in adolescents pinpointed individuals' inner factors such as desire to experiment, desire to be fashionable, loneliness, low self-esteem, desire to have fun, and desire to be chic or cool in others' eye. Also, there are individuals' outer factors which include parents' occupation, educational institute, current residence, and familiarity with close persons who smoke (Chuanpis Bunyaratavej, B.E.2526: 43-44; Somchai Chuenta, B.E.2528: 26; Somruedee Mobnarin, B.E.2531; Wanpen Parasri, B.E.2533: 59-63; Acharawan Soithong, B.E.2542: 25-28; Marty et al., 1986: 190; Evans et al., 1987: 126). These studies clearly reflect the failure to utilize resources to deal with different situations effectively. According to the Salutogenic Model of Health, individuals' good health depends on their ability to make use of resources or generalized resistance resources (GRRs) through sense of coherence which enables them to encounter different situations effectively (Antonovsky, 1991: 193-194), leading to appropriate behaviors to ensure good health. However, it has been found that this concept is rarely used when studying smoking behaviors in adolescents. It is believed that further studies would render a better understanding of the smoking phenomenon among adolescents.

Sense of coherence is one characteristic of individuals which is important to smoking behaviors in adolescents. In general, adolescents have to deal with different difficulties and situations. If they are unable to cope with their problems, they may make a decision to perform inappropriate behavior such as using drugs to avoid their problems. Thus, sense of coherence, which is part of individuals' characteristics, is important as it enables adolescents to deal with different situations effectively (Antonovsky, 1991: 193). In fact, sense of coherence is "a global orientation that

expresses the extent to which one has pervasive, enduring through dynamic feeling of confidence that the stimuli deriving from one's internal and external environment in the course of living are structured, predictable, and explicable; the resources are available to meet the demands posed by stimuli; and these demands are challenges, worthy of investment and engagement" (Antonovsky, 1987: 19). In brief, sense of coherence enables individuals to deal with situations effectively and make the best decision related to health to maintain good health. Studies conducted abroad to explore sense of coherence and health risk behaviors in Africans who had low income, elderly Africans, and female Africans who were homeless or had history of substance abuse revealed that those with a strong sense of coherence smoked less, drank less, and had less risk behaviors to have HIV infection when compared to those who had sense of coherence at a low level (Martin et al, 2002; Nymathi, 1991, 1993; Midnanik et al., 1992). However, contradictory findings were also found. Studies conducted with polytechnic students and abused women indicated that sense of coherence was not related to smoking (Kuuppelomaki & Utriainen, 2003; Luszczynska, 2002). Even though previous research results in contradictory findings, it is assumed that sense of coherence somehow relates to smoking behavior in adolescents.

In addition to sense of coherence, spiritual well-being is believed to influence smoking behaviors in adolescents. Spiritual well-being is a condition in which the mind is filled with happiness and serenity which results from doing good deeds, not being selfish, and living life according to the Buddhist virtues of mercy. Spiritual well-being also takes place when individuals are happy with their duties and their daily living, and when they have awareness, concentration, and intelligence (Praves Vasee, B.E.2544; Nun Sansanee Sathirasut, B.E.2544: 14-15). In fact, spiritual well-being is considered one of the generalize resistance resources or GRRs in a macrocultural society which can be used to effectively deal with different forms of stress adolescents encounter in their daily life through sense of coherence, and they can choose ways of life which lead to good health. Thus, spiritual well-being is a resource which prevents adolescents from using drugs such as smoking, which, even though it can temporarily relieve stress, can lead to serious health problems. However, although previous studies have not yet identified direct relationships between spiritual well-being and smoking behavior, some studies on Buddhist virtues and living life

according to Buddhist virtues have shown that these factors could co-predict behaviors to prevent smoking of adolescents in Pathumthani Province (Sangrawee Theprod, B.E.2542: 116-117). Likewise, Spilka et al. (1985, cited in Ngamta Wanintanon, B.E.2536: 29) found that strong religious beliefs and behaviors were negatively associated with all forms of substance abuse. As religion is one factor which affects individuals' spiritual being (Suyemoto & Macdonald, 1996: 142-148; Pra Pisalthammavatee, B.E.2544: 3), spiritual well-being tends to be related to smoking behaviors in adolescents.

Based on the aforementioned discussion, it has been assumed that sense of coherence and spiritual well-being are important to adolescents' smoking behavior. A review of literature has revealed that there is no study conducted to directly investigate the relationships among sense of coherence, spiritual well-being, and smoking behaviors of Thai adolescents. Thus, the researcher was interested in exploring the relationships among sense of coherence, spiritual well-being, and smoking behaviors in adolescents so as to shed light on the relationships among these factors and smoking behavior.

Conceptual framework of the study

The present study investigates the relationships among sense of coherence, spiritual well-being, and smoking behaviors of Thai adolescents based on the Salutogenic Model of Health of Antonovsky. This model explains how individuals manage or deal with different arousals or problems to maintain health. According to Antonovsky, sense of coherence is an important factor that stimulates individuals to make use of sources of generalized resistance resources (GRRs) to cope with and overcome arousals, hence the ability to successfully manage stress and maintain good health (Antonovsky, 1991). A number of studies have also indicated that sense of coherence has a significance influence on effective stress management and leads to avoidance of health risks (Martin et al, 2002; Mehlum, 1998; Midnanik et al., 1992; Nymathi, 1991, 1993; Hassmen, Koivula, & Uutela, 2000). Individuals with strong sense of coherence are more likely to draw on generalized resistance resources to systematically deal with different issues they are facing. As a result, they are able to

look at different issues with clear understanding and meaningfulness, and are able to use logical thinking to deal with them.

Individuals who have sufficient and valuable generalized resistance resources will be enabled to successfully cope with stress. Thus, they will be able to choose appropriate behaviors to maintain good health. On the other hand, when considering spiritual well-being, it was found that spiritual well-being has similar meaning to the notion of macrosociocultural generalized resistance resources proposed by Antonovsky as they are resistance resources that are derived from social and cultural factors that influence beliefs, faiths, and philosophical conception of individuals (Antonovsky, 1991).

Thus, it is assumed that sense of coherence is an important factor for adolescents who are searching for their identity, uniqueness, and life goals. Sense of coherence enables adolescents to live their lives meaningfully. Besides, spiritual well-being is another valuable source of resistance that enables adolescents to successfully cope with stress. For these reasons, adolescents who have low sense of coherence and insufficient generalized resistance resources are less likely to effectively manage their stress. This may lead to inappropriate behaviors, and they tend to experience diseases or sickness as a consequence. Therefore, the present study aimed at investigating the effects of sense of coherence and spiritual well-being on smoking behavior, which could be explained as follows:

Adolescence is a period of time when individuals undergo drastic physical, mental, and social changes. Adolescents have to deal with arousals in society, causing them difficulty in dealing with different social situations in their daily life. If they are unable to deal with the situations they are facing, they may avoid the problems or use emotion to solve the problems, leading to behavioral problems including smoking. However, adolescents have different personality and different generalized resistance resources in dealing with different situations to adopt appropriate behaviors to ensure good health, depending on the following factors:

Sense of coherence is a part of personality. Individuals who have sense of coherence will assess the situations they are facing realistically and be able to utilize available resources to appropriately deal with the situations. Adolescents will then realize the values of life and action, and this realization will enable them to handle

different situations in daily life effectively and to choose appropriate behaviors leading to good health including avoiding substance abuse such as smoking which is a health risk factor.

Another factor is spiritual well-being which is also a generalized resistance resource in a macrocultural society. It enables individuals to have a clear aim in life—doing good deeds and being happy and fulfilled for doing so. This also helps reduce the confusion adolescents have, making them have more awareness, concentration, and intelligence to deal with different situations in daily life. As a consequence, it is an important generalized resistance resource which adolescents can use effectively to deal with stress through sense of coherence leading to appropriate health problems such as avoidance of smoking to maintain good health.

In conclusion, sense of coherence and spiritual well-being tend to be associated with smoking behaviors in adolescents and can explain the relationships among the variables under study as shown in Figure One.



Figure 1: Conceptual Framework of the Study

Research questions

1. Is there any relationship between sense of coherence and smoking behavior in adolescents?
2. Is there any relationship between spiritual well-being and smoking behavior in adolescents?
3. Can sense of coherence and spiritual well-being predict smoking behavior in adolescent?

Research objectives

1. To study the relationship between sense of coherence and smoking behavior in adolescents
2. To study the relationship between spiritual well-being and smoking behavior in adolescents
3. To determine predictive power of sense of coherence and spiritual well-being to predict smoking behavior in adolescents

Research hypotheses

1. Sense of coherence is related to smoking behavior in adolescents
2. Spiritual well-being is related to smoking behavior in adolescents
3. Sense of coherence and spiritual well-being can predict smoking behavior in adolescents

Scope of the study

The present study aimed at investigating the relationships among sense of coherence, spiritual well-being, and smoking behavior of Thai adolescents who were studying in the M.4, M.5, and M.6 and in the first-, second-, and third-year vocational certificate under the Basic Educational Office and Vocational Educational Office in Muang District, Nakhon Si Thammarat Province, in the academic year 2004.

Expected outcomes and benefits

1. The findings could be used as a basic body of information in further research on sense of coherence, spiritual well-being, and smoking behaviors in other groups of subjects.
2. The findings can be used as a guideline in nursing education and nursing practice to prevent smoking behavior in adolescents by developing their sense of coherence and spiritual well-being such as group counseling and individual counseling, etc.

Definition of terms

Smoking behavior refers to adolescents' expression related to smoking which was assessed by the smoking behavior questionnaire developed by the researcher which divided smoking behavior into two types:

1. Smoking means adolescents who had experience smoking at least one cigarette.
2. Non-smoking means adolescents who had never smoked at all.

Sense of coherence refers to a global orientation that expresses the extent to which one has pervasive, enduring through dynamic feeling of confidence that the stimuli deriving from one's internal and external environment in the course of living are structured, predictable, and explicable; the resources are available to meet the demands posed by stimuli; and these demands are challenges, worthy of investment and engagement as assessed by a questionnaire developed by Antonovsky(1987) translated into Thai by Hanucharurnkul since 1989, which consists of 29 items arranged in a 7-point Likert scale with high scores indicating a strong sense of coherence.

Spiritual well-being refers to individuals' mental condition which is filled with happiness and serenity which results from living life doing good deeds and not being selfish, having mercy, feeling satisfied and fulfilled with life and duty, and having awareness, concentration, and intelligence as assessed by a questionnaire developed by Kalaya Ploymai (B.E.2545) based on the concept of Professor Praves Vasee, M.D. and Nun Sansanee Sathirasut (B.E.2544), which consisted of 31 items arranged in a 3-point rating scale with high scores indicating a high level of spiritual well-being.

CHAPTER II

LITERATURE REVIEW

The present study aimed at investigating the relationship among sense of coherence, spiritual well-being, and smoking behaviors in adolescents. In this chapter, related literature is reviewed in the following topics: adolescence development, smoking behaviors in adolescents, the salutogenic model of health, sense of coherence, sense of coherence and behaviors, spiritual well-being, and spiritual well-being and behaviors.

Adolescence Development

Dusek (1987: 4-5) defines adolescence as the age at which children are becoming adults. During this period, they need to undergo changes, including behavioral changes, to enter adulthood. According to Steinberg (1993: 4), adolescents are those who are growing and beginning to achieve maturity. They experience various changes physically, psychologically, socially, and economically. In addition, Sophun Nuchanart (B.E.2542: 1) defines adolescents as those who are growing to achieve full sexual maturity, with both physical and psychological development, to subsequently become full-grown adults. According to Owen (2002: 3), adolescence is the period in which physical changes begin. These changes end when individuals have maturity, roles, and responsibilities just like other adults.

The division of adolescence cannot be specifically determined as children differ and they can enter adolescence at a different time. However, in general, girls enter adolescence about two years faster than boys (Berger & Williams, 1992: 306). Some girls reach maturity and are ready to leave adolescence when they are only 17-18 years old (Sucha Janaim, B.E.2538: 9). Nevertheless, different phases of adolescences are generally divided as follows (Curry, Doyle, and Gilhooley, 1998, cited by Montgomery, 2003: 436): 1) Early/young adolescence—ages 10 to 14 years. 2) Middle adolescence—ages 15 to 17 years. 3) Late/older adolescence—ages 18 to 21 years.

Adolescence is the periods in which there are numerous changes and all aspects develop very rapidly as follows:

1. Physical development

Physical development involves outer changes which can easily be detected such as height, weight, body shape, size, and hair type, etc., as well as inner changes including those occurring with the muscles, bones, hormones, voices, and reproduction systems of boys and girls, etc. (Sriruen Kaewgungwan, B.E.2540: 331). Adolescents grow to the fullest during these periods, they begin to adjust themselves to the physical changes they are undergoing, and they learn to accept their full-grown body (Hamburg, 1998: 40). However, most of them still pay attention to their changing body and can be sensitive to those changes. If they feel that the changes are positive and acceptable by social standard, they will be happy. On the other hand, if they feel that the changes are not satisfactory, they can develop anxiety, leading to problematic behaviors (Chaweewan Sukhapanphotaram, B.E.2527: 24-25).

2. Personality and social development

Adolescents in these periods pay great attention to themselves. They are continuously searching for their uniqueness. As they feel that they are now adults, they try to seek independence by reducing their reliance on other family members and beginning to be more self-reliant and responsible (Hamberg, 1998: 40-41). Some want adults to accept them as adults as well. As adolescents are in the transition period between childhood and adulthood—physically, socially, or cognitively—they can be confused about their roles and responsibilities. Sometimes they may want to be children because there is no responsibility, but at other times they may want to be adults who have influence in society (Janthita Preugsananon, B.E.2538: 112). With such confusion in mind, adolescents tend to give more significance to their peer groups than their families. They spend most of their time happily with friends who share their age, interests, values, attitudes, abilities, personalities, and socioeconomic status. They also begin to have interests in the opposite sex (Neinstein, Sherer, & Radzik, 2002: 55-57). Hanging out with friends enable adolescents to be independent, but at the same time, they can be persuaded to have inappropriate behaviors which can harm themselves such as using drugs (Janthima Preugsananon, B.E.2538: 112).

3. Intellectual development

During these phases, adolescents have reached fullest brain development, so they are able to think in every possible way. If they have received appropriate upbringing, they will clearly show their intelligence and be able to learn difficult things including complex abstract ideas. However, the quality of adolescents' intellectuality depends on their brain quality, heredity, past learning, and academic education they have received, as well as the environment which can or cannot be enriching to their development (Sriruen Kaewgungwan, B.E.2540: 347). Middle and late/older adolescents are able to have rational thinking. They begin to contemplate their future by considering their education and profession, while trying to get to know themselves better to become self-reliant and understanding of the society. They are able to observe other people's ideas and opinions toward themselves (Schuster & Ashburn, 1992: 514-515), and they are eager to accumulate more knowledge and experiences (Hamburg, 1998: 41). Thus, adolescences are the periods when they like to observe and experiment through trials and errors in solving problems and doing things (Sucha Janaim, B.E.2538: 25).

4. Emotional development

Different changes adolescents undergo make them vulnerable, sensitive, and emotionally unstable. However, the emotional expressions of each adolescent depend on their personal characteristics as well as arousals. Adolescents can experience all kinds of emotion including love, likeness, hatred, anger, jealousy, envy, competitiveness, stubbornness, sensitivity, infatuation, confusion, compassion, anxiety, irritability, etc. They are not fully able to control their emotions, so they experience violence, vulnerability, and changes. These emotions increase their severity during the last phase of adolescence which is called storm and stress (Sriruen Kaewgungwan, B.E.2540: 336). According to Erikson (1968: 131), adolescents are those who experience the highest degree of mental confusion.

In summary, adolescence is the transitional period of development from childhood to adulthood characterized by changes and developments in physical appearance, intellect, emotions, and socialization. However, adolescents have the highest degree of mental confusion when compared to individuals of other age groups. In addition, socially they want to be accepted by their peer and others in society. They

can also experience mental conflicts, anxious, and stress. Consequently, they may use inappropriate means to avoid or solve their problems and express problematic behaviors such as smoking, which will be discussed later.

Smoking behaviors in adolescents

Definition of smoking behavior

Different definitions have been given, some of which are cited below:

Smoking behaviors refer to an expression of smoking, which can be divided into three types as follows (National Statistics Office, B.E.2542: 3):

1. Regular smoking means smoking cigarettes as a regular habit everyday, except for when there is another engagement or sickness when smoking can be temporarily stopped.
2. Infrequent smoking refers to smoking cigarettes which is not on a regular basis and in an unpredictable pattern.
3. Not smoking means not smoking any kind of cigarette.

Kattika Pongsiri (B.E.2536: 7) defines smoking behavior as an expression or an action which can be observed that is related to smoking cigarettes.

According to Yuwaluck Khanasa (B.E.2541: 9), smoking and non-smoking behaviors are expressions of students which can be observed related to smoking or not smoking, which can further be divided into regular smoking, infrequent smoking, and not smoking.

Acharawan Soithong (B.E.2542: 6) defines smoking as the act of smoking or not smoking of present day adolescents which can be divided into two groups:

1. Smoking group refers to those who have smoking behaviors which consist of those who used to smoke but have quit for at least one month and those who continue to smoke.
2. Non-smoking group refers to those who never smoke.

According to Yupayong Wongphun (B.E.2544: 6), smoking behaviors among students can be categorized as follows:

1. Smoking group refers to those who report that they have smoking experience either in the past or at the present.

2. Non-smoking group refers to those who report that they have never had smoked.

In short, smoking behaviors refer to an expression of smoking of individuals. Based on studies that have been conducted in Thailand, smoking behaviors can be divided into two types. The first consists of regular smoking, infrequent smoking, and not smoking. The second is smoking and not smoking.

Situation of smoking among adolescents

There have been studies related to rate of smoking among different groups of individuals. In one study, it was found that 33.5% of students in a male high school in Bangkok smoked (Wanee Tippayom & Krisna Sriwannawat, B.E.2520), which is similar to the rate of smoking among vocational students in Songkla Province, which was equal to 31.1% (Somrudee Mobnarin, B.E.2531). Furthermore, 36.8% of male students whose educational levels were lower than an undergraduate level in the municipality of Muang District, Khon Khan Province, smoked (Somchai Chuenta, B.E.2528), while 45% of male and 5% of female secondary and vocational students in Bangkok smoked (Chuanpit Boonyaratavej, B.E.2526). Finally, Acharawan Soithong (B.E.2542) found that 17.6% of secondary students in all regions of the country smoked. However, the findings of these studies cannot be compared due to the discrepancy of the samples.

However, studies indicate that individuals tend to begin smoking when they become adolescents, with the average ages of 16 to 18 years (Chuanpis Bunyaratavej, B.E.2526: 26; Pojanee Laoamata, B.E.2532: 5; Somchai Chuenta, B.E.2526: 26). Similarly, it has been found that the largest group of regular smokers begin the habit when they are about 16 to 19 years, accounting for 55.9% of the total (National Statistics Office, 1999: 9), and the most frequently found abused substance in school is cigarette (Tosaporn Poomkam, B.E.2542: 10; Kamolporn Suansomjit et al., B.E.2541: 220). Thus, adolescents who are about 15 to 19 years old and who are in the middle adolescence and late/older adolescence groups when smoking behaviors are likely to start should be investigated to shed more light on factors related to smoking.

Factors related to smoking behaviors in adolescents

Based on a review of research studies, it can be concluded that the factors related to smoking behaviors among adolescents are as follows:

1. Gender

Gender is found to be related to smoking as the rate of smoking varies between genders (Moor et al., 1989; Ivanovic et al., 1997). Males have more chances to smoke than females do (Grizeau et al., 1997; Acharawan Soithong, B.E.2542).

2. Persuasion to smoke

Adolescents give tremendous significance to their peer groups, and they generally try to do anything to be accepted by their peers. When they are persuaded to smoke, they do not have a refusal skill to say no as they are afraid that their peers might not let them join the group. Thus, many adolescents are willing to do anything their friends want them to do without thinking of the consequences. Wanpen Parasri (B.E.2533: 59-63) found that one of the main reasons why male students smoke is persuasion from friends.

3. Curiosity

When adolescents see others smoke, they may want to try to see what it is like. Somjit Supannathat (B.E.2522: 9-18) explains that one factor that leads to smoking behaviors among adolescents is curiosity. Smoking is one thing that adolescents want to try. If they are satisfied with their first experience with smoking, they tend to continue to smoke. Likewise, according to Wanpen Parasri (B.E.2533: 59-63), one of the main reasons why male students smoke is that they want to try it by themselves.

4. Lack of knowledge and experience

Adolescents tend to think that smoking is an ordinary thing and that harms caused by smoking takes time to take effects. Also, they tend to think that they can quit smoking anytime they want. Thus, sometimes when they have realized it, it is already too late and too difficult to quit. However, there are some studies which point out that knowledge is not a significant factor. For example, Acharawan Soithong (B.E. 2542: 28) investigated factors associated to smoking behaviors among 2,243 secondary school students and found that there was no difference in knowledge of smoking between the smoking and non-smoking groups. In addition, Somrudee

Mobnarin (B.E.2531: 48) discovered the same findings. Thus, knowledge of smoking may not fully explain smoking behaviors among adolescents.

5. Low self-esteem

Some adolescents are not satisfied with their lives, pessimistic, and weak. They do not understand the meaning and value of life, use emotion to deal with problems, and do things sarcastically without thinking of the consequences that follow. They sometimes think that even though they do not smoke, they can die from something else anyway. As a result, they do not have appropriate self-care to ensure their good health. According to Dielman et al. (1986: 207-220), the feeling of self-esteem was negatively associated with substance abuses including smoking, alcohol drinking, and use of marijuana among adolescents. This finding supported the finding of their previous studies as well as that of Murphy & Price (1988: 40) that students who smoke have a lower level of self-esteem than that of those who do not smoke.

6. Positive attitudes toward smoking

Adolescents have positive attitudes toward smoking—that it will relieve their stress and anxiety, that it makes them think more clearly and do things better, and that it makes them look cool in others' eyes. They also like the taste of cigarettes (Wanpen Parasri, B.E.2533: 59-63; Marty et al., 1987: 190-197). In addition, Acharawan Soithong (B.E.2542: 28) investigated factors influencing smoking behaviors among 2,243 secondary school students and found that positive attitudes toward smoking was associated with smoking behaviors. Similarly, Somchai Chuenta (B.E.2528: 68) conducted a study among secondary and vocational students in Khon Khaen and received the same findings.

7. Family problems

Adolescents who are neglected by their parents, whose parents are too strict, or whose parents are addicted to gambling smoke more (Siwanan Siriwanarungsan, B.E. 2530; Prapaisri Songlin, B.E.2530).

8. Imitation of favorite or admirable persons

Adolescents like to imitate the behaviors of close persons or the persons they admire such as movie stars, parents, relatives, friends, or others. If these people smoke, it is more likely that the adolescents will smoke (Evans et al., 1978: 126-135; Chuanpit Boonyaratavej, B.E. 2526: 43-44; Somjit Supannathat, B.E. 2522: 9-18;

Somrudee Mobnarin, B.E.2531: 48; Somchai Chuenta, B.E.2528: 68; Pongsak Srisaan et al., B.E.2541: 16; Acharawan Soithong, B.E. 2542: 27-28).

9. Legal status of cigarettes

As cigarettes are addictive substances that are legal and they are sold openly everywhere, adolescents have more chances to smoke. Even though there is a law prohibiting the sale of cigarettes to those who are younger than 18 years of age, adolescents can still buy cigarettes by themselves, or they can ask someone else to buy them on their behalf.

10. Habit

Some adolescents smoke when they have nothing else to do. If they do this regularly, nicotine will accumulate in their bloodstream. If the level of blood nicotine is reduced, they will feel the urge to smoke. Finally, smoking will become their habit (Supat Theeravejcharoenchai, B.E.2541: 85-89).

11. Alcohol drinking

Acharawan Soithong (B.E.2542: 26) found that adolescents who drink alcohol smoke more than those who do not drink.

12. Educational institute

Studies have found that type and location of school are associated with smoking (Oriol et al., 1988; Juon et al., 1995; Hu et al., 1990; Somchai Chuenta, B.E.2528; Acharawan Soithong, B.E.2542). It has also been found that vocational students smoke more (Shibata et al., 1990).

13. Other factors

Other factors such as monthly allowances, parents' occupation, current residence, or being sportspersons can lead adolescents to smoke (Somrudee Mobnarin, B.E. 2531: 48; Somchai Chuenta, B.E.2528: 68; Acharawan Soithong, B.E.2542: 25-26).

It can be concluded that there are a number of factors that affect adolescents' smoking behaviors, both outer factors and inner factors. However, an extensive review of literature has shown that the Salutogenic Model of Health has never been used to investigate smoking behaviors of adolescents in Thailand. Therefore, this model was employed in the present study based on an assumption that a better understanding of smoking behaviors of adolescents would be obtained.

The Salutogenic Model of Health

The Salutogenic Model of Health was developed by Aaron Antonovsky, an American/Israeli sociologist and academician who conducted numerous research studies on stress of individuals in an attempt to understand the relationship among stress, coping, and health (Antonovsky, 1991). This model aims at explaining the factors associated with maintenance of health of individuals rather than causes of diseases or illness. According to the Salutogenic Model of Health, individuals' health condition is seen as a continuous cycle called the Breakdown continuum, or which is more widely known as the Health continuum. The highest health condition is at one end of the continuum, called salutary end or Health-ease, while sickness is at the other end, called health breakdown or Dis-ease.

Individuals' health depends on their ability to cope with stress. Individuals with strong sense of coherence are more likely to effectively cope with stress. Sense of coherence develops based on secure basic life experiences of individuals since birth, as well as various life experiences, challenging life events and responses to such events, stress-causing conditions, and ability to manage the stressful situations of individuals. For such experiences, the more individuals have consistency, participation in shaping outcome, and an underload-overload balance of stimuli, the more they are able to see the world as coherent and predictable. Finally, the most important part is GRRs (Generalized Resistance Resources) of individuals. This means that individuals who have generalized resistance resources able to create life experiences which are more meaningful and coherent. Individuals who have good generalized resistance resources in the forms of material resources, flexible coping strategies, and sufficient social support are more likely to have life experience filled with coherence.

Thus, when facing stressors, either endogenic or exogenic stressors, if individuals have strong sense of coherence, they are able to draw on generalized resistance resources to cope with such stressors, leading to health ease. On the other hand, if individuals have weak sense of coherence, they will not be able to manage their stressors, and they will eventually suffer from health dis-ease, as illustrated in Figure 2.

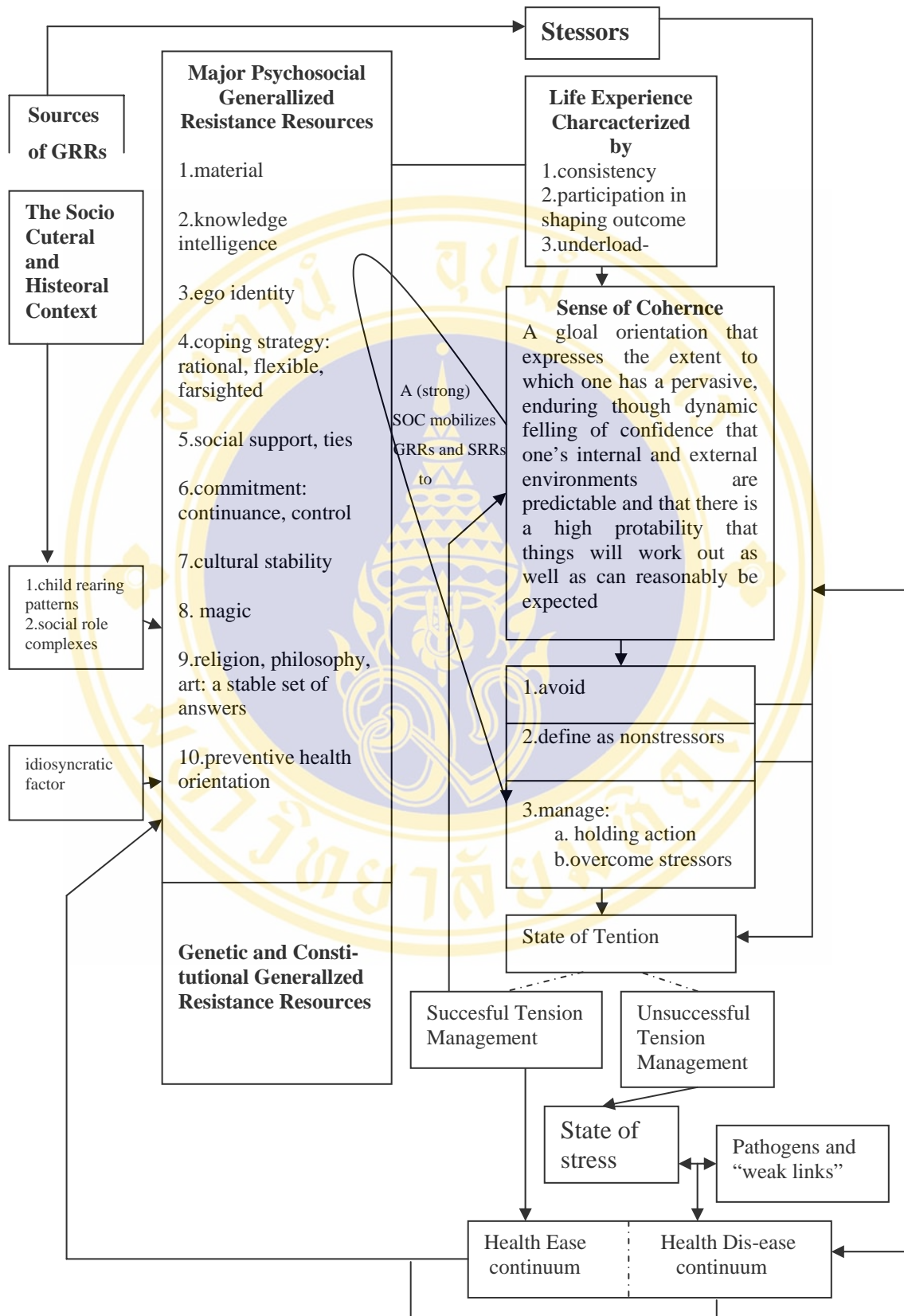


Figure 2: The Salutogenic Model of Health

According to the aforementioned Salutogenic Model of Health, Antonovsky remarks something as follows:

1. Stressors

Antonovsky (1991) divides stressors into two types:

1.1 psychosocial stressors include disappointment in love, disappointment in studying, conflicts with family members and others in society, the need to be accepted by others, etc.

1.2 Physical and biochemical stressors include weak body, onset of a disease, changes of hormones or chemicals in the brain, etc.

2. Life experiences

The environment is a factor that supports and strengthens individuals' sense of coherence by creating individuals' life experiences in three following ways:

2.1 Consistency refers to life experiences which individuals attain from similar events or situations, or situations that occur so regularly that individuals can expect or predict as well as deal with what is going to happen.

2.2 Underload-overload balance refers to life experiences that individuals attain from particular events or incidents that individuals can understand and appropriately handle according to their capacity.

2.3 Participation in shaping outcomes refers to life experiences which individuals gain from their acceptance that when facing or dealing with some events in life, they are able to decide or control only part of the outcomes. The rest of the outcomes depend on other people or environments that are related to them.

3. Generalized resistance resources

According to Antonovsky (1991: 103-119), generalized resistance resources are psychosocial factors which help individuals face or deal with tension and stress in life by being stimulated and utilized through sense of coherence. Antonovsky divides generalized resistance resources into six aspects:

3.1 Physical-biochemical GRRs refer to the body's condition and immune system.

3.2 Artifactual-material GRRs include income, food, clothes, housing, social role, authority, and management of sufficient resources.

3.3 Cognitive-emotional GRRs refer to intellectuality, skills in searching for information, knowledge and intelligence obtained through education, understanding of self, and flexibility.

3.4 Valuative-attitudinal GRRs mean patterns in coping with stress of individuals which come in a variety of patterns such as fight or flight response, ignorance, denial, rationalization, dependence on others, and search for resources.

3.5 Interpersonal relational GRRs refer to social support from physicians, nurses, friends, close persons, relatives, spouses, as well as participation in social activities and different services which enable individuals to adjust themselves effectively.

3.6 Macrosociocultural GRRs refer to religion, religious ceremonies, cultures, traditions, superstitious beliefs, and personal faith, etc., which can be used to cope with stress caused by society and cultures influencing individuals' beliefs, faiths, and philosophical concepts.

In the present study, sense of coherence and macrosociocultural GRRs of spiritual well-being were chosen as they were considered consistent with nurses' roles to help, care, and support adolescents to effectively deal with stress or other situations they were facing, thus enabling them to choose appropriate health behaviors leading to good health. Sense of coherence and spiritual well-being are believed to be related to smoking behaviors as will be discussed later.

Sense of Coherence

Definition

Sense of coherence is a personality structure of individuals which can explain individuals' health in the Salutogenic Model of Health, a health concept which aims at explaining how to maintain or support good health. The model has been proposed by Antonovsky who observed and analyzed seriously injured prisoners of war and found that those who had a good health were those who looked at the situation systematically and rationally, were able to explain and predict the situation, and had available resources which made it worth it to use physical strength and intellectual ability to deal with the situation. This has later been developed into the concept of 'sense of coherence.'

According to Antonovsky, sense of coherence is a wide and well-rounded global orientation with confidence that the arousals that have taken place both internally and externally are structured and explicable, with enough resources available to deal with such arousals, and dealing with such arousals is a challenge and is worth the effort (Antonovsky, 1991: 19).

Individuals with a high level of sense of coherence feel that their life is predictable, explicable, and meaningful. They also believe that they have resources or ways to deal with the problems they have. However, this does not mean that individuals with a strong sense of coherence will feel that they are able to control everything or that they will be successful every time (Antonovsky, 1991: 126). This is because whether individuals will have a strong sense of coherence or not does not depend on accomplishment of their goals or satisfaction, but it depends on their belief in the right thing or their reasonable expectation of the event that they are facing. Thus, when individuals with a strong sense of coherence face with a suffering, loss, or failure, they will still be able to maintain their understanding of the situation if the situation is somehow reasonable, explicable, and predictable. On the contrary, if these individuals have to deal with unpredictable or inexplicable situation for a long period of time, their sense of coherence may be reduced (Antonovsky, 1979, cited by Sullivan, 1993: 1774).

It can be said that sense of coherence is a characteristic of individuals who have a way to look at situations that the situations are explicable and predictable, who have confidence that they are able to deal with and improve the situations, and who feel that the situations are worth dealing with.

Components of sense of coherence

Individuals who have a strong sense of coherence have a global orientation in the following three aspects (Antonovsky, 1987: 16-19):

1. Comprehensibility

Comprehensibility means that individuals feel that what arouses or stimulates them is predictable and manageable and that it has a definite structure rather than something disturbing, confusing, uncertain, and unpredictable as well as inexplicable. The individuals with a high level of comprehensibility are able to predict what they will find in the future. Even if they have to deal with something suddenly or

unexpectedly, they are still able to understand and explain what has happened and to predict what will come next, even though they may not be able to seek definite answers. In other words, they are still able to understand and have feeling about what they are encountering even though they may not be fully satisfied with it. For example, they understand that death, war, and failure may happen, and even though they do not like them, they are still able to try to understand them and do not try to avoid them.

2. Manageability

Manageability means individuals feel that they have ways to manage to get what they want. Such ways may come from within themselves such as understanding, confidence, or hope, or they may come from other sources such as spouses, friends, trusted persons, etc. Individuals who have a high level of manageability will not feel that they fall victims to the situations or that life is unfair. When serious situations occur in their life, these individuals will try to adjust themselves to survive without wasting time mourning the situations. Thus, individuals with a strong sense of coherence will choose the most effective means to handle the problem and confront the problem without avoiding it. On the contrary, individuals who have a weak sense of coherence will let themselves get carried away with the problems (Antonovsky, 1987, cited by Post-White et al., 1996: 1972). It can be said that individuals with a strong sense of coherence will use reasons to solve problems rather than emotion, so they can deal with them confidently and effectively.

3. Meaningfulness

Meaningfulness means individuals understand that they have ability and energy to deal with the problems or the needs that have arisen and look at them as the challenges worth handling rather than heavy burdens or problems. However, this does not mean that these individuals will be pleased with the death of loved ones. Rather, it means that when bad things happen, they are willing to deal with them even though they do not want to. They will also be ready to search for meaning from the experience and decide to do what is best to overcome it. In addition, meaningfulness is related to individuals' feeling that life is valuable and it is worth continuing living the life (Mc Sherry & Holm, 1994: 476). They will feel that what happens to them is

challenging, meaningful, and worthwhile, and that life is valuable and it deserves to be well taken care of.

Development of sense of coherence

Individuals' sense of coherence is developed since childhood through different life experiences. It undergoes the most changes during adolescence, the time of confusing when they want to experiment and to learn about themselves and society, while still unable to make reasonable prediction. During this period, individuals start to form more relationships with individuals and the environment, to gain more life experience, to have more ways to think and choose, and to develop sense of independence and mental stability. When they reach early adulthood, individuals continue to develop their sense of coherence with more stability until they are 30 years old. Differences in sense of coherence of individuals depend on each individual's life experiences. If there is a sudden change in life experiences which prevents individuals from finding ways to cope with tension such as migration, war, death of loved ones, or loss of a job, individuals' sense of coherence can be weakened (Antonovsky, 1991: 187-189).

Factors related to sense of coherence

Antonovsky (1991: 137-152) has divided factors that differentiate sense of coherence of individuals as follows:

1. Psychological source refers to satisfying different needs such as love and warmth. This is the result of life experience and development since childhood. For example, children's needs are met and they receive love, care, and warmth when they are hungry or sick. In addition, individuals' ability to adjust, flexibility, reasonableness, and understanding of own uniqueness also help strengthen sense of coherence. On the other hand, if children are neglected, they do not receive love and attention, and their needs are not served, their sense of coherence can be weakened.

2. Social-structure source refers to social role, work, social status, values inherited from parents, social support, gathering of social members, and social obligations. They help make individuals feel confident when dealing with problems and strengthen their sense of coherence.

3. Cultural-historical source refers to stability in culture, religion, philosophy, arts, superstitious beliefs, and unexpected changes of events in life. These affect basic structure of individuals' personality, part of which is sense of coherence.

Research has been conducted to explore the relationships among individual characteristics. George (1996) studied personnel conducting home visits and found that sense of coherence was positively associated with age, educational level, number of years working, and number of years in the profession, and males had a stronger sense of coherence than females. Moreover, Carmel et al. (1991) carried out a study among the Kibbutz revealed that sense of coherence was positively related to health among male subjects. Finally, Kangsadarn Suthivireesawan (B.E.2535) discovered that married nurses working in a critical ward had a stronger sense of coherence than those who were not married. These findings confirm that some individual characteristics such as age, gender, marital status, educational background, and work experience are related to individuals' sense of coherence.

Sense of coherence and behaviors

Adolescents may find themselves dealing with different problems. For example, they lack emotional maturity, they have to deal with difficulty searching for who they are, they have to cope with generation gap, and they need to learn to live in society filled with temptations. As a result, they may have psychological conflicts, uneasiness, and stress. Confusion can make them try to escape from the problems or deal with the problems with emotion instead of reason. Some may end up having problematic behaviors such as smoking cigarettes, which is considered an addictive drug. However, individuals may deal with problems differently, depending on their personality and characteristics. Antonovsky believes that sense of coherence leads to good health, and those who have a strong sense of coherence are able to appropriately dealing with the problems they are facing. Also, they are able to understand and explain the situation, predict what is going to happen next, and use available resources to control or cope with the tension, enabling them to handle the problems appropriately and effectively and to maintain good health. On the contrary, individuals who have a weak sense of coherence will feel that life is full of stress, and they tend to feel disappointed, bored, and unmotivated to deal with different situations.

They will be unable to handle the situations and use inappropriate means to better their conditions, which can lead to disease or sickness (Antonovsky, 1979, 1984, 1987, cited by Post-White et al., 1996: 1572).

Therefore, sense of coherence tends to be related to smoking behaviors among adolescents. Adolescents who have a strong sense of coherence are able to understand what affects them both internally and externally. They are confident that they are able to deal with the situations appropriately and to utilize the resources available to them—both internal resources such as spiritual morale, perseverance, and optimism and external resources such as family, friends, teachers, medical staff, and textbooks. Moreover, they realize the value of their lives and the situations, making them feel it is worth their efforts to deal with them. These characteristics instill the confidence in adolescents and make them able to cope with the problems effectively without escaping the problems and without easily giving up. When they understand their lives and their action realistically, they have an awareness which enable them to deal with the situations and choose to do what is best for them without turning to smoking which harms their health. Consequently, they are able to maintain their good health.

Martin et al. (2002) conducted a study with 463 low income African Americans and found that sense of coherence made them stop smoking by 6% (OR = .94). Moreover, smokers who had a strong sense of coherence could reduce the number of cigarettes by at least one pack by 8% (OR of 1 pack or more/day = .92, CI .88-97). Likewise, Midnanik et al. (1992: 42-48) conducted a study with 952 elderly and found that those who had a strong sense of coherence drank less alcohol than those who had a weaker sense of coherence. Examples of other studies that investigated the relationship between sense of coherence and other risk behaviors in different groups of population are as follows:

Hassmen et al. (2000: 17-25) conducted a study among 3,403 Finns and found that those who exercised at least two or three times a week had a stronger physical condition and had a stronger sense of coherence when compared to those who exercised less or did not exercise at all.

Nyamathi (1991: 296-277) studied the relationship among a sense of coherence, emotional tension, physical symptoms, and risk behaviors of HIV infection among 581 female homeless people or drug addicts. The findings revealed that those

who had a strong sense of coherence had high self-esteem, low emotional tension, and fewer risk behaviors. Similar findings were obtained in the subsequent study (Nyamathi, 1993: 51-158) conducted among females with risks of HIV infection. Those who had a strong sense of coherence would assess the situation they were facing as less threatening, making them had low emotional tension and fewer risk behaviors than those who had a weak sense of coherence.

In addition, Mehlum (1998: 487-492) carried out a study with 663 male teenagers and found that those who had a low sense of coherence tried to avoid problems by means of suicide and had more suicidal behaviors when dealing with problems or stress in life than those who had a strong sense of coherence.

However, inconsistent findings have also been found. For instance, Luszczynska (2002) conducted a study with 83 abused women and found that a sense of coherence could not predict their smoking behaviors. Similarly, Kuuppelomaki & Utrianen (2003: 383-388) conducted a longitudinal studies spanning over three years (1996, 1997, and 1999) with 63 polytechnic students in Finland. It was discovered that changes in smoking, drinking, and exercising were not associated with changes in a sense of coherence. However, as the sample size was small and it was not randomly selected, the findings could not be generalized.

A review of literature and research findings reflects the significance of sense of coherence and its influence on efficiency in dealing with different situations which lead to health risk behaviors such as smoking, drinking, and having risk behaviors of HIV infection. Furthermore, it is also related to exercises, suicidal behaviors, and maintenance of suicidal thoughts. However, the research findings are still contradictory depending on the samples. It is also worth noting that there is no research conducted in Thailand which attempts to examine the relationship between a sense of coherence and smoking behaviors among Thai adolescents. Thus, this study chose to explore this relationship in hope that light could be shed on this issue.

Spiritual well-being

Definition

Spirituality refers to goodness, virtues, or high-leveled spirits which means the spirit that has less selfishness and is filled with human compassion. It also refers to

the spirit that reaches the higher power of nirvana, or intelligence. In the Thai context, this is not a new term, but it is always used to refer to virtues, being human, merits, or *Magga* or the Path leading to cessation of suffering. Spirit as defined here is an intellectual process which enables individuals to differentiate between the good and the bad and to understand the nature of beings that is soullessness, egolessness, and selfishness (Pravate Vasee, B.E.2544: 42-44).

In addition, according to Pravate Vasee, spiritual well-being is happiness and well-being which results from doing a good deed and having little defilement, which can be summarized as follows (Pravate Vasee, B.E.2544: 43-44):

1. Having peacefulness of mind and being free from mental disturbances;
2. Having loving kindness, compassion, sympathetic joy, and equanimity;
3. Having alertness and learning ability;
4. Having clearness of mind and understanding (wisdom);
5. Having mindfulness and concentration; and,
6. Reaching the higher powers such as the Triple Gems, nirvana, or God.

Nun Sansanee Sathirasut (B.E.2544: 14) defines spiritual well-being as the mental condition which is full of happiness, serenity, and spiritual strength, as well as mental immunity which is sensitive to the arousal by the spirit that is mindful and pleased to perform duties and to live.

Thus, spiritual well-being as defined by eastern philosophies is a mental condition which is filled with happiness and calmness resulting from doing only good deeds, being selfless, possessing the four divine states of mind (loving kindness, compassion, sympathetic joy, and equanimity), feeling pleased with fulfilling responsibilities and living life, and having mindfulness, concentration, and wisdom.

Components of spiritual well-being

According to eastern philosophies, spiritual well-being consists of the following:

1. Calmness which results from doing good deeds, being selflessness, and having the four divine states of mind, which is the virtue of the respected (Pravate Vasee, B.E.2544: 44). The four divine states of mind, or *Brahma Vihara 4*, consist of:

- 1.1 Loving kindness refers to friendliness, love, good wishes, compassion, attention, understanding, and need to create happiness among fellow

human beings and animals. Loving kindness is a foundation of understanding which leads to mutual relationship among individuals. It makes individuals optimistic, have good wishes for others, and ready to listen to others' reasons. The outcomes of loving kindness are the suppression of malevolence. On the other hand, if there is no loving kindness, individuals will be filled with passion, which can lead to bias. Loving kindness makes the mind free from hatred and full of friendliness and good wishes for everyone alike. It also enables individuals to do things according to reasons for the sake of happiness of all.

1.2 Compassion refers to pity and need to release others from their sufferings.

1.3 Sympathetic joy refers to happiness and joy when seeing that others are happy and successful. It can also refer to acknowledgement, acceptance, or admiration when others are prosperous because of good deeds.

1.4 Equanimity refers to being impartial, calm, and consistent. Individuals with equanimity look at human beings and animals with impartiality, not taking side with them or not having hatred for them. Equanimity is an important tool which prevents loving kindness from hindering the occurrence of wisdom.

2. Feeling pleased with fulfilling duties and living life means being mindful and satisfied in every step of doing things in life, having concentration and consuming through the five sensory perceptions with mindfulness and alertness to maintain both physical and spiritual balance for serenity of the mind. If individuals consume without mindfulness, they may live their lives which affect their physical well-being as well as spiritual wisdom and concentration. Then, they can easily do things that bring about spiritual sorrowfulness (Nun Sansanee Sathirasut, B.E. 2544: 14-15).

3. Having mindfulness, concentration, and wisdom

3.1 Mindfulness refers to awareness, understanding, knowingness, carefulness, alertness, and readiness to perceive things around oneself and to react properly. In terms of ethics, P.A. Payutto (B.E.2546: 311) points out that mindfulness controls the mind in the right way and prevents it from obsession or carelessness when doing things. Mindfulness also reminds individuals to do things with responsibilities and reasons, prevents spiritual accidents, and inhibits defilements from taking control

of the mind, which can lead to harms and suffering. Spiritual well-being can take place when individuals have mindfulness (Nun Sansanee Sathirasut, B.E.2544: 15).

3.2 Concentration refers to one-pointedness of the mind (P.A. Payutto, B.E.2546: 331), focusing on one emotion or one object without thinking about others. Such condition enables individuals to be creative and use reasons to do good deeds. In order for concentration to take place, the following five enemies of concentration, or *Nivarana*, have to be got rid of (P.A. Payutto, B.E.2546: 322):

3.2.1 Sensual desire includes needs in the five sensory perceptions of see, hear, taste, smell, and touch which brings about worldly satisfaction.

3.2.2 Malevolence refers to unhappiness, annoyances, and dislikes.

3.3.3 Sloth and torpor refer to mental conditions of feeling depressed, disheartened, and loneliness, as well as physical conditions of being sleepy, drowsy, and lethargic.

3.3.4 Restlessness and worry refer to uncontrollable and wandering ideas and thoughts as well as mental irritability, restlessness, suspicion, and worry.

3.3.5 Skepticism means uncertainty and doubtfulness.

3.3 Wisdom refers to true understanding which leads to absence of selfishness and use of wisdom to reach the highest point (Pravate Vasee, B.E.2544: 42). Wisdom is the highest ethical value which uplifts individuals' spirit until they achieve the truth of life (Prabuddhajanavaraporn, B.E.2545: 3-4).

In summary, spiritual well-being as defined by eastern philosophies consists of three elements: 1. happiness and peacefulness which result from doing good deeds, being selfless, and having the four divine states of mind (loving kindness, compassion, sympathetic joy, and equanimity); 2. feeling pleased with fulfilling duties and living life; and 3. having mindfulness, concentration, and wisdom.

Factors related to spiritual well-being

According to the previous research studies, the factors related to spiritual well-being of individuals are the following:

1. Age and developmental stage

Children's perception of spiritual well-being depends on their age and developmental stage. Children have to be able to understand abstract thinking, as well as ability to explore and perceive the relationship between the higher powers of themselves, before they begin to understand their own spiritual conceptions. According to Taylor, Lillis & Lemone (2001: 150), the developmental stage is an important factor influencing individuals' spiritual being. This is because humans' physical, mental, and intellectual growth and development vary in different stages of life (Nagai-Jacobson & Burkhardt, 1989: 18-26). Mize (1995) conducted a study among American children aged between 7 and 18 years old and found that those who were between the age of 7 and 10 were able to explain their experiences related to God but were unable to discuss spiritual concepts. Moreover, those aged 11 to 13 years old had spiritual concepts but still had difficulty discussing them, while those between the age of 14 and 18 were able to explain their spiritual beings including playing, beauty, and relationships. Besides this, Highfield (1992: 1-8) discovered that age was positively associated with spiritual beings of patients with lung cancer. Likewise, Kaczorowski (1989, cited by Mickley et al., 1992: 267-272) reported the same finding. However, Fernsler, Klemm, & Miller (1999: 134-140) found that age was not related to spiritual well-being of colon cancer patients.

2. Family

Family plays an important role in spiritual development of children, as spiritual development of children mainly depends on upbringing and parents' behaviors. According to Craven & Hirnle, 1996: 1561, individuals' spirits and religion-related traditions come from the family. Paloutzian & Ellison (1982, cited by Ellison, 1983: 330-340) conducted a study with 500 subjects with both genders who were housewives and students, who were married or single, who had and did not have a religion, and who resided in a city or in a rural area. The findings revealed that childhood experiences related to family and friends were positively associated with spiritual well-being.

3. Gender

Research findings have pointed out that females have more spiritual well-being than males do. Isaia & Parker (1999: 18-19) carried out a study with elderly subjects

aged between 56 and 88 years who resided in communities in the southeastern part of the United States and found that the female subjects had a higher level of spiritual well-being. Similarly, Frenslar, Klemm & Miller (1999: 134-140) carried out a study among 121 colon cancer patients in the United States and other countries and discovered that female patients had a higher level of spiritual well-being.

4. Educational institute

Kalaya Ploymai (B.E.2545) found that the mean scores of each aspect of spiritual well-being of high school students were at a high level, while those of vocational students were at a low level. However, there is no other research evidence to support this particular finding and further studies are needed.

5. Educational background

Education can increase thinking and intellectual ability of individuals. It enables individuals to look at life from a wider perspective and to develop proper cognitive and problem-solving skills, which affect the behaviors resulting in spiritual development. Saipin Kasemkitwattana & Wimolrat Puworawutnavanich (B.E.2539: 54-64) conducted a study among AIDS patients and found that their educational background was positively related to their transcendental state, another dimension of spiritual well-being, although the relationship was at a low level ($r = .16, p < .05$).

6. Religion

Religion is another factor which affects individuals' spiritual well-being. According to Prapisarndhamwatee (B.E.2544: 3), when individuals pay attention to their religion, the religion will become the source of support and warmth in their lives, preventing them from being stricken with illness, both physically and spiritually. Furthermore, Suyemoto & Macdonald (1996: 142-148) conducted a qualitative study to investigate content and role of religious and spiritual beliefs among 28 Americans aged between 18 and 24 years. They found that content and role of religious and spiritual beliefs have functions of higher power beliefs, leading to positive and meaningful activities in life. Also, they have functions of creation beliefs, believing that creation from the higher power results in explanation of the unknown such as why bad things happen to good people. Finally, they have functions of overall belief systems which enables individuals to understand or explain what has happened in their lives, making their living systematic, careful, and hopeful.

7. Crisis in life

Crises in life strengthen individuals' spiritual being (Craven & Hirnle, 1996: 1562). Horton (1998) conducted a study with female adolescents aged between 12 and 19 years old who lost their mothers to breast cancer and found that their mothers' death was a crisis in their lives, which caused concerns about breast cancer, affecting their psychological development, work, study, career planning, relationships with others, spiritual and religious beliefs, and spiritual development.

8. Hope

Hope is a power that enables individuals to overcome problems, obstacles, difficulties, tension, boredom, and failure and to accomplish their goals (Ross, 1995: 459). In addition, hope nurtures individuals' spiritual well-being which makes them able to search for meaning and purpose in life (Ellison, 1983: 337-338). Micky Soeken & Belcher (1992: 267-272) carried out a study among 175 females with breast cancer and found that hope was positively associated with spiritual well-being ($r = .661, p < .001$).

Spiritual well-being and behaviors

According to Nun Sansanee Sathirasut (B.E.2544: 16), having spiritual well-being enables individuals to refrain from being carried away with feelings and to control their feelings. For example, individuals will be able to concentrate on their inhaled and exhaled, which in turn enables them to control not only their breathing but also their feelings. Thus, they are able to face lives realistically and to use wisdom in their living, which will act as an immune that protects them and leads them to true physical and mental health. By the same token, Pravate Vasee (B.E.2544: 42-44) points out that spiritual being is one dimension of being human, which differentiates human beings from animals. Human beings cannot live without virtues. Likewise, they cannot live without their spirit, which is indispensable. If human beings do not have spirit, they will have imperfection and incompleteness in themselves, making them unhealthy and empty. As a result, they have to search for something which will make them feel complete such as drugs, extravagance, and violence, etc.

For this reason, spiritual well-being tends to be a resource which is very important for adolescents who are still searching for their uniqueness, independence,

and life goals. Adolescents have to undergo dramatic physical, mental, and psychosocial changes, and they have to encounter various arousals and temptations. Therefore, present-day adolescents tend to experience confusion. Spiritual well-being will act as the coordinator acting among their physical, mental, and psychosocial beings, enabling adolescents to live their lives happily, peacefully, and selflessly, with spiritual fulfillment resulting from committing only good deeds. Also, when adolescents live their lives with the divine states of mind as well as mindfulness, concentration, and wisdom, they will be able to live their lives meaningfully and to set realistic life goals. These will cushion them from tension and stress and enable them to deal with different situations in life effectively through sense of coherence. Consequently, adolescents will be able to choose appropriate healthcare behaviors and avoid the use of addictive substances such as cigarettes to ensure good health.

Even though there is no research on the relationship between spiritual well-being and smoking behaviors, there are a number of studies on the relationship among other variables related to life philosophy and drug use behaviors. For instance, Sangrawee Theprod (B.E. 2542: 116-117) conducted a study among 394 adolescents living in Pathumthani Province and found that the factors related to the instillation of Buddhist ethical values and living lives according to Buddhist beliefs could co-predict drug prevention behaviors by 31.21% ($r^2 = .3121$, $p < .001$). Similar findings can be found in a study of Spilka et al. (1985, cited in Ngamta Wanintanon, B.E.2536: 29) which revealed that strength of beliefs and religious behaviors were negatively associated with use of all types of drugs. To be more exact, adolescents who frequently attended religious ceremonies tended to use drugs less than those who did not.

A review of related literature and research has indicated that living life in accordance with religious beliefs such as Buddhism tends to be related to drug use behaviors. As religion is one factor influencing spiritual being of individuals, spiritual well-beings, though varying in terms of definition and means of measurement, is considered a form of perception of living life in compliance with individuals' religious beliefs. Spiritual well-being is also seen as a source of support that enables individuals to cope with stress and difficult situations in life effectively, making them

able to choose appropriate health behaviors to maintain good health. Thus, spiritual well-being is expected to be associated with smoking behaviors of adolescents.

Conclusion

In this study, sense of coherence which is part of individuals' personality and spiritual well-being which is considered a social and cultural source of support have been selected as the variables under study. It was believed that these two variables would enable individuals to deal with different situations effectively, leading them to appropriate health behaviors by avoiding smoking to maintain good health. It was expected that a study investigating the causal relationship of smoking behaviors among adolescents would help shed light on the smoking phenomenon among adolescents so that better and more effective prevention of smoking behaviors among adolescents could be planned for.

CHAPTER III

MATERIALS AND METHODS

This study was descriptive correlational research which aimed at investigating the relationships between sense of coherence, spiritual well-being and smoking behavior in adolescents and determining the predictive power of sense of coherence and spiritual well-being to predict smoking behavior in adolescents. This chapter describes the methodology used for the study, which consists of population and sample, instruments, data collection procedure, protection of human subjects, and data analysis.

Population and Sample

Population

The population of the study was the adolescents who were enrolled fulltime in high schools and junior vocational schools in the academic year 2004 under the Office of the Basic Education Commission and Vocational Education Commission, and located in Muang District, Nakhon Si Thammarat Province, in the south of Thailand. There were 11 high schools and 13 vocational schools, with approximately 12,600 adolescents.

Sample

Sample size

A sample size of the study was calculated based on Yamane's method (1973: 1088).

The formula is as follows:

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

Determine the sample size, when:

n = Sample size

N = The number of population size = 12,600 (academic year 2004)

e = The precision; error allowed for estimation = 5% = 0.05

Finally, the sample size of 388 subjects was required. However, to prevent the mortality of subjects, the sample size was equal to 480 subjects (with 20% added).

Sampling

As for sample selection, the sample was selected using multi-stage random sampling as follows:

Step 1: Adolescents in schools in Muang District, Nakhon Si Thammarat Province, were stratified into two groups by types of schools: Group one had 11 high schools and Group two had 13 vocational schools. Four schools were selected by simple random sampling: Benjamarachutit School and Yotinbamrung School were selected to represent high schools, while Nakhon Si Thammarat Technical College and Nakhon Si Thammarat Vocational College were selected to represent vocational schools.

Step 2: Classrooms were then selected using simple random sampling from the previously selected four schools: each school consisted of three groups based on the level of study (Mathayomsuksa 4, 5, and 6 and 1st year, 2nd year, and 3rd year). Then, classrooms were selected using simple random sampling from each level (two classrooms from each level). The result was six classrooms from each school or college, so the total consisted of 24 classrooms from four schools.

Step 3: Simple random sampling was used to select the adolescents from the classroom (20 adolescents from each classroom). Adolescents from a total of 24 classrooms were recruited to participate in this study if they wished to participate.

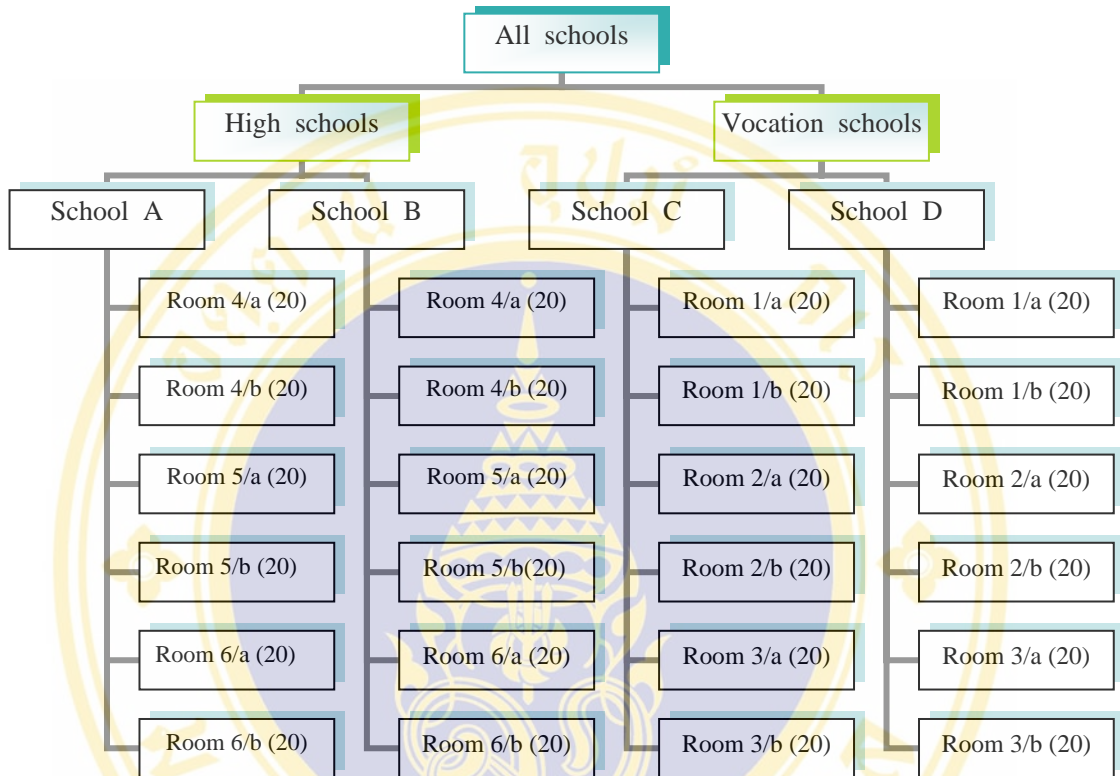


Figure 3: Sampling Procedure

Instruments

The instruments of this study consisted of four questionnaires as follows:

1. General characteristics data questionnaire (see Appendix B)

The questionnaire was used to record information regarding the adolescents' characteristics including gender, age, educational type, level of education, religion, hometown, persons living with while studying, personal daily income, daily stress, crisis, perceived health, parents' marital status, parents' care, family's income, close persons who smoked, induced experience, and opinion toward the danger of smoking.

2. Smoking Behavior Questionnaire (see Appendix C)

The questionnaire was used to elicit data regarding smoking behavior using both open-ended and closed-ended types of questions. The first question was used to

divide the smoking behavior into two groups: no = non-smoker group and yes = smoker group. Other questions elicited data regarding age at initiation, number of days smoking within the previous 30 days and reasons for smoking, and inhalation practices.

3. The Sense of Coherence Questionnaire (see Appendix D)

This instrument was developed by Antonovsky (1987) and translated into Thai by Somchit Hanucharurnkul (B.E.2532). It consisted of 29 items, and it measured the degree to which an individual viewed life as follows: 1. Comprehensibility (Item numbers 1, 3, 5, 10, 12, 15, 17, 19, 21, 24, and 26), 2. Manageability (Item numbers 2, 6, 9, 13, 18, 20, 23, 25, 27, and 29), and 3. Meaningfulness (Item numbers 4, 7, 8, 11, 14, 16, 22, and 28).

Each item of the questionnaire was arranged on a Likert-type scale of 1 to 7. The anchors which defined the response options of one to seven varied from item to item, depending on its content.

The questionnaire was composed of 16 positive items and 13 negative items. The total scores were computed by adding up the response for each item, creating a possible range of 29 to 203 points. Prior to calculating the total scores, 13 items had to be reversed (items 1, 4-7, 11, 13-14, 16, 20, 23, 25, and 27). The scores on the higher end of the total possible range of scores were indicative of higher level of sense of coherence.

The total scores were further categorized into two levels as follows:

Scores lower than the mean score of the total sample *meant* a low sense of coherence.

Scores higher than the mean score of total sample *meant* a high sense of coherence.

Validity and reliability

Antonovsky (1987) verified the content validity by four experts. It was used in 26 studies, which included Israelis, Americans, Canadians, and so on. The Cronbach's alpha coefficients were between .82 and .95 (Antonovsky, 1993: 727). In Thailand, the Sense of Coherence Questionnaire was tested for reliability with various samples (e.g., nurses, COPD patients, older adults, caregivers, adolescents, etc.), and

the Alpha Cronbach Coefficients were between .81 and .95 (Somchit Hanucharunkul, B.E.2532; Kangsadal Sutteweresan, B.E. 2535; Patcharine Nintajan, B.E.2538; Jindawan Udompattanakan, B.E.2539; Kanogporn Sukomwang, B.E.2540; Chuchon Chewapon, B.E.2540; Surichai Kidhathong, B.E.2546). The Sense of Coherence Questionnaire was employed in this study because it was suitable for assessing the sense of coherence in adolescents.

In this study, the instrument was examined to ensure its clarity, readability, and language appropriateness. As for its reliability, it was tested with 30 adolescents whose characteristics were similar to those of the sample, and the reliability of Cronbach's alpha coefficient was 0.80.

4. The Spiritual Well-being Questionnaire (see Appendix E)

This instrument was developed by Kanlaya Ploymai (BE. 2545) based on the conceptual framework of Professor Praves Wasee and Nun Sansanee (BE. 2544). It consisted of 31 items and covered the meaning of three components as follows: 1. The feeling of happiness and serenity which resulted from living life doing good deeds, not being selfish, and having mercy (Item numbers 1-9), 2. The feeling of satisfaction and fulfillment with life and duty (Item numbers 10-22), and 3. The possession of awareness, concentration, and intelligence (Item numbers 23-31).

The questionnaire was used to assess the family relations. It consisted of 31 items, and the highest total score was 93 points. The questions were composed of 25 positive items and six negative items. Each item was arranged in a three-point rating scale as follows:

Strongly agree *meant* adolescents always had that feeling (3 points)

Moderately agree *meant* adolescents sometimes had that feeling (2 points)

Slightly agree *meant* adolescents never or rarely had that feeling (1 point)

The total scores were computed by adding up the response for each item, creating a possible range of 31 to 93 points. Prior to calculating the total scores, six items had to be reversed (Item numbers 10-11, 16-17, 20, and 26). Scores on the higher end of the total possible range of scores were indicative of higher level of spiritual well-being, and vice versa.

The total scores were further categorized into two levels as follows:

Scores lower than the mean score of the total sample *meant* a low level of spiritual well-being.

Scores higher than the mean score of the total sample *meant* a high spiritual well-being.

Validity and reliability

This instrument was used by Kanlaya Ploymai (B.E. 2545) who had it checked for relevance and coverage of the content by five experts, and the content validity index was 0.86. When using the instrument with 30 adolescents, the Alpha Cronbach Coefficient was 0.87. The spiritual well-being questionnaire was employed in this study because it was suitable for assessing the spiritual well-being in adolescents.

In this study, the instrument was examined to ensure its clarity, readability, and language appropriateness. As for its reliability, it was tested with 30 adolescents whose characteristics were similar to those of the sample, and the reliability of Cronbach's alpha Coefficient was 0.85.

Finally, Cronbach's alpha coefficients were calculated to assess the internal reliability of the sense of coherence questionnaire and the spiritual well-being questionnaire. The results revealed that the reliability of the sense of coherence questionnaire was 0.86 while that of the spiritual well-being questionnaire was 0.85. Overall, the coefficient alpha for each of these instruments for the sample of the present study (n=433) was excellent.

Data Collection

In this study, data collection proceeded in the following sequence:

1. An introductory letter from the Faculty of Graduate Studies, Mahidol University, was sent to the Director of the four schools to explain the objectives of this study and to ask for permission to collect data.
2. After permission was granted, the researcher contacted the key persons in each school, i.e. the directors and teachers, to explain the study objectives, procedures, and data collection process.

3. The researcher selected the adolescent subjects by means of simple random sampling. The researcher then made scheduled data collection, prepared a private room, and sent the explanation for the questionnaires to the parents together with the informed consent form to sign (in the cases that the adolescents were younger than 18 years old).

4. The researcher met the teachers to ask for suggestions regarding how to approach adolescents.

5. The researcher collected data from the sample as follows:

5.1 The researcher met the subjects and established the relationship by introducing herself, describing the research objectives, and asking for participation in the study with protection of human subjects taken into account. When the subjects clearly understood the procedure, they were asked to sign the informed consent form or give a verbal agreement.

5.2 When the subjects agreed to participate in the study, the researcher distributed the questionnaires, explained necessary steps in completing the questionnaires in detail, and gave the subjects the opportunity to ask questions for further clarification. The whole data collection procedures lasted only about 30 - 40 minutes for each group.

5.3 After the subjects had completed all of the questionnaires, the researcher immediately reviewed the questionnaires for completeness and expressed her gratitude to the subjects for their participation.

Protection of Human Subjects

The protection of human subjects in the study was properly carried out by seeking approval of the IRB Review Ethics Committee of Mahidol University. Before collecting the data, the researcher needed to obtain a verbal agreement or a signed consent form indicating that the subjects clearly understood the objectives of the study, the data collection procedures, duration, and the right to participate or refuse to disclose information anytime during the completion of the questionnaires. The subjects were assured of confidentiality of their answers that only code numbers would be used on the questionnaires instead of names. All data would also be analyzed by the researcher and reported as group data.

Data Analysis

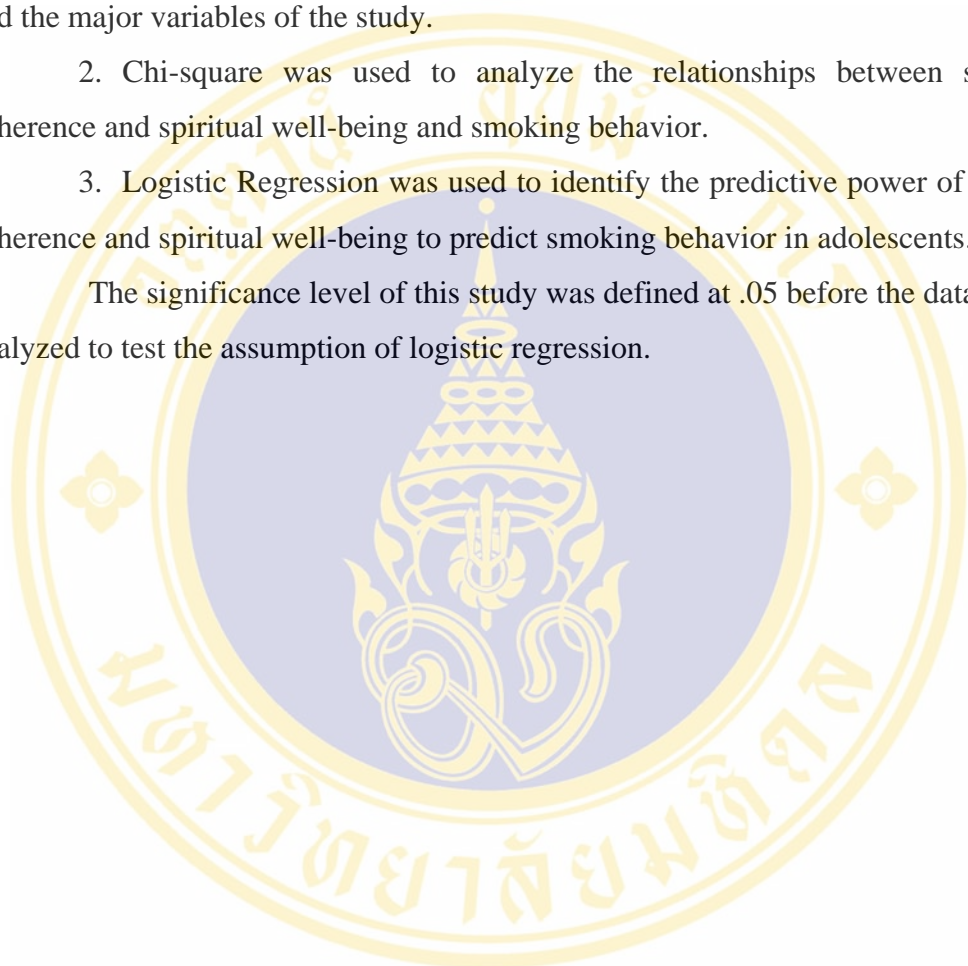
Data were analyzed by using the SPSS statistical package as follows:

1. Descriptive statistics (e.g., number, percentage, mean, standard deviation, and range) were performed to describe the demographic characteristics of the subjects and the major variables of the study.

2. Chi-square was used to analyze the relationships between sense of coherence and spiritual well-being and smoking behavior.

3. Logistic Regression was used to identify the predictive power of sense of coherence and spiritual well-being to predict smoking behavior in adolescents.

The significance level of this study was defined at .05 before the data were analyzed to test the assumption of logistic regression.



CHAPTER IV

RESULTS

This chapter presents the results of the study regarding sense of coherence, spiritual well-being, and smoking behavior in adolescents. The results of the study are presented in the following order: 1) demographic characteristics of the sample, 2) smoking behavior in adolescents, 3) sense of coherence and spiritual well-being in the smoker group and the non-smoker group, 4) relationships between sense of coherence and spiritual well-being in adolescents, 5) the predictive value of sense of coherence and spiritual well-being to predict smoking behavior in adolescents.

Demographic Characteristics of the Sample

Four hundreds and eighty adolescent students at two high schools and two vocational schools in Muang District, Nakhon Si Thammarat Province, were invited to participate in this study. With a response rate of 90.21% (47 incomplete responses), the total of 433 adolescents were voluntarily recruited.

Table 1 presents the general characteristics of the sample, both the smoker group and the non-smoker group in this study. *The total sample* consisted of 433 adolescents between the ages of 15.25 and 20.00 years old. The mean age of the sample was 17.39 years (SD = 0.97). More than half of the subjects were female (58.7%) and about two-thirds were middle adolescents (66.5%). Moreover, almost all were Buddhist (94.9%), and the majority were living with their parents (71.8%). Furthermore, as regards parents' marital status, 80.6% were married. Also, the majority had sufficient personal daily income (81.5%), moderate daily stress (71.1%), perceived moderate health (64.4%), and sufficient family income (75.8%). In addition, about three quarters had close persons who smoked (75.5%), but about the same number did not have induced experience (75.1%) or crisis (70.9%). Besides, 44.3% lived in Muang District, Nakhon Si Thammarat Province. As regards opinion toward smoking, 87.3% had a high level of opinion toward danger of smoking, 6% were not sure, 5.3% had a moderate level of opinion toward danger of smoking, and only 1.4%

had a low level of opinion toward danger of smoking. Finally, about 51% were in high school, and 49% were in a vocational school.

Of 433 participants, 104 (24%) belonged to the smoker group, while 329 (76%) were in the non-smoker group. As for the *smoker group*, the mean age of the smoker group was 17.59 years (SD = 0.97). The majority were male (76.0%), were studying at a vocational school (76%), were Buddhist (94.2%), lived with parents (64.4%), and had parents who were married (77.9%). In addition, most had adequate personal daily income (79.8%), moderate daily stress (72.1%), moderate perceived health (65.4%), good parents' care (73.1%), adequate family income (71.2%), a close person who smoked (95.2%), and an induced experience (61.5%), but did not have the crisis (61.5%). Also, the hometown of close to two-thirds was Muang District, Nakhon Si Thammarat Province (64.4%). With regard to opinion toward smoking, 75% of the smoker group had a high level of opinion toward the danger of smoking, 14.4% were not sure, 9.6% had a moderate level of opinion toward the danger of smoking, and 1% had a low level of opinion toward the danger of smoking. Finally, less than half (43.3%) were older adolescents, and 56.7% were middle adolescents.

Regarding the *non-smoker group*, the mean age was 17.32 years (SD = 0.96). The majority of the subjects were female (69.6%), middle adolescents (69.6%), in high school (59.6%), Buddhist (95.1%), lived with parents (74.2%), and had parents who were married (81.5%). Besides, most had sufficient personal daily income (82.1%), moderate daily stress (70.8%), moderate perceived health (64.1%), good parents' care (86.9%), sufficient family income (77.2%), and close persons who smoked (69.3%), but most did not have an induced experience (86.6%) or crisis (73.9%). Also, less than half (47.1%) were born and lived in Muang District, Nakhon Si Thammarat Province. Finally, with regard to opinion toward smoking, 91.2% of the smoker group had a high level of opinion toward the danger of smoking, 4% had a moderate level of opinion toward the danger of smoking, 3.3% were not sure, and 1.5% had a low level of opinion toward the danger of smoking.

Table 1: Demographic characteristics of the smoker group and the non-smoker group (n = 433)

General characteristics	Smoking behavior		Total f (%)
	Non-smoker group f (%)	Smoker group f (%)	
	329(76%)	104(24%)	433(100%)
Gender			
Female	229(69.6)	25(24.0)	254(58.7)
Male	100(30.4)	79(76.0)	179(41.3)
Age (years)			
15-17	229(69.6)	59(56.7)	288(66.5)
18-20	100(30.4)	45(43.3)	145(33.5)
	<i>mean</i> = 17.32	<i>mean</i> = 17.60	<i>mean</i> = 17.39
	<i>Range</i> = 15.25-19.58	<i>Range</i> = 15.50-20.0	<i>Range</i> = 15.25-20.0
	<i>SD</i> = 0.96	<i>SD</i> = 0.97	<i>SD</i> = 0.97
Educational types			
High school	196(59.6)	25(24.0)	221(51.0)
Vocational school	133(40.4)	79(76.0)	212(49.0)
Religion			
Buddhist	313(95.1)	98(94.2)	411(94.9)
Islam	12(3.6)	6(5.8)	18(4.2)
Christian	4(1.2)	0(0.0)	4(0.9)
Hometown			
Muang District	155(47.1)	37(35.6)	192(44.3)
Others	174(52.9)	67(64.4)	241(55.7)
Persons living with while studying			
Parents	244(74.2)	67(64.4)	311(71.8)
Siblings	41(12.5)	17(16.3)	58(13.4)
Friends	42(12.8)	20(19.2)	62(14.3)
Others (teachers)	2(0.6)	0(0.0)	2(0.5)
Personal daily income			
Remain	34(10.3)	6(5.8)	40(9.2)
Enough	270(82.1)	83(79.8)	353(81.5)
Short	25(7.6)	15(14.4)	40(9.2)
Daily stress			
Low	77(23.4)	18(17.3)	95(21.9)
Moderate	233(70.8)	75(72.1)	308(71.1)
High	19(5.8)	11(10.6)	30(6.9)

Table 1: Demographic characteristics of the smoker group and the non-smoker group (n = 433) (Continued)

General characteristics	Smoking behavior		Total f (%)
	Non-smoker group f (%)	Smoker group f (%)	
	329(76)	104(24)	433(100)
Crisis			
No	242(73.9)	64(61.5)	306(70.8)
Yes	86(26.1)	40(38.5)	126(29.2)
Health			
Good	113(34.3)	30(28.8)	143(33.0)
Moderate	211(64.1)	68(65.4)	279(64.4)
Poor	5(1.5)	6(5.8)	11(2.5)
Parents' marital status			
Married	268(81.5)	81(77.9)	349(80.6)
Others (Separated/Widowed/Divorced)	61(18.5)	23(22.1)	84(19.4)
Parents' care			
Good	286(86.9)	76(73.1)	362(83.6)
Moderate	42(12.8)	23(22.1)	65(15.0)
Poor	1(0.3)	5(4.8)	6(1.4)
Family income			
Insufficient	51(15.5)	24(23.1)	75(17.3)
Sufficient	254(77.2)	74(71.2)	328(75.8)
Sufficient with savings	24(7.3)	6(5.8)	30(6.9)
Close persons who smoked			
No	102(30.7)	5(4.8)	106(24.5)
Yes	277(69.3)	99(95.2)	327(75.5)
Induced experience			
No	285(86.6)	40(38.5)	325(75.1)
Yes	44(13.4)	64(61.5)	108(24.9)
Opinion toward danger of smoking dangerous			
Low	5(1.5)	1(1.0)	6(1.4)
Moderate	13(4.0)	10(9.6)	23(5.3)
High	300(91.2)	78(75.0)	378(87.3)
Not sure	11(3.3)	15(14.4)	26(6.0)

Smoking Behavior in Adolescents

The results of this study showed that the prevalence rate of cigarette smoking was 24% on the overall, with 15% of these being current smokers and 9% being ex-smokers (Table 2).

Table 2: Descriptive statistics and distribution of smoking status in adolescents (n = 433)

Smoking status	Study group	Frequency	Percentage
Non-smokers	non-smoker group	329	76
Ex-smokers	smoker group	39	9
Current smokers	smoker group	65	15

Remarks: Non-smokers referred to adolescents who did not smoke at all; ex-smokers referred to adolescents who had experience smoking at least one cigarette but had not smoked at all in the past 30 days; current smokers referred to adolescents who had smoked at least once in the past 30 days.

In addition, the findings revealed that most of the adolescents started smoking for the first time when they were 8 to 18.67 years old. The majority of the current smoker group and the ex-smoker group started smoking between the ages of 15 to 19 years old (accounting for 75.4% and 51.3%, respectively). Finally, most of the current smoker group inhaled the smoke while smoking (78.5%), but the majority of the ex-smoker group did not inhale the smoke while smoking (87.2%).

Table 3: Smoking patterns of current smokers and ex-smokers (n₂ = 104)

Smoking pattern	Current smokers f (%)	Ex-smokers f (%)	Total f (%)
	65	39	104
Age at initiation			
<10 years	1(1.5)	5(12.8)	6(5.8)
10-14 years	15(23.1)	14(35.9)	29(27.9)
15-19 years	49(75.4)	20(51.3)	69(66.3)
<i>Mean</i>	15.34	14.16	14.89
<i>Range</i>	9-18.67	8-18.33	8-18.67
<i>SD</i>	1.89	2.74	2.31
Inhalation practices			
Inhaling	51(78.5)	5(12.8)	56(53.8)
Not inhaling	14(21.5)	34(87.2)	48(46.2)

Description of sense of coherence and spiritual well-being of the smoker group and the non-smoker group

The descriptive statistics and distribution of the interval variables including sense of coherence and spiritual well-being in the smoker group and the non-smoker group are displayed in Table 5. These interval variables were categorized into the dichotomous variables (cut-off point by means of the variables in the total sample, as illustrated in Table 4). Descriptive statistics of these dichotomous variables are depicted in Table 5.

As for sense of coherence, the participants responded to a total of 29 items on the Sense of Coherence Questionnaire by choosing a response from a seven-point rating scale from which the total score was calculated. Higher scores indicated higher sense of coherence. In this study (Table 4), the scores ranged from 70 to 191 with the mean of 130.65 and the standard deviation of 19.61.

For the smoker group, the total scores ranged from 79 to 172 with the mean of 122.56 and the standard deviation of 17.27. Moreover, 68.3% of the smoker group had low sense of coherence, whereas 31.7% had high sense of coherence. For the non-smoker group, the total scores ranged from 70 to 191 with the mean of 133.21 and the

standard deviation of 19.63. Also, 45.9% of the non-smoker group had low sense of coherence, while 54.1% had high sense of coherence.

In terms of spiritual well-being, the participants responded to a total of 31 items on the Spiritual Well-being Questionnaire by choosing a response from a three-point rating scale from which the total score was calculated. Higher scores indicated higher spiritual well-being. In this study, the total scores ranged from 55 to 93, with the mean of 79.83 and the standard deviation of 7.26.

For the smoker group, the total scores ranged from 55 to 90 with the mean of 76.95 and the standard deviation of 7.97. Furthermore, 57.7% of the smoker group had low spiritual well-being, while 42.3% had high spiritual well-being. On the other hand, the scores of the non-smoker group ranged from 60 to 93 with the mean of 80.74 and the standard deviation of 6.79. Also, 36.2% of the non-smoker group had low spiritual well-being, whereas 63.8% had high spiritual well-being.

Table 4: Descriptive statistics and distribution of sense of coherence(SOC) and spiritual well-being(SWB) in adolescents (n = 433)

Variables	Mean	Range	SD	Skewness
SOC	130.65	70-191	19.61	.07
SWB	79.83	55-93	7.26	-.69

Table 5: Descriptive statistics and distribution of sense of coherence(SOC) and spiritual well-being(SWB) in non-smoker group and smoker group and the relationships between sense of coherence(SOC) and spiritual well-being(SWB) and smoking behavior as analyzed using the X² value (n = 433)

Variables	Smoking behavior		X ²	df	p-value
	Non-smoker(n ₁ = 329) f (percentage)	Smoker(n ₂ = 104) f (percentage)			
SOC			14.95	1	.000
Low	151 (45.9)	71 (68.3)			
High	178 (54.1)	33 (31.7)			
<i>Mean</i>	133.21 (high level)	122.55 (low level)			
<i>Rang</i>	70-191	79-172			
<i>SD</i>	19.63	17.27			
<i>Skew ness</i>	.07	-.22			
SWB			14.22	1	.000
Low	119 (36.2)	60 (57.7)			
High	210 (63.8)	44 (42.3)			
<i>Mean</i>	80.73 (high level)	76.94 (low level)			
<i>Rang</i>	60-93	55-90			
<i>SD</i>	6.80	7.98			
<i>Skew ness</i>	-.61	-.66			

The Relationships between Sense of Coherence, Spiritual well-being, and Smoking Behavior

In response to the first and second objectives of this study, which were to study the relationship between sense of coherence and smoking behavior and the relationship between spiritual well-being and smoking behavior, Chi-square test was used in the analysis. The results of the Chi-square test, as shown in Table 6, indicate that there were statistically significant relationship between sense of coherence and smoking behavior (p < .05) and between spiritual well-being and smoking behavior (p < .05).

Predictive power of sense of coherence and spiritual well-being

Logistic regression was applied to determine whether sense of coherence and spiritual well-being could predict smoking behavior in adolescents (Objective 3) because the dependent variable (smoking behavior) was a dichotomous variable. In this study, the sample group was divided into two groups. The non-smoker group was coded as zero, whereas the smoker group was coded as one. In addition, the independent variables (SOC and SWB) were categorized as the dichotomous variables. The low sense of coherence and spiritual well-being was coded as one, while the high sense of coherence and spiritual well-being was coded as two. In brief, all variables in this study were dichotomous. Before Logistic Regressions were performed, multicollinearity assumption was tested using correlation coefficient. The results showed that the correlation coefficient between SOC and SWB was low ($r = -0.279$), thus indicating that there was no multicollinearity problem (Table 7, Appendix F).

In the logistic regression model, the independent variables were both entered into the model, and the high sense of coherence group and the high spiritual well-being group were used as reference groups. Table 6 illustrates the results of the logistic regression, indicating that sense of coherence and spiritual well-being contributed significantly to prediction of smoking behavior in adolescents. The adolescents in the low sense of coherence group were 2.08 times more likely to smoke when compared to those in the high sense of coherence group (OR = 2.08, $P < .05$, 95%CI = 1.72-3.39), and those in the low spiritual well-being group were 1.94 times more likely to smoke when compared to those in the high spiritual well-being group (OR = 1.94, $P < .05$, 95%CI = 1.21-3.11).

Table 6: Multiple logistic regression analysis of sense of coherence (SOC) and spiritual well-being (SWB) associated with smoking behavior in adolescents (n = 433)

Variables	B	SE	Odds Ratio	Wald Statistics	95%CI
SOC	.73	.25	2.08	8.55**	1.72 - 3.39
SWB	.66	.24	1.94	7.51**	1.21 - 3.11
Constant	-1.88	-.21	0.15	82.02***	

Remarks:

** P<.01

*** P<.001

CHAPTER V

DISCUSSION

The present study aimed at investigating the relationships between sense of coherence and spiritual well-being to smoking behavior in adolescents residing in Muang District, Nakhon Si Thammarat Province, in the southern part of Thailand. In this chapter, the findings of the study are discussed in the following orders: 1) demographic characteristics of the subjects, 2) relationship between sense of coherence and smoking behavior in adolescents, 3) relationship between spiritual well-being and smoking behavior in adolescents.

Demographic characteristics of the subjects

The total number of study subjects was 433. They ranged in age from 15 to 20 years. In terms of gender, there were more females than males, accounting for 58.7% and 41.3%, respectively (Table 1). The findings of the study indicated that 24% of the study sample had experience with cigarette smoking. Of these, 15% were current smokers, while 9% had already quit smoking (Table 2). When comparing the demographic characteristics of the subjects who smoked and who did not smoke, it was found that a number of differences could be seen. That is, most of the smokers were male, and they were studied in a vocational institution. This may have been because these subjects had close persons who smoked, and most of them were persuaded to smoke by others (Table 1). These findings were in congruence with a number of previous studies which have revealed that smoking behavior in adolescents mostly result from others' influence. Adolescents try smoking because they are persuaded by others, or they want to imitate someone they admire or celebrities (Chuanpit Boonyarattavej, B.E.2526: 43-44; Somjit Supannatas, B.E.2522: 9-18; Somruedee Mobnarin, B.E.2531: 48; Somchai Chuenta, B.E.2528: 68; Pongsak Srisaarn et al., B.E.2541: 16; Acharawan Soithong, B.E.2542: 27-28; Evans et al., 1978: 126-135; Shibata, Fukuda, & Hirobata, 1990). In this study, it was found that the largest group of subjects started smoking when they were 15 to 19 years old (Table

3). This finding was consistent with the survey of the Office of National Statistics (1999: 9). One plausible explanation is that these groups of adolescents were middle adolescents and late adolescents (Curry, Doyle, & Gilhooley, 1998, cited in Montgomery, 2003: 436). For middle and late adolescents, they have to undergo drastic physical, intellectual, emotional, and social changes. They give a large amount of significance to their peers, and they crave acceptance from their peers. Furthermore, they may want to imitate their peers or become naturally curious, hence they may do things without careful or thorough consideration (Somjit Supannatas, B.E.2522: 10; Pimpan Silpasuwan et al., B.E.2543: 64-67). As a result, this group of adolescents needs close attention and care to prevent them from smoking. However, preventive measures of smoking should be carried out when the adolescents are still young. This is because in this study, some of the subjects started smoking when they were younger than ten years old (Table 3). Thus, authorities and related persons should take this into account. Moreover, when comparing the sense of coherence and spiritual well-being of adolescents who smoked and who did not smoke, it was discovered that the sense of coherence and spiritual well-being of the smokers were lower than those of the non-smokers (Table 5). These findings clearly reflected the fact that differences in certain demographic characteristics such as gender, educational institutes, and characteristics of close persons may result in differences in levels of sense of coherence and spiritual well-being.

Relationship between sense of coherence and smoking behavior in adolescents

According to the study findings, the level of sense of coherence of the subjects who smoked was lower than that of the subjects who did not smoke (Table 5). Chi-square test was conducted, and the findings suggested that there was a statistically significant relationship between sense of coherence and smoking behavior in adolescents ($p < .05$) (Table 6). Thus, Hypothesis 1 was accepted.

Logistic regression analysis showed that the subjects who had a low level of sense of coherence were 2.08 times more likely to smoke when compared to those who did not smoke with statistical significance ($p < .05$) (Table 7). Therefore,

Hypothesis 3 was accepted. That is, sense of coherence could co-predict smoking behavior in adolescents.

The findings of the present study yielded support to the findings of previous studies that adolescents who have a high level of sense of coherence smoke less than those who have a low level of sense of coherence (Martin et al., 2002). Furthermore, studies also point out that adolescents who have a low level of sense of coherence tend to suffer from emotional tension, stress, HIV risk behaviors, and suicidal ideality (Nyamathi, 1991, 1993; Mehlum, 1998). Also, adolescents who have a weak sense of coherence tend to exercise less regularly than those with a strong sense of coherence (Hassmen, Koivula, & Uutela, 2000). These findings agree with the Salutogenic Model of Health of Antonovsky (1991) which maintains that sense of coherence seems like an absorbent of stress in life and enables individuals to appropriately cope with stress. This is an important factor that enables individuals to choose appropriate and beneficial health behaviors to maintain both physical and mental health.

In addition, the study findings also suggest that most of the subjects assessed their stress at a moderate level (Table 1). This means that these adolescents had to cope with stress to a certain extent. This may have come in the form of difficulties in life, which affected their happiness. They may have tried to use different methods to solve problems and regain happiness in life such as reading, playing sports, playing musical instruments, smoking, or using drugs, etc. This also shows that different problem-solving strategies are likely to be associated with sense of coherence. When considering that data elicited with the sense of coherence questionnaire, it was discovered that the smoker group, which had a lower level of sense of coherence when compared to the non-smoker group, tended to have a perspective that problems or sufferings in life were unsolvable. Consequently, they let themselves dwell in confusing and live in their misery so much so that they sometimes could not eat or sleep. Moreover, they tended to lack confidence that they were able to control the situation and were more likely to look at their future aimlessly when compared to the smoker group (Table 8, Appendix G). This is consistent with the Salutogenic Model of Health that adolescents with a weak sense of coherence tend to use emotional-focused coping more than problem-focused coping, as they feel that they are under pressure. This leads to the feelings of hopelessness, boredom, and loss of motivation

to change or better the situations (Antonovsky, 1987, cited in Post-white et al., 1996: 1572). As a consequence, they are likely to choose easy ways out without giving them much thoughts, hence an inappropriate coping behavior. For example, they may use substances or smoke cigarettes, which destroys their health. On the contrary, adolescents with a strong sense of coherence are more likely to effectively cope with their problems. They can comfortably perceive and assess the situations they are facing and feel less threatened. This is because of their comprehension and management skills, which allow them to look at the stress as a challenge to overcome instead of a burden (Antonovsky, 1991). They, therefore, are able to understand and consider the problems clearly, specifically, and appropriately, hence a better alternative to cope with the problems (Nyamathi, 1993: 152). In addition, previous studies have also shown that adolescents who have a high level of sense of coherence are more ready to deal with problems. For instance, they can search for information from different sources, prepare themselves for possible occurrences, give themselves spiritual support and encouragement, become optimistic, and be willing to change for the better (Mc Sherry & Holm, 485). In other words, adolescents with a high sense of coherence have more motivation to deal with stress, so they are able to find ways to more effectively cope with problems in life (Nyamathi, 1993: 167). For this reason, they are not likely to choose smoking as a solution to their problems as they understand that smoking is inappropriate and harmful to their health. Based on the findings of this study, it could be concluded that sense of coherence is associated with smoking behavior in adolescents.

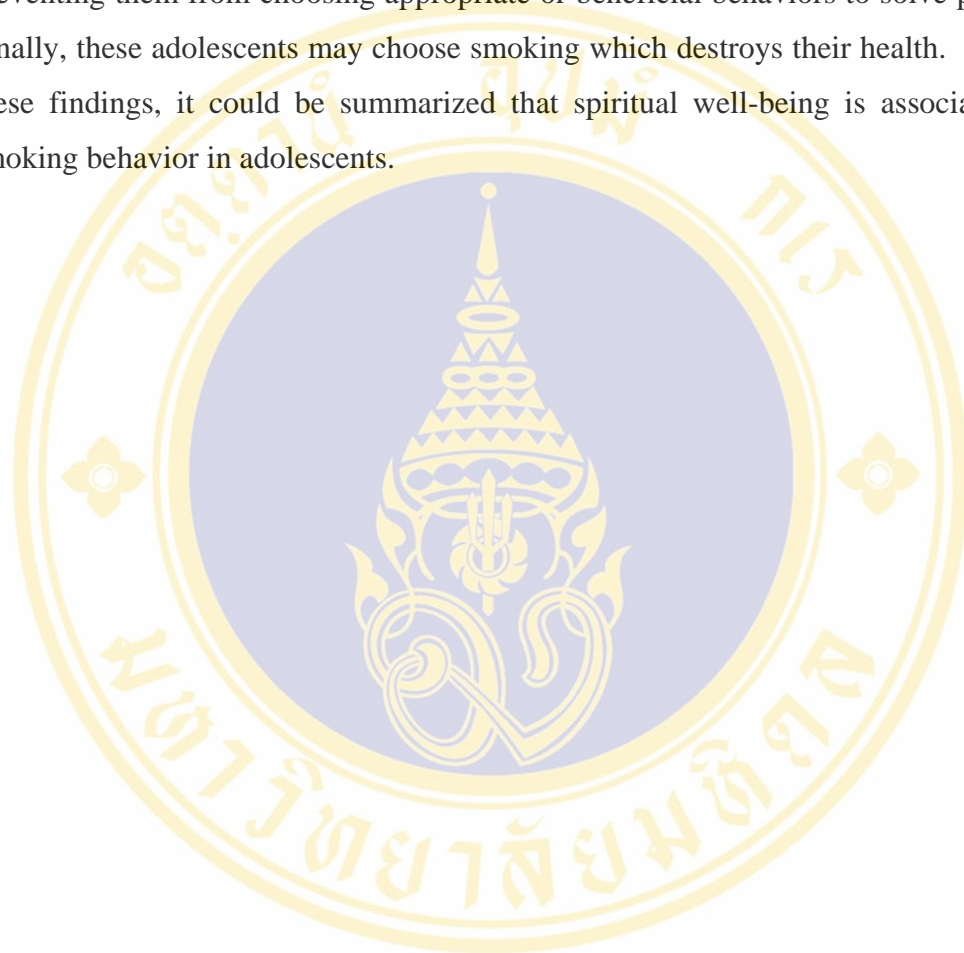
Relationship between spiritual well-being and smoking behavior in adolescents

According to the study findings, the spiritual well-being of adolescents who smoked was lower than that of the adolescents who did not smoke (Table 5). Chi-square analysis showed that spiritual well-being was associated with smoking behavior in adolescents with statistical significance ($p < .05$), (Table 5). Thus, Hypothesis 2 was accepted. Logistic regression analysis also revealed that adolescents who had low spiritual well-being had 1.94 times more smoking behaviors than those who had high

spiritual well-being with statistical significance ($p < .05$) (Table 6). Therefore, Hypothesis 3 was supported.

The findings of this study was in congruence with the findings of Sangrawee Theprod (B.E.2542) who found that a Buddhist religious way of life was one of the factors that could prevent smoking behaviors of adolescents living in Pathumthani Province. Similarly, Spika et al. (1985, cited in Ngamta Wannintanon, 1993: 29) found that a strong belief in religion and religious behaviors were negatively related to substance abuse. Religion is one of the factors that affect individuals' spirit (Suyemoto & MacDonald, 1996: 142-148; Pra Pisalthammavatee, B.E.2544: 3). This indicates that spiritual well-being is an important factor affecting smoking behavior in adolescents. When adolescents have to cope with problems and encounter different distractions in an urban society, they can develop stress which makes them unhappy. When they are unhappy, they may try to find different resources to regain their happiness. Spiritual well-being is a socio-cultural source that can be used to cope with stress (Antonovsky, 1991). Adolescents with a high level of spiritual well-being are happier and have something to rely on to spiritually. They are also better able to live with conscience, awareness, and wisdom (Praves Vasee, B.E.2544; Nun Sansanee, B.E.2544). It is a dimension that makes life complete (Praves Vasee, B.E.2544). Adolescents who have spiritual well-being will not be persuaded by negative forces, and they are able to control their thinking and mental condition (Nun Sansanee, B.E.2544: 16). Besides, spiritual well-being can help reduce confusion and makes adolescents able to deal with different situations in life with calmness of the mind. Consequently, they have the potential to effectively cope with stress (Nyamanthi, 1993: 167). For this reason, adolescents are more likely to avoid smoking behavior that destroys their health. When considering the data in the spiritual well-being questionnaire, it was found that those in the non-smoker group were more likely to be able to solve problems intellectually, reasonably, and carefully. Also, they were more able to consider what was good or bad in life, set life goals, and refrain from adopting inappropriate behaviors or doing bad deeds when compared to the smoker group (Table 9, Appendix H). This is consistent with the Salutogenoc Model of Health that source of stress resistance helps individuals to deal with different matters more systematically and meaningfully. If adolescents have sufficient valuable resources,

they can be successful with stress coping (Antonovsky, 1991), hence a positive health behavior. On the other hand, if adolescents have a low level of spiritual well-being, they may not be happy to do good deeds, and they do not have anything to rely on in life. Thus, they lack valuable resources that can help them effectively cope with stress, preventing them from choosing appropriate or beneficial behaviors to solve problems. Finally, these adolescents may choose smoking which destroys their health. Based on these findings, it could be summarized that spiritual well-being is associated with smoking behavior in adolescents.



CHAPTER VI

CONCLUSION

In this chapter, the summary of the study will be presented. The section will then be followed by the recommendations based on the results of the study for nursing practices and nursing education.

Summary

This cross-sectional study was descriptive correlational research which aimed to describe the relationship between sense of coherence and spiritual well-being and smoking behavior in adolescents. The sample was composed of 433 adolescents studying at high schools and junior vocational schools in Muang District, Naknon Si Thammarat Province, Thailand, from November 2004 to January 2005. They were recruited by the multi-stage cluster sampling technique. The instruments in this study were a set of four questionnaires as follows: 1) General Information Questionnaire, 2) Smoking Behavior (non-smoker group and smoker group), 3) Sense of Coherence Questionnaire, and 4) Spiritual Well-being Questionnaire. The reliability of all instruments were examined using Cronbach's alpha coefficients with a pilot study sample ($n = 30$). The Cronbach's alpha coefficients for the sense of coherence questionnaire and spiritual well-being questionnaire were .80 and .85, respectively. The Chi-square and multiple logistic regression were used for data analysis.

The results of this study showed that the overall prevalence of cigarette smoking was 24%, 15% of whom were current smokers and 9% of whom were ex-smokers. The majority started smoking between the ages of 15 and 19 years.

The sense of coherence questionnaire was developed by Antonovsky (1987). The findings indicated that the majority of the smoker group had low sense of coherence (68.3%), but more than half of the non-smoker group had high sense of coherence (54.1%).

The spiritual well-being questionnaire was developed by Kanlaya Ploymai (B.E.2544). The findings revealed that more than half of the smoker group had low

spiritual well-being (57.1%), but close to two-thirds of the non-smoker group had high spiritual well-being (63.8%).

According to the study findings, both sense of coherence and spiritual well-being had a statistically significant relationship with smoking behavior of adolescents ($p < .05$).

In addition, the findings suggested that the predisposing factors consisting of sense of coherence and spiritual well-being could jointly predict the smoking behavior in adolescents. To be more exact, the adolescents who had low sense of coherence were 2.08 times more likely to smoke when compared to those who had high sense of coherence (OR = 2.08, 95%CI = 1.27-3.39). Moreover, adolescents with low spiritual well-being was 1.94 times more likely to smoke when compared to those with high spiritual well-being (OR = 1.94, 95%CI = 1.21-3.11).

Recommendations for Nursing Practices

The findings of the present study provide significant information to nursing practice to further prevent smoking behaviors in adolescents. Based on the findings of the study, the following recommendations can be made:

First, the results of this study can be useful to healthcare providers when they incorporate the Salutogenic Model of Health into their practices. Smoking prevention in adolescents should be of interest to the multidisciplinary team because it is believed that smoking prevention in adolescents will lead to an individual's optimum health. Furthermore, the results of this study are also beneficial for healthcare providers and policy makers as they shed light on factors related to smoking behavior in adolescents. The understanding of these factors is crucial in planning for interventions or updating health education strategies for adolescents and their families in order to improve their knowledge influencing avoidance or reduction of smoking behaviors by means of promotion of sense of coherence and spiritual well-being. As a result, it can be said that these interventions would be useful in preventing illness and maintaining health in adolescents. However, it is believed that these interventions should be firstly initiated in primary schools during early childhood and continued well into adolescence as reinforcement.

Secondly, the study findings have demonstrated the important role of sense of coherence and spiritual well-being on smoking behavior in adolescents. Such findings should guide nursing practice provided to adolescents. For example, assessment of smoking behaviors in adolescents should include information about sense of coherence and spiritual well-being. In addition, there should be more awareness of smoking in adolescents who have low sense of coherence and low spiritual well-being. Put another way, the findings have suggested the importance of prevention and intervention that should be conducted with adolescents who have low sense of coherence and low spiritual well-being. Psychiatric nurses and related personnel working with adolescents should promote sense of coherence and spiritual well-being by means of activities such as group counseling and individual counseling, dissemination of psychosocial education, and establishment of friend-help-friend groups. These activities may help increase life experience, which, in turn, can promote sense of coherence and spiritual well-being in adolescents.

Finally, the results of this study have shown that the majority of the subjects in the smoker group had a close person who smoked as well as an induced experience. Thus, psychiatric nurses and related personnel working with adolescents should arrange non-smoking campaigns in schools and communities to discourage adolescents from smoking while simultaneously offering programs to teach avoidance skills to adolescents to further prevent adoption of smoking behaviors.

Recommendations for Future Studies

1. Longitudinal studies should be carried out to determine the causal-comparative relationships among the study variables.
2. Research should also be conducted with other groups of subjects to increase the generalizability of the findings.
3. Future studies should be carried out to describe the mean of sense of coherence and spiritual well-being of Thai adolescents in particular.
4. In the future, studies should be conducted using the Salutogenic Model of Health proposed by Antonovsky to investigate other aspects related to smoking behaviors of adolescents to shed more light on the phenomenon.

5. Further investigations are also needed to more effectively determine methods to prevent or discourage smoking behaviors in adolescents. The effectiveness of different techniques to reinforce adolescents' sense of coherence and spiritual well-being, such as individual counseling and group counseling, should be determined in further studies as well.

Limitations of the Study

1. A cross-sectional design was employed in this study to explore relationships between sense of coherence and spiritual well-being and smoking behavior in adolescents. When such design was used, a conclusion about causal relationships between the study factors could not be drawn. This design also has a limitation in making an assessment of changes of smoking behavior over time.

2. The subjects who participated in this study were middle adolescents and late/older adolescents who were in Muang District, Nakhon Si Thammarat Province. Thus, the study findings cannot be generalized to other groups of middle adolescents and late/older adolescents living in other districts and provinces in the country.

3. In this study, adolescents were divided according to the levels of sense of coherence and spiritual well-being based on the mean scores of the study sample as cut-off points between the low level groups and the high level groups. Such cut-off points did not derive from the mean scores of sense of coherence and spiritual well-being of Thai adolescents in general, so the categorization used in the present study may have been as accurate as it should have.

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APPENDIX A

คำชี้แจงและการพิทักษ์สิทธิของผู้เข้าร่วมวิจัยสำหรับผู้ปกครอง (สำหรับนักศึกษาที่อายุต่ำกว่า 18 ปี)

คำชี้แจง สำหรับผู้ปกครองของนักศึกษาผู้ตอบแบบสอบถามทุกท่าน

เรื่อง ขออนุญาตผู้ปกครองในการตอบแบบสอบถาม

เรียน ท่านผู้ปกครองของเด็กนักเรียนผู้ตอบแบบสอบถาม

ดิฉัน นางสาววันวิสาข์ มีสวัสดิ์ นักศึกษาปริญญาโท สาขาการพยาบาลจิตเวชและสุขภาพจิต คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล กำลังศึกษาวิจัยเกี่ยวกับเรื่องความสัมพันธ์ระหว่างความเข้มแข็งในการมองโลก ความผาสุกทางจิตวิญญาณ และความคิดเห็นเกี่ยวกับพฤติกรรมการสูบบุหรี่ในวัยรุ่น เพื่อประกอบการทำวิทยานิพนธ์ในหลักสูตรพยาบาลศาสตรมหาบัณฑิต โดยผลการศึกษาที่ได้จะใช้เป็นข้อมูลพื้นฐาน ในการให้บริการและดูแลกลุ่มวัยรุ่นที่เหมาะสมต่อไป ดังนั้นดิฉันจึงใคร่ขออนุญาตให้นักศึกษาซึ่งอยู่ในความปกครองของท่านตอบแบบสอบถามจำนวน 1 ชุด การตอบแบบสอบถามจะไม่มีผลกระทบใดๆ ต่อการศึกษาของนักศึกษาในปกครองของท่านแต่อย่างใด ข้อมูลทั้งหมดที่ได้จะเสนอออกมาในภาพรวมและใช้ประโยชน์เฉพาะการวิจัยเท่านั้น ท่านสามารถตอบปฏิเสธไม่ให้นักศึกษาในการปกครองของท่านให้ข้อมูลในครั้งนี้ โดยจะไม่มีผลกระทบใดๆ ต่อนักศึกษาและไม่จำเป็นที่ท่านจะต้องบอกเหตุผล

หากท่านมีข้อสงสัยประการใด ดิฉันยินดีตอบหรือชี้แจง โดยท่านสามารถติดต่อดิฉันโดยตรงได้ที่เบอร์โทรศัพท์.....หรือที่อาจารย์ที่ปรึกษาวิทยานิพนธ์ รองศาสตราจารย์ฐิติวัลคุ์ ธรรมไพโรจน์ ภาควิชาการพยาบาลจิตเวช คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล เบอร์โทรศัพท์.....หากท่านให้ความยินยอมให้นักศึกษาในปกครองของท่านตอบแบบสอบถามดังกล่าว กรุณาเซ็นชื่ออนุญาตในแบบฟอร์มด้านล่างนี้

ผู้วิจัยขอขอบคุณในความร่วมมือของท่านมา ณ ที่นี้ด้วย

ขอแสดงความนับถือ

วันวิสาข์ มีสวัสดิ์ (ผู้วิจัย)

ยินดีให้นักศึกษาเข้าร่วมวิจัย

ลงชื่อ.....(ผู้ปกครองนักศึกษาผู้เข้าร่วมวิจัย)

วันที่.....เดือน.....พ.ศ.....

PARTICIPANTS' RIGHT PROTECTION FORM

แบบพิทักษ์สิทธิของผู้เข้าร่วมการวิจัย(สำหรับนักศึกษาที่มีอายุ 18 ปีขึ้นไป)

.....

ดิฉัน วันวิสาข์ มีสวัสดิ์ เป็นพยาบาลวิชาชีพ ประจำโรงพยาบาลพรหมคีรี อำเภอพรหมคีรี จังหวัดนครศรีธรรมราช ขณะนี้มาศึกษาในระดับปริญญาโท ที่คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี สาขาการพยาบาลจิตเวชและสุขภาพจิต มหาวิทยาลัยมหิดล และกำลังศึกษาเรื่องความสัมพันธ์ระหว่าง ความเข้มแข็งในการมองโลก ความผาสุกทางจิตวิญญาณ และพฤติกรรม การสูบบุหรี่ในวัยรุ่น

ดิฉันใคร่ขอเชิญนักศึกษาเป็นผู้ให้ข้อมูลในการศึกษาครั้งนี้ เนื่องจากนักศึกษายู่ในช่วงวัยรุ่น ถ้านักศึกษายินดีที่จะให้ข้อมูล นักศึกษาจะเป็นผู้หนึ่งในจำนวนวัยรุ่น 480 คน ที่ได้รับเชิญในการศึกษาครั้งนี้

ถ้านักศึกษายินดีที่จะให้ข้อมูล ดิฉันขอความกรุณาให้นักศึกษาตอบแบบสอบถามจำนวน 4 ชุด ซึ่งประกอบด้วย 1) ข้อมูลทั่วไปของนักศึกษา 2) ข้อมูลเกี่ยวกับพฤติกรรมสูบบุหรี่ของนักศึกษา 3) ข้อมูลเกี่ยวกับความเข้มแข็งในการมองโลกของนักศึกษา 4) ข้อมูลเกี่ยวกับความผาสุกทางจิตวิญญาณ โดยจะใช้เวลาตอบทั้งหมดประมาณ 30 นาที ข้อมูลที่นักศึกษาได้ให้จะเป็นประโยชน์ในการจัดบริการเพื่อการดูแลกลุ่มวัยรุ่นต่อไป

ข้อมูลทั้งหมดที่ได้จากนักศึกษาจะเก็บเป็นความลับ โดยจะรายงานผลการศึกษาในภาพรวมของนักศึกษาผู้ให้ข้อมูลทุกท่าน ถ้านักศึกษามีข้อสงสัยใดๆ นักศึกษาสามารถสอบถาม ดิฉันได้ตลอดเวลา หากนักศึกษารู้สึกไม่สะดวกใจ หรือมีข้อขัดข้องใดๆ นักศึกษาสามารถยุติการตอบแบบสอบถามได้ทันที การยุติการตอบแบบสอบถามจะไม่มีผลกระทบใดๆ ต่อตัวนักศึกษาทั้งสิ้น

วันวิสาข์ มีสวัสดิ์

(นักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต มหาวิทยาลัยมหิดล)

สำหรับผู้ร่วมวิจัย :

ข้าพเจ้าทราบรายละเอียดเกี่ยวกับการให้ข้อมูลและสิทธิในการให้ข้อมูลข้างต้นแล้ว มีความเข้าใจและสมัครใจที่จะให้ข้อมูลเพื่อเป็นประโยชน์ต่อการศึกษาครั้งนี้

.....

(ลายมือผู้เข้าร่วมในการศึกษา)

วันที่.....เดือน.....พ.ศ.



No. 1/2005


**Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to
Human Experimentation
Mahidol University, Bangkok**

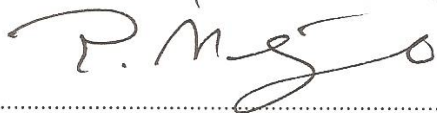
Title of Project: Relationships between Sense of Coherence, Spiritual Well-Being and Smoking Behavior in Adolescents
(Thesis for Master Degree)

Principle Investigator: Ms. Wanwisa Meesawat

Name of Institution: Faculty of Medicine Ramathibodi Hospital

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman: 
(Professor Dr. Srisin Khusmith)

Signature of Head of the Institute: 
(Professor Dr. Pornchai Matangkasombut)

Date of Approval: 11 JAN 2005

APPENDIX B

GENERAL CHARACTERISTICS DATA QUESTIONNAIRE

แบบสอบถามเกี่ยวกับข้อมูลทั่วไป

คำชี้แจง: โปรดเขียนเครื่องหมาย × ลงใน () และเติมข้อความลงใน ช่องว่าง.....ซึ่งตรงกับลักษณะเฉพาะของท่านตามความเป็นจริง

1. เพศ
 - () ชาย
 - () หญิง
2. ปัจจุบันท่านมีอายุ.....ปี.....เดือน (เกิดวันที่.....เดือน.....พ.ศ.....)
3. ประเภทการศึกษาของท่าน
 - () สายสามัญ(มัธยมศึกษา)
 - () สายอาชีพ (ป.ว.ช.)
 -
 -
 -
 -
16. ท่านมีผู้ใกล้ชิดสูบบุหรี่หรือไม่ (ตอบได้มากกว่า 1 ข้อ)
 - () ไม่มี
 - () บิดา/มารดาสูบ
 - () ญาติ/พี่/น้องสูบ
 - () เพื่อนสูบ
17. ท่านเคยถูกชักชวนให้สูบบุหรี่หรือไม่
 - () ไม่เคย
 - () เคย โปรดระบุผู้ชักชวน.....
18. ท่านคิดว่าการสูบบุหรี่มีอันตรายต่อผู้สูบและผู้ใกล้ชิดมากน้อยอย่างไร
 - () มีอันตรายน้อย เพราะ.....
 - () มีอันตรายปานกลาง เพราะ.....
 - () มีอันตรายมาก เพราะ.....
 - () ไม่แน่ใจ เพราะ.....

APPENDIX C

SMOKING BEHAVIOR DATA QUESTIONNAIRE

แบบสอบถามเกี่ยวกับพฤติกรรมการสูบบุหรี่

คำชี้แจง: โปรดเขียนเครื่องหมาย × ลงใน () และเติมข้อความลงใน ช่องว่าง.....ซึ่งตรงกับลักษณะเฉพาะของท่านตามความเป็นจริง

1. ท่านเคยสูบบุหรี่หรือไม่ (หมายถึง สูบตั้งแต่ 1 มวนขึ้นไปหรือเคยทดลองสูบ)
 - () ไม่เคย (ไม่ต้องทำข้อต่อไป)
 - () เคย เมื่ออายุประมาณ.....ปี.....เดือน (ท่านที่ตอบว่าเคยโปรดทำข้อต่อไป)
2. ในช่วง 30 วันที่ผ่านมาท่านสูบบุหรี่บ้างหรือไม่
 - () ไม่สูบเลย งดสูบมานาน.....ปี.....เดือน
 - () สูบ สูบมานาน.....ปี.....เดือน
3. ในช่วง 30 วันที่ผ่านมาท่านสูบบุหรี่ทุกวันหรือไม่อย่างไร
 - () สูบทุกวัน โปรดระบุเหตุผลที่ต้องสูบทุกวัน.....
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 - () สูบไม่ทุกวัน โดยสูบประมาณ.....วัน
 - โปรดระบุเหตุผลในวันที่ยังคงสูบบุหรี่.....
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 - โปรดระบุเหตุผลที่ต้องสูบบุหรี่.....
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4. ในช่วง 30 วันที่ผ่านมา ในวันที่ท่านสูบบุหรี่ ท่านสูบวันละประมาณกี่มวน.....
5. ยี่ห้อบุหรี่ที่สูบเป็นประจำ ระบุ.....
6. ลักษณะของการสูบบุหรี่
 - () สูบไม่อัดควันเข้าปอด
 - () สูบอัดควันเข้าปอด
7. โดยส่วนใหญ่แล้วท่านได้บุหรี่มาสูบโดยวิธี
 - () ซื้อมาเอง
 - () ได้จากเพื่อน
 - () ได้จากญาติ/พี่น้อง
 - () อื่นๆ ระบุ.....

APPENDIX D**SENSE OF COHERENCE QUESTIONNAIRE**

แบบสอบถามความเข้มแข็งในการมองโลก

คำชี้แจงในการตอบแบบสอบถาม

ข้อความต่อไปนี้ เป็นการถามการมองชีวิตในแง่มุมต่างๆ ในแต่ละข้อคำถามจะมีตัวเลขให้ท่านเลือกตั้งแต่ 1 ถึง 7 จะมีข้อความบ่งบอกลักษณะตรงกันข้าม ส่วนตัวเลขกลางตั้งแต่ 2 ถึง 6 จะบ่งบอกถึงความมากน้อยของความรู้สึกนึกคิดโดยอาศัยข้อความในตำแหน่งเลข 1 ถึง 7 เป็นหลัก กรุณาวางกลมตัวเลขที่ตรงกับความรู้สึกของท่านมากที่สุด

ตัวอย่าง

ท่านเกิดความรู้สึกไม่แน่ใจว่าจะอะไรจะเกิดขึ้นต่อไป บ่อยเพียงใด?

1	2	3	4	5	6	7
บ่อยมาก						น้อยมาก
						หรือไม่มีเลย

กรุณาวงกลมรอบตัวเลขที่ตรงกับความรู้สึกของท่านมากที่สุด

1. เมื่อท่านพูดคุยกับบุคคลอื่น ท่านมีความรู้สึกบ้างหรือไม่ว่า คนอื่นไม่เข้าใจท่าน?

1 2 3 4 5 6 7

ไม่เคย

มักรู้สึก

รู้สึกเลย

เช่นนี้เสมอ

2. ในอดีตที่ผ่านมา เมื่อท่านต้องการทำอะไรก็ตามที่ต้องอาศัยความร่วมมือจากบุคคลอื่น ท่านมีความรู้สึกอย่างไร?

1 2 3 4 5 6 7

ทำไม่สำเร็จ

ทำสำเร็จ

อย่างแน่นอน

อย่างแน่นอน

28. ท่านมีความรู้สึกว่าสิ่งที่ท่านกระทำอยู่ในทุกวันนี้ ไม่ค่อยมีความหมาย บ่อยเพียงใด?

1 2 3 4 5 6 7

รู้สึก

น้อยมาก

บ่อยมาก

หรือไม่

เลยเลย

29. ท่านมีความรู้สึกไม่แน่ใจว่า ท่านจะควบคุมสถานการณ์ต่างๆ ในชีวิตได้บ่อยแค่ไหน?

1 2 3 4 5 6 7

บ่อยมาก

น้อยมาก

รู้สึกเลย

หรือไม่

มีเลย

APPENDIX E

SPIRITUAL WELL - BEING QUESTIONNAIRE

แบบสอบถามความผาสุกทางจิตวิญญาณของเด็กวัยรุ่น

คำชี้แจงในการตอบแบบสอบถาม

ข้อความต่อไปนี้ เป็นการถามความคิดเห็นเกี่ยวกับความรู้สึกนึกคิดในการดำเนินชีวิตของตัวเราเองในแง่มุมต่างๆ โดยในแต่ละข้อคำถามจะมีระดับแสดงความคิดเห็นให้ท่านเลือก 3 ระดับ ซึ่งจะบ่งบอกถึงความมากน้อย คือ เห็นด้วยมาก เห็นด้วยปานกลาง เห็นด้วยน้อย กรุณาทำเครื่องหมาย X ในช่องที่ตรงกับความรู้สึกของท่านมากที่สุด

ตัวอย่าง

ข้อความ	เห็น ด้วย มาก	เห็น ด้วย ปาน กลาง	เห็น ด้วย น้อย
ฉันรู้ตัวเองเสมอว่า ฉันจะคิด จะทำ จะพูดอะไร	X		

กรุณาทำเครื่องหมาย × ในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุด

ข้อความ	เห็น ด้วย มาก	เห็น ด้วย ปาน กลาง	เห็น ด้วย น้อย
1. ฉันมีความสุข ความปิติ และความอึดเอมใจในการดำเนินชีวิต			
2. ฉันมีความสุข ความอึดเอมใจ และภาคภูมิใจที่ได้กระทำความดี งดเว้น การทำความชั่วได้			
3. ฉันมีความสุข ความพึงพอใจ และต้องการสร้างสรรค์สิ่งที่ดีงามที่ ก่อให้เกิดประโยชน์ต่อสังคม			
4. ฉันมีความสุขที่ไม่เห็นแก่ตัว และไม่เบียดเบียนผู้อื่น			
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28. เมื่อนั้นได้รู้ตัวว่าได้ทำอะไรผิดพลาดหรือไม่ถูกต้อง ฉันจะเตือนตนเอง เสมอว่าฉันจะไม่ทำเช่นนั้นอีก			
29. ฉันคิดว่าความผิดหวังในชีวิตเป็นสิ่งที่ทำทนาย และทำให้ฉันเข้มแข็งขึ้น			
30. ฉันสามารถยอมรับเหตุการณ์ และการเปลี่ยนแปลงต่าง ๆ ในชีวิตได้			
31. สิ่งสูงสุด เช่น พระรัตนตรัยหรือหลักคำสอนของศาสนามีความสำคัญต่อ ฉัน			

APENDIX F

Test assumptions of Logistic Regression Analysis

Table 7: Correlation Matrix for independent variables in adolescents (n=433)

	1.	2.
1. sense of coherence	1.00	
2. spiritual well-being	-0.279	1.00

APPENDIX G

Table 8 Descriptive statistic and distribution for items of sense of coherence(SOC) in adolescents (n=433)

Items	Non-smoker group (n ₁ =329)		Smoker group (n ₂ =104)	
	Mean	SD	Mean	SD
1. When talking with others, I feel that others tend to understand me.	4.52	1.21	3.97	1.37
2. For what I did in the past, if I had to ask for cooperation from others, it would surely be successful.	4.81	1.21	4.63	1.32
3. I know people whom I contact in my daily living very well (excluding relatives and friends).	4.90	1.34	5.02	1.17
4. I am usually interested in what is happening around me.	4.36	1.39	3.93	1.52
5. I have never felt surprised by the actions of people whom I know very well.	3.67	1.45	3.68	1.37
6. I have never felt disappointed with people whom I know very well.	3.85	1.65	3.64	1.73
7. I feel that my life is filled with interesting things.	5.19	1.56	4.49	1.85
8. My life has a clear goal or objective.	5.39	1.44	5.23	1.50

Items	Non-smoker group (n ₁ =329)		Smoker group (n ₂ =104)	
	Mean	SD	Mean	SD
9. I always receive justice.	4.03	1.57	3.70	1.58
10. My life has been secure and stable for the past ten years.	3.54	1.72	2.99	1.49
11. What I will do in the future is exciting and challenging.	5.67	1.27	5.53	1.48
12. I am always surrounded with what I am familiar with and I know what I should do.	4.27	1.38	4.02	1.41
13. I feel that people can always find ways to solve problems or cope with sufferings in life.	5.79	1.18	5.57	1.23
14. I tend to feel glad that I am living my life.	5.55	1.53	4.76	1.79
15. I always have clear solutions to problems.	4.25	1.41	3.63	1.44
16. I am pleased with what I am doing now.	5.06	1.46	4.42	1.59
17. My future life is clear and secure.	3.81	1.87	3.23	1.75
18. When I meet disappointment, I tend to tell myself that I have to life with it and go on living.	5.55	1.44	5.15	1.49

Items	Non-smoker group (n ₁ =329)		Smoker group (n ₂ =104)	
	Mean	SD	Mean	SD
19. I usually do not have a confusing thought.	3.85	1.45	3.60	1.52
20. If I feel pleased with what I have already done, my feelings always remain the same.	4.81	1.49	4.18	1.64
21. I hardly feel that what is happening should not be happening.	3.73	1.36	3.46	1.41
22. I think that future life is meaningful and goal-oriented.	5.54	1.19	5.06	1.51
23. I am confident that in the future there will always be someone whom I can trust and rely on.	4.81	1.84	4.45	2.05
24. I am usually able to predict what is going to happen next.	3.74	1.55	3.34	1.47
25. I hardly feel that no matter how strong we are, sometimes we have to dwell in sufferings.	3.82	1.32	3.51	1.37
26. I usually have an accurate prediction of events.	4.46	1.42	4.30	1.43
27. I am confident that I will be able to overcome obstacles.	5.34	1.19	4.87	1.30
28. I feel that what I do everyday is meaningful.	4.70	1.57	4.11	1.47
29. I tend to be confident that I can control different situations in life.	4.22	1.42	4.07	1.38

APPENDIX H

Table 9 Descriptive statistic and distribution for items of spiritual well-being (SWB) in adolescents (n=433)

Items	Non-smoker group (n ₁ =329)		Smoker group (n ₂ =104)	
	Mean	SD	Mean	SD
1. I am happy, pleased, and fulfilled with my way of life.	2.53	0.53	2.29	0.59
2. I am happy, fulfilled, and proud with my doing good deeds and avoiding bad deeds.	2.79	0.41	2.65	0.57
3. I am happy and satisfied, and I want to do good deeds to benefit society.	2.78	0.41	2.67	0.49
4. I am happy that I am not selfish and I do not take advantage of others.	2.80	0.43	2.73	0.49
5. I am happy that I forgive others.	2.76	0.46	2.66	0.51
6. I am satisfied with giving love to others.	2.83	0.39	2.78	0.43
7. I have a wish that every life is happy and successful.	2.82	0.42	2.73	0.47
8. I am happy when I can help others and when I see others help one another.	2.85	0.37	2.76	0.47
9. I am happy and pleased with my friends' successes.	2.83	0.38	2.77	0.42
10. I am not miserable when I cannot live my life the way I want to.	2.06	0.68	1.85	0.69

Items	Non-smoker group (n ₁ =329)		Smoker group (n ₂ =104)	
	Mean	SD	Mean	SD
11. I am not worried or miserable in life.	2.27	0.64	1.95	0.66
12. I am happy and satisfied with being a good son/daughter by studying hard and helping with household chores.	2.69	0.47	2.56	0.59
13. I am satisfied with having responsibilities and knowing my duties in life.	2.67	0.51	2.54	0.64
14. I am happy, satisfied, and proud of my studies and searches for knowledge.	2.63	0.54	2.51	0.67
15. I am happy with my learning achievements and my searches for knowledge.	2.29	0.64	2.31	0.65
16. I do not suffer that I am different from others in my peer group.	2.39	0.69	2.07	0.75
17. I am happy to obey the rules and regulations of school and society.	2.48	0.65	2.16	0.74
18. I am satisfied with living happily with others in society	2.82	0.42	2.65	0.54
19. I do not like society filled with competitiveness and lack of thoughtfulness and compassion for one another.	2.74	0.54	2.71	0.55
20. I do not suffer that I am unable to do what movie stars, singers, or people I admire do.	2.60	0.61	2.38	0.73
21. I am happy and satisfied with a simple way of life.	2.78	0.45	2.70	0.54

Items	Non-smoker group (n ₁ =329)		Smoker group (n ₂ =104)	
	Mean	SD	Mean	SD
22. I am happy and satisfied with living simply without any extravagance.	2.74	0.50	2.62	0.56
23. I am always well aware of what I think about, do, and speak.	2.52	0.52	2.59	0.53
24. I am proud that I can choose what is good and what is bad in living my life.	2.77	0.46	2.60	0.58
25. I have discovered goals and targets in life as I know what I am good at and in what field I am going to study.	2.43	0.59	2.38	0.66
26. I have concentration in learning and working.	2.13	0.63	1.93	0.67
27. I know how to solve problem and rely on myself by using my intellectuality, reasoning, and carefulness.	2.49	0.52	2.40	0.58
28. I know what I have done wrong, and I remind myself not to repeat the same mistakes.	2.61	0.51	2.44	0.62
29. I think that disappointment in life is challenging and it makes me strong.	2.64	0.55	2.56	0.57
30. I am able to accept different events and changes in life.	2.47	0.57	2.52	0.56
31. The most valuable things, such as the Triple Gems or Lord Buddha's preaching, are important for me.	2.53	0.58	2.45	0.64

BIOGRAPHY

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