HEALTH LOCUS OF CONTROL, HEALTH BEHAVIOR AND LIFE SATISFACTION IN COPD PATIENTS: A STUDY AT PHRAE HOSPITAL

KANITTHA KASLUNGKA

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Kanittha Kaslungka

Miss Kanittha Kaslungka
Candidate

Penchun Sareewiwatthana

Assoc.Prof. Penchun Sareewiwatthana,M.Sc.
Major - Advisor

Sauvaluck Lekutai

Assoc. Prof. Sauvaluck Lekutai, M.Sc.
Co - advisor

Krongdai Unhasuta

Asst. Prof. Krongdai Unhasuta, Ed.D.
Co – advisor

Prakairat Sukumalchart

Asst.Prof. Prakairat Sukumalchart, M.S.
Acting Dean
Faculty of Graduate Studies

Kobkul Phancharoenworakul

Assoc. Prof. Kobkul Phancharoenworakul, Ph.D.
Chairman
Master of Nursing Science
Faculty of Nursing

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Kanittha Kaslungka

Miss Kanittha Kaslungka
Candidate

Penchun Sareewiwatthana

Assoc.Prof. Penchun Sareewiwatthana, M.Sc.
Chairman

Chanok Jitpanya

Dr. Chanokporn Jitpanya, Ph. D.
Member

Sauvaluck Lekutai

Assoc. Prof. Sauvaluck Lekutai, M.Sc.
Member

Yajai Sitthykol

Assist. Prof. Yajai Sitthimongkol,Ph.D.
Member

Krongdai Unhasuta

Assist. Prof. Krongdai Unhasuta, Ed.D.
Member

Prakairat Sukumalchart

Asst.Prof. Prakairat Sukumalchart, M.S.
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Faculty of Graduate Studies
Mahidol University

Kobkul Phancharoenworakul

Assoc. Prof. Kobkul Phancharoenworakul, Ph.D.
Dean
Faculty of Nursing
Mahidol University

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Kanittha Kaslungka

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Improving and maintaining quality of life of chronic obstructive pulmonary disease (COPD) patients are valuable roles of nursing. Life satisfaction is an indicator of quality of life. Therefore, studies of overall life satisfaction of COPD patients, as well as factors associated with life satisfaction, are necessary. The purpose of this study was to explore the factors associated with life satisfaction in COPD patients including health locus of control, health behavior and demographics. The sample of this study was 180 patients with chronic obstructive pulmonary disease. They were patients who followed up at the COPD clinic and the general medical interviewing to determine health behavior, health locus of control, and life satisfaction during March 2000 to May 2000. The data was analyzed by using the percentage, mean, standard deviation, Pearson's Product Moment Correlation Coefficeint and stepwise multiple regression.

The results showed that life satisfaction in chronic obstructive pulmonary disease patients was at a moderate level ($\overline{X}$ = 1.18,S.D.= .27). Severity of the disease and health behavior could predict life satisfaction in chronic obstructive pulmonary disease patients by 10.4 percent at the statistically significant level of .05.

These findings suggest that nurses should encourage COPD patients to perform appropriate health behavior, and should arrange appropriate exercise and lung rehabilitation program for COPD patients. Nursing practices should promote the internal health locus of control for their efficient health behavior enhancing life satisfaction of COPD patients.

4137055 NSAN/ M: สาขาวิชา: การพยาบาลผู้ใหญ่; พย.ม. (การพยาบาลผู้ใหญ่)

ขนิษฐา กาศลังกา : ความเชื่ออำนาจควบคุมทางสุขภาพ พฤติกรรมสุขภาพและความพึงพอใจในชีวิตในผู้ป่วยโรคปอดอุดกั้นเรื้อรัง โรงพยาบาลแพร่ (HEALTH LOCUS OF CONTROL, HEALTH BEHAVIOR AND LIFE SATISFACTION IN COPD PATIENTS : A STUDY AT PHRAE HOSPITAL) คณะกรรมการควบคุมวิทยานิพนธ์ : เพ็ญจันทร์ เสรีวิวัฒนา, วท.ม.(กายวิภาคศาสตร์), เสาวลักษณ์ เล็กอุทัย, วท.ม.(สรีรวิทยา), กรองได อุณหสูต, กศ.ด.(อุดมศึกษา).109 หน้า. ISBN 974 – 664 - 979-5

การส่งเสริมคุณภาพชีวิตของผู้ป่วยโรคปอดอุดกั้นเรื้อรัง เป็นบทบาทที่สำคัญของพยาบาล ซึ่งความพึงพอใจในชีวิตเป็นเครื่องชี้บ่งถึงคุณภาพชีวิตของบุคคล ดังนั้นการศึกษาถึงปัจจัยที่มีผลต่อความพึงพอใจในชีวิตจึงเป็นสิ่งจำเป็น วัตถุประสงค์ของการวิจัยครั้งนี้เพื่อศึกษาปัจจัยที่มีผลต่อความพึงพอใจในชีวิตในผู้ป่วยโรคปอดอุดกั้นเรื้อรังโรงพยาบาลแพร่ ได้แก่ ความเชื่ออำนาจควบคุมทางสุขภาพ พฤติกรรมสุขภาพและปัจจัยส่วนบุคคล กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้เป็นผู้ป่วยโรคปอดอุดกั้นเรื้อรังที่มารับการตรวจรักษาที่คลินิกโรคปอดอุดกั้นเรื้อรัง และคลินิกโรคอายุรกรรม แผนกผู้ป่วยนอก โรงพยาบาลแพร่ จำนวน 180 ราย ทำการเลือกกลุ่มตัวอย่างแบบเฉพาะเจาะจง เก็บข้อมูลโดยการสัมภาษณ์ด้วยแบบวัดพฤติกรรมสุขภาพ ความเชื่ออำนาจควบคุมทางสุขภาพและความพึงพอใจในชีวิตในผู้ป่วยโรคปอดอุดกั้นเรื้อรัง ระหว่างเดือนมีนาคมถึงเดือนพฤษภาคม 2543 วิเคราะห์ข้อมูลโดยหา ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ค่าสัมประสิทธิ์สหสัมพันธ์ของเพียรสัน และหาค่าอำนาจทำนายโดยการวิเคราะห์ถดถอยพหุคูณแบบขั้นตอน

ผลการวิจัยพบว่า คะแนนเฉลี่ยความพึงพอใจในชีวิตในผู้ป่วยโรคปอดอุดกั้นเรื้อรังอยู่ในระดับปานกลาง ($\overline{X}$ = 1.18,S.D.= .27) เมื่อวิเคราะห์ถดถอยพหุคูณแบบขั้นตอน พบว่าความรุนแรงของโรคและพฤติกรรมสุขภาพสามารถทำนายความพึงพอใจในชีวิตในผู้ป่วยโรคปอดอุดกั้นเรื้อรังได้ร้อยละ 10.4 อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

จากผลการวิจัยครั้งนี้ผู้วิจัยมีข้อเสนอแนะว่าพยาบาลควรสนับสนุนให้ผู้ป่วยมีพฤติกรรมสุขภาพที่เหมาะสมและจัดให้มีโปรแกรมออกกำลังกายและฟื้นฟูสมรรถภาพปอด พยาบาลควรส่งเสริมให้ผู้ป่วยมีความเชื่ออำนาจภายในตน เพื่อส่งเสริมให้มีพฤติกรรมสุขภาพที่มีประสิทธิภาพและมีความพึงพอใจในชีวิตเพิ่มขึ้น

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

The number of patients with non-communicable diseases has been increasing since 1981 – 1993 (The Director Committee of Developing Public Health Plan, B.E.2539: 30). Chronic obstructive pulmonary disease (COPD) is a chronic illness with permanent impaired lung functions (Agle, Baum, Chester,& Wendt, 1973 cited by Graydon & Ross, 1995: 525). Clinical manifestation is characterized by air way obstruction and/or a loss of elastic recoils of the lungs (Scherer & Schmieder, 1997:15). Inflammation and obstruction of the airway can be found in the alveolars or lung tissue of COPD patients (Rungsun Bussapakhom & Praphad Yongjaiyut, B.E.2532: 241-242). As a result, there is decreased alveolar ventilation leading to a reduction in exchanging oxygen (Lemone & Burke, 1996: 1413). Predominant symptoms in COPD patients are dyspnea and fatigue (Scherer & Schmieder, 1997:16) that lead to a lack of energy expenditure during their activities (Barstow, 1974;Fagerhaugh, 1973 cited by Anderson, 1995:547-548) as well as their sleep. They also can have sexual dysfunctions (McMahon, 1992:271).

Moreover, COPD patients are psychosocially impacted by stress, fear, anxiety, depression, loss of self-image, low of self-esteem, loss of work and social isolation. Finally, caring for COPD patients and their financial support are burdens for their family members.

Although the negative impacts of COPD do not suddenly occur, patients spend a long time in treatment. In the United States of America, COPD, which has been found in 1 of 10 people is the fourth rank among causes of death (Zimmerman, et al., 1996:253). In 1993, a medical – care expenditure of COPD cost the nation 14.7 billion dollars (The Nation Lung Health Education Program, 1998:129). In Thailand, there is no official record of the number of deaths caused by COPD. However, there was a record showing that respiratory diseases are ranked fourth among the causes of death. Approximate 20,415 people died of respiratory diseases. In the northern region of Thailand, respiratory disease patients are more common than in other regions. In 1998, there was about 4,851,934 COPD patients in the northern part of Thailand (Public health statistic, B.E.2540).

Phrae Hospital is a general hospital of 400 beds. The number of COPD patients at the out patient department increased about 54 % from 1998 - 1999 (The Out Patient Registration Department, Phrae Hospital, B.E.2542).

Phrae province is in the upper, northern region of Thailand. The weather is not only extremely hot in summer, but also extremely cold in winter (Kittiporn & Phinkanok Werasutthikul, B.E. 2542: 15). There is also a lumber industry producing large amounts of dust from pieces of wood, and a bad smell of coating solution. As a result, COPD patients who live there may have an irritation of the lungs and airways. In addition, Phrae is a place for producing tobacco. Therefore, it is easy for people to smoke cigarettes. They are not only buying them from factories, but also seeking local special cigars called "buree cheyo or buree chaiyo". People who live in the northern part of Thailand still have the habit of entertaining their visitors with special cigars or cigarettes as well as serving a rain - water bowl for their drink (Weena Sirisuk, B.E.

2541: 32). This is why some COPD patients in Phrae province could not give up smoking cigarettes though they know that smoking is an important cause of COPD, and exacerbate their symptoms.

COPD affects all facets of patients' life, and impairs their quality of life. Life satisfaction is one of the indicators for determining quality of life. It is also a domain of an individual' s goal (Oleson, 1990 cited by Anderson, 1995:547). People who have a high level of life satisfaction will be happy in their daily life (zest); feel that their life is meaningful (resolution); and have enhanced fortitude in their life. They also have a perception of congruence between their desire and their successful goals. They have a positive self-concept, optimistic attitude and good emotion (Neugarten, et al., and 1961: 134). COPD has both physical and psychosocial effects on patients. Patients who can successfully adapt to these effects will perceive higher life satisfaction, and will be happy. On the other hand, patients who have maladaptation may loss their life satisfaction. Compared with life satisfaction of coronary artery disease patients, that of COPD patients was lower. (Brown,et al., 1981: 1141). Moreover, women with COPD had lower scores on their life satisfaction than those of women without a chronic illness (Zexton, & Murro, 1988; Anderson, 1995:548). Life satisfaction is one of the psychological components. If a person has adequate energy, and perceives good psychosocial well – being, his or her physical condition will be in a good condition. This is because the human body is a unit comprised of body, mind and spirit (Brallier, 1978 cited by Tassana Boontong, B.E.2532: 33). If a level of life satisfaction in COPD patients is decreased, their physical conditions will be impaired, and their quality of life will also decrease.

COPD patients'life satisfaction depends on many factors. The first factor is health locus of control (Brown, et al, 1981: 1144). Locus of control is a hidden character of an individual's personality (Rotter, 1966). It is also a belief about who or what controls his/her health status. There are three dimensions of health locus of control: internal health locus of control, powerful others health locus of control and chance health locus of control (Wallston, et al., 1978: 160). An individual with an internal health locus of control will believe that it is him or her who has an ability to control his health. His self-esteem will increase, and he will be satisfied with his life.

On the contrary, an individual with powerful others health locus of control may perceive that his health status depends on others such as health care providers, family members, and friends. He may lose his self esteem; and feels unhappy in his life. However, some individuals with powerful others health locus of control may perceive that they do not feel lonely; have more support; and feel happy in their lives.

Chronic illness often leads to a deviation of mind, and finally it changes the patients'concerns about health. Though they receive some support from healthcare providers, family members or friends, their symptoms are not relieved. Finally, they change to new beliefs such as chance, luck or fate (Jaruwan Manasurakarn, B.E. 2535: 39), which they think that these are their new hope. This is an example of patients with chance health locus of control.

Although COPD is a progressive disease (Somkirt Wongtim & Chaiwage Nuchprayun, B.E.2542: 145), without any complications, it can be slowed down. Thus, appropriate health behaviors are very important during the illness. Health behaviors are characteristics of humans concerning actions or something influencing their health. Health behaviors are related to knowledge, cognition and attitude

(Somsung Rukpan & Sungkod Duangkumsawat, B.E. 2540:9). Health behavior is an important factor because it can influence public health problems. Documented in the Development Plan of Public Health volume 8 (1997 – 2001), health behavior is emphasized. One of the aims in this plan is to change health behaviors of Thai people in order to control or get rid of some diseases (The Director Committee of Developing the Public Health Plan, B.E. 2537; Somsung Rukpan & Sungkod Duangkumsawat, B.E. 2540:6). Appropriate health behaviors in COPD patients are necessary and important. Since COPD is a chronic illness, the stage of the disease is related to the patients' life patterns. Therefore, COPD patients should have appropriate health behaviors for confronting with dyspnea, controlling pathology, preventing and controlling complications, and adapting themselves to treatments. Finally, these behaviors may help in improving their quality of life (Penchun Sareewiwatthana & Jarunee Warahut, B.E. 2541: 17).

Exercise and pulmonary rehabilitation can increase endurance and elasticity of the body, effectiveness of the circulation system, and lung capacity (Peerayos Leelarungrayub, B.E. 2539: 26). An appropriate food consumption such as consuming high fat and low carbohydrate diet (Long, et al., 1993:597), regular follow up, proper use of bronchodilating inhaler (Suchai Charoenratanakul, et al., B.E. 2541:79), emotional management, participating in society, seeking an adaptive environment, and preventing complications by avoiding respiratory irritants (Lemune & Burke, 1996: 1431) are also necessary.

If COPD patients are healthy; able to control their disease; and prevent complications, it may lead to a perception of life satisfaction. It is evident that health locus of control is related to health behavior. Another factor associated with health

behavior is health belief. For example, in the Health Belief Model, there was a relationship between health behavior and health belief. Some certain beliefs could predict health behaviors (Green, 1980:72-73). Moreover, a belief is an important basic factor influencing self-care behaviors. Health locus of control can affect behaviors when a person believes in something. So his belief will affect whether his belief is right or wrong (Rokeach, 1970 cited by Parinda Chirakulpatana,B.E. 2536:3). It was stated that internal locus of control can predict self – care agency in tuberculosis patients (Hongthong Assvachananon, B.E. 2537: V).

Besides those factors mentioned earlier, there are other factors that possibly influence life satisfaction. These factors are as follows:

Marital status has been found to reduce the effect of stress on depressive symptoms in a healthy population (Eaton, 1978;Thoits, 1982; Warneit, 1979 cited by Hanucharurnkul, 1988:60). This may imply that having a spouse may buffer stressful events, which in turn contributes to a better perceived quality of life.

Income. Sufficient income and economic status are resources for human that may influence self-care (Sexton, 1990:363). A person who has sufficient income will perceive a better life satisfaction more than an individual who has insufficient income (Edwards & Klemake, 1973:5).

Duration of the disease may also affect patients' life satisfaction. Patients with chronic illness often take a longer time to adapt and cope with their illness. They frequently feel bored, dejected, stressful, and have low self-esteem. As a result, their life satisfaction is impaired.

Severity of the disease is one of the indicators of health status of the patients. During the poorer stage, a limitation in activities may be present (Shekleton, 1987:

571). This may affect patients' life satisfaction. One study reported that COPD patients had lower scores of life- satisfaction than those of CAD patients due to their limited daily activities and social activity (Brown,et al., 1981: 1141).

The purpose of this study was to explore the factors influencing the life satisfaction of COPD patients in Phrae Hospital including health locus of control, health behavior and some demographic factors such as marital status, income, duration and severity of the disease. The result of this study can be used as a guideline for nurses to promote life satisfaction in COPD patients.

Research Question

1. How is life satisfaction of COPD patients?
2. What kinds of health locus of control are frequently found in COPD patients?
3. How are the health behaviors in COPD patients?
4. Are there any relationships among life satisfaction and health locus of control, health behavior, marital status, income, duration of the disease and severity of the disease in COPD patients?

Purposes of the Study

1. To explore the health locus of control, health behavior and life satisfaction in COPD patients.
2. To explore the relationships between the health locus of control, health behavior, marital status, income, duration of the disease and severity of the disease to life satisfaction in COPD patients.

3.To explore the power of the health locus of control, health behavior, marital status, income, duration of the disease and severity of the disease in predicting life satisfaction in COPD patients.

Conceptual Framework

The conceptual framework for the concept of life satisfaction used in this study was derived from Neugarten, et al.(1961). Neugarten,et al.(1961) defined an individual's life satisfaction as zest, resolution and fortitude, a congruence between desired and achieved goals, positive self-concept, optimistic attitude and mood. COPD is a chronic disease with many complications that can lead to changes in physical, psychological and social aspects of the patients. It also can eventually affect their life satisfaction .A person who lives with chronic illness may have different perception of life satisfaction depending on many factors. Health locus of control is one of these factors in a person.

Described by Wallston, et al. (1978), health locus of control includes internal, powerful others and chance, luck or fate. People who perceive that it is their behaviors that control or influence their health status will have high self-esteem. They have a tendency to be satisfied with their life. People who perceive that their health status is under the control of others may feel confident, feel that they receive support, not lonely, and finally satisfied with their life. On the contrary, people who perceive that their health status is influenced by chance, luck or fate may have a mind deviation. They may change to believe in something else that can give them hope.

In addition, health behavior is a factor influencing life satisfaction. COPD patients should have health behaviors appropriate for their disease that are exercise

and rehabilitation, proper food consumption behaviors, concern about their treatment and preventing complications, and etc. Appropriate health behaviors may finally help COPD patients be satisfied with their lives.

Finally, some demographics are associated with life satisfaction including marital status, income, duration of the illness and severity of the disease. These demographic characters can also predict life satisfaction in COPD patients (Figure 1)

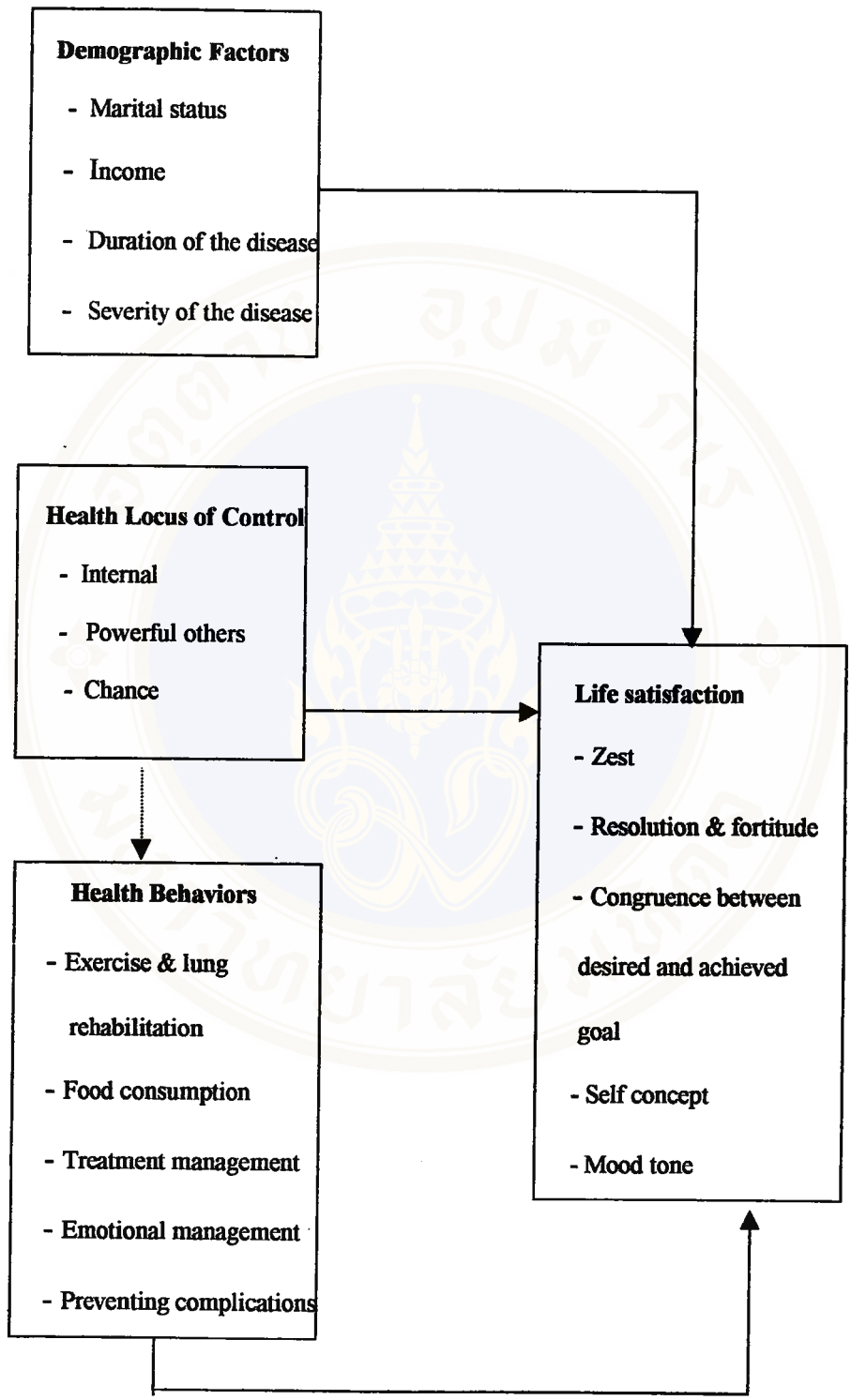

Figure 1. Conceptual framework of the study

Hypotheses

1. Health locus of control, health behaviors, marital status, income, duration of the disease and severity of the disease are correlated with life satisfaction in COPD patients.

2. Health locus of control, health behaviors and demographic data such as marital status, income, duration of the disease and severity of the disease can predict life satisfaction in COPD patients

Scope of the Study

This study investigated health locus of control, health behaviors and life satisfaction in COPD patients who were treated at the COPD clinic and the medical clinic in the out patient department, Phrae Hospital.

Definition of Terms

The following terms are defined for this study

1. Health locus of control is defined as a personal belief concerning how ones health can be affected. The health locus of control scale used in this study was developed based on the Multi - dimension Health Locus of Control Scales (Wallston,et al. ,1978). There were three dimensions of health locus of control as follows:

1.1 Internal health locus of control is a belief that it is an individual that has their own ability to control their own health.

1.2 Power others health locus of control is a belief that an individual's health depends on other people such as health care providers, family members and friends.

1.3 Chance health locus of control is a belief that luck, fate and chance can affect an individual's health.

2. Health behaviors are defined as actions or daily activities of an individual or a patient that can benefit his health. They were measured by the questionnaires developed by the researcher based on a review of the literature. The questionnaires included the following parts.

2.1 Exercise and lung rehabilitation: actions or daily activities of the patient about procedures and frequencies in exercise and lung rehabilitation such as breathing exercises and effective coughing.

2.2 Food consumption behaviors: actions or daily activities of the patient about eating food for high calories and valuable nutrients.

2.3 Emotional management: actions or daily activities of the patient about stress management, participating in society and presenting appropriate emotions.

2.4 Treatments management: actions or daily activities of the patient about health service follow up and proper use of medication and inhaler.

2.5 Preventing complications: actions or daily activities of the patient about preventing complications such as avoiding airway irritants (such as cold or hot temperatures, dust and pollens), stop smoking and preventing infections.

3. Life satisfaction is a popular thought in terms of material possessions that are added to the enjoyment of a COPD patients'life. The life satisfaction

questionnaires were developed based on the Life Satisfaction Index A (Neugarten, et al., 1961). Finally, operational definitions of the following components were obtained.

3.1 Zest is the extent to which COPD patients have enthusiasm of response and degree of ego – involvement – in any of the various activities such as love to do things, even sitting at home, taking up new activities and making new friends.

3.2 Resolution and fortitude is the extent to which COPD patients perceive their life as meaningful and inevitable, and they are relatively unafraid of death. It is a performance about personal responsibility such as taking the bad and the good and making the most of it, not changing the past.

3.3 Congruence between desired and achieved goals is the extent to which COPD patients perceive their goal achievements.

3.4 Self concept is the extent to which COPD patients feel about their physical as well as psychological and social attributes, thinking of themselves as wise or mellow, being proud of their accomplishments, deserving whatever good breaks they had and feeling that they were important to someone else.

3.5 Mood tone is the extent to which COPD patients express their happiness, optimistic attitudes and mood and positively – toned affective terms for people and things.

4. Marital status: There were 4 categories in a marital status such as single, married, divorced, and separated.

5. Income: Income in COPD patients is assessed in comparison with their expenditures. There are 2 types: sufficient and insufficient incomes.

6. Duration of the disease is the amount of time COPD patients perceive they had their illness. It was calculated in a full year if it was over 6 months.

7. Severity of the disease is the severity caused by the pathology of COPD. In this study, an ability in activities was used to define the degree of disease severity. The degree of physical impairment accompanying COPD varies greatly, and may be classified into 5 levels (American Lung Association, 1975 cited by Hanucharunkul, 2536: 240-241).

Level I: Patient with recognized disease with no restriction in activity, able to do what peers can do and continues usual life pattern.

Level II: Patient with minimal or moderately restricted activity, being able to do productive work, having some difficulties in keeping up with peers, beginning to modify their life pattern and walking on level ground and upstairs or slight hill slower than people of the same age.

Level III: Patient with markedly restricted activity that is not homebound, unable to do productive work but can take care of himself and unable to walk on level ground compared with others of the same age. Dyspnea is also present while walking up one flight of stairs and rests while walking up two fights of stairs.

Level IV: Patient with severely restricted activity, unable to do productive work, being essentially homebound but can take care of himself, stopping for a breath after walking about 100 yards or after a few minutes on level ground and stop to rest while walking up one flight of stairs.

Level V: Patient with very severely restricted activity that is homebound or in an institution, unable to take care of himself, being too breathless to

leave the house and being breathless on dressing or undressing. Dyspnea is always present after walking for more than 4 to 5 minutes at their own pace on level ground.

Expected Outcomes and Benefits

1. Knowledge about perceived health locus of control, health behaviors and life satisfaction in COPD patients can be gained from this study.

2. It will be a guideline for nursing practice by using the data about demographic factors such as marital status, income, duration of the disease, severity of the disease, health locus of control and health behaviors in COPD patients as basic data to promote life satisfaction in COPD patients.

3. It will be a guideline for studying other issues about life satisfaction in the future.

CHAPTER II

LITERATURE REVIEW

This research aimed to investigate the relationship between health locus of control, health behavior and demographic factors to life satisfaction of COPD patients. The literature review for this study included the following topics:

1. Chronic obstructive pulmonary disease
2. Life satisfaction in COPD patients
3. Health locus of control in COPD patients
4. Health behavior in COPD patients
5. Factor that affect life satisfaction in COPD patients
6. The relationship between health locus of control, health behavior and life satisfaction

Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) or chronic obstructive airway disease is defined as a disease state characterized by the presence of chronic bronchitis and/ or emphysema associated with airflow obstruction. The airflow obstruction may be accompanied by airway hyper-reactivity, and may be partially reversible (Snider, 1995: 5). It is associated with dyspnea, excessive or non-excessive accumulation of mucus and secretion but airflow is limited. COPD is characterized by slowly progressive obstruction of the airways, respiratory failure, and cause of death

(Punkaseam Jareanpun, B.E.2534: 74), which is diagnosed clinically by demonstrating reduction of airflow rates in pulmonary function tests (Black, 1981: 200).

Chronic bronchitis is characterized by airway inflammation resulting in excessive mucus production in bronchioles, chronic bronchitis is defined as the presence of a production cough that last 3 months a year for 2 consecutive years. Cigarette smoking or exposure to pollution are major causes of chronic bronchitis (Smeltzer & Bare, 1996: 507).

Emphysema is defined as an abnormal distention of the air spaces beyond the terminal bronchioles with destruction of the walls of the alveoli. There are two commonly recognized types of emphysema – centrilobular and panlobular. The centrilobular type affects the bronchioles in the central part of respiratory lobule, with initial preservation of the alveolar ducts and sacs. It is predominantly seen in male smokers. The panlobular type produces initial involvement of the peripheral alveoli and later extends to involve the more central bronchioles. It is the type of emphysema associated with a α_1- antitrypsin deficiency (Porth, 1994: 544). It is characterized physiologically by increased lung compliance, decreased diffusing capacity and increased airway resistance (Long, et al., 1993: 587)

There are many risk factors in COPD such as smoking. Smoking is a risk factor affecting COPD more than 90 % (Brashers, 1998: 79). Cigarette smoking is composed of about 1,200 chemical substances such as aldehydes, mercury benzpyrene, hydrogen cyanides, hydrogen sulphide and carbon monoxide. Especially, mercury benzpyrene creates irritant to bronchi and alveoli that stimulate important cells such as macrophage and neutrophil to be excessive and secrete gastric juice to destroy alveoli (Suchai Charoenratanakul, B.E.2532: 95). Air pollution, pollen and

occupational exposures (such as grain, cotton, and dust from industry) are risk factors that contribute to its development. The process may occur over 20-to 30- year span. COPD is considered to be a disease related to an interaction of genetic because of alpha –1-antritypsin deficiency causing pulmonary emphysema (Smeltzer & Bare, 1996: 501). Another causes such as respiratory infection can irritate and usually inflames trachea.

Human response to chronic lung disease is related to alteration in the structure and function of the airway and lungs (Carrieri & Janson- Bjerklie, 1986; Porth, 1986; West, 1987 cited by McMahon, 1992: 255). These changes limit airflow. Pathophysiologic changes cause contraction of airway smooth muscle leading to narrowing the airways, and obstructing the airflow. Narrowing of airways can also be affected by inflammation, edema and peribronchiolar fibrosis that can both distort and narrow the airways. (The National Lung Health Education Program Executive Committee, 1998: 127). COPD accentuates many of the physiologic changes associated with aging and results in airway obstruction (in bronchitis) and excessive loss of elastic lung recoil (in emphysema) so lead to airway obstruction and followed by airway resistance, reduced elastic recoil of the lung. The presence of respiratory muscle (RM) dysfunctions in response to increased workloads are altered length – tension muscle fiber relationships, malnourished states, and altered cellular environment in COPD. RM dysfunction, weakness, or fatigue – particularly of the inspiratory muscles- in turn can lead to sequelae such as dyspnea, hypoventilation tissues, respiratory failure with metabolic acidosis, and death (Breslin, 1996: 271).

The result is a mismatch between alveolar ventilation and blood flow or perfusion, leading to impaired gas exchange PaO_2 less than normal, CO_2 in blood more

than normal because of CO_2 cannot exclude, $PaCO_2$ more than normal and lead to ventilation failure (Phunkasame Jareanpun, B.E.2534: 75 – 76).

Severity of Disease

Severity of disease had different categories as follow :

American Lung Association used ability in activities to define the degrees of severity appears. The degree of physical impairment accompanying COPD varies greatly, and may be classified into 5 classes (or level) (American lung association, 1975 cited by Somchit Hanucharunkul,B.E. 2536: 240-241). Here are the 5 levels.

Class I: Patients with recognized disease with no restriction; is able to do what peers can do; and continues usual life pattern.

Class II: Patients with minimal or moderately restricted activity; is able to do productive work; has some difficulty keeping up with peers and has begun to modify life pattern; and walking on level ground and up stair or sligh hill slower than people of the same age.

Class III: Patients with markedly restricted activity; is not homebound; may not be able to do productive work but is able to care for him self ; can not walk on level ground as others of same age; dyspnea is present while walking up one flight of stairs; and step and rest while walking up two fights of stairs.

Class IV: Patients with severely restricted activity; is not able to do productive work; is essentially homebound but is able to care for himself; stop for breath after walking about 100 yards or after a few minutes on the level; and stop and rest while walking up one flight of stairs.

Class V: Patients with very severely restricted activity; is homebound or in an institution; is not able to care for himself; too breathless to leave the house; or

breathless on dressing or undressing; dyspnea is present after the person walks more than 4 to 5 minutes at own pace on level ground.

American Thoracic Society (1991) staged severity of COPD.on the basis of the degree of airflow obstruction. Three levels (classes) of functioning were defined:

Stage I is $FEV_1 \geq 50\%$ predicted

Stage II is FEV_1 35 – 49% predicted

Stage III is $FEV_1 < 35\%$ predicted

Patients with $FEV_1 \geq 50\%$ predicted do not usually have severe hypoxemia, and arterial blood gas measurements are not required. Patients in stage II and III should have arterial blood gas measurements breathing air, and the oxygen and carbon dioxide tensions should be stated.

European Respiratory Society categorized COPD patients based on FEV_1. Three levels (classes) of functioning were defined:

Mild stage is $FEV_1 \geq 70$ % predicted

Moderate stage is FEV_1 50 – 69 % predicted

Severe stage is $FEV_1 < 50$ % predicted

British Thoracic Society used the degree of airflow to define the degrees of severity appears by Forced Expiratory Volume. Three levels (classes) of functioning were defined:

Mild stage: Clinical state: Smoker's cough, but little or no breathlessness. No abnormal sign. Results of measurements: FEV_1 60 – 79 % predicted, FEV_1/ VC and other indices of expiratory flow mildly reduced.

Moderate stage: Clinical state: Breathlessness (± wheeze) on exertion, cough (± sputum) and some abnormal signs. Results of measurements: FEV_1 40 – 59

% predicted, often with increased FRC and reduced Tlco (diffusing capacity for carbonmonoxide or gas transfer factor). Some patients are hypoxaemic but not hypercapnic.

Severe stage: Breathlessness on any exertion. Wheeze, cough are prominent. Clinical overinflation usual, plus cyanosis, peripheral edema and polycythemia in some. Results of measurements: $FEV_1 < 40$ % predicted with marked overinflation. Tlco is variable but it is often low. Hypoxaemia usual and hypercapnia in some.

Life Satisfaction in COPD Patients

The meaning of life satisfaction

Oxford American Dictionary (1980) gave the meaning of life satisfaction as the fulfillment of needs, expectations, wishes, and desires

Ferrans & Powers (1985 cited by Zhan, 1992: 796) defined life satisfaction as an important barometer for determining the quality of life

Neugarten, et al. (1961:134) defined life satisfaction as a good feeling and a symbol of quality of life.

Cantrill (1965 cited by Zhan, 1992: 796) defined and measured life satisfaction as the perceived discrepancy between aspiration and achievement.

Campbell (1976 cited by Zhan, 1992: 796) defined life satisfaction as an experience of feeling or affect.

In this study life satisfaction's meaning was based on Neugarten, et al.' s concept . Neugarten, et al (1961)'s concept of life satisfaction was used in measuring life satisfaction of the elderly. Most COPD patients were elderly and their experiences

about life were similar to those of the elderly. Neugarten, et al. categorized characteristic of person who perceived life satisfaction into 5 subconcepts : *zest* , *resolution and fortitude,congruence between desired and achieved goal* , *self – concept, and mood tone* .

Therefore, life satisfaction is an importance indicator in assessing quality of life in COPD patients. Chronic illness such as COPD can affect a person's mind, life pattern and life satisfaction. Here are some examples of these effects.

1. Zest: The patient will decrease happiness in their life pattern . Oxygen inadequate and malnutrition were the results of hypoxemia and multiorgan dysfunction leading to many problems such as nutrition. Weight loss and malnutrition are commonly seen with advanced COPD patients because their appetite and eating are reduced. Fatigue, dyspnea, bronchodilator and steroid can reduce food consumption and cause fluid retention (Mc Cauley & Weaver, 1989: 91). Malnutrition frequently occurs in COPD patients leading to increase their mortality (Jarunee Warahut, 1999: iv). Sleep disturbance and daytime somnolence also occurs in patients with COPD. All responses occur because of dyspnea, anxiety, restlessness, coughing or medications such as theophylline, and catecholamine. These medications can stimulate the nervous system, then COPD patients are not drowsy during their sleeping time. This leads them to be more fatigued. Chronic lung disease may impair sexual function and affection expressions. Others physical causes of sexual dysfunctions include hypoxemia, inadequate cardiopulmonary reserve, coughing, wheezing, and effects of some medications. Psychological responses including anxiety, depression, repression of emotions, social isolation, and diminished self

esteem also have detrimental effects on sexual function (Campbell, 1987; Timms, 1982 cited by McMahon, 1992 : 271).

2. Resolution and fortitude: COPD directly affects the physiology and psychology. COPD is an irreversible condition (Smeltzer & Bare, 1996: 571) including reduced activities ability. Because COPD patients had to save their energy, they might feel hopeless. They perceived that their life had obstacle, failure, low satisfaction and little meditation.

3. Congruence between desired and achieved goals: Fatigue was found in COPD patients. Fatigue is at the end of one' s strength. Fatigue is weariness in body and mind, inert and low anxious (Jason- Bjerklie,et al., 1986: 155). Fatigue occurred because of varies causes such as chronic hypoxemia and chronic dyspnea. Sleep pattern and rest was dysfunction (Suchittra Learnamonlerd, B.E. 2537: 338). So, the patients can perceive that they can do nothing because of a lack of accomplishment and enthusiasm.

4. Self-concept: COPD has some negative impacts on the patients, especially on their self – concept. Here were some examples.

4.1 Powerlessness occurred when COPD patients perceived that they could not control their lives. They could not have ordinary activities to achieve their goals. They also had to go along with others' or act with other guidelines. They were not encountering accomplishment, and their level of life satisfaction was decreased because of dyspnea (Penchun Sareewiwatthana & Jarunee Warahut, B.E.2541: 24). When they could not control, they abandon to attempt in controlling their illness (Prokong Intrasombat, B.E., 2536: 16).

4.2 Loss of body image: COPD patients frequenly have body changes such as barrel chest, cough, and sticky sputum. Dyspnea symptoms can present all the time in the public. Some patients had to spray medications in the public. They felt that they were abnormal if compared with others. They may feel disgraceful considered by others. They had low self-esteem. As a result, the patients avoid participating in a society. Changes in body image often creates anxiety, self-distortion, self – deprecation and mourning for a loss (Valentine, 1995:221).

4.3 Loss of role

4.3.1 Family role: For several times human often act many roles. When illness creep up on that patient, his role was grow. A patient will have conflict in his role if he could not adapt (Netrnapa Tingmmai, B.E.2541: 2). Symptoms of COPD have some impacts so the spouse could not shoulder responsibility in the family and perform sexual intercourse as usual (Suwakon Kurat, B.E.2539: 2). Father or mother cannot take their children to tour or relax so they perceived unsatisfied, they felt guilty owing to lack of family care. On the contrary they became burden for their families, So, conflict occurred. Then, they were moody and often were angry (Jindawan Udompattanagarn, B.E. 2539: 31). Moreover, caregivers have to increase free time to take care of their patients.

4.3.2 Occupation role: When illness was present, COPD patient may move to new position not to exert oneself or lost energy, no dust or chemical substance part or change new working or premature retirement (Jaruwan Manasurakarn, B.E. 2535: 36) then the economic was effected by loss of job. Some patient usually had to take leave of absence for treatment or follow up then they were

become to be weakly person among others and did not strong extremely may not progress in job.

4.3.3 Society role: COPD patients had to change their life patterns such as dropping activities, dropping getting out of their home for avoiding irritant airway substance example dust, smoke. So, they impaired social interaction (Jaruwan Manasurakan, B.E.2535: 35).

5.Mood tone: The impact was affect to their emotion such as

5.1 Stress: Chronic illness is a major life crisis, particular COPD that changes must be made in the way of life including: learning how to use essential instrument in treatment, controlling symptoms, and extra preventing. Moreover, low self esteem and feeling threatened can lead to stress so it will affect their quality of life and life satisfaction.

5.2 Anxiety. COPD patients must frequently get in – out the hospital, so they may become even more withdrawn and isolated in relationships with family members. In addition, illness can also cause anxiety about expenses for treatment each day, and about daily living life in the family members. If the impact of anxiety is large, patients will be more in serious condition; may be stay in a hospital more times because an individual ′s perception of dyspnea intensity has been correlated with the level of anxiety by stimulating cathecolamine and adrenocorticotrophin to release from endocrine glands, passing sympathetic nervous system resulting in increase metabolism rate, respiratory rate, pulse rate, oxygen needed and carbondioxide.

5.3 Depression. COPD patients, who lived with chronic dyspnea, were hopeless and depressed. Furthermore, there were several problems which he must confront such as loss of ability in activities, lay out of work, family role disturbance,

thinking of death in the future and uncertainty. Fatigue is one of the causes of depression. Therefore, most COPD patients were sleepless; felt bored with meals; isolated themselves from a society and had slow response to environments.

Owing to, life satisfaction is necessary for living life and all human need to be owner it with life. Although, the person who has been being during in chronic illness but they can satisfied thus it should study factors influencing to life satisfaction.

Health locus of control in COPD patients

Health locus of control was defined as the degree to which individuals perceive health status as a consequence of their own actions or unrelated to their own behavior (Lau & Ware, 1981). Wallston, Wallston, and DeVellis (1978) identified three dimensions of health locus of control: internal control, external control by powerful others, and external control by chance or luck. Internal health locus of control (IHLC) is the extent to which individuals believe that personal behavior directly affect health. Powerful others health locus of control (PHLC) is the degree of belief in health professionals, family members, or other individuals as having major impact on health status. Chance health locus of control (CHLC) reflects belief in health as being due primarily to luck or good fortune. The health locus of control concept was derived from Rotter's (1954) social learning theory and reflects generalized expectancies for control of reinforcement (Pender, 1985:68)

Thus, health locus of control in COPD patients based on Wallston, et al. ' s concept was as follows:

1. Internal locus of control: It is a belief that COPD patients hold. They believe that their healths are controlled by themselves. Therefore, they always

exercise, and perform lung rehabilitation. They also believe that exercise and lung rehabilitation can improve their lung capacity. They also carefully select their consumption behavior. They are careful in using medication concentration; concerning about their follow up; always being active in information seeking such as asked healthcare providers or get information fromTV. , radio, book, magazine, signboard and sheet. They use some coping techniques such as meditation, reading Dharma books or participating religious activities.

2.Powerful others health locus of control. It is a belief of COPD patients who believe that health care providers can control their health. They regularly follow up because they think that they will be safe in healthcare provider caring; attend health care provider' s suggestion; and perform any activities based on health care provider's suggestions. For example, a physician can make a decision for COPD patients. They also depend on their family members in preparing drugs, taking them to the hospitals.

3. The chance health locus of control is the belief of COPD patients who suffer from COPD, and they believe that the health or illness may be caused by chance, fate, or spiritual powers. The natives in Northern believe that there are 3 kinds of causes (Prayong Limtrakul,et al,B.E. 2536: 4).

3.1 Natural causes

3.1.1 There are four elements of human body including earth, water, air and fire. There are also two additional elements: etherous element of the air and thoughtful feelings. All of these elements must be balanced. They also related to each other. For instance, those who are suffering from less water element will have pulmonary disease, and they are treated by local medicines or indigenous medicinal herbs.

3.2 Preternatural causes

3.2.1 Man causes it – power in believing that illness comes from complicated power which cannot be found by natural cause and it is the power of occultism to attack other persons very serious in Lanna region where native people called " Too" which the person received becomes death.

3.3 The supernatural causes

3.3.1 An illness is influenced by ghosts such as a ghost of an individual who died by violent death, a ghost which the sourcer entertains in his house, or good ghosts (such as the ancestor ghosts, or guardian ghosts particularly a guardian spirit of the house). If someone has done something wrong that person will become ill or have chronic fever which could not be cured by modern medical doctors until the patient makes a request of forgiveness and ask to get rid of sickness from a house spirit.

Moreover, Lanna people believe that any individual who performs something considered being wrong for a spirit of the house, of the forest, of the town or to the teacher could be sick.

3.3.2 For the fate. If someone is in the period of bad fate, which has 3 levels, they must perform the ceremony of sending away a bad fate or "Than". According to Lanna bible, doing wrong to the supernatural beings which are the ancestors of human beings (or grandfather "Than"- grandmather "Than") can cause a person to be ill.

3.3.3 The cycle of Kama comes from what the person had done in the previous life and this life according to the Buddhist belief depending on the Kama cycle to decide. Some COPD patients invite Buddhist monks to pray the sacred

Thama around that person. If the patients die, they have come to their ends of Kama, no one could help or do any thing to safe their lives.

3.3.4 The attack comes from supernatural causes which are the continuity of being born from the forefather "Than" and foremother "Than" who made an agreement with "Than parents" that the newborn person will give alms to "Thans" at the appointed ages, but human being forgot the agreement, "Thans" will try to warn them if they do not follow the agreement, "Thans" will make them die, and they must do the ceremony of life continuity (called extend ages) which is the way to protect life.

3.3.5 Being frightened would cause the person to be ill, and the way to cure is to call back the protecting spirit and at the end of ceremony, the patient must be fastened by white thread on his both wrists of his hands (Manee Phayomyong, B.E.2529: 203)

So, COPD patients may believe that there are 3 powers controlling the health. This believes will highlight the result of the consequence to feed back to his good health. If he/she could not adjust his/herself supported by appropriate action will result to the satisfaction of his/her life. As Wallston, Maides & Wallston (1976) pointed out, persons who seek information regarding health usually have health maintenance as their desired goal. Therefore, health locus of control may influence perceived physical well being and affect satisfaction with life. Felton & Kahana (1974) found that locus of control orientation and degree of life satisfaction were highly correlated in nursing home residents (Laborde & Powers, 1985:184).

Health Behavior in COPD Patients

The meaning of health behavior

Gochman (1982 cited by Glanz,et al.,1990: 9-10) proposed that a working definition of health behavior should include not only observable, over actions but also the mental events and feeling states that could be reported and measured. His definition included the determinants of behavior as well as behavior itself such as beliefs, expectations, motives, values, perceptions, and other cognitive elements.

Kasl & Cobb (1966 cited by Glanz,et al.,1990:10) reported that health behavior was any action of a healthy individual without any signs of sickness, along with the belief that it should give him good health with an aim of disease prevention .

Prapapen Suwan (B.E.2527: 97) defined the meaning of health behavior in the same way as general behaviors, but focused only on health characteristics including internal and external of an individual . It also included both noticeable and non- noticeable actions.

Somsaung Lukpoua & Saungkoue Duangcumsawat (B.E.2540: 9) defined the meaning of health behavior as a characteristic of an individual which should be performed by using knowledge, comprehension, attitude and suitable health behavior.

In sum, health behavior is the performance and mental status of a person in conducting or not conducting something that may affect his health. An individual will use his knowledge, comprehension, attitudes and suitable health behaviors for maintaining health status.

Health behaviors in COPD patients are actions or daily activities that may control and prevent complications, and maintain health status. In the following review literature, suitable health behaviors in COPD patients were summarized.

1. Exercise and lung rehabilitation: If people with COPD were in a stable condition, they should perform the exercise. Suitable exercise can help patients to increase functional capacity of cardiovascular and respiratory systems and to strengthen body muscles, particularly respiratory strengthen muscle. Most COPD patients were afraid of dyspnea after exercising. This was due to their pathology. During exercise, hypoxia, hypercapnia and metabolic acidosis increased. Concerning a type of exercise, low asthmogenic exercise (such as swimming, taking a walk, exercising with trot) is more appropriate. COPD patients should perform this kind of exercise for 15 –25 minutes, 3- 5 times a week. However, COPD patients should terminate their exercise if they have difficulty in breathing; perceive more huffing puffing; and tremble (Suphree Suwanjutha & Pisan Laderudeeporn,B.E. 2541: 819).

Lung rehabilitation should be emphasized in training respiratory muscles by training lower thoracic muscle, abdominal muscle and diaphragm in order to reduce dyspnea symptoms due to alveolar collapse during expiratory phase.

Pursed – lip breathing is also good for COPD patients. It can slow respiratory rate; increase alveolar ventilation; increase tidal volume and reduce functional residual capacity resulting in better gas exchange (Suwannee Jarungjitaree & Somchai Bawonkitti, B.E. 2531: 301).

2. Food consumption: Malnutrition is commonly seen with advanced COPD patients. It is also one of the cause of respiratory muscle fatigue and dysfunction (Punkaseam Jareanpun, B.E. 2535: 296). Protein and energy substance deficiency was a risk for respiratory infections (Wichai Thunpaichit, B.E.2531: 95). Fat is an appropriate kind of food for COPD patients. Fat provides essential energy and fatty acids. Fat uses least oxygen, and conduces least carbondioxide in the metabolism

process. Carbohydrate may have impact on people with COPD because it produces more carbondioxide than others do. However, carbohydrate steel supports sufficient calories for the patients.

For COPD patients an appropriate proportion of food is that half of the calories should come from carbohydrate (Pukaseam Jareanpun, B.E. 2535: 96). Patients with COPD should consume a varity of them (Jarunee Warahut, 1999: 18). The patients should be offered frequent, small meals rather than large meals (Black & Jacobs, 1993:1031). They should avoid some kinds of food, which can produce gases such as bean, pepper, Coca-Cola. Those gases can lead to difficulty in breathing for COPD patients. In addition, they may cause peptic ulcer. Moreover, they should avoid alcohol or caffeine such as tea and coffee. They should take water 2-3 lit/day for dissolving sputum and preventing dehydration.Finally, they should avoid cool drink because it lead to coughing and increasing sputum (Ajchara O- prasertsawat, B.E. 2531: 11).

3.Emotional management: COPD is a chronic illness. Although, it was not fatal dead but it interfered role and daily living. Patients with COPD may encounter feeling of panic, frustration, and anxiety related to their dyspnea symptoms (Dow, 1997:419). A study in patients with COPD indicated that changes in emotional functioning was an important factor affecting their quality of life (Gyyatt, et al.1987 cited by McMahon, 1992:267). COPD patients who frequently faced stressful events would present dyspnea synptoms more than those who rarely encounter these stressful events. Anxiety and depression lead to acute dyspnea (Gift &Cahill, 1989 cited by McMahon, 1992: 267). Appropriate emotional management such as talking about their problems, meditation, and relaxation techniques including biofeedback, imagery and

progressive muscle relaxation have been shown to be helpful in relieving these emotions (Giff, Moore & Soeken, 1992 cited by Dow, 1997:419). EMG biofeedback and progressive muscle relaxation can affect on anxiety and dyspnea by decreasing their anxiety and dyspnea in COPD patients (Doungrut Wattanakitkrileart, BE 2541: v).

4. Treatment management: Follow up is essential for COPD patients. They need to have continuing treatment. In addition, they should seek information from many resources such as health care providers, and mass media such as radio, TV. and health journal. Common medications use in the treatment of COPD include brochodilators, antihistamines, steroids, antibiotics, expectorants and mast cell membrane stabilizers (Black&Jacobs, 1993:1031). Therefore, they should know details of these medications such as the name, dose, property, and side effect. They should use metered dose inhaler (MDI) correctly because it was complicated equipment. The correct drug use can lead to effective treatment (Suchai Jareanrattanakul, et al.,BE 2541:797). They should not add or reduce doses of the drugs by themselves. Moreover, COPD patients should know first aid care when acute dyspnea occurrs such as trying a fowler position, sitting up for comfortable ventilation, pursed lip breathing, spraying bronchodilator and absolute bed rest. If the symptoms are not released, they should go to hospital.

5. Preventing complication: People with COPD should learn how to prevent the complications by avoiding irritants. COPD patients should avoid what irritants causing dyspnea and respiratory infection. Chronic infections lead to destroy irreversible lungs (Witsanu Thamlikitkul, BE 2531: 129). Controlling infection is important step to avoid disease progression (Phipp & Bracia, 1995:1123). They should

avoid to be close to other respiratory patients. Changing in climate such as temperatures and humidity can stimulate dyspnea. Dyspnea usually occur at night (Kurtyod Chalayanadaycha, BE, 2535: 253). Thus, they should keep themselves warm when they expose to cool airs and avoids pollution and occupational exposures (coal, cotton, grain). Smoking cessation is an essential step for prevention COPD because it will irritate airways; increase destroying alveolar leading to increase severity the disease.

Appropriate health behavior is important and essential for people with COPD. The disease was interfering daily living life. Brown,et al.,(1981:1137) stated that poor health might affect satisfaction, good health promote satisfaction. Therefore, people with COPD should have proper health behavior continuously. The aim of proper health behavior is to maintain health status, then happiness and life satisfaction will improve.

Factors that Affect Life Satisfaction in COPD Patients

In this study many factors that might influence life satisfaction in COPD patients were reviewed in the following paragraphs.

1.Marital status: Marital status is one of the factors that influence living life, particularly in perception, thinking, belief, and life style. People who had couple usually perceived high self esteem; had people for cheering up; perceived high enthusiasm; and perceived life satisfaction when compared with individuals who were single, widow, divorced (Areerat Ulis, BE 2535: V). Those individuals often perceived low self esteem (Wanrawee Uckanit, BE 2534:9).

2.Income: Income is a factor for living that can satisfy a person's basic needs in order to have a good life (Orem, 1985:175). Edwards & Klemmack (1973: 497) found that socioeconomic status was positively associated with life satisfaction. A person who had sufficiency income or saves enough money satisfied with life more than an individual who had not enough income. Difficulty in paying cost was negatively correlated with well – being in COPD patients (Kesarin Srisanga, BE.2534: V).

3.Duration of disease: COPD is slowly progressive (Punkaseam Jareanpun cited by Sochai Bawonkitti & Nuntha Maranate, B.E. 2531: 290). People with COPD perceived that they were always ill because of dyspnea. COPD patients might perceive that dyspnea interfered their role and life pattern all the time (day/year/ ten years / twenty years.... over the life). As a result, COPD patients felt stressful and were maladaptive. Patients might have low motivation to confront with illness, then it affected life satisfaction (Jaruwan Manasurakarn, BE 2535: 38 –39).

4. Severity of disease: Severity was an indicator of health status, when chronic illnesses were worse that lead to uncomfortable, limited in activity (Kesarin Srisanga, B.E. 2534: 20). It was found that increased severity of disease affected ability in activity of COPD patients level IV. In addition, severity of disease affected patients in confronting oxygen inadequacy, decidement and confronting problems.

The Relationship between Health Locus of Control, Health Behavior and Life Satisfaction

Life satisfaction is important for a person. If a person had to live with chronic illness, his life satisfaction level would be uncertain depending on many factors. Two of the major factors were health locus of control and health behavior.

Health locus of control is a factor influencing life satisfaction. Many studies have shown the relationship between health locus of control and life satisfaction. Here are some examples.

Brown, et al. (1981) explored life satisfaction and chronic illness. They recruited both COPD patients and CAD patients. They found that compared with CAD patients, health locus of control, that variable was virtually useless as a predictor of life satisfaction for CAD patients. It exerted a moderate influence on the life satisfaction of persons with COPD, it was the externally oriented not the internally oriented, who were more satisfied with life.

Palmore & Luikart (1972 cited by Laborde & Powers,1985 : 188) found that internal control was positively related to present life satisfaction in elderly because of the tendency of internally oriented individuals to engage in lifestyles that provide more satisfying experience.

Laborde & Powers (1985: 187) found that life satisfaction was significantly associated with internal locus of control in peoples with osteoarthritis.

So, it might be concluded that health locus of control was related to life satisfaction. COPD is irreversible but patients can lived well with disease by preventing and controlling complications and severity of disease.

Though few studies about the relationship between health behavior and life satisfaction have been conducted, some findings should be proposed.

Somchit Hanucharurnkul (1988: II) found that self-care was directly related to quality of life. It also was the best predictor of quality of life in adult cancer patients receiving radiation therapy.

Kesarin Srisanga (B.E. 2534) found that self-care practice was the only significant predictor of well – being in patients with COPD.

Huang Jin (1996: IV) found that self-care agency was moderately positively associated with quality of life among Chinese elderly with NIDDM.

As mentioned in the prior related literature, it could be concluded that life satisfaction depended on a situation and an individual. The factors influencing life satisfaction were health locus of control, health behavior, marital status, income, duration and severity of the disease. Patients should develop and maintain their life satisfaction, which is an important force that brings happiness and well being to them. Among these earlier studies, there is no study investigating those variables in COPD patients. Therefore, the researcher is interested in examining them, and the results will be used as a guideline in nursing to enhance life satisfaction in COPD patients.

CHAPTER III

METHODOLOGY

Research Design

A descriptive design was used in this study to investigate health locus of control, health behavior and life satisfaction of patients with COPD.

Population and Sampling

The population of the study was a group of COPD patients who attended the out- patient COPD clinic and general medical clinic at Phrae Hospital.

A sample of 180 COPD patients was selected by a purposive sampling technique. The sample size was calculated based on the principle of Thorndike (1978 cited by Verran & Ferketich, 1989:561). The formula was as follows:

$$n \geq 10k + 50$$

when n = number of the samples

k = number of independent variables

There were 8 independent variables in this study including marital status, income, duration and severity of the disease, internal health locus of control, powerful others health locus of control, chance health locus of control and health behavior.

Then $n \geq 10 \times 8 + 50$

$n \geq 130$

By using the above formula, the sample size should be at least 130 COPD patients. For this study research data was collected 180 of COPD patients.

In order to be recruited in this study, COPD patients should meet the following criteria.

1. Being diagnosed as having COPD with clinical signs and symptoms (such as dyspnea)

2. Having clear progression for at least 3 months

3. Not having any complications such as heart disease, hypertension and pneumonia, which could have some effect on their life satisfaction.

4. Having severity of disease less than level IV.

5. Living in Phrae.

6. Being able to comprehend verbal communication.

Setting

The setting of this study was Phrae Hospital, which is regional and general hospital in the northern part of Thailand. Phrae Hospital is a general hospital of 400 beds. This hospital services all types of patients such as, medicine, surgery, pediatrics, and gynecology, etc.

There is a COPD clinic, which is opened between 1.00 – 3.00 p.m. on Tuesday, and a medical clinic opened between 08.00 – 12.00 am. on Monday to Friday. The number of COPD patients in Phrae hospital was 1,843 patients in 1998.

Instrumentation

The instrument used in this study consisted of four parts.

Part I: Demographic data questionnaire consisted of questions about gender, age, marital status, level of education, family income, income, duration and severity of the disease.

Part II: The health behavior questionnaire was developed by the researcher based on the literature review consisting of 25 items. The 25 items were grouped into 5 subscales.

1. Exercise behavior and lung rehabilitation behavior consisted of five positive questions (No.1-5).

2. Food consumption behavior consisted of 5 items. The items included two positive questions (No. 7and 10), and three negative questions (No.6, 8 and 9).

3. Concerning about treatment behavior consisted of 5 items. Four items were positive questions (No.11, 12, 13 and14) and one item was a negative question (No.15).

4. Prevention complication behavior consisted of 5 items. There were three positive questions (No.16, 17 and 19) and two negative questions (No. 18 and 20).

5. Emotional management behavior consisted of 5 items. The items included three positive questions (No.21, 22 and 25) and two negative questions (No. 23 and 24).

Each item was rated on a four – point likert scale that included always, often, sometimes and never.

"Always practice" was defined as the patients performed this behavior regularly/everyday/ every time.

"Often practice" was defined as the patients performed this behavior mostly/frequently.

"Sometimes practice" was defined as the patients rarely performed this behavior.

"Never practice" was defined as the patients never performed this behavior.

All items were to summed to get a health behavior score.

Answer	Score rating for	
	Positive question	Negative question
Always	4	1
Often	3	2
Sometimes	2	3
Never	1	4

The interpretation of the score is defined into 4 levels.

$\bar{X}$ = 1.00 – 1.49 was defined as a poor health behavior.

$\bar{X}$ = 1.50 – 2.49 was defined as a fair health behavior.

$\bar{X}$ = 2.50 – 3.49 was defined as a good health behavior.

$\bar{X}$ = 3.50 – 4.00 was defined as an excellent health behavior.

Part III: The health locus of control scale was developed by the researcher based on Wallston, et al., (1978) consisting of 18 items. There were three subscales.

Internal Health locus of control consisted of 6 items (No. 1, 6, 9, 12, 13, and17).

Powerful others Health locus of control consisted of 6 items (No. 3, 5, 8, 10, 14, and 18).

Chance Health locus of control consisted of 6 items (No. 2, 4, 7, 11, 15, and 16).

The health locus of control scale was a rating scale questionnaire. The response was rated from 1 (disagree), 2 (uncertain) to 3 (agree).

"Agree" was defined as the statement corresponds to the patient's belief.

"Uncertain" was defined as the statement sometimes corresponds to the patient's belief.

"Disagree" was defined as the statement does not correspond to the patient's belief.

The mean score from each sub scale was compared to each other. A sub-scale, owing the highest mean scores indicated that a patient had that kind of health locus of control.

The researcher divided the optimal total scores of the health locus of control and the subscales of health locus of control into 3 equal levels, namely high, moderate and low levels.

The criteria used to divide the scores into three kinds of degrees is as follows:

$\overline{X} = 0.00 - 1.67$ was defined as a low level of health locus of control.

$\overline{X} = 1.68 - 2.35$ was defined as a moderate level of health locus of control.

$\overline{X} = 2.36 - 3.00$ was defined as a high level of health locus of control.

Part IV: Life satisfaction questionnaire consisted of 20 items. It was modified to be a rating scale by the researcher based on Neugarten, et al.'s (1961) life satisfaction rating scale. There were five subscales.

1. Zest consisted of 4 items. The items were two positive questions (No. 6 and 16) and two negative questions (No.1, and 11).

2. Resolution and fortitude consisted of 4 items. The items were three positive questions (No. 7, 12, and17) and one negative question (No. 2).

3. Congruence between desired and achieved goals consisted of 3 items. The items were two positive questions (No. 3, and13) and one negative question (No. 8).

4. Self-concept consisted of 4 items. The items were two positive questions (No. 4, and 14) and two negative questions (No. 9, and18).

5. Mood tone consisted of 5 items. The items were three positive questions (No. 5, 10, and19) and two negative questions (No. 15 and 20).

Each item was rated on a three-point scale, which was agree, uncertain, and disagree.

"Agree" was defined as the statement corresponds to patient's feelings and concern.

"Uncertain" was defined as the statement sometimes corresponds to patient's feelings and concern.

"Disagree" was defined as the statement does not corresponds to patient's feelings and concern.

Answer	Score rating for	
	Positive question	Negative question
Agree	2	0
Uncertain	1	1
Disagree	0	2

The researcher divided the optimal total scores of the life satisfaction and the subscales of life satisfaction into 3 equal levels, namely high, moderate and low level.

The criteria used to divide the scores into three kinds of degrees was as follows:

$\overline{X}$ = 0.00 – 0.67 was defined as a low level of life satisfaction.

$\overline{X}$ = 0.68 – 1.35 was defined as a moderate level of life satisfaction.

$\overline{X}$ = 1.36 – 2.00 was defined as a high level of life satisfaction.

Validity

1. The content validity of the health locus of control questionnaire was examined by 4 experts: a faculty member of public health experienced in health behavior, a faculty member of social sciences and human science experienced in health behavior, a specialist in psychology and a faculty member of nursing who had experience in respiratory care.

2. The content validity of health behavior questionnaire was checked by 4 experts: a medical doctor who was a specialist in respiratory disease, a faculty member of public health experienced in health behavior, a faculty member of nursing who had experience in respiratory care and a faculty member of nursing who had an experience in health behavior.

3. The content validity of life satisfaction questionnaire was examined by a psychologist, a specialist in psychology, a faculty member of nursing who had experience in mental health and psychiatry and a faculty member of nursing who had experience in respiratory care.

4. Moreover, before collecting the data, the investigator was trained by a specialist in respiratory medicine in order to evaluate the severity of the disease in COPD patients.

Reliability

After all the instruments were revised based on the content experts' recommendation for clearer content and language suitability, they were tested in a group of 30 COPD patients. These patients were similar to the sample group used in this study. Cronbach ' s alpha coefficient was used to examine the reliability of each scale .The results were as follows:

1. The reliability of the health locus of control was 0.83.

   The internal health locus of control was 0.85.

   The powerful others health locus of control was 0.87.

   The chance health locus of control was 0.84.

2. The reliability of the health behavior was 0.80.

3. The reliability of the life satisfaction was 0.84.

Data Collection

The investigator collected the data based on the following steps.

1.The introduction letter from the Graduate Office of Mahidol University was presented to the director of Phrae Hospital for permission to collect the data. In addition, the researcher explained the research objectives, the details of data collection to the head nurses and the head of the COPD division for their cooperation.

2.The investigator selected the patients in advance from Out Patient Department (OPD) cards according to the inclusion and exclusion criteria. The patients were selected from the OPD cards at the OPD division.

3. When the patients met the physician according to their appointment, the researcher introduced herself to the patients; explained the objectives of the research; and asked for their cooperation and their consent for their participation in the study (appendix B).

4. After the patient agreed to cooperate, the researcher collected the data based on the following procedures.

4.1 The researcher asked the patients to answer all questionnaires. The first one was a demographic data; the second was the perceived health behavior, the third was the health locus of control and the fourth was the life satisfaction.

After the questionnaire was completed, the investigator checked the answers for completeness. If there was no answer in any item, the researcher then asked the patients to complete the questionnaire. Finally, the investigator thanked the patients.

4.2 While completing the questionnaire, the patients could ask anything they did not understand.

5. The data from the questionnaires was analyzed by using the statistical techniques.

Protection of Human Subjects

1. Before the interview, the investigator described all the details of the questionnaires to the patients. The investigator asked the patients for their voluntary participation in the study.

2. The researcher interviewed the patients in a private room or an uninterrupted area.

3. The patients could ask any questions during the interview. After finishing the interview, the investigator answered those questions.

4. If the patients wanted to withdraw from the study, or did not want to answer the questions, the investigator would terminate the interview. When the patients had dyspnea, felt fatigued or felt uncomfortable during the interview, the investigator stopped the interview. After the patient improved, the interview continued.

Data Analysis

Statistical Package Social Science (SPSS) was used to analyze the data, and the level of statistical significance was set at .05

1. Descriptive statistics such as percentage and frequency were conducted to describe the demographic data of the subjects.

2. Descriptive statistics such as mean and standard deviation (S.D.) were done to analyze the scores of health locus of control, health behaviors and life satisfaction.

3. Pearson' s product moment correlation coefficient was applied to test the hypothesis examining the relationship between health locus of control, health behaviors and demographic data such as marital status, income, duration and severity of the disease.

4. Stepwise multiple regression was performed in order to test the power of health locus of control, health behavior and demographic data such as marital status, income, duration and severity of the disease in predicting life satisfaction.

CHAPTER IV

RESULTS

This study was a descriptive research to investigate the health locus of control, health behavior and life satisfaction in COPD patients. Purposive sampling was used in recruiting 180 patients, who followed-up at the out-patient departments of medical clinic and COPD clinic at Phrae Hospital. The results of this study were reported in four parts.

Part I: Demographic characteristics were shown in Tables 1 –3.

Part II: Descriptions of health locus of control, health behavior and life satisfactions of COPD patients were shown in Table 4 –6.

Part III: The correlation between marital status, sufficient income, duration of the disease, severity of the disease, health locus of control, health behavior, and life satisfaction of COPD patients was shown in Table 7.

Part IV: The power regression between the predictors such as marital status, income, duration of the disease, severity of the disease, health locus of control, health behavior, and the life satisfaction of COPD patients was shown in Table 8.

Part I :Demographic characteristics

Table 1 Number and percentage of the sample on gender, age and marital status.

Characteristics	Number	Percentage
Gender		
Male	117	65
Female	63	35
Age (years)		
≤ 60	24	13.3
61 – 70	90	50.0
71 – 80	63	35.0
≥ 81	3	1.7
Marital status		
Married	120	66.7
Widowed/ Divorced / Separated	55	30.6
Single	5	2.8

Table 1 showed that the majority of the subjects (65%) were male. Half of them (50%) were 61-70 years old, and most of them (66.7%) were married.

Table 2 Number and percentage of the sample on education level, occupation, family income and sufficient income.

Characteristics	Number	Percentage
Education level		
None	32	17.8
Primary school	133	73.9
Secondary school	10	5.6
Certificate/ diploma	2	1.1
Bachelor degree	3	1.7
Occupation		
No occupation	137	76.11
Occupation	43	23.69
Agriculture	20	46.51
Laborer	10	23.26
Merchant	6	13.55
Government employee / Enterprise officer	3	6.98
Other	4	9.30
Family income (Baht / month)		
< 3,000	146	81.1
3,000 – 5,999	17	9.4
6,000 – 8,999	5	2.8
9,000 – 11,999	5	2.8

Characteristics	Number	Percentage
≥ 12,000	7	3.9
Income		
Not enough	122	67.8
Enough	58	32.2

Table 2 showed that the majority of the subjects (73.9%) graduated from primary school. Most of them (75.6%) did not work. The majority of the subjects had family income less than 3,000 bath/ month. Most of them (67.8 %) identified themselves as having "not enough income".

Table 3 Number and percentage of the sample on duration and severity of disease.

Characteristics	Number	Percentage
Duration of disease (years)		
< 5	139	77.2
5 – 10	92	17.8
>10	9	5.0
Severity of disease		
level 2	31	17.2
level 3	93	51.7
level 4	56	31.1

Table 3 showed that the number of the patients whose duration of disease was < 5 years was 77.2%. The patients who had severity of disease at level 3 were 51.7 %.

Part II: Description of health locus of control, health behavior and life satisfaction in COPD patients.

Table 4 Mean, standard deviation of the sample on the health locus of control scores.

Health locus of control	Mean	S.D.
Powerful others	2.84	.23
Internal	2.60	.46
Chance	2.43	.51

Table 4 showed that the mean scores of the powerful other health locus of control was the highest ($\overline{X}$ = 2.84,S.D.=. 23). The second ranked of the mean scores was that of internal health locus of control ($\overline{X}$ = 2.60,S.D.= .46). Finally, the mean scores of the chance health locus of control was the lowest ($\overline{X}$= 2.43,S.D. = .51).

Table 5 Mean, standard deviation and the interpretation of the mean scores of health behavior of the sample.

Health behavior	Mean	S.D.	Interpretation
Preventing complication	3.85	.25	excellent
Food consumption	3.53	.41	excellent
Treatment management	2.95	.26	good
Emotional management	2.42	.43	fair
Exercise and lung rehabilitation	1.58	.44	fair
Overall health behavior	**2.86**	**.18**	**good**

Table 5 showed that the overall mean score of health behavior of COPD patients was at a good level ($\overline{X}$=2.86,S.D.=. 18). For each sub scale of health behavior, it was found that both preventing complication and food consumption behavior mean scores were at a excellent level ($\overline{X}$=3.85,S.D.=. 25 and $\overline{X}$=3.53,S.D.=. 41). For treatment management behavior, the mean score was at a good level ($\overline{X}$=2.95, S.D.= . 25), while that of emotional management behavior was at a fair level ($\overline{X}$=2.42,S.D.= . 43). Finally, exercise and lung rehabilitation behavior had the mean score at a fair level ($\overline{X}$=1.58,S.D.=. 44).

Table 6 Mean, standard deviation and the interpretation of the mean scores of life satisfaction of the sample

Life satisfaction	Mean	S.D.	Interpretation
Zest	1.34	.45	moderate
Congruence between desired and achieved goals	1.19	.46	moderate
Mood tone	1.14	.37	moderate
Resolution and fortitude	1.13	.29	moderate
Self concept	1.12	.50	moderate
Overall life satisfaction	**1.18**	**.27**	**moderate**

Table 6 showed that most of the overall mean scores of life satisfaction of COPD patients was at a moderate level ($\overline{X}$ = 1.18, S.D. = .27). For each subscale of life satisfaction, it was found that all subscales were at a moderate level "Zest" ($\overline{X}$= 1.34, S.D. = .45), "Congruence between desired and achieved goals"($\overline{X}$= 1.19,S.D.= .46) , "Mood tone" ($\overline{X}$=1.14,S.D.= .37),"Resolution and fortitude" ($\overline{X}$= 1.13,S.D.=.29) and ,"Self concept" ($\overline{X}$= 1.12,S.D.= .50).

Part III: The relationship among health locus of control, health behavior, marital status, sufficient income, duration of disease, severity of disease and life satisfaction of COPD patients.

Table 7 Matrix of correlation coefficient among the variables.

Variables	1	2	3	4	5	6	7	8	9
1. marital	1								
2. income	-.034	1							
3. duration of the disease	.165*	.024	1						
4. severity of the disease	-.115	.193**	.120	1					
5. internal locus of control	.124	.030	.057	.105	1				
6. powerful others locus of control	.117	-.074	.009	.087	-.064	1			
7. chance locus of control	-.009	.079	-.055	.068	.007	.107	1		
8. health behavior	.119	-.164*	-.010	-.187*	.166*	-.075	.058	1	
9. life satisfaction	.021	-.145	-.143	-.290**	-.040	-.074	-.065	.194**	1

* P<. 05, **p<. 01

Table 7 showed that severity of the disease had a negative, significant correlation with life satisfaction (r = -. 29, p < .01) and health behavior had a positive, significant correlation with life satisfaction (r = .194, p < .01). Income and severity of the disease also had a negative and significant correlation with health behavior (r = -. 164, p< .05, r = -. 187, p < .05) but internal health locus of control had a positive and significant correlation with health behavior (r = .166, p < .05). There was a positive,

significant correlation between income and severity of the disease (r =. 193, p<. 01). There was a positive, significant correlation between marital status and duration of disease (r =. 165, p<. 05).

Part IV: The power regression between the predictors which are marital status, income, duration of disease, severity of disease, health locus of control, health behavior, and the criterion which is the life satisfaction of COPD patients.

Table 8 The stepwise multiple regression on life satisfaction.

Step	Predictor	R	R^2	R^2 Change	Adj R^2	b	Beta	SE	t
1.	Severity of disease	.290	.084	.084	.079	-2.291	-.29	.567	-4.041***
	Constant = 30.89								
2.	Severity of disease	.323	.104	.02	.094	-2.078	-.26		-3.630***
	Health behavior					.167	.144		1.995*
Constant(a) = 18.28			Overall F = 10.291				SE = 6.57		

* P<. 05, **p<. 01,***p< .001

Table 8 showed that in the first step of stepwise multiple correlation analysis, the first predictor selected in the equation was severity of the disease, which had the highest relationship with life satisfaction, with the predictive coefficient of .084. It was found that severity of disease could predict life satisfaction for 8.4 percentage at the statistically significant level of .001. In the second step, the second predictor selected in the equation was health behavior. It was found that the predictive

coefficient increased to .104, and the predictor power increased to 10.4 percentage at the statistically significant level of .05. After entering more predictors, it was found that the predictive coefficient change was not at a statistically significant level, so the process of stepwise multiple correlation was stopped. From the analysis by multiple correlation, it was found that the predictors that could predict life satisfaction at the statistically significant level were severity of the disease and health behavior, in which both predictors could predict life satisfaction for 10.4 percentage at the statistically significant level of .05.

Form the predictive equation, it was found that the regression coefficient (b) of the predictors selected in the first and second step were severity of the disease (SD) and health behavior (HB)(at a statistically significant level .05) and the constant (a) was 18.28. From the analysis of regression and the multiple correlation in the second step, the predictive equation in terms of raw score was

Y (Life satisfaction) = 18.28 – 2.078 Severity of the disease +

.167 Health behavior

And the best regression equation in the form of standard score was:

Z (Life satisfaction) = -. 26 Severity of the disease +

1.44 Health behavior

CHAPTER V

DISCUSSION

This study was to determine health locus of control, health behavior and demographic factors such as marital status, income, duration and severity of the disease as predictors of life satisfaction in COPD patients who had been treated at the medical clinic and COPD clinic, out patient department, Phrae Hospital. The explanation according to the objectives and hypotheses of the study was as follows:

Objective No.1 To explore the health locus of control, health behavior and life – satisfaction in COPD patients.

Health locus of control

This investigation found that the mean scores of powerful others health locus of control was the highest ($\overline{X}$ = 2.84, SD. = .23). The second ranked of the mean scores was internal health locus of control ($\overline{X}$ = 2.60, SD.= .46). The chance health locus of control had the lowest mean scores ($\overline{X}$ = 2.43,SD. = .51). This may due to that most of the subjects were elderly (86.7%). Disability, doctor visits, and disease are more prevalent in the elderly and increased therefore they have an use of health care services (Rowe & Besdine, 1982: 3). For the chronically old, ill person, longer life expectancy means periods of disability, vulnerability to other health problems, financial expense, and increased care concerns (Curtin & Lubkin, 1998: 12). As a result, they must depend on others.

In addition, for severity of the disease, more than haft of the subjects were in level III (51.7%). It could be worse at any time. Furthermore, they perceived that their disease was irreversible. People with unremitting dyspnea commonly reported feelings of helplessness, hopeless, and depression. Therefore, patients often felt uncertainty about their symptoms. Their self-confidence was also decreased and they received their expectations from health care providers or family members.

Strickland (1987:1192-1205 cited by Hongtong Assavachananon, B.E.2537: 98) stated that people whose belief in powerful others at high level thought their health could be controlled by health care providers. Therefore, it might be concluded that people who were ill usually believed in powerful others (Angsuma Vitavaveerasak, B.E. 2534: 43). This result supported the study of Arunee Laipasu (B.E. 2541:47) which found that HIV infected people also had the highest mean score of powerful others health locus of control. Internal health locus of control was secondary and chance health locus of control was the lowest. When considering each subscale on health locus of control, the description is as follows:

Internal health locus of control. Internal health locus of control of the subjects in this study was at high level ($\bar{X}$= 2.60,S.D. = .46). When considering each item, the study found that the subjects believed in the highest level in the item " If I take the right actions, I can stay healthy" ($\bar{X}$ = 2.74,S.D.= .48). This means that most of the subjects believed that their personal behaviors directly affected their health. It was shown that the subjects in this study had a responsibility in their health.

Powerful others health locus of control. Powerful others health locus of control of the subjects in this study was at a high level ($\bar{X}$= 2.84,S.D.= .23). When considering each item, the study found that the subjects believed in the highest level in

the items " Having regular contact with my physician is the best way for me to avoid illness" ($\overline{X}$ = 2.92,S.D. = .27) and " When I don' t feel well, I should consult a medically trained professional" ($\overline{X}$ = 2.92,S.D. = .29). The reason for this might be that most of the subjects had a low education while health care providers directly educated the subjects about their health. Thus, the patients trusted health care providers in their suggestions.

Chance health locus of control. Chance health locus of control of the subjects in this study was at a high level ($\overline{X}$= 2.43,S.D. = .51). When considering each item, the study found that the subjects believed in the highest level in the item "No matter what I do, if I am going to get sick, I will get sick"($\overline{X}$ = 2.81,S.D. = .45). Chance health locus of control of the subjects in this study had the lowest mean score when compared with others because some people did not respect in fate or power.

Health behavior

This study found that health behavior of the subjects was at a good level (X = 2.86, SD. = .18). An explanation of this result was that most of the subjects received information and caring from health care providers. They also received knowledge by mean of mass media such as TV and no smoking campaigns. Most of the subjects have COPD less than 5 years (77.2%) and they had experiences of living with COPD. In addition, most of the subjects were elderly (86.7%). When the aging are sick, they are cared for family members such as taking medications, providing suitable food, visiting the doctor and supporting expenses. The government also helped to subsidize their medical expenses. These may result in a good level of their health behavior. When considering each subscale on health behavior, the description is as follows:

Exercise and lung rehabilitation behavior. The study found that exercise and lung rehabilitation behavior of the subjects was at a fair level ($\bar{X}$= 1.58, S.D. = .44). When considering each item, the study found that the subjects were at a poor level in the items "deep breathing and slow breathe lightly > 20 times / day"(pursed lip procedure) (X = 1.26,S.D. = .60), "use abdominal muscle in breathing > 20 times /day"(breathing exercise)(X = 1.07,S.D.= .31) and "before coughing, should deep breath then cough with bringing up sputum" (effective cough) (X= 1.16,S.D.= .60). This may be due to the fact that most of the subjects avoided exercise because they feared that dyspnea might occur (Ampornphun Theranupbud, B.E 2542: 205). In addition, Phrae Hospital did not provide a systemic exercise and lung rehabilitation program for COPD patients. Therefore, the subjects were never recruited to perform this behavior.

Food consumption behavior. The study found that food consumption behavior of the subjects was at an excellent level ($\bar{X}$ = 3.53, S.D.= .41). When considering each item, the study found that the subjects were at a excellent level in almost all items. This may be due that the subjects received information about suitable food from health care providers and their family members provided suitable food for them. Most of the subjects had COPD for less than 5 years (77.2%) and they had experiences of living with COPD. Similarly, the study of Jarunee Warahut (1999) found that COPD patients had good food consumption behavior.

Treatment management behavior. The study found that treatment management behavior of the patients was at a good level ($\bar{X}$ = 2.95, S.D. = .26). This was due to the fact that the subjects received information and caring from health care providers, and they also learned from their own experience such as using medications.

Moreover, their family members cared for them in many aspects such as taking medicine. When considering each item, the study found that the subjects were at a poor level in the item "ask information from the doctor, nurse"($\overline{X}$ = 1.39,S.D. = .71). This may be due to the fact that they were not provided an opportunity to ask questions about their health. In addition, both of the subjects and physicians had obstacles in understanding the language. Because most of the subjects usually communicated with local language, while physicians spoke the official language. Therefore, gaps in communication could be the obstacle in receiving information. These may result in a poor level in this item.

Preventing complication behavior. The study found that preventing complication behavior of the patients was at an excellent level ($\overline{X}$= 3.85, S.D.= .25). When considering each item, the study found that the subjects were at a excellent level in almost all items. This may be due to the fact that the subjects were being diagnosed as having COPD for less than 5 years (77.2%). They had experiences about their disease, already received information and caring from health care providers. They were usually concerned about health practices such as avoiding irritant airway substances and pollution.

Emotional management behavior. The study found that emotional management behavior was at a fair level ($\overline{X}$ = 2.42,S.D. = .43). The reason for this might be that the patients were anxious about their illness, and their ability in performing activity was decreased. The patients had to confront an irreversible life pattern. This affected their human dignity and self esteem. When considering each item, the study found that the subjects were at a fair level in the item " When unhappy, speak one's mind" ($\overline{X}$ = 2.02,S.D. = 1.03) and " talk together with others while

waiting for the doctor" ($\bar{X}$ = 2.19,S.D = .90). This may be due to most of the subjects were male. In Thai culture, men are usually respected as deliberate, firm and being a leader. This may result in the subjects not explaining their feelings to others or they were waiting for their turn to see doctor. So they concentrated on be named more than talking to person. In addition, Phrae Hospital did not provide a private room for individual conversations. The result of this study supported the study of Suwaknon Ku-rat (B.E.2540), which found that COPD patients had a moderate level in stress management.

Life satisfaction

This study found that life satisfaction of the subject was at a moderate level ($\bar{X}$ = 1.18,S.D.= .27). This may be due to the fact they did not have time to develop their mind, emotion, and to participate in society. They lost their activities in their society, and had impaired social interaction. Because they used their time to attending to their symptoms. They had a little time getting together with people of the same age that understood their feelings. They were also unemployed so they felt lonely, and this affected their self-esteem. The result was consistent with the study of Hanestad (1993 cited by Huang, 1996: 62) which showed that 44 % of diabetic patients perceived their disease affected their life situation in a negative way, and they were just fairly satisfied with the psychosocial aspects of their lives. However, they could help themselves by receiving mental support from their family members or society. This may result in a moderate level of life satisfaction. This study is consistent with the study of Kesarin Sirsanga (B.E. 2534:V) which found that mean scores of well being in COPD patients were at a moderate level.

When considering each subscales on life satisfaction the study found that:

Zest. When considering each item, the study found that the mean scores of the items "The things I do are as interesting to me as they ever were" and " These are the best years of my life" were at high levels ($\overline{X}$ = 1.90,S.D.=. 42 and $\overline{X}$ = 1.39,S.D. = .67). This may be due to the fact that subjects were diagnosed as having COPD for less than 5 years (77.2%). In addition, their severity of the disease was in level III (51.7%). The subjects felt that their physical conditions were partially impaired, but they still performed activities.

Resolution and fortitude. When considering each item the study found that the mean scores of the item " My life is happy enough " was at a low level ($\overline{X}$ = .16,S.D.= .49). This may be due to the fact that the subjects perceived their illness as irreversible and it affected their life pattern. They must change their life pattern to fit their illness. The patients must adapt otherwise they might be dejected or bored with their problems. If they felt too fatigued to go on, this affected their life satisfaction and they felt unhappy.

Congruence between desired and achieved goals. When considering each item the study found that the mean scores of the item "When I think back over my life, I did get most of the important things I wanted" was at a low level ($\overline{X}$= .58,S.D.= .89). This may be due to the fact that the subjects perceived their disease as a chronic illness and irreversible. They perceived that they had a little chance to improve their good condition. They also felt hopeless and anxious.

Self concept. When considering each item, the study found that the mean scores of the item "Compared to other people, I get up too often" was at a low level ($\overline{X}$ = .67,S.D. = .89). This may be due to the subjects had many factors that interfered with their life such as the slightest exertion causing exhausting and fatigue, enforced

inactivity (and reversal of family roles due to loss of employment) and an unrelenting disease. Sexual function may be compromised, which also diminishes self esteem.

Mood tone. When considering each item the study found that the mean scores of the items " I did not feel somewhat tried" and " I think about my disease, but it does not disturb me" were at a low level ($\overline{X}$ = .42,S.D. = 80 and $\overline{X}$ = .59,S.D. = .90). This may be due to the subjects worrying about their disease because they had an unrelenting disease. This may cause the subjects to react with anger, depression and fatigue.

Objective 2 To explore the relationships between the health locus of control, health behaviors, marital status, income, duration of the disease and severity of the disease to life satisfaction in COPD patients.

Hypothesis No.1 Health locus of control, health behaviors, marital status, income, duration of the disease and severity of the disease correlated with life satisfaction in COPD patients.

Severity of the disease. The study found that severity of the disease had a negative significant correlation with life satisfaction in COPD patients ($r = -.29$, $p < .01$). This finding completely supported the hypothesis no.1. This may be due to the fact that severity of the disease impaired the ability of COPD patients in performing their daily life activities. They had to depend on others. Patients with a high level of severity of the disease lost their self-image, self-esteem and role function. At the same time, people with a high level of severity of the disease still lost some activities and could not participate in social activities, this affected their life satisfaction. This study was supported with the study of Kesarin Sirsanga (B.E. 2534:V) which found that the

severity of the disorder decreased well being in COPD patients. The study also supported the finding that the severity of body dysfunction had a negative significant correlation with quality of life in myocardial infarction patients (Prapa Ratanametanont(B.E.2532 :IV) . Similarly, the study of Saifon Jubjai,(B.E. 2540:80) and Burckhardt(1985 : 11) found that CAD elderly patients with high levels of body dysfunction had a poor quality of life, and severity of arthritis affected quality of life , respectively.

Health behaviors. The study found that health behaviors had a positive significant correlation with life satisfaction in COPD patients ($r = .194$, $p < .01$). It supported the hypothesis no.1.This may be due to people often take their health behavior as a pattern of their life to maintain their health in order to satisfy their life and well being. Brown, et al.(1981:1137) stated that poor health might affect satisfaction and good health promoted satisfaction. If COPD patients could live well with their disease, they must have suitable health behavior to control or prevent complications of the disease. This study supported the study of Bang-orn Ritudom (B.E. 2536:71) which found that self care behavior had a positive significant correlation with quality of life in cancer patients receiving chemotherapy after mastectomy. The study of Boonsri Nugate (B.E. 2541: 55) also found that there was a moderate positive significant relationship between self – care behaviors and well – being.

Duration of the disease. The study found that duration of the disease showed no statistically significant correlation with life satisfaction in COPD patients. It did not support the hypothesis no.1. This may be due to the fact that most of the subjects were diagnosed as having COPD for less than 5 years(77.2%), and the

severity of disease was mostly at level III (51.77%). They would not develop more severe symptoms or they had enough experience to manage themselves when dyspnea developed. This result supported Charushnikul Yimboonna's study (B.E. 2533: II) which found that duration of the disease show no statistically significant correlation with life style satisfaction in male ischemic heart patients.

Income. The study found that there was no statistically significant correlation between income and life satisfaction in COPD patients. It rejected the hypothesis no.1. This may be due to the fact that most of the subjects were elderly and they did not take responsibility in earning money for their families. This responsibility was a burden of the younger members of the family. Although family income of almost all of the subjects was less than 3,000 bath/month (81.1%) and was not sufficient (67.85), the government subsidized medical expense for them. They did not have any anxiety about their medical expense. This result supported the study of Wilasinee Peawchana (B.E.2541: 93) which found that income did not statistically significantly correlate with the quality of life in the elderly attending diabetic clinic.

Health locus of control was divided into three subscales, internal health locus of control, powerful others health locus of control and chance health locus of control. This investigation found that internal health locus of control, powerful others health locus of control and chance health locus of control showed no statistically significant correlation to life satisfaction in COPD patients and did not support the hypothesis no.1. This may be because of patients with COPD probably had to adjust to many changes in their life style. Symptoms and physical well being were uncertain though the patients performed suitable health behaviors. The patients perceived that they could not control the disease by themselves though they practiced under the

suggestions of physicians and nurses, or believed in chance, power, luck or fate. Nevertheless, they believed in internal, powerful others or chance and the outcomes that made no differences. They did not achieve a high level of life satisfaction. The result of this study supported the study of Brown,et al.(1981 : 1144) which found that health locus of control was not related to life satisfaction of cardiac patients. This was inconsistent to the study of Taylor, Lichtman, & Wood, 1984 (cited by Dirksen, 1990: 630) which found the belief that powerful others could control the cancer was associated significantly with a positive well – being. Felton & Kahana (1974 cited by Laborde & Powers, 1985: 184) found that locus of control and degree of life satisfaction had a high correlation in nursing home residents.

Marital status. This study found that there was not a statistically significant correlation between marital status and life satisfaction in COPD patients. This finding did not support the hypothesis no.1. This may be due to some factors in Thai society such as culture and tradition, especially in Phrae. This was about solicitude and gratitude to their family. Therefore, the married group or single/ widowed/divorced/separated groups were not different because their family members cared them. The result not only supported the investigation of Kesarin Srisanga (B.E. 2534: II), which found that marital status did not correlate to well being in COPD patients but also supported Prapa Ratanametanont's finding (B.E.2532: II) which reported that marital status did not statistically significant correlate to the quality of life of myocardial infarction patients.

Objective No. 3 To explore the power of the health locus of control, health behaviors, marital status, income, duration of the disease and severity of the disease in predicting life satisfaction in COPD patients.

Hypothesis No.2 Health locus of control, health behaviors and demographic data such as marital status, income, duration of the disease and severity of the disease can predict life satisfaction in COPD patients

The result of the study showed that only the severity of the disease and health behaviors can predict life satisfaction in COPD patients. These two factors had the predictive power of 10.4%, at statistically significant level of .05. In the first stepwise multiple regression, the first predictor which had been selected for the equation was the severity of the disease, with the predictive coefficient of .084. This indicated that severity of the disease could predict life satisfaction for 8.4 %($p <. 001$). This may be due to the severity of the disease was a factor affecting the ability in performing activities that lead to low level of life satisfaction. Similary to the study of Niramai Chaitiamwong (1992: IV) which found that severity of illness was the best predictor for quality of life in COPD patients. In the second step of the analysis, the predictor that was chosen was health behaviors. The predictive coefficient was increased to .104, with the predictive power of 10.4%($p < .05$). This was due to the fact that people who had suitable health behaviors tended to have better health. They were satisfied with their lives. This was congruent with the study of Kesarin Srisanga (1991: IV) which found that self care practice was the only significant predictor of well – being in COPD patients. Therefore, COPD patients with lower levels of severity of the disease or COPD patients who performed suitable health behaviors had a higher level

of life satisfaction. The result partially supported the objectives of the study. The other factors such as health locus of control, marital status, income and duration of the disease were not chosen into the predictive equation due to the following reasons:

Health locus of control. Health locus of control could not predict life satisfaction in COPD patients. This means that the difference in health locus of control did not cause a difference in life satisfaction. The types of health locus of control had close mean scores: internal health locus of control ($\overline{X}$ = 2.60,S.D.= .46), powerful others health locus of control ($\overline{X}$= 2.84, S.D. = .23) and chance health locus of control ($\overline{X}$ = 2.43,S.D. =. 51). When interpreted, these were at the same level of life satisfaction. Thus, this variable was rather homogenous. For this reason, the differences in health locus of control did not influence life satisfaction in COPD patients. This was congruent with the study of Brown, et al. (1981:1144) that found the health locus of control variable was virtually useless as a predictor of life satisfaction for CAD patients. This was inconsistent with the study of Laborde & Powers (1985: 188) which found that internal locus of control was related to present life satisfaction in osteoarthritis patients. Brown, et al. (1981:1144) found that health locus of control exerted a moderate influence on the life satisfaction of perople with COPD. It was the externally oriented not the internally oriented who were more satisfied with their lives.

Marital status. Marital status could not predict life satisfaction in COPD patients. Most of the subjects (66.7%) were married. Thus, this variable was rather homogenous. In addition, single/ widowed/divorced/separated lived with relatives, family and received care from them. For this reason, the differences in marital status did not influence life satisfaction in COPD patients. This was similarly to the study of

Somsuk Singhapanjanatee (B.E. 2540: IV) which found that marital status could not predict quality of life in the elderly with essential hypertension. Also, Kesarin Srisanga (B.E.2534: IV) found that marital status could not predict well – being in COPD patients.

Income. Income could not predict life satisfaction in COPD patients. This means that the difference in income would not cause the difference in life satisfaction in COPD patients. Although, 67.8 % of the subjects identified themselves as "not enough" , sufficient income would not cause the difference in life satisfaction in COPD patients. Because most of the subject were elderly and not allowed to take responsibility in earning for their family. In addition, the government had set up a program of the elderly health – welfare service for health care expenses. They were more attentive to their symptoms than those with sufficient income. This was similarly to the study of Areerat Ulis, (B.E 2539: 61) which found that family income could not predict life satisfaction in the female climacteric period. However, this was inconsistent with the study of Krissada Thongsiri (B.E. 2531: IV) which found that monthly income could predict life satisfaction in head and neck cancer patients receiving radiation therapy.

Duration of the disease. Duration of the disease could not predict life satisfaction in COPD patients. This means that the difference in duration of the disease would not cause the difference in life satisfaction in COPD patients. They could percept their disease and adapt their life pattern to fit their disease. This was similar to the study of Charushnikul Yimboonna (B.E.2533) which found that duration of illness could not predict life satisfaction in ischemic heart male patients. However, this was inconsistent with the study of Bang – orn Ritudom (B.E. 2536:72)

which found that duration of illness could predict quality of life in cancer patients receiving chemotherapy after mastectomy. Also the study of Somsuk Singhapanjanatee (B.E. 2540: V) found that the period of the illness could predict quality of life in the elderly with essential hypertension.

CHAPTER VI

CONCLUSION

Summary of the Study

This is a descriptive research to explore the health locus of control, health behavior and life satisfaction in Chronic Obstructive Pulmonary Disease (COPD) patients, to investigate the relationships between the health locus of control, health behavior, marital status, income, duration and severity of the disease, and to examine the power of the health locus of control, health behavior, marital status, income, duration and severity of the disease in predicting life satisfaction in COPD patients. The subjects were COPD patients who attended the out-patient COPD clinic and general medical clinic at Phrae Hospital. A sample of 180 COPD patients was selected by using a purposive sampling technique. Data was collected by interviewing using the instruments, which consisted of demographic data, health locus of control, health behavior and life satisfaction questionnaires. The instruments' validity was supported by experts, and the Cronbach's test was used to test the reliability of the instruments giving alpha coefficient of 0.83, 0.85, 0.87, 0.84, 0.80 and 0.84 for health locus of control, internal health locus of control, powerful others health locus of control, chance health locus of control, health behavior and life satisfaction, respectively.

Data Analysis

The data analysis was performed by SPSS for windows computer program. The demographic data was analyzed by using frequency and percentage. The health locus of control, health behavior and life satisfaction were analyzed by using mean and standard deviation. Pearson's Product Moment Correlation Coefficient was used to analyze the relationships among health locus of control, health behavior, demographic factor and life satisfaction. The stepwise multiple regression was used to analyze the combined and independent effect of marital status, income, duration and severity of the disease, health locus of control, health behavior and to examine the power of the health locus of control, health behavior, marital status, income, duration and severity of the disease, health locus of control and health behavior on life satisfaction in COPD patients.

The findings of this study is summarized as follows:

1. More than half of the subjects were male (65%). Half of them were 61 – 70 years old (50%), and most of them were married (66.7%). The majority of them graduated from primary school (73.9%). Most of them did not work (75.6%). The majority of the subjects had a family income of less than 3,000 bath/month. Most of them identified themselves as "not enough income". The subjects had the duration of the disease of < 5 years was 77.2%. More than half of the subjects (51.7%) had severity of the disease at level III.

2. The mean scores of the powerful other health locus of control was the highest ($\overline{X}$= 2.84,S.D.=. 23). The second ranked of the mean scores was that of internal health locus of control ($\overline{X}$= 2.60,S.D.=. 46). The chance health locus of control had the lowest mean score ($\overline{X}$= 2.43,S.D.= .51).

3. The health behavior of COPD patients was generally at a good level ($\bar{X}$= 2.86,S.D.= .18). When considering each subscale, it was found that the subjects were at a excellent levels for food consumption behavior and preventing behavior ($\bar{X}$= 3.53,S.D.= .41 and $\bar{X}$= 3.85,S.D.= .25). The other subscale at a good level was treatment management behavior ($\bar{X}$=2.95,S.D.= .26), and the emotional management behavior was at a fair level ($\bar{X}$=2.42,S.D.=. 43). Exercise and lung rehabilitation behavior was at a fair level ($\bar{X}$= 1.58,S.D.=. 44).

4. The life satisfaction of COPD patients was generally at a moderate level ($\bar{X}$= 1.18,S.D.= .27). For each subscale of life satisfaction, it was found that all subscale had mean score at a moderate level such as "Zest" ($\bar{X}$= 1.34,S.D.=.45), "Resolution and fortitude" ($\bar{X}$=1.13,S.D.=.29), "Congruence between desired and achieved goals" ($\bar{X}$=1.19,S.D.=.46), "Self concept" ($\bar{X}$= 1.12,S.D.=.50) and "Mood tone" ($\bar{X}$= 1.14,S.D.=.37).

5. When analyzed by stepwise multiple regression, it was found that severity of the disease and health behavior could predict life satisfaction 10.4 % at the statistically significant level of .05.

Implications and Recommendation

Implication and Application of Research Findings

1. The result of this study showed that food consumption behavior and preventing complication behavior of the subjects was at a excellent level. However, nurses should promote COPD patients to perform this behavior continuously. Treatment management was at a good level, and the emotional management was at a fair level. Therefore, nurses as health care providers should be responsible for assisting COPD patients to perform these behaviors and increase their health behavior practices in order to maintain life, health, and well being. In addition, exercise behavior and lung rehabilitation was at a fair level and trended to be at a poor level. Therefore, nurses must motivate COPD patients to exercise, emphasize exercise for lung rehabilitation and ensure their capacity in doing that behavior. The procedure for exercise and lung rehabilitation program was composed of : 1) selecting patients, 2) primary assessment, 3) cooperating with health care providers, 4) designing the program, 5) evaluating symptoms, problems and 6) follow up.

2. Besides these findings, it showed that internal health locus of control was correlated to health behavior. Therefore, nurses should facilitate COPD patients to believe in internal health locus of control by promoting COPD patients to participate in choosing a self care method and to share experiences with others. This will lead to developing an internal locus of control. Although, powerful others and chance health locus of control in this study did not correlate to health behavior. However, it was not be ignored concern. Nurse should emphasize to patients to pay more attention about suggestions about health practices and to emphasize the patient' s spiritual behavior.

This can lead to produce an indirect benefit to increase their internal health locus of control.

3. The result of this study showed that life satisfaction of the majority of the subjects was at a moderate level. The suggestion is for nurses in clinical practice to recognize the importance of life satisfaction in COPD patients. From this study, it found that 90 % of the subjects disagreed with the item "My life is enough happy". This means that the patients were not happy in their life. Nurses should facilitate COPD patients' life satisfaction. Nurses should take care of their patients with a holistic approach, and pay more attention to patients' mental health. Nurses should collaborate with family members to solve patients' problems.

4. The result of this study showed that severity of the disease did correlated with life satisfaction. Therefore, nurse should take this information based on the truth about pathology of COPD, which related to severity of the disease. The natural history of COPD is characterized by a slow progressive limitation of expiratory airflow. The forced expiratory volume (FEV_1) is a parameter for assessing these. It is known that the patients develop COPD and they have a progressive decline in airflow. Although suitable health behavior practices cannot break down the disease, the patients can help in the management of manifestations and to slow the progression of the disease. Therefore, nurses should motivate the patients to perceive the truth and understand correctly, facilitate them not to be discouraged and stress the importance that they are people who are valuable to their family and society. Nurses should be a consultant for the patients. Finally, nurses should form support groups to help to allow the patients to share their experiences.

5. The result of this study showed that the subjects were at a poor level in the item " ask information from doctor, nurse". Therefore, nurses should act as a coordinator or facilitator to encourage the patients to ask and explain to the doctor. Nurse can help to translate with any language problems and nurses should also provide the patients with the opportunity to ask any questions.

Implication for Further Studies

1. This study was an exploration of the relationship between life satisfaction and health locus of control, health behavior, marital status, income, duration and severity of the disease in COPD patients. However, other factors such as gender and relationship in family need to be also explored.

2. Further research should be done in depth detail such as the qualitative approach to the COPD patients who do not exercise.

3. A model of exercise and lung rehabilitation program and a model of support group based on perceived life satisfaction should be performed.

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Appendix

Appendix A

List of Experts

The name of qualified persons who examined the validity of a health locus of control inventory for the Chronic Obstructive Pulmonary Disease patient.

1. Associate Professor Dr. Kanokrat Sukhatungga.

Department of Psychiatry, Faculty of Medicine, Siriraj Hospital, Mahidol University

2. Associate Professor Dr. Vason Silpasuwan.

Department of Health Education and Behavioral Science, Faculty of Public health, Mahidol University.

3. Assistant Professor Mullika Muttiko.

Department of Social Science,Faculty of social sciences and humanities, Mahidol University.

4. Dr.Chanokporn Jitpanya.

Department of adult nursing, Faculty of Nursing, Chulalongkorn University.

The name of qualified persons who examined the validity of a health behavior inventory for the Chronic Obstructive Pulmonary Disease patient.

1. Associate Professor Nitipatana Chierakul.

Department of Medicine, Faculty of Medicine , Siriraj Hospital, Mahidol University.

2. Associate Professor Dr. Vason Silpasuwan.

Department of Health Education and Behavioral Science, Faculty of Public health, Mahidol University.

3. Dr.Chanokporn Jitpunya.

Department of adult nursing, Faculty of Nursing, Chulalongkorn University.

4. Dr. Nantawon Suwonnaroop

Department of public health nursing, Faculty of Nursing, Mahidol University.

The name of qualified persons who examined the validity of a health behavior inventory for the Chronic Obstructive Pulmonary Disease patient.

1. Assistant Professor Sucheera Phattharayuttawat

Department of Psychiatry, Faculty of Medicine, Siriraj Hospital, Mahidol University.

2. Assistant Professor Sudsabye Jalakadabba

Department of Psychiatry, Faculty of Medicine, Siriraj Hospital, Mahidol University.

3. Assistant Professor Dr. Yajai Sithimongkol

Department of Psychiatric Mental health nursing, Faculty of Nursing, Mahidol University.

4. Dr.Chanokporn Jitpanya.

Department of adult nursing, Faculty of Nursing, Chulalongkorn University.

Appendix B

- Consent from

- The questionnaires

Consent form

My name is Kanittha Kaslungka, I am a master student at the Faculty of Graduate Studies, Mahidol University. I am studying the health locus of control, health behavior and life satisfaction in COPD patient. I would like your cooperation in this study. The data from you would be protected and it will not affect your treatment. The information from this study will be usefulness and will be a baseline for nurse in planing nursing practice, promote health behavior and life satisfaction in COPD patients.

If you agree to participate with this study I would like you to answer the questionnaires about the personal data, the health locus of control, the health behavior and the life satisfaction for just only within 30 minutes. All the information are confidential, without disclosure name to the other. If you have symptom worsen during the interview such as dyspnea or fatigue, I would stop interview and take care of you immediately.

If you have any doubts about this study I will explain it so you understand this research.

Thank you for your cooperation

Sincerely,

Kanittha Kaslungka

No……..

Research Tittle : Health locus of control, health behavior and life satisfaction in COPD patients

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The questionnaire is the instructional questionnaire consisted of 4 parts

Part I The demographic data

Part II The health behavior

Part III The health locus of control

Part IV The life satisfaction

Part I The demographic data

Explanation. The interviewer record the data from the patient in the blank or mark ✓ on the statement as the patients actual data.

1. Gender ( ) male ( ) female

2.Age……..years

3.Marital status

.

.

.

.

.

9.Duration of the disease……years.

10. Severity of the disease

( ) level I ( ) level II ( ) level III ( )level IV

Part II Health behavior in Chronic Obstructive Pulmonary Disease patient.

Explanation. Studying health behavior in chronic obstructive pulmonary disease patients was the objective of this questionnaire. The interviewer mark ✓in the blank, which was the exactly behavior of the patients. Each item has a 4 rating scale as follows:

"Always" was defined as the patients performed this behavior regularly/ every day/ every time.

"Often" was defined as the patients performed this behavior mostly/ frequently.

"Sometimes"was defined as the patients rarely performed this behavior.

"Never" was defined as the patients never performed this behavior.

Statement	answer			
	always	often	sometimes	never
1. You usually breathe more slowly by nose then you breathe lightly slowly more than 20 time/ day				
2. When you breathe you used abdomen muscle more than 20 time / day				
.				
.				
25. You usually seek for happiness and peaceful by praying, reading, religious book, participating in religious ceremonies.				

Part III Health locus of control in Chronic Obstructive Pulmonary Disease patient.

Explanation. The interview mark ✓in the blank, which was correspond health locus of control of the patients. Each item has 3 item scale

"Agree" was defined as the statement correspond to your belief.

" uncertainly " was defined as the statement sometimes correspond to your belief.

" disagree " was defined as the statement does not correspond to your belief.

Statement	Answer		
	agree	uncertainly	disagree
1. If get sick, it is my own behavior, which determines how soon I get well again. 2. No matter what I do, if I am going to get sick, I will get sick. . . . . 18. Regarding my health, I can only do what my doctor tells me to do.			

Part IV Life satisfaction in Chronic Obstructive Pulmonary Disease patient.

Explanation Studying life satisfaction in chronic obstructive pulmonary disease patients was the objective of the questionnaire. The interview mark ✓in the blank, which was the exactly life satisfaction of the patients. Each item has a 3 item scale as follows

"agree" was defined as the statement correspond your feeling and concern.

"uncertainly" was defined as the statement sometimes correspond your feeling and concern.

"disagree" was defined as the statement does not correspond your feeling and concern.

Statement	answer		
	agree	uncertain	disagree
1. This is the happiness time of my life.			
2. My life is enough happy.			
.			
.			
.			
20. In spite of what people say, the lot of the average man is getting better, not worse.			

Appendix C

The data of the subjects.

Table 9 Mean, standard deviation and interpretation of the mean scores of health locus of control in each item and overall

Health locus of control	$\overline{X}$	S.D.	Level of healthl locus of control
Internal health locus of control (overall)	**2.60**	**.46**	**High**
- If I take the right actions, I can stay healthy.	2.74	.48	High
-The main thing which affects my health is what I tell myself to do.	2.65	.57	High
- If I take care of myself, I can avoid illness.	2.64	.51	High
- When I get sick I am to blame.	2.58	.68	High
- If I get sick, it is my own behavior, which determines how soon I get well again.	2.58	.67	High
- I am in control of my health.	2.41	.85	High
Powerful others health locus of control (overall)	**2.84**	**.23**	**High**
- Whenever I don't feel well, I should consult a medically trained professional.	2.92	.29	High
- Having regular contact with my physician is the best way for me to avoid illness.	2.92	.27	High
- Regarding my health, I can only do what my doctor tells me to do.	2.88	.39	High
- Health professionals control my health.	2.86	.41	High
- When I recover from an illness, it's usually because other people(for example, doctors, nurses, family, friends) have been taking good care of me.	2.79	.47	High
- My family has a lot to do with my becoming sick or staying healthy.	2.72	.56	High
Chance health locus of control (overall)	**2.43**	**.51**	**High**
- No matter what I do, if I am going to get sick, I will get sick.	2.81	.45	High
- Luck plays a big part in determining how soon I will recover from an illness.	2.61	.76	High
- No matter why I do, I' m likely to get sick which is caused by being unfortunate.	2.39	.84	High
- Horoscope determines my health.	2.33	.88	Moderate
- Most things that affect my health happens to me by accident of element of human body deviation.	2.29	.84	Moderate
- My health happen to me by fate.	2.18	.90	Moderate

Table10 Mean, standard deviation and interpretation of the mean scores of health behavior in each item and overall

Health behavior	$\bar{X}$	S.D.	Level of Health behavior
Exercise and lung rehabilitation behavior (overall)	**1.58**	**.44**	**Fair**
- Have a movement hobby such as water - ing the trees, cleaning the house.	2.61	.95	Good
- Exercise such as takng a walk, ,exercise with trot for > 20 minutes.	1.80	1.00	Fair
- Deep breathing and slow breathe lightly >20 times / day.	1.26	.60	Poor
- Before coughing, should take a deep breath then cough sputum out.	1.16	.60	Poor
- Use abdomen muscle in breathing >20 times /day.	1.07	.31	Poor
Food consumption behavior (overall)	**3.53**	**.41**	**Excellent**
- Eating vegetable.	3.82	.51	Excellent
- No drinking tea coffee and stimulant such as containing glucose.	3.73	.61	Excellent
- Avoiding gas food such as bean, pepper and coca-cola.	3.52	.62	Excellent
- No drinking cool drinks.	3.31	.99	Good
- Eating a little at each meal.	3.26	.91	Good
Treatment management behavior (overall)	**2.95**	**.26**	**Good**
- Usually follow up.	3.87	.39	Excellent
- When dyspnea occurrs ,spray cycle.	3.86	.55	Excellent
- Deep breathing when spray MDI.	3.83	.66	Excellent
- Concentrate on health by TV, radio, Journals.	1.80	.81	Fair
- Asking information about health practice from doctors, nurses.	1.39	.71	Poor
Preventing behavior (overall)	**3.84**	**.25**	**Excellent**
- When dyspnea occurred, stop activity.	3.95	.32	Excellent
- Take bronchodilator drug from health office.	3.87	.42	Excellent
- Stops smoking cigarettes.	3.86	.52	Excellent
- When the weather was cool, protect my body with a blanket, coat.	3.81	.49	Excellent
- Stay in clear air.	3.76	.65	Excellent

Health behavior	$\bar{X}$	S.D.	Level of Health behavior
Emotion management (overall)	**2.42**	**.43**	**Fair**
- Seek peace by reading religion books, praying, participating in religious ceremonies.	2.73	1.17	Good
- Having social interaction with neighbors.	2.63	.68	Good
- Rarely moody, furious.	2.53	.64	Good
- Talk together with others while waiting for the doctor.	2.19	.90	Fair
- When unhappy was coming, speak one's mind to others.	2.02	1.03	Fair

Table 11 Mean, standard deviation and interpretation of the mean scores of life satisfaction in each item and overall.

Life satisfaction	$\bar{X}$	S.D.	Level of life satisfaction
Zest (overall)	**1.34**	**.45**	**Moderate**
- The things I do are as interesting to me as they ever were.	1.90	.42	High
- These are the best years of my life.	1.39	.67	High
- This is the happiest time of my life.	1.19	.80	Moderate
- Most of the activities, I do are boring or monotonous.	.88	.99	Moderate
Resolution and fortitude (overall)	**1.13**	**.29**	**Moderate**
- I expect some interesting and pleasant things to happen to me in the future.	1.92	.33	High
- As I look back on my life, I am fairly well satisfied.	1.79	.57	High
- I would not change my past life even if I could.	.65	.90	Low
- My life is enough happy.	.16	.49	Low
Congruence between desired and achieved goals (overall)	**1.19**	**.46**	**Moderate**
- I' ve gotten pretty much what I expected out of life better than others.	1.85	.47	High
- I have made plans for things.	1.15	.96	Moderate
- When I think back over my life, I did get most of the important things I wanted.	.58	.89	Low
Self concept (overall)	**1.12**	**.50**	**Moderate**
- I have a good luck more than others because I have a good condition.	1.65	.60	High
- When compared with others who have the same disease as you, I get well than others.	1.23	.82	Moderate
- I am just as happy as when I was not ill.	.97	.98	Moderate
- Compared to other people, I get up too often.	.67	.89	Low
Mood tone (overall)	**1.14**	**.37**	**Moderate**
- When I get sick, I appropriate life more than others.	1.87	.45	High
- When times go on, I think everything will be better than I expect.	1.77	.51	High
- In spite of what people say, the lot of the average man is getting better, not worse.	1.06	.82	Moderate
- I think about my disease, but it does not disturb me.	.59	.90	Low
- I did not feel tired.	.42	.80	Low

Table 12 Percentage of the sample categorized based on their health locus of control in each item.

Health locus of control	answer agree	uncertain	disagree
Internal health locus of control			
- If I take the right actions, I can stay healthy.	75.6	22.8	1.7
- The main thing which affects my health is what I tell myself to do.	70.0	25.0	5.0
- When I get sick, I am to blame.	68.9	20.0	11.1
- If I get sick, it is my own behavior, which determines how soon I get well again.	68.3	21.7	10.0
- If I take care of myself, I can avoid illness.	66.1	32.2	1.7
- I am in control of my health.	65.0	11.1	23.9
Powerful others health locus of control			
- Whenever I don't feel well, I should consult a medically trained professional.	92.8	0.7	0.6
- Having regular contact with my physician is the best way for me to avoid illness.	92.2	7.8	0
- Regarding my health, I can only do what my doctor tells me to do.	90.6	7.2	2.2
- Health professionals control my health.	87.8	10.0	2.2
- When I recover from an illness, it's usually because other people(for example, doctors, nurses, family, friends) have been taking good care of me.	81.7	15.6	2.8
- My family has a lot to do with my becoming sick or staying healthy.	77.8	16.7	5.6
Chance health locus of control			
- No matter what I do, if I am going to get sick, I will get sick.	83.3	14.22	2.2
- Luck plays a big part in determining how soon I will recover from an illness.	77.2	6.1	16.7
- No matter what I do, I' m likely to get sick which is caused by being unfortunate.	62.2	14.4	23.3
- Horoscope determines my health.	61.1	11.1	27.8
- Most things that affect my health happen to me by accident of element of human body deviation.	54.4	20.6	25.0
- My health happen to me by fate.	50.6	16.7	32.8

Table 13 Percentage of the sample categorized based on their health behavior in each item.

Health behavior	Always practice	Often practice	Sometimes practice	Never practice
Exercise and lung rehabilitation behavior				
- Have a movement hobby such as watering trees, cleaning the house.	17.2	42.2	25.0	15.6
- Exercise such as taking a walk, exercise with trot for > 20 minutes	8.3	16.7	21.7	53.3
- Before coughing, should take a deep breath then cough sputum out.	3.3	1.1	3.9	91.7
- Deep breathing and slow breath lightly > 20 times/day.	1.7	3.3	14.4	80.6
- Use abdomen muscle in breathing > 20 times / day.	0	1.7	3.3	95.0
Food consumption behavior				
- Eating vegetables.	86.1	11.7	0.6	1.7
- No drinking tea, coffee, stimulant such as containing glucose.	80.0	15.6	2.2	2.2
- No drinking cool drinks.	57.8	25.6	6.1	10.6
- Avoiding gas food such as bean, pepper and coca – cola.	57.2	38.3	3.3	1.1
- Eating a little at each meal.	53.9	21.1	21.7	3.3
Treatment management behavior				
- Deep breathing when spray MDI.	93.3	1.1	1.1	4.4
- When dyspnea occurrs, spray cycle.	92.8	2.8	2.2	2.2
- Usually follow up.	88.3	10.0	1.7	0.00
- Concentrate in health by T.V., radio and journal.	6.7	5.0	50.0	38.3
- Asking information about health practice from doctors, nurses	3.3	3.3	22.8	70.6

Health behavior	Always practice	Often practice	Sometimes practice	Never practice
Preventing behavior				
- When dyspnea occurrs, stop activity.	97.2	1.1	1.1	0.6
- Stop cigarette smoking.	90.6	6.7	0.6	2.2
- Take bronchodilator drugs from health office.	90	7.8	1.7	0.6
- Stay in clear air.	85.0	7.8	5.0	2.2
- When the weather is cool, protect my body with a blanket , coat	83.9	13.3	2.2	0.6
Emotion management behavior				
- Seek peace by reading religious book, praying, participating in religious ceremonies.	36.1	22.8	19.4	21.7
- Talking together with others while waiting for the doctor.	7.2	29.4	38.3	25.0
- When unhappy, speak one's mind to others.	6.7	33.9	13.9	45.6
- Having social interaction with neighbors.	5.0	59.4	29.4	6.1
- Difficult moody, furious.	2.8	52.8	39.4	5.0

Table 14 Percentage of the sample categorized based on their life satisfaction in each item.

Life satisfaction	answer agree	uncertain	disagree
Zest			
- The things I do are as interesting to me as they ever were.	94.4	1.1	4.4
- These are the best years of my life.	50	39.4	10.6
- This is the happiest time of my life.	43.3	32.8	23.9
- Most of the activities, I do are boring or monotonous.	43.3	1.7	55.00
Resolution and fortitude			
- I expect some interesting and pleasant things to happen to me in the future.	93.9	4.4	1.7
- As I look back on my life, I am fairly well satisfied.	87.2	5.0	7.8
- I would not change my past life even if I could.	28.9	7.2	63.9
- My life is happy enough.	5.6	4.4	90.0
Congruence between desired and achieved goals			
- I' ve gotten pretty much what I expected out of life better than others.	89.4	6.1	4.4
- I have made plans for things.	54.4	6.1	39.4
- When I think back over my life, I did get most of the important things I wanted.	27.2	3.3	69.4
Self concept			
- I have good luck than others because I have a good condition.	71.7	21.7	6.7
- When compare with others who have the same disease as I do, I get well quicker than others.	47.8	27.7	25.0
- I am just as happy as when I was not ill.	46.7	3.9	49.4
- Compared to other people, I get up too often.	28.3	10.0	61.7
Mood tone			
-When I get sick, I appropriate life more than others.	91.1	4.4	4.4
- When times goes on, I think everything will be better than I expect.	80.6	15.6	3.9
- In spite of what people say, the lot of the average man is getting better, not worse.	36.7	32.8	30.6
- I think about my disease, but it does not disturb me.	27.8	3.3	68.9
- I do not feel somewhat tired.	19.4	3.3	77.2

BIOGRAPHY

NAME	Miss Kanittha Kaslungka
DATE OF BIRTH	6 March ,1970
PLACE OF BIRTH	Phrae, Thailand
INSTITUTE ATTENDED	Uttaradit Nursing college, 1988 – 1992 Bachelor Degree of Nursing Sukhothai Thammathirat University, 1992 – 1994. Bachelor Degree of Public health (Public health) Mahidol University, 1998 – 2000. Master of Nursing Sciences (Adult Nursing)
RESEARCH GRANT	Supported in part by Thesis Grant, Faculty of Graduate Studies, Mahidol University.
POSITION & OFFICE	1992 – 1993, Division of Nursing, Suengmen Hospital. 1993 – 1996, Division of Health Promoting, Public Health office of Phrae. 1996- present, Division of Nursing, Phrae Hospital. Position: Staff Nurse.