TESTING THE UNCERTAINTY IN ILLNESS THEORY TO PREDICT QUALITY OF LIFE IN THAI PATIENTS WITH HEAD AND NECK CANCER

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TESTING THE UNCERTAINTY IN ILLNESS THEORY TO PREDICT QUALITY OF LIFE IN THAI PATIENTS WITH HEAD AND NECK CANCER

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ABSTRACT

Head and neck cancer and its treatments have been reported as impacting on symptom experience and uncertainty. Buddhist practices are one of the factors which help patients prevent and reduce depression as well as enhance quality of life (QOL).This cross-sectional descriptive study was conducted using convenience sampling to test the Uncertainty in Illness Theory (UIT) and to determine the factors influencing QOL in Thai patients with head and neck cancer. The selected variables were symptom experience, Buddhist practices, uncertainty, depression, and QOL. A sample of 240 patients who had completed at least one month of treatment but no more than one year and had come to follow up at the otolaryngological and radiological outpatient clinics of five hospitals in Bangkok, Thailand was recruited. The instruments were: Set Test; Demographic Questionnaire; Modified Symptom Experience Scale; Buddhist practices Scale; Mishel Uncertainty in Illness Scale-Community version; Center for Epidemiologic Studies Depression Scale; and Functional Assessment of Cancer Therapy-General Scale version 4.

The hypothesized model was tested by LISREL 8.52. The results showed that the modified model was performed to fit the empirical data at $\chi^2 = 28.00$, df = 21, $\chi^2/df = 1.33$, $p = .14$, GFI = .981, AGFI = .929, RMSEA = .037. The final model could explain 66% of variance in uncertainty, 93% in depression, and 92% in QOL. The findings indicated that two out of five of the research hypotheses were supported. It was found that symptom experience had a strong direct positive impact on uncertainty ($\gamma = .81$, $p<.001$) and an indirect impact on depression and QOL mediated through uncertainty ($\beta = .66$; -.68, $p<.001$, respectively). In addition, uncertainty had a strong direct negative impact on QOL ($\beta = -.85$, $p<.001$) and a strong direct positive impact on depression ($\beta = .82$, $p<.001$). Buddhist practices did not have a direct negative impact on symptom experience; had neither a non-significant direct negative impact on uncertainty ($\gamma = -.11$, $p>.05$) nor depression ($\gamma = -.42$, $p>.05$). Buddhist practices had a non-significant direct positive impact on QOL ($\gamma = .37$, $p>.05$). Furthermore, they had neither an indirect effect on uncertainty through symptom experience nor an indirect effect on depression and QOL through uncertainty ($\gamma = .09$, $p>.05$ and $\gamma = -.09$, $p>.05$, respectively).

These findings will help in managing symptom experience and uncertainty and thus contribute to preventing and reducing depression, and enhancing QOL in head and neck cancer. Results also provide a starting point to test a newly emergent concept of religious participation (Buddhist practices) coming from the UIT in 2003.

KEY WORDS: TESTING THEORY/ UNCERTAINTY/ QUALITY OF LIFE/
HEAD AND NECK CANCER

157 pp.

การทดสอบทฤษฎีความรู้สึกไม่แน่นอนในความเจ็บป่วยเพื่อทำนายคุณภาพชีวิตในผู้ป่วยมะเร็งบริเวณศีรษะและคอ (TESTING THE UNCERTAINTY IN ILLNESS THEORY TO PREDICT QUALITY OF LIFE IN THAI PATIENTS WITH HEAD AND NECK CANCER)

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ปร.ด. (การพยาบาล)

คณะกรรมการควบคุมวิทยานิพนธ์: ยุพาพิน ศิรโพธิ์งาม, D.S.N., Merle H. Mishel, Ph.D., ยาใจ สิทธิมงคล, Ph.D., ธวัชชัย วรพงศธร, Ph.D.

บทคัดย่อ

มีรายงานพบว่าโรคมะเร็งบริเวณศีรษะและคอรวมทั้งผลจากการรักษา มีอิทธิพลต่อประสบการณ์การเกิดอาการและความรู้สึกไม่แน่นอน ซึ่งการปฏิบัติกิจกรรมทางศาสนาพุทธ เป็นปัจจัยหนึ่งที่สามารถช่วยป้องกันและลดความซึมเศร้า อีกทั้งช่วยให้มีคุณภาพชีวิตที่ดีขึ้น วัตถุประสงค์ของการศึกษาภาคตัดขวางเชิงบรรยายในครั้งนี้เพื่อทดสอบทฤษฎีความรู้สึกไม่แน่นอนในความเจ็บป่วย เพื่อทำนายคุณภาพชีวิตของผู้ป่วยมะเร็งบริเวณศีรษะและคอ ตัวแปรที่ศึกษาประกอบด้วย ประสบการณ์การเกิดอาการ การปฏิบัติกิจกรรมทางศาสนาพุทธ ความรู้สึกไม่แน่นอน ความซึมเศร้า และคุณภาพชีวิต ผู้เข้าร่วมการวิจัยคือผู้ป่วยมะเร็งบริเวณศีรษะและคอภายหลังเสร็จสิ้นการรักษาไปแล้วในช่วงระหว่าง 1 เดือนถึง 1 ปี จำนวน 240 คน ซึ่งมารับการรักษาที่หน่วยตรวจผู้ป่วยนอกหูคอจมูก และหน่วยตรวจผู้ป่วยนอกรังสีรักษา จากโรงพยาบาล 5 แห่งในกรุงเทพมหานคร เครื่องมือที่ใช้ประกอบด้วย แบบประเมินเกี่ยวกับการนึกคิดและการจำ แบบสอบถามข้อมูลส่วนบุคคล แบบสอบถามประสบการณ์เกี่ยวกับอาการ แบบวัดการปฏิบัติกิจกรรมทางพุทธศาสนา แบบสอบถามภาวะซึมเศร้า และแบบสอบถามคุณภาพชีวิต

รูปแบบที่สร้างขึ้น ได้รับการทดสอบและปรับด้วยโปรแกรมลิสเรล 8.52 รูปแบบที่ปรับแล้วมีความสอดคล้องกับข้อมูล และทำนายความรู้สึกไม่แน่นอนได้ 66% ความซึมเศร้า 93% และคุณภาพชีวิต 92% ผลการศึกษาพบว่า ประสบการณ์การเกิดอาการ มีอิทธิพลโดยตรงทางบวกต่อความรู้สึกไม่แน่นอน (γ = .81, p<.001) และมีอิทธิพลทางอ้อมต่อความซึมเศร้า และคุณภาพชีวิตผ่านความรู้สึกไม่แน่นอน (β = .66; -.68, p<.001, ตามลำดับ) ความรู้สึกไม่แน่นอน มีอิทธิพลโดยตรงทางบวกต่อความซึมเศร้า (β = .82, p<.001) และมีอิทธิพลโดยตรงทางลบต่อคุณภาพชีวิต (β = -.85, p<.001) การปฏิบัติกิจกรรมทางศาสนาพุทธไม่มีนัยสำคัญทางสถิติต่อการทำนายประสบการณ์การเกิดอาการ ความรู้สึกไม่แน่นอน (γ = -.11, p>.05) ความซึมเศร้า (γ = -.42, p>.05) และคุณภาพชีวิต (γ = .37, p>.05) รวมทั้งไม่มีผลทางอ้อมต่อความรู้สึกไม่แน่นอนผ่านประสบการณ์การเกิดอาการ และไม่มีผลทางอ้อมต่อความซึมเศร้า และคุณภาพชีวิตผ่านความรู้สึกไม่แน่นอน (γ = .09, p>.05 และ γ = -.09, p>.05, ตามลำดับ)

ผลการศึกษาในครั้งนี้ช่วยในการจัดการกับอาการและความรู้สึกไม่แน่นอน ซึ่งจะช่วยในการป้องกันหรือลดความซึมเศร้า และเพิ่มคุณภาพชีวิตของผู้ป่วยมะเร็งบริเวณศีรษะและคอได้ นอกจากนี้ผลการศึกษาได้ให้ข้อมูลเบื้องต้นในการศึกษาแนวคิดใหม่เกี่ยวกับการปฏิบัติกิจกรรมทางศาสนาพุทธ ซึ่งเป็นแนวคิดที่เพิ่มเข้ามาในกรอบแนวคิดความไม่แน่นอนในความเจ็บป่วยของมิเชลและคณะในปี พ.ศ. 2546

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CHAPTER I
INTRODUCTION

Background and Rationale of the Study

In recent years, quality of life (QOL) has been increasingly recognized as a critical issue in health care. The Ninth National Development Plan (A.D. 2002-2006) issued by the Thai Ministry of Public Health revealed a new level of interest in QOL. This plan refers to health as well-being or good QOL. Its ultimate goal is to improve QOL not only for healthy people but also for sick people. Each illness has a unique impact on QOL. One of the most common diseases that impacts an individual's QOL, both in the short term and long term, is cancer. When people receive a diagnosis of cancer, they are faced with the frightening realization that they have a life-threatening disease, which can threaten their self-image, confidence, and identity (Vickery, Latchford, Hewison, Bellew & Feber, 2003) and may lead to depression (Bennett & Badger, 2005; Chanothan, Kanchanapongkul, Chaipakdi, & Kunthonbuti, 1998; Thongtang et al., 2002). One of the cancers that can threaten their self-image and affect their confidence and identity is head and neck cancer.

Head and neck cancer refers to malignant tumors involving the skin, soft tissues or bones of the head and neck region except for cancers arising in the brain or eyes (O'Brien, 1999). In Thailand, the incidence of head and neck cancers is higher in men than in women; and they account for 13% of all cancer patients. The most common cancers are in the oral cavity (37%), the nasopharynx (24%), and the thyroid gland (16%) (Rattanaanekchai, Wattanasap & Arjsamat, 2003), which differs from the United States where more than 50% of cancers arise in the oropharynx and the base of tongue (Forastiere, Koch, Trotti, & Sidransky, 2001). Although head and neck cancer comprises only a small portion of all cancers, it has an enormous impact on QOL. Head and neck cancer is in a visible, prominent region of the body, which not only provides identity, but also serves as the fundamental medium for communication with others (Dropkin, 2001). General treatment for head and neck cancer- surgery, radiation therapy (RT), and chemotherapy, administered alone or in combination - may lead to

significant dysfunction and disfigurement and hence to psychosocial problems (DeBoer, et al., 1999; Forastiere et al., 2001; Holloway et al., 2005). Thus, these patients should receive special attention.

Currently, surgery and radiotherapy are the major treatments of head and neck cancer, often in combination. The common treatment related symptoms from one month up to one year after completion of treatment include nasal bleeding, mucositis, odynophagia, difficulty in opening mouth, difficulty in closing lip, difficulty in talking, difficulty in mastication, difficulty in swallowing, drooling, disfigurement, dry mouth, thick saliva, taste change, loss of appetite, hoarseness, trouble breathing, shoulder dysfunction, trouble sleeping, and fatigue (De Leeuw et al., 2001; Dropkin, 1999, 2001; Forastiere et al., 2001; Holloway et al., 2005; Kitbuncha, 2000; Lai et al., 2003; Larsson, Hedelin, Johansson & Athlin, 2005; Ledeboer et al., 2005; Likitsinsopon, 2000; List et al., 1999; Pongthavornkamol, 2000; Saejiw, 2001). Patients can experience a single symptom or may often experience many symptoms simultaneously (Dodd, Miaskowski & Paul, 2001).

These symptoms continue over time and the impact from symptoms continues even after completed treatment, which can impact on QOL. The findings from previous research reveal that the QOL of those who have undergone radiotherapy does not return to pretreatment levels by 6 months after radiation (Epstein et al, 2001). However, Hanna and colleagues (2004) found that patients in the surgery and radiation group tend to experience greater difficulties with social functioning relative to the chemoradiation group. Detprapon (2003) found that patients after having undergone laryngectomy at least one year before still have difficulty in expressing needs; they feel stigmatized by their appearance. Because of this feeling of stigmatization, they try to keep the stoma hidden and distance themselves from engaging in social activities which can lead to impaired social functioning. Patients who have impaired social functioning may develop social withdrawal, low self-esteem, and this can be a cause of depression (De Leeuw et al., 2001; Sehlen et al., 2003).

Such ongoing symptoms resulting from the disease and treatments contribute to uncertainty in illness which is defined as “the inability to determine the meaning of illness-related events. It is the cognitive state created when the person cannot

adequately structure or categorize an event because of the lack of sufficient cues" (Mishel, 1988). Uncertainty in illness may be created from various sources, such as an individual's experience of a large number of unfamiliar symptoms. When an event is unfamiliar, people cannot use previous experience in a cognitive schema to interpret the event. The diversity and unpredictability of symptoms such as fatigue, which may come and go unpredictably, also, are major sources of uncertainty; patients may not know the causes of such symptom or how to manage them.

Moreover, lack of information about the disease and treatment also can create uncertainty e.g. taste change / loss of appetite, even though either can return to normal after a radiotherapy course, the patients are unable to know the trajectory of the symptom or how long it will take to return to normal after treatment. Thus, symptom severity and distress either from illness or treatment may increase uncertainty in these patients. The uncertainty is tied to physical symptoms which are the residual effects of treatment. Furthermore, because of the side effects, long-term financial consequences are unpredictable and unknown. Although, patients recognize the importance of maintaining treatment; they still have questions about the cost of further treatment or the expense when they come to follow-ups after completing treatment.

Patients rely on religion as a way of helping them manage uncertainty or live with painful events. In this case religious participation is considered by Mishel et al. (2003) as a "structure provider"– the resources available to assist patients' interpretation of the events. They found that extrinsic religiosity influenced the efficacy of an uncertainty management intervention for men with localized prostate cancer. Additionally, Koenig, Larson, and Larson (2001) stated that religiosity, both extrinsic and intrinsic, has been a major source of social support for older cancer patients and a primary means for their dealing with the uncertainties of cancer. Religiosity is the way in which people express their religious beliefs and practices and the importance ascribed to them (Musgrave & McFarlane, 2004).

As the majority of studies related to the effect of religion on cancer have been within the western context, most of these studies have dealt with Judeo-Christian religion. Not only are the religious beliefs different but also religious practice and religious participation are different in Thailand where over 90% are Buddhist.(Hebden

& Burnard, 2004; Lukkahatai, 2004, Tongprateep, 2006). The core teachings of Buddhism deal directly with the concept of suffering and how to eliminate it, despite different cultural interpretations of Buddhism in different Buddhist countries (Chanchamnong, 2003).The major goal of Buddhists is to attain Nirvana, which means freedom from suffering. Thai Buddhist philosophy teaches that the individual is responsible for his or her own destiny; this destiny can be changed for the better by accumulating religious merit. For religious practice to be effective as a response to illness, people must practice religion on their own. People must be content to perform religious rites to accumulate positive karma in hopes of gradually coming close to Nirvana (Tongprateep, 2006). Buddhism has played a profound role in shaping the character of Thai residents and their reactions to events such as coping with stressors in their lives (Hanprasitkam, Wonghongkul, Sucamvang, & Panya, 2007; Lundberg & Trichorb, 2001; Praiwan, 1997; Silapoth, 1999; Yoelao, Potisrithong, & Nawanchan, 1973). The beliefs and associations provided by religion and philosophy can be helpful as patients cope with stressful events during the course of their illnesses including living with the effects of cancer, and the long tedious course of treatment and the illness itself.

Buddhist practices have been found to influence depression and QOL but there are limited studies in Thai head and neck cancer. Major studies of QOL and depression have been conducted in Western countries (Allal, Nicoucar, Mach, & Dulguerov, 2003; Graeff, et al., 1999; Grant, & Dean, 2003; Gritz et al., 1999; Haase & Braden, 2003; Hanna et.al., 2004; Naumah, Cooley, Fawcett, & McCorkle, 1999; Osoba, 1994; Portenoy & Sperber, 2004; Ringash & Bezjak, 2001; Rose & Yates, 2001; Schultz & Winstead-Fry, 2001; Vickery et al., 2003; Wells, 1998; Weymuller, Jr., Deleyiannis, & Yueh, 2003). Two studies have been conducted in Taiwan (Xianqiong, 2000; Yimin, 2000). Due to the differences in culture, it is probably not warranted to generalize from American culture to Thai people as many authors have pointed out; culture is a major determinant of QOL (Padilla, 2003; Weymuller, Jr. et al., 2003). Consequently, cross-national studies of these patients are important, and it is essential for researchers to investigate QOL and its associated factors as perceived by Thai head and neck cancer patients after treatment of at least one month to allow

for the short-term effects of treatment to subside prior to QOL assessment (Gritz et al., 1999; Terrell, Ronis, Fowler, 2004).

Research Questions

The research questions are as follows:

1. What are the levels of symptom experience, Buddhist practices, uncertainty, depression, and QOL in Thai patients with head and neck cancer?

2. Does symptom experience have a direct impact on uncertainty and an indirect impact on depression and QOL mediated through uncertainty in Thai patients with head and neck cancer?

3. Does Buddhist practices have a direct impact on uncertainty or indirect impact mediated through symptom experience in Thai patients with head and neck cancer?

4. Does Buddhist practices have a direct impact on depression and QOL or an indirect effect mediated through uncertainty in Thai patients with head and neck cancer?

5. Does uncertainty have a direct impact on depression and QOL in Thai patients with head and neck cancer?

Research Purpose

The purpose of this study is to test the Uncertainty in Illness Theory to discover factors that predict QOL in Thai patients with head and neck cancer.

Theoretical Framework

The theoretical framework guiding this study is the Uncertainty in Illness Theory (UIT) (Mishel, 1988) combined with the new concept “religious participation as a structure provider” from Mishel et al. (2003) as shown in Figure 1.1. The UIT was chosen because it is a middle range theory, well developed, and it has had strong empirical support in previous research testing with a variety of populations, particularly cancer patients. It can help describe and explain stressful phenomena in cancer patients. Moreover, the UIT focus on the individual in the context of illness or a treatable condition is consistent with the concept of this study, which proposes to examine the influences of Buddhist practices and symptom experience to determine

their impact on uncertainty, depression and QOL in Thai patients with head and neck cancer.

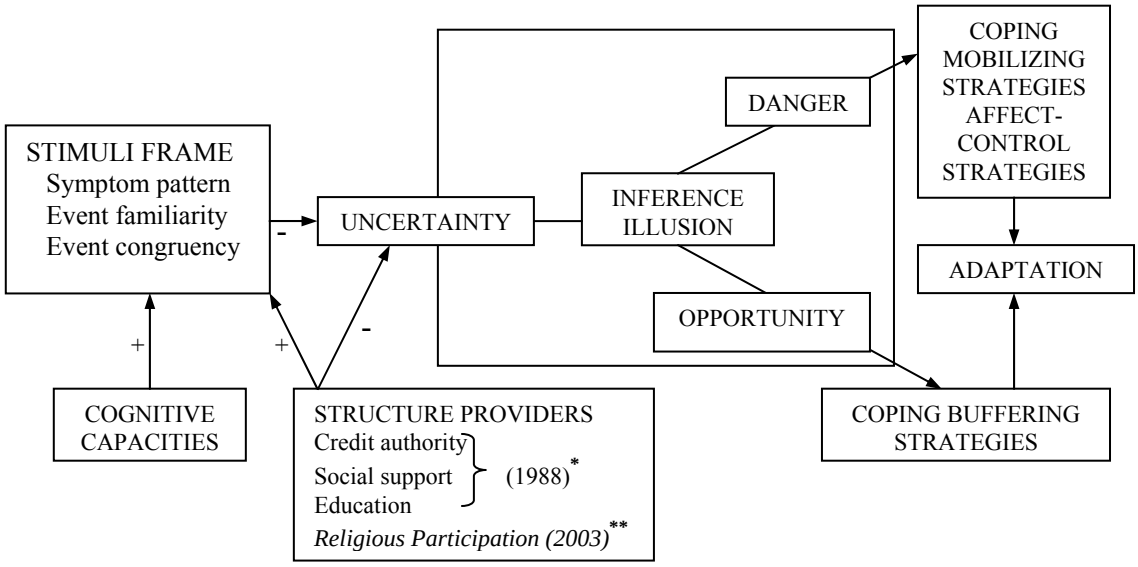

Figure 1.1 Uncertainty in Illness Theory

From * Mishel, M.H. (1988). Uncertainty in illness. *Image: Journal of Nursing Scholarship*, *20(4)*: 225-232.

** Mishel, M. H. et al. (2003). Moderators of an uncertainty management intervention for men with localized prostate cancer. *Nursing Research, 52 (2),* 89-97.

Originally, researchers conceptualized uncertainty as linear, resolved with time and information. The UIT was first developed to address uncertainty during the diagnostic and treatment phases of or an illness with a determined downward trajectory. It is organized around three major themes: antecedents of uncertainty, appraisal of uncertainty, and coping with uncertainty. Uncertainty is the central concept in the theory and is defined as the inability to determine the meaning of illness-related events occurring when the decision maker is unable to assign definitive value to objects or events and /or is unable to accurately predict outcomes. Uncertainty has four forms: (a) ambiguity concerning the state of the illness, (b) complexity regarding treatment and the system of care, (c) lack of information about the diagnosis

and seriousness of the illness, and (d) unpredictability of the course of the disease and prognosis (Mishel, 1988).

The primary antecedent of uncertainty is the *stimuli frame,* which has three components: symptom pattern, event familiarity, and event congruence between the expected experience and the actual experience (Mishel, 1988). *Symptom pattern* refers to the degree to which symptoms present with sufficient consistency to be perceived as having a pattern or configuration. Based on this pattern, the meaning of the symptoms can be determined. *Event familiarity* refers to the degree to which the situation is habitual and repetitive or contains recognizable cues. When events are recognized, they can be associated with other events from memory and their meaning can be determined. *Event congruence* refers to the consistency between the expected and the actually experienced illness-related situation. This consistency implies a reliability and stability of events, thus facilitating interpretation and understanding. Uncertainty is reduced when patterns among symptoms and events can be detected, and when illness events can be predicted.

Cognitive capacity and structure providers positively influence the three components of the stimuli frames. *Cognitive capacity* refers to the information processing abilities of the person. Limited cognitive capacity will reduce or confuse the ability to perceive symptom patterns, event familiarity, and the congruence of events. Consequently, when patients have impaired cognition for whatever reason, their ability to interpret and predict symptoms and events is lessened. *Structure providers*, such as a patient's educational level, social support systems, and credible authority or health care providers, refer to the resources available to assist the person in the interpretation of the stimuli frame and can reduce uncertainty both directly and indirectly. Uncertainty is reduced directly when the patient relies on the structure providers to interpret the events, and, indirectly, when the structure provider variables then come into play to alter stimuli frame variables by interpreting, providing meaning, and explaining (Mishel, 1988; Mishel & Clayton, 2003).

The second major theme in the UIT is appraisal of uncertainty, defined as the process of placing a value on the uncertain event or situation. Two appraisal components are inference and illusion. *Inference* refers to the evaluation of uncertainty

based on examples of related situations. If inferences are seen as positive, then the uncertainty can be appraised as opportunity; if the inferences are seen as threatening, then the uncertainty may be appraised as a danger. *Illusion* refers to the construction of beliefs formed from uncertainty that have a positive outlook. The result of appraisal is the valuing of uncertainty as a danger or an opportunity (Mishel & Clayton, 2003).

Coping with uncertainty is the third theme in the UIT. The concepts include coping, and adaptation. If the coping strategies are effective for an uncertain event appraised as either a danger or an opportunity, adaptation can occur. Adaptation is defined as biopsychosocial behavior occurring within the person's individually defined range of usual behavior (Mishel & Clayton, 2003). The original UIT did not address the experience of living with continual, constant uncertainty with either a chronic illness or with an illness with a treatable acute phase and possible eventual recurrence; thus, Mishel has expanded the concept of uncertainty to include patients living with chronic illness (Mishel, 1999). The revised version focuses on the integration of uncertainty into one's life and one's life view.

In regard to the adaptation outcome of the UIT, adaptation refers to returning the individual's level to pre-illness functioning (Mishel & Clayton, 2003), which can be interpreted to have several outcomes. In Thailand, most investigators have used the UIT to guide studies on relationships among selected variables that influence the outcomes as adaptation and psychosocial adjustment. They have investigated various groups of people, both children and adults, including: adolescents with hematologic malignancy treated by chemotherapy (Chonbondeechalermrung, 2002), breast cancer patients (Chanpuang, 1991; Kaveevivitchai, 1993; Kooariyakul**,** 1995; Limthongkul, 1992; Saneha, 1999; Thipsuwannakul, 1998), cervical cancer patients (Santawaja, 2002), colorectal cancer patients (Lumdubwong, 2001), chronic obstructive pulmonary disease (COPD) patients (Pichayamongkol, 2002), HIV infected patients (Katekaewmanee, 1997; Sittichamlong, 1999; Vadtanapong, 1996), heart disease patients (Phudphanphaisan, 2001; Rugwongprayoon, 1996; Srisuwattanasakul, 1999; Suwannaphan, 2001; Vongvivat, 1993), infertile women (Prapapornsuk, 2001), mixed group cancer patients (Rojtinnakorn, 1993), patients waiting for elective surgery (Norasan, 1997), patients weaning from mechanical ventilation (Plangwan, 2004),

pregnant women (E-Kasingh, 1999;Naromrum, 2003), Systemic Lupus Erythematosus (S.L.E.) patients (Kaewthumrong, 2001), and women receiving fractional curettage (Dammai, 2003). Also studies on family caregivers include: emergency patients' relatives (Ngamdee, 2002) family caregivers of HIV patients (Nilmanat, 1995), families of critically ill patients (Maneechai, 999), and parents of children with cancer (Suwanosot, 2004).

Conceptual Framework for this Study

Variables under stimuli frames and uncertainty are proposed to contribute to QOL and depression in Thai patients with head and neck cancer. For this study, two antecedents include symptom experience and Buddhist practices. One mediating factor is uncertainty, and two adaptation outcome variables, depression as negative outcome and QOL as positive outcome.

Symptom Experience

Symptom experience is defined as the patient's perception and response to symptom occurrence and distress. Symptom occurrence is the frequency, duration, and severity of the symptom. The severity of symptoms can be perceived, verified, and rated by the individual according to the amount or degree of discomfort (Rhodes & McDaniel, 1999). Symptom distress is the degree of discomfort reported by the patients in response to the specific symptom being experienced (Cooley, 2000; McCorkle, 1987; McCorkle & Young, 1978). In this study, symptom experience is noted as a cause of uncertainty (Mast, 1995), which consists of symptom severity and symptom distress either from illness or treatment. In chronic illness, symptoms are associated with an illness trajectory. It may increase uncertainty in the patients with head and neck cancer for several reasons including: unfamiliar symptoms, unpredictability of symptoms and lack of information on how to manage the existing uncertainty.

A number of studies have revealed that symptom severity and distress have influenced uncertainty in both acute and chronic illness patients: cancer patients with more extensive disease reported uncertainty that significantly differed from those with less extensive disease (Hilton, 1994) and uncertainty levels were higher in those with repeated surgery (Andersson-Segesten,1991; Ronayne, 1989). Mishel (1997) reviewed

uncertainty in acute illness; 8 out of 10 studies reported a positive association between seriousness of illness and uncertainty. Furthermore, Braden (1990) found that severity of illness in rheumatoid arthritis patients was a major predictor of uncertainty.It can be hypothesized that symptom experience has a direct positive impact on uncertainty.

Buddhist Practices

Thais are involved in many Buddhist rituals and have several ways to practice and participate in Buddhism. The practice can be performed either by themselves at home or in other places for religious practicing such as a temple or Buddhist club. The Buddhist practices include: 1) practicing concentration or meditation; 2) chanting; 3) listening to a preaching; 4) reading religious books; 5) participating in religious discussions with experts; 6) walking up and down; 7) offering food to monks or giving alms to monks who walk by people's houses in the early morning; 8) making merit by going to a temple on a holy day or Buddhist festival; 9) making a respectful triple circumambulate with lighted candles in hand; 10) offering dedicated to monks; 11) donating money to monks;12) wholesome donating money or clothes to help other people; and 13) keeping the Five Precepts (Assanangkornchai,Conigrave, & Saunders, 2002; Charutsilp, 2001; Hanprasitkam et. al., 2007; Imaroonrak, 1999; Khluebsuwan, 1997; Kongpetch, 1991; Physansuthidetch, 1988; Praiwan, 1997; Ruamchai, 1999; Silapoth, 1999; Somprasert, 1982; Suankhem, 1994; Thaweerattana, 2000; Tongprateep, 2006; Yahakorn, 1992).

Buddhism provides a new basis for thinking of the truth of nature, to see the world as it is. Buddhism is a system of teachings in ridding life's ultimate problem of mental suffering (Payutto, 2003). If the patients have a belief of receiving good results from Buddhist practices, they may participate in Buddhist rituals. In particular, they will have more frequency when they have a troublesome in life such as when they become ill. These activities may help them have a peaceful mind and can face of difficulty in life (Tongprateep, 2006). Buddhist practices have been found to provide positive thoughts in women with gynecological cancer (Tiansawad & Jaruwacharapanichkul, 1997).

Religious participation is one component of the structure providers in the UIT (Mishel et al., 2003). According to the original UIT (Mishel, 1988), structure provider refers to the resources available to assist the person in the interpretation of the stimuli frame and they can reduce uncertainty both directly and indirectly. Uncertainty is reduced directly when the patient relies on the structure providers to interpret the events, and, indirectly, the structure provider variables then come into play to alter stimuli frame variables by interpreting, providing meaning, and explaining (Mishel, 1988). The original UIT consisted of three components, patient's educational level, social support systems, and credible authority or health care providers. Mishel et al. (2003) stated the religious participation was one of the components of structure providers after finding that extrinsic religiosity influenced the efficacy of an uncertainty management intervention for men with localized prostate cancer.

In term of religious participation reflects what people believe in their mind. Thus, when they have participated in religious activities or practiced on their own, it may be claimed that they attach to their respected religion which helps them cope with threatening situations in their lives. Once cancer develops, many people utilize religious beliefs and practices to help cope with the disease, as well as in accepting their illness and as a source of strength and comfort (Flannelly, Flannelly, & Weaver, 2002). Moreover, Pargament et al. (2004) found positive methods of religious coping were associated with improvements in health, and was significantly predictive of spiritual and psychological outcome.

In Thailand, Junda (2004) reported that women with breast cancer increased their praying and merit making activities when experienced negative effects from the disease, such as they worried about the uncertainty of the disease. They also sought help through the spirits or Buddhist rituals. These activities were important in helping patients accept their situation or they can face with whatever will come into their lives.

Buddhist practices promote positive attitudes that contribute to positive hope which is the way to reinterpret negative thought process contributing to reduce depression (Hanprasitkam et al., 2007). In the mean time, Hanprasitkam and colleagues (2007) reported that even though Buddhist practices had no direct effect on depression, it had an indirect effect on depression through anxiety ($\beta = -.20$, $p < .01$).

They had also found that Buddhist practices had a negative direct effect both on fatigue (β = -.18, $p < .01$), as well as an indirect effect on fatigue through anxiety (β = -.23, $p < .01$). The more patients experienced anxiety, the more they perceived uncertainty (Wong & Bramwell, 1992). It can be inferred from these relationships that patients who frequently perform Buddhist practices reported low anxiety, which contribute to reduce uncertainty, symptom experience, and depression. In turn, Buddhist practices probably provide an explanation for the positive adaptation outcome by enhancing QOL in cancer patients.

For head and neck cancer who experienced the suffering from disease and/or side effects of treatment, if they frequently perform Buddhist practices and use it as an effective coping strategy, the uncertainty of events will decrease. It can be postulated that Buddhist practices has a direct negative impact on symptom experience, uncertainty, and depression, as well as direct positive impact on QOL or an indirect impact on uncertainty mediated through symptom experience as well as an indirect effect on depression and QOL mediated through uncertainty.

Uncertainty

Uncertainty is a concept involving a variety of disciplines and research areas such as economics, system engineering, management science, philosophy, psychology, sociology, family, medicine, and nursing.The meaning of uncertainty is similar in each field, although in each area it is used somewhat differently. The diverse views of uncertainty are framed principally from an individual-psychological perspective. Uncertainty has been shown to be a powerful stressor in the context of illness (Babrow, Kasch, & Ford, 1998).

In the West, a number of studies have demonstrated that uncertainty is related to poorer psychosocial adjustment (Hilton, 1994; Mishel, 1984; Mishel & Braden, 1987; Richardson et al., 1987; Stetz, 1989) and lower QOL (Hawthorne & Hixon, 1994; Padilla, et al., 1992). Some investigators have found a positive relationship between uncertainty and depression and emotional distress in a varied group of populations including: cancer patients (Hilton, 1994; Richardson et al., 1987), family caregivers (Davis, 1990), gynecological cancer patients (Mishel et al., 1991; Mishel & Sorensen, 1991), heart failure patients (Hawthorne & Hixon, 1994; White & Frasure-

Smith, 1995), hospitalized medical-surgical patients (Mishel, 1981), patients and spouses after a cardiac illness (Yates & Booton-Hiser, 1992), post myocardial infarction patients (Bennett, 1993; Christman et al, 1988; Webster & Christman, 1988), and women and their husbands prior to a breast biopsy (Northouse et al., 1995).

In Thailand, Wonghongkul and colleagues (2006) found that uncertainty in illness had influenced to overall QOL in 150 Thai breast cancer survivors at least three years after diagnosis (β = -.31, $p < .001$). Only one intervention was found. The researcher conducted uncertainty studies in 68 Thai head and neck cancer patients (Wongsunopparat, 1990). She tested the effect of supportive-educative nursing system on uncertainty in illness based on a theoretical framework derived from the combination of the UIT (Mishel, 1988) and Orem's (1985) theory of nursing system. The results showed that before treatment ended the subjects in the experimental group reported a significantly higher mean score on information received than the control group. However, the researcher has not stated the relationship among uncertainty and other associated variables such as symptom experience,Buddhist practices, depression, or QOL. Although very little empirical evidence has been shown in studies conducted on uncertainty in head and neck cancer patients, it can be postulated from the studies in other populations that uncertainty has a direct negative impact on QOL and direct positive impact on depression as mentioned above.

Adaptation Outcome Variables

As defined in the UIT, adaptation refers to returning the individual's level to pre-illness functioning (Mishel & Clayton, 2003), which can be interpreted to imply several outcomes. Uncertainty has both positive and negative effects; on the positive side, uncertainty allows people to maintain realistic hopefulness about the long-term outcome, that is, they might have good QOL from their wishful thinking. The negative side may include increased stress, ineffective coping and depression (Mishel, 1990; Wineman et al., 1996). Therefore, in this study the researcher proposes to investigate both the positive aspect (QOL) and the negative aspect (depression) in order to develop a model for predicting QOL in Thai patients with head and neck cancer that essential for expanding QOL knowledge in this area of interest. Moreover, this knowledge will be enhance and expand the concepts of the UIT to Thai culture.

Depression

Depression is one of the most common psychosocial problems that found in cancer patients. Depression is a serious medical condition that affects thoughts, feelings, and the ability to function in everyday life. The highest rates of depression have been documented for individuals with advanced disease (Much & Barsevick, 1999). In this study, depression was selected as one of the outcome variables in head and neck cancer because of several reasons that particular risk for depression as follows: 1) life threatening nature of the illness and treatment-induced facial disfigurement and dysfunction, 2) problems with communication and emotional expression, and 3) a great deal of physical morbidity (Katz et al, 2004).

In the UIT (Mishel, 1988), QOL is mentioned as the positive aspect of adaptation outcome measurement. In contrast, the patients with head and neck cancer are susceptible to depression which is a negative aspect of adaptation outcome. They may develop negative thought and cannot predict their future, which can be a cause of depression. In this study, depression was defined as the emotional response to stressful situation which present in head and neck cancer patients in four factors including: depressed affect, positive affect, somatic and retarded activity, and interpersonal relationship (Radloff, 1977).

Currently, Hanprasitkam and colleagues (2007) found the strong positive relationship between depression and fatigue in Thai women with breast cancer ($r= .77$, $p < .001$). The results also revealed that Buddhist practices are negatively associated with depression ($r = -.63$, $p < .001$). Although no empirical evidence has been demonstrated the effect of Buddhist practices on depression in head and neck cancer patients, it can be postulated from the studies in other populations that Buddhist practices has a direct negative impact on depression and a direct positive impact on QOL or indirect impact mediated through uncertainty as the reasons mentioned above.

QOL

QOL is an important outcome measure of health care systems. In fact, there have been over 30 definitions used for proposed dimensions of QOL in persons with cancer (Vallerand & Payne, 2003). Although there is no single accepted definition, QOL is most generally considered as a construct that reflects the individual's

perception of overall well-being. Some authors have emphasized that QOL may be understood as the perceived difference between the present condition and a condition that is desired. Cella and Cherin (1988) defined QOL as a multidimensional construct that refers to a patient's appraisal of satisfaction with their current level of functioning as compared to what they perceive to be possible or ideal. The term health-related QOL is used to refer to those issues that apply specifically to the experience of illness to remove ambiguity between a general aspect of healthy people and a specific aspect of illness and treatment (Portenoy & Sperber, 2004). The treatments often are accompanied by undesirable and lasting side effects. Researchers have come to realize that the outcome of cancer treatments is adequate neither in assessing the impact of cancer and its treatment on the patients and their daily lives nor in identifying interventions to improve or maintain the patients' QOL (Grant & Dean, 2003). The studies of QOL and some factors influencing QOL will enhance the applicability of this concept as a reliable and valid outcome measure and will allow the concept to be tested (Vallerand & Payne, 2003).

However, in Thailand most researchers have not used the similar concepts of QOL. Hanuchrurnkul (1988) considered QOL to be that which makes life worth living for individuals in general and for cancer patients in particular and defined it in multidimensions including: (a) physical well-being; (b) psychological well-being; (c) body image concern; (d) response to diagnosis and treatment; and (e) social concern. Similarly, Likitsinsopon (2000) defined QOL as a person's perception of positiveness or negativeness relative to life satisfaction in physical-function well-being, psychosocial-existential well-being, symptom distress focusing on nutrition, pain and bowel pattern, and attitude of worry concerning tangible and intangible costs, weight, and unfinished business. As a result, the researchers must decide what they mean by QOL and identify the specific dimensions to be measured. In addition, instruments used to measure QOL might signify diverse approaches to quantifying QOL (Haberman & Bush, 2003; Weymuller, Jr. et al, 2003). This study uses Cella and Cherin's definition (1988) of QOL which defined as patients' satisfaction with their current level of functioning compared with what they perceived

to be possible in multidimensional aspects including: (a) physical well-being; (b) social/family well-being; (c) emotional well-being; and (d) functional well-being.

To date, no report of empirical research on Thai head and neck cancer has investigated the factors contributing to QOL nor has anyone particularly examined the relationships among symptom experience, Buddhist practices, uncertainty, depression, and QOL. This study will test a conceptual model of uncertainty in illness to predict QOL in Thai head and neck cancer patients developed from the UIT. This proposed model will examine the influences of the structure providers encompassing Buddhist practices and the stimuli frame encompassing symptom experience, which consists of symptom severity and symptom distress, to determine their impact on uncertainty, depression, and QOL. The proposed relationships among the variables in the current study are shown in Figure 1.2. It is hoped that the knowledge obtained from this study will contribute to the betterment of nursing science, nursing practice, and nursing research, and provide the appropriate theoretical-based interventions for nurses and other health care professional teams.

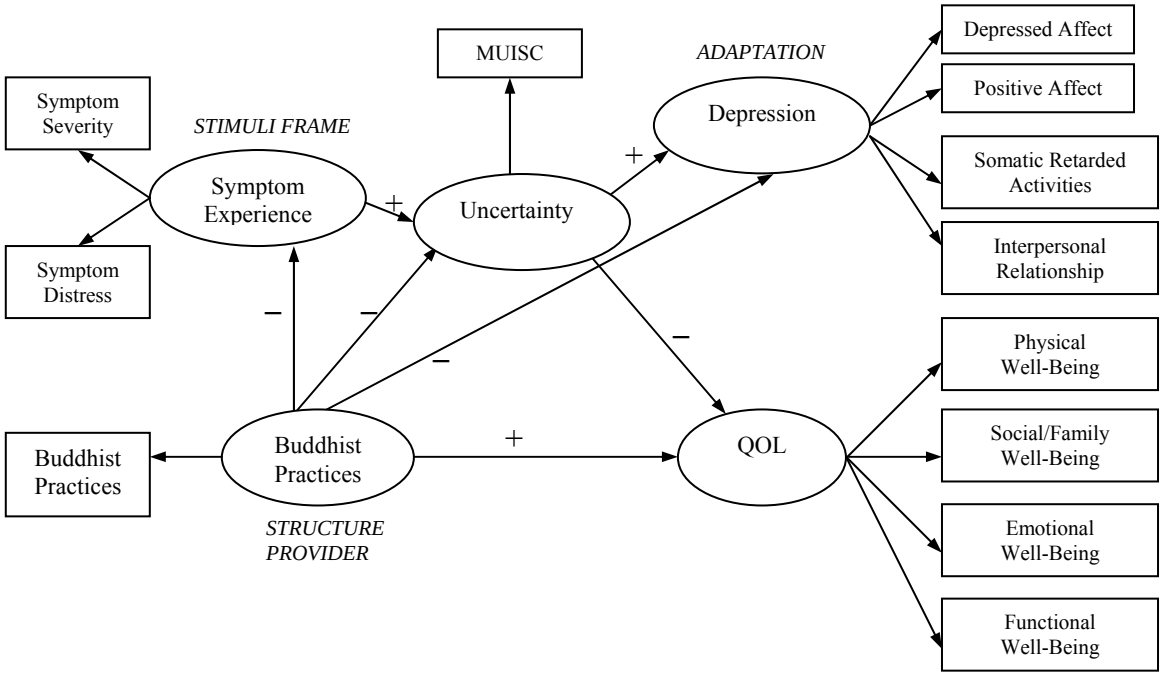

Figure 1.2 A Hypothesized Model Associated with QOL in Thai Patients with Head and Neck Cancer

Note: MUISC = Mishel Uncertainty in Illness Scale: Community Version

Assumptions

1. Uncertainty exists in head and neck cancer patients after completed treatments.

2. The participant's answers from the questionnaires represent their own perceptions.

Hypotheses

The hypotheses of this research are as follows:

1. Symptom experience has a direct positive impact on uncertainty and an indirect impact on QOL and depression mediated through uncertainty in Thai patients with head and neck cancer.

2.Buddhist practices have a direct negative impact on symptom experience and uncertainty or an indirect impact on uncertainty mediated through symptom experience in Thai patients with head and neck cancer.

3. Buddhist practices have a direct positive impact on QOL or an indirect impact mediated through uncertainty in Thai patients with head and neck cancer.

4. Buddhist practices have a direct negative impact on depression or an indirect impact mediated through uncertainty in Thai patients with head and neck cancer.

5. Uncertainty has a direct positive impact on depression and a direct negative impact on QOL in Thai patients with head and neck cancer.

Definition of Terms

1.Symptom experience refers to the degree of specific problems or discomfort stemming from the disease and/or treatment side effects reported by head and neck cancer patients after completing treatment of at least one month but not more than one year. It pertains to nasal bleeding, mucositis, odynophagia, difficulty in opening mouth, difficulty in closing lip,difficulty in talking, difficulty in mastication, difficulty in swallowing, drooling, disfigurement, dry mouth, thick saliva, taste change, loss of appetite, hoarseness, trouble breathing, shoulder dysfunction, trouble sleeping, and fatigue. It is operationally defined as the sum of severity and distress scores of the 19 items of the Modified Symptom Experience Scale. The higher scores reflect more symptom experience in each dimension of severity and distress.

2. Buddhist practices refers to how often of levels in practice and participation in Buddhist activities by head and neck cancer patients including: practicing concentration or meditation, chanting, listening to a preaching, reading religious books, discussion with religious experts, walking up and down (walking meditation or jong krom), offering foods to monks, making merit, making a respectful triple circumambulate (wian tian), offering dedicated to monks (sungkatan), donating money to monks, wholesome donating money or clothes to help people, and keeping the Five Precepts. It is operationally defined as the sum of scores for the 13 items of the Buddhist practices Scale. The higher scores indicate higher levels of practice and participation in Buddhist activities.

3.Uncertainty refers to an inability to determine the meaning of illness-related events occurring when the patient is unable to assign definitive value to objects or events and /or is unable to accurately predict outcomes (Mishel & Clayton, 2003). It is operationally defined as the sum of scores of the 23 items of the Mishel's Uncertainty in Illness Scale: Community Form (MUIS-C) (Mishel, 1997). The higher the scores, the higher level of uncertainty.

4. Depression refers to the emotional response to stressful situation which present in head and neck cancer patients in four factors including: depressed affect, positive affect, somatic and retarded activity, and interpersonal relationship. It is operationally defined as the sum of the scores for 20 items of the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The higher scores indicate higher levels of depression.

5. QOL refers to patients' satisfaction with their current level of functioning compared with what they perceived to be possible (Cella & Cherin, 1988). It is operationally defined as the sum of the scores for 27 items of the Functional Assessment of Cancer Therapy-General Scale (FACT-G) (Cella et al, 1993). The higher scores indicate better QOL.

CHAPTER II
LITERATURE REVIEW

In this chapter, literature pertaining to QOL in Thai patients with head and neck cancer and factors associated with QOL was reviewed and critiqued. The review was organized to follow and explain the links presented in the hypothesized conceptual model. The scopes of review are as follows:

1. Symptom experience in head and neck cancer patients
2. Buddhist practices in cancer patients
3. Uncertainty in cancer patients
4. Relationship between symptom experience, Buddhist practices, and uncertainty
5. Depression in cancer patients
6. QOL in head and neck cancer patients
7. Relationship between Buddhist practices and depression
8. Relationship between Buddhist practices and QOL
9. Relationship between Buddhist practices, uncertainty, depression, and QOL

Symptom Experience in Head and Neck Cancer Patients

Symptoms are disease related, treatment related, or a combination of both. Symptoms may lead to significant patient distress (Kirkova et al., 2006). Rhodes and Watson (1987) defined symptom distress as the physical or mental anguish or suffering that results from the experience of symptom occurrence and/or the perception of feeling states. Subsequent studies of symptom distress in people with cancer used “distress” and “bother” interchangeably (Goodell & Nail, 2005). The studies of symptoms in head and neck cancer patients were performed either as a sole symptom or as a summated symptom severity or distress.

Tishelman, Taube, and Scahs (1991) found that the types of treatment were significantly related to patients’ degree of symptom distress. The treatments for head and neck cancers are radiation therapy or surgery or both combined and chemotherapy

is sometime used as an additional or adjuvant treatment. In general, patients in an early stage are treated with one modality. Radiation treatment sometimes includes chemotherapy in cancers in advanced stage III or stage IV (American Society for Therapeutic Radiology & Oncology, 2007; Carper, Fleishman, & McGuire, 2003). Those treatments may have diverse effect on severity and distress in patients. The empirical supports for the effect of treatment are as follows:

Gaziano (2002) found that the effects of surgical resection of cancer in the oral cavity could cause a serious impact on swallowing in cases involving more severe dysphagia. Moreover, surgical resection of the larynx commonly involves total laryngectomy, which results in significant anatomic and functional alterations such as permanent tracheotoma, loss of laryngeal speech, stiff shoulders and shoulder pain as well as a profound impact on the most fundamental activities of daily life such as speech, communication, breathing, eating and drinking, and body image disturbance (Graeff et al., 1999; Hanna et al., 2004; Khosh & Aviv, 1998; Larsson, Hedelin & Athlin, 2003, Likitsinsopon, 2000; Yimin, 1999).

In general, not only surgery resection but also radiotherapy may cause potential long-term physical dysfunction such as xerostomia, and eating ability dysfunction. The severity of xerostomia is related directly to the dosage of radiation. At a total dose of approximately 3,000 cGy when radiation is administered at a rate of 200 cGy per day, damage to the salivary glands occurs and causes viscous saliva. When the dose exceeds 6,000 cGy, changes may be permanent, with fibrosis and glandular degeneration. Xerostomia is progressive, persistent, and irreversible, producing a reduction in saliva output greater than 95% three years after radiotherapy (Gaziano, 2002; Hanna et al., 2004; Larsson et al., 2003; Rademaker et al., 2003). After completed RT, many patients were very apprehensive about resuming work, hobbies and relationship with friends and family (Well, 1998).

Furthermore, concurrent chemoradiotherapy has been found to produce significant acute toxicity. Many patients undergoing concurrent therapy experience grade 3-4 mucositis (Villaret & Weymuller, Jr., 2003), which means an inflammation of the oral mucosa. Mucositis may alter the taste receptors, causing unpleasant taste sensations, or absent taste sensation. Oral pain almost always accompanies oral

mucositis. Manifestations and outcomes of oral mucositis include ulceration, xerostomia or a dry mouth, ageusia, pain, infection, bleeding, and altered nutritional status. The negative impact of mucositis on the individual's comfort, ability to eat and communicate, and generalized well-being can significantly diminish QOL (Beck, 1999). Xerostomia and dysphagia have been the most common side effects reported with long-term follow-up. Other reported long-term side effects affecting QOL are hoarseness, tasting impairment, and trismus (Nguyen, Sallah, Karlsson, & Antoine, 2001).

Moreover, experiencing physical discomforts from treatments of head and neck cancer can cause psychological, emotional, and social dysfunction. Many patients who have undergone the surgery report feelings of distress, and negative changes in self-image. Cancer treatments of this region are particularly devastating because of the visibility of this organ. They can distort the individual's appearance and cause a heightened sense of shame. The surgery and radiation were successful, but the patient continued to struggle with depression and feeling of worthlessness. Those who have distorted face and loss of speaking ability may face social isolation (Callahan, 2004). These disturbances can profoundly undermine QOL (Portenoy & Sperber, 2004).

The symptom experience is affected by many additional factors, i.e., socioeconomic status, race, culture, role, education, health knowledge, values, and past experience (McClement, Woodgate, & Denger, 1997). Some evidences in other groups of cancer supported observation such as those of Degner and Sloan (1995) who found that patients with advanced cancer reported more distress than those with the early stage disease; women presented more distress than men; the older patients had less distress than younger one. Furthermore, symptom distress can increase mood disturbance for cancer patients. McCorkel and Benoliel (1983) found that patients who experienced more symptom distress, suffered more mood disturbances.

In Thailand, Pongthavornkamol (2000) found that 20 Thai patients undergoing a 4-7 week course of external radiotherapy experienced common symptoms that included fatigue, skin irritations, decreased appetite, sore throat/mouth, changes in saliva, dry mouth, alterations of taste, and difficulty swallowing. The incidence of symptoms and severity increased over time and peaked during the last few weeks of

treatment. Most symptoms still continued for the majority of these subjects at one-month post treatment. Subjects who were experiencing many side effects and perceived the side effects as severe were more likely to experience mood disturbance and disruption in daily activities. Similarly, Kitbuncha (2000) examined skin alterations of 60 patients undergoing radiotherapy through the six weeks radiation course of 5,500 – 6,000 cGy. The result showed that dry desquamation was found in the sixth week. Most observations (38 observations out of 60) reported an itching with a burning sensation. The patients also experienced these symptoms until after the treatments have been completed.

Two studies showed that distress from symptoms can reduce by receiving supportive-educative nursing system. Hanprasitkam (1992) investigated the effects of promoting patients' participation in self-care on symptom distress, mood state, and self-care deficit in cancer patients receiving chemotherapy. The finding demonstrated that the patients who received the supportive-educative nursing system developed from Orem's theory and usual care had significantly lower mean score of symptom distress on the second day post chemotherapy. Similarly, Kongtong, Wonghongkul, and Upalabut (2002), conducted quasi-experimental research to evaluate the effect of a supportive-educative nursing system on fatigue in 30 nasopharyngeal cancer patients receiving radiotherapy. Fifteen participants in experimental groups received information about activity for fatigue management from videotape and handbook. Data collection was performed three times, the day before radiotherapy, fifteenth, and thirtieth day of radiotherapy. The result of this study indicated that the program can reduce fatigue in nasopharyngeal cancer patients. The continuous support and information from the researchers and peers can help them to develop their self care agency to manage fatigue. The researchers also recommended using this program in patients during and after radiotherapy.

Buddhist Practices in Cancer Patients

The majority of Thai people believe in Buddhism, which is the national religion of Thailand (Choowattanapakorn, 1999). The Buddha's teachings represent the truth, the Dharma, which is to be accepted and lived. The core teachings of Buddhism deals directly with the concept of suffering and the means of eliminating it,

despite different cultural interpretations of Buddhism in different Buddhist countries (Chanchamnong, 2003). Buddhists believe that Buddhism, with its teachings of both nonviolence and compassion, may be able to offer a thoughtful “middle way” The central Buddhist practices of meditation, including calming the mind and emptying the mind, promotes wellness by reducing stress and engaging the mind positively in the healing process (Chanchamnong, 2003; Mauk & Schmidt, 2004; Payutto, 2003). According to Buddhism, everyone is free to consider and investigate Buddhist teaching before acceptance. Even after acceptance one is free to select any particular part of the teaching to put into practice (Medhidhammaporn, et al., 1996).

Thais perform Buddhist practices to acquire merit by giving food to the monks, renovating temples, and showing kindness to all living creatures (Khantipalo, 1995). The word “merit” means “cleaning” or “purification”. To make merit is to cleanse greed, hatred and delusion from one’s mind. The Buddha taught Buddhist people to make merit by means of charity (Dana), Morality (Sila) and spiritual development (Bhavana). People can make merit at any moment in one’s daily life. The other Buddhist teaching is “giving or Dana” which composes of three kinds of giving: (1) giving to the needy (e.g. helping the poor, giving to orphans, etc.); (2) giving to equals (e.g. giving to our friends or neighbors to build up friendship); and (3) giving to people to whom we want to show our gratitude or respect e.g. parents. Buddhists should give without expectation of return. Giving is a way of decreasing craving and attachment (Medhidhammaporn, et al., 1996).

The Five Precepts are the other moral principles which Buddhist should perform in daily life that is the ideal way for all Buddhists. The Five Precepts are self-training rules that lead to moral practices and right behavior. The more one can observe the Five Precepts and Five Virtues, the more happy and peaceful life one will achieve. These principles consist of (1) to abstain from killing, and develop loving-kindness and compassion to all living beings; (2) to abstain from stealing, and develop right means of livelihood; (3) to abstain from sexual misconduct, and develop restraint of the senses; (4) to abstain from lying, truthful speech; and (5) to abstain from intoxicants, and develop restraint and mindfulness. Moreover, Buddhists are taught to be broadminded but not to believe in anything easily before investigation or proper

consideration. In addition, Buddhists are taught to diffuse all good senses towards all sentient beings that may be of different nationalities, religious and environment. Therefore, Thai Buddhists have many ways to practice the Buddhist activities for fully developed and happy life (Medhidhammaporn, et al., 1996).

Many studies related to Buddhist practices were performed in non-patient groups. Tongprateep (2006) conducted a qualitative study to understand and describe the essential elements of spirituality in twelve rural Thai elders. The findings yielded three categories: 1) spiritual beliefs, 2) religious practices, and 3) consequences of the spirituality. The spiritual beliefs category consists of two themes: the law of karma and life after death. The religious practice category consists of four themes: merit making, observance of moral precepts, gratitude and caring in the family, and meditation. The consequences of spirituality category include three themes: coping with the vicissitudes of life, being hopeful, and having a peaceful mind. The researcher concluded that the spiritual needs among hospitalized elders may differ from health elders. Active listening should be applied for the accuracy spiritual assessment.

Similarly, Kunsongkeit, Suchaxaya, Panuthai, and Sethabouppha (2003) performed the qualitative study in nineteen Thai Northern people; aimed to understand the lived experience of spiritual health perceived by Thai people. The results showed that spiritual health perceived by Thai people is composed of three themes. Firstly, was having a sense of connectedness in life which refers to the informants' having a meaningful connection with religion, a supernatural power or even a person. Having adherence to a religion, one of the categories in this theme, enabled them to live happily, peacefully, and safely by having religious principles as guidance in their lives and practicing the activities related to that religion. Secondly, was having happiness in life which refers to the feeling of complete contentment resulting from having life satisfaction and a meaningful life. Thirdly, was having power for living refers to the positive energy that pushes one to sustain and move ahead with one's life.

Another study of Buddhist beliefs and good life in Thai society was conducted by Sawekpan (2002) in 399 Buddhists in Bangkok. The investigator reported the right way of paying respect to Buddhism is to venerate the Lord Buddha, Thamma, and Sangkha for a life time. Buddhism is a way of life and a mean of finding inner peace

without respect to the supernatural powers. Thai people who have strong belief in Buddhist tend to practice and participate in religious activities. However, one study in 15,579 Thai youths found that age, gender, education, and region of residence have a significant effect on the participation in Buddhist activities (Suankhem, 1994).

In Taiwan, religion has been viewed as a way of relating to a higher power and sharing similar rituals and symbols by a group of people that invokes awe or reverence. Taiwanese people have a strong cultural value and belief in religion. Religious healing has been used simultaneously or consecutively as a supplementary therapy to standard medical treatment in various populations in Taiwan (Yei, 2001). Nevertheless, Yei (2001) reported a negative impact of religious practice, which can lead to a guilty conscience in a significant person who deals with cancer patients and can cause maladaptation.

Similarly, Flannelly, Flannelly, and Weaver (2002) conducted a review of researches published in three major oncology-nursing journals between 1990 and 1999. From 31 qualitative studies they found that religion or spirituality emerged in four themes: (a) in accepting one's illness, (b) as a source of strength and comfort, (c) in patients' reliance on their churches as source of support, and (d) in patients' use of religious faith and practices, i.e., prayer as coping mechanism. In short, if the patients have their own belief in religious, they may practice and participate in diverse religious activities. These activities may help them have a peaceful mind and can face of difficulty in life (Tongprateep, 2006).

In this study, Buddhist practices act as the structure provider to help patients interpret the stress events to directly reduce uncertainty and, indirectly, then come into play to alter stimuli frame variable (symptom experience which consist of symptom severity and symptom distress) by interpreting, providing meaning, and explaining the events (Mishel, 1988).

Uncertainty in Cancer Patients

Uncertainty is a constant experience of chronic illness due to the unpredictable and inconsistent symptom onset, continual questions about recurrence or exacerbation, and unknown future due to living with deliberating condition (Mishel, 1999). A state of uncertainty is a major component of all illness experiences and it affects outcomes

of disease (McCormick, 2002).Uncertainty is also a common experience for patients living with cancer and is fluctuating experience that never totally resolves in cancer patients. The unknown of future disease trajectory and outcomes may cause uncertainty in those who living with cancer. Time allowed the patients to develop a complex life orientation.

The patients may learn to live with the uncertainty in illness when no cure can be offered. Nelson (1996) conducted a qualitative study in nine women post treatment for breast cancer to describe and interpret uncertainty. The findings showed that uncertainty among women living with breast cancer was a dynamic process that evolved from diagnosis to living with the disease. Five themes of uncertainty were uncovered: 1) the vicissitude of emotions, 2) relying on support through relationships, 3) transition: learning new ways of being in the world, 4) reflections of self in the world, and 5) gaining understanding: putting uncertainty into life's perspective. Similar to the study of Winter (2001) which was conducted in 22 patients with heart failure. The results demonstrated that these patients recognized uncertainty as a normal part of life and illness. Uncertainty increased when symptoms or treatments changed, information was incomplete, and a sense of control over illness was lost. The support of family members, friends, and neighbors was an important aspect to help them deal with uncertainty by encouraged them to live life to the fullest.

In Thailand, Ragwongprayoon (1996) investigated the meaning of uncertainty in 29 heart disease patients. Uncertainty caused threats and uncertainty related to hope were two types of uncertainty that demonstrated in the finding. Uncertainty caused threats related to the severity of disease, receiving negative information, and financial problems. Hope in these patients that related to uncertainty came from no severity of symptom, receiving positive information, belief in empowering of will-power, and having no financial problems.

The uncertainty management is more important than elimination. (Mishel, 1988; Mishel et al., 2003). Many researchers have studied uncertainty in various groups of cancer patients and other chronic diseases. Mishel et al. (2002) found that a psychoeducational, telephone-delivered intervention directed at helping patients with prostate cancer manage their uncertainties during the time of highest symptom distress.

Providing a resource to patients after initial treatment is particularly relevant. Similar to the qualitative study of Brashers, Neigig, Dobbs and colleagues (2001), which employed in 21 patients with AIDS aimed to explore the uncertainty experiences for using as a first step toward developing an intervention study. The results revealed that information and instruction in information-seeking skills should be provided to those patients to reduce stress-provoking uncertainty. That information should be easily accessible and helpful for maintaining optimism.

Relationship between Symptom Experience, Buddhist Practices, and Uncertainty

According to the UIT, the nature of the severity of symptom presents difficulty delineating a symptom pattern about the extent of the disease, resulting in uncertainty (Mishel, 1997). The finding from various studies has shown that severity of illness is a predictor of uncertainty, although the indicators of severity of illness have varied across studies. Severity of illness refers to symptoms with such intensity that they do not clearly reflect discernable, understandable pattern. Among the patients in the treatment phase of illnesses such as cancer, severity of illness has been positively associated with uncertainty.

In Thailand, Hanucharurnkul, Wongsunopparat, and Wonghongkul (1991) examined the relationships among education, event familiarity, symptom severity, personal control, and perceived uncertainty in 128 cancer patients receiving radiation therapy. The result demonstrated that educational level, event familiarity, symptom severity and personal control explained 50% of variance in perceived uncertainty. Symptom severity and educational level had a direct effect on perceived uncertainty. Similarly, Mast (1995) reviewed researches related to adult uncertainty about symptom experience, which consists of symptom severity and distress, and demonstrated that symptom experience affects uncertainty.

Some authors have focused on specific problems such as eating disorders, which may influence the development of uncertainty in head and neck cancer patients (Rademaker et al., 2003). They studied eating ability in those patients after treatment with chemoradiation and conducted a 12-month follow up. They found that the ability to eat at most 50% of the diet orally at the 12-month follow up did not return to baseline levels ($p<.05$). As a result, patients who face those symptoms may develop

uncertainty from the difficulty delineating a symptom pattern (Mishel, 1997). They probably do not know when the symptom will not exist. Consequently, it is expected that symptom experience might impact uncertainty in cancer patients.

In western culture, every symptom of the disease that a patient experiences is often a frightening reminder of the enemy within. The treatments for cancer may be feared as much as cancer's threat to mortality. As the disease progresses, waiting for the inevitable end can be more distressing than the physical symptoms of the disease. In this state of desperation, people may turn to god (Koenig, Larson, & Larson, 2001).

Mishel et al., (2003) has stated that religiosity is one component of the structure providers in the former uncertainty theory (Mishel, 1988).They conducted a study on uncertainty management intervention in 239 men with localized prostate cancer (Mishel et al., 2003). The investigators indicated that Religiosity, both extrinsic and intrinsic, was a major source of social support. Extrinsic religiosity refers to religious involvement and plays a major role in coping with illness (Mishel et al., 2003). Thus, it may be help decrease uncertainty level. Furthermore, Pargament et al. (2004) has suggested that religious beliefs and practices are directly related to health. Many people look to religion for help in coping. Therefore, if the coping strategies are effective, an uncertain event will be decrease.

Depression in Cancer Patients

Patients with head and neck cancer are threat to develop depression. They have to struggle on many losses: normal facial appearance, speech, normal communication, taste, and smell (Sehlem et al., 2003). As to the DSM-V criteria, the main features of depression are abnormal appetite, sleep disturbance, fatigue or loss of energy, agitation, inappropriate feeling of guilt, poor concentration, thought of death, and suicidal thoughts. Depressive symptoms are a very common feature among cancer patients in general and especially in head and neck cancer. Because of the high incidence of depression in head and neck cancer, an early detection of these patients is very important. Godding et al. (1995) conducted study to identify predictors of depression in sixty-nine male veterans, hospitalized cancer. The most common cancer types included lung (33.3%), head and neck (21.8%), and prostate (19.5%). The resulted showed that almost 40% of subjects reported symptoms of moderate to severe

depression. They also found that QOL was the most important predictor of depression; it accounted 31.5% of the variance in depression. However, the researchers stated the limitation of the findings do not permit causal inferences due to the correlational methodology. Although QOL was associated with depression, it is possible that the relationship is spurious.

Some empirical studies have examined depression and some related variables such as the side effects of cancer treatment (Badger, Braden, & Mishel, 2001; De Leeuw, De Graeff, Ros, Blijham, Hordijk, Winnubst, et al., 2001; Munkres, Oberst, & Hughes, 1992;). In a study of Happ, Roesch & Kagan (2004), they emphasized communication problems. There were significant negative correlations between sputum production and voice quality ($r = -.38$, $p < .01$). The poor voice quality will lead to loss of voice which can create emotional and social changes that sometimes result in withdrawal and depression. Another study focused on psychosocial problems (Strauss, 1989). The result showed that head and neck deformities or speech disabilities initiate profound changes in social interaction.

In Thailand, many intervention researches were conducted; aimed to reduce anxiety and depression levels in cancer patients. Tongsuchote (1992) conducted the intervention study to investigate the effect of instructions by video tape on knowledge regarding health practice and anxiety level in cervical cancer patients undergoing brachytherapy. The results found a significant effect of educational programs on anxiety and depression. Similar to Padee (1994) conducted the study to investigate the effect of bibliotherapy on reducing anxiety and depression in 36 cancer patients. The results found that bibliotherapy had reduced cancer patients' anxiety and depression significantly.

Chutachindakate (1997) conducted a quasi-experimental research to determine the effect of relaxation training on the reduction of anxiety and depression in 40 cervical cancer patients receiving radiotherapy. Patients in the experimental group received three relaxation training sessions from the researcher and twenty one sessions from assistant researchers. The control group did not receive any relaxation training. The results showed the patients who received relaxation training had lower depression than the control group. However, the authors of these experimental studies had

claimed that every participant had depression in their lives. In fact, all patients may not have the feeling of being depressed. Thus, a study should be firstly conducted to screen depressive level, and then examine the factors contributing to depression and the mechanism how those factors can reduce depression before giving any intervention to them.

QOL in Head and Neck Cancer Patients

Padilla and Grant (1985) defined QOL as a multidimensional, subjective concept. Similarly, other researchers have defined QOL as a multivariate dynamic construct used to characterize a broad range of physical, functional, psychological, socioeconomic, and mental dimension (King & Hinds, 2003; Rose & Yates, 2001; Vallerand & Payne, 2003). In health care, QOL refers to the negative and positive outcomes that illness or trauma and their subsequent treatments have on well-being or satisfaction with life, as evaluated from a patient's perspective (Schultz & Winstead-Fry, 2001). QOL remains ambiguous and operationally complex. Most authors agree that QOL is, at its most fundamental level, subjective, multidimensional, and dynamic as it changes over time and situations. QOL can only be communicated by variables or instances that illustrate rather than define or specify the essential attributes of the concept. For example, a health care provider who is concerned with the impact of treatment on physical functioning may focus on side effect characteristics as illustrative of a patient's QOL. Another health care provider with a desire to understand more about the impact of the illness on a patient's overall happiness or satisfaction with life may focus on role performance or spirituality as illustrative of QOL (Haase & Braden, 2003).

Five studies in Thailand: Hanucharurnkul, 1988; Kaweewong, 1992; Likitsinsopon, 2000; Satrasook, 1997; Takviriyanun, 1991 reported overall QOL and each dimension of QOL scores in head and neck cancer patients at different times in the treatment process. Some authors measured QOL at only one point (Hanucharurnkul, 1988; Kaweewong, 1992; Likitsinsopon, 2000). Hanucharurnkul (1988) found that the mean score of overall QOL was in the moderate level (66 ranges of values of the QOL index was 0-100). The item "pleasure in eating" had the lowest rating followed by "fatigue" and "worrying," respectively. Similarly, Likitsinsopon's

study (2000) of 100 patients with laryngectomees found that most of the patients had moderate to good overall QOL. The overall QOL-CA scores ranged from 56 to 287 (mean of total scores 216.20, SD = 35.25). The mean scores of the subscales psychosocial-existential well-being, physical-functional well-being, symptom distress: nutritional/pain/bowel pattern and attitude of worry were 77.03, 58.30, 61.30, and 19.56, respectively. The older, married participants tended to have higher QOL scores than patients living alone.

In the United states, Rose and Yates (2001) studied QOL experienced by 58 head and neck cancer patients who were receiving radiation treatment during and after a curative course, gathering data across a three-time point, T1 (first week of treatment), T2 (last week of treatment), and T3 (one month after treatment). The results indicated overall increased levels of physical and functional symptoms between T1 and T2 and found that the severity of side effects from radiation treatment was predictable over the three time points. The results indicated that the participants were most bothered by side effects at the end of treatment. The patients who were faced with severe side effects may have depression.

Relationship between Buddhist Practices and Depression

Religion has been associated with lower level of depression (Mytko & Knight, 1999), approximately two-thirds lower rates of depression and /or anxiety have been found among the more religious (Koenig & Larson, 2001). Religion may provide successful coping strategies, which protect against deleterious effects of stressful life events (Strawbridge et al., 1998; Williams et al., 1991). Olphen et al. (2003) examined the direct effect of different forms of religious involvement on health, and the mediating effects of social support received in the church as a potential mechanism that may account for observed relationships between church attendance and health. The main results show that respondents who pray less often report a greater number of depressive symptoms.

In Thailand, Physansuthidetch (1988) conducted an experimental study by using a health education program applied with Dharma in 120 cervical cancer patients. They were divided into three groups with 40 patients in each group. The first group received health education with applied Dharma, the second group received only health

education, and the third group was educated about the disease as usual. After the experiment, a mean difference in anxiety/depression and willingness to accept the disease condition was found. The experimental group one and two have mean in anxiety/depression lower than before the experiment ($p < .05$). It can be assumed from the result of this study that Buddhist practices and participation has a negative impact on depression.

Relationship between Buddhist Practices and QOL

Buddhist practices and a high level of participation may improve the quality of a person's life by buffering the negative effects of stressful life events on physical and emotional health. Among cancer patients, use of religion as a coping strategy has been related to better psychosocial adjustment, especially after diagnosis. (Mytko & Knight, 1999). Buddhist practices enable patients to be free from a sense of self, feel more peaceful, able to better concentrate, gain more emotional and mentally stability, and have more positive feelings toward life (Dhammapitika, 2003). Consequently, the patients may stay calm and live with hope which helps them manage the stress situations and promote to have a good QOL (Bhanthumnavin et al., 1997, Hanprasitkam et al., 2007).

In the United States, religion typically involves connections to a community with shared beliefs and rituals. The religious activities often involve beliefs in God, private religious activities such as prayer, reading religious scriptures for direction and encouragement, or looking for support from the pastor or members of a faith community (Koenig, 2004). Many studies showed that religious beliefs and practices are associated with less depression and faster recovery from depression, greater well-being, and higher social support (Fehring, Miller, & Shaw, 1997; Jenkins, & Pargament, 1995; Koenig, 2004; Koenig, Weiner, Peterson, Meador, & Keefe, 1997; Nairn & Merluzzi, 2003). Moreover, religious involvement and spirituality have been associated with better health outcomes, greater longevity, improved coping skill, and greater QOL (Kub et al, 2003; Mytko & Knight, 1999).

Relationship between Buddhist Practices, Uncertainty, Depression, and QOL

Physical illness, anxiety and depression are some of the most common stress in life. Among cancer patients, some investigators found that continual uncertainty can

reduce QOL (Mishel & Sorensen, 1991; Padilla, Mishel, & Grant, 1992). In the uncertainty theory, adaptation—psychosocial behavior within the person's normative level of functioning—is proposed as the end state achieved after coping with the uncertainty (Mishel, 1990). According to the UIT, adjustment refers to returning to the individual's level of pre-illness functioning. The research has interpreted this as QOL or emotional stability (Mishel & Clayton, 2003). The researchers examine the relationship between uncertainty and an outcome; uncertainty has been related to poorer QOL (Padilla, Mishel, & Grant, 1992).

Buddhist practices is one of therapeutic elements can help reduce stress. Religion and spirituality are among the most important factors that structure good human experience, beliefs, values, behavior and illness pattern (Joseph, 1998). Not surprisingly, such beliefs may have powerful psychological consequence. The patients may have better self-control which may lead to reduce uncertainty, and increase QOL.

There are some evidences have been shown the relationship between religion and depression in chronic illness patients. McCullough and Larson (1999) reviewed 80 published and unpublished studies that examined the association of religious affiliation or involvement with depressive symptoms. The studies showed that people with no religious affiliation are at an elevated risk in comparison with people who are religiously affiliated. People with high levels of general religious involvement and intrinsic religious motivation are at reduced risk for depressive symptoms. Similarly, Musick, Koenig, Hays, and Cohen (1998) conducted the study to examine the effect of religious activity on depressive symptomatology among community-dwelling elderly persons with cancer. The finding showed that religious activity is a strong predictor of depression.

In Thailand, Hanprasitkam (2006) found that Thai women with breast cancer not only used Buddhist practices as coping strategies to deal with cancer and fatigue but also Buddhist practices which is a uniqueness of Thai culture, is an important factor for Thai people in dealing with suffering and stressful circumstances. Similarly, the findings from many studies in Thailand which reported that Buddhist practices help Thai patients cope with stress situations and promote mindfulness to feel free from physical and psychological symptoms, including fatigue and depression in

various groups of patients included: AIDS (Dane, 1992), breast cancer (Chaithaneeyachati, 2002), breast cancer and lung cancer (Kongsaktrakul, 2004; Pongpruk, 1998; Pritsanapanurungsie, 2000), burn (Setakasikorn, 1998), and rheumatoid arthritis (Petmaneechote, 2000).

Moreover, four intervention studies demonstrated good effects of meditation training program. The first, Somprasert (1982) conducted the intervention research in 64 first-year students of one university in Thailand to study the effect of Buddhist meditation: Anapanasati Samadhi, on anxiety levels. The results suggested that in comparison the pretest and posttest after three months of Anapanasati Samadhi practice; trait anxiety levels of samples were significantly different ($p < .05$). The second, Imaroonrak (1999) studied the effects of Anapanasadhi training program on mental health in 63 Thai Southern people. The results revealed that after training program, the mental health of the subjects seemed better in social function. Similarly, Thaweerattana (2000) conducted a research to study the effect of meditation on health and mental health of 50 menopausal women. The experimental group practiced meditation for 10 days. The result showed that meditation project help reduce emotional imbalances during the menopause period. The fourth, Charutsilp (2002) studied the effect of insight meditation practice on levels of stress in 156 Thai people who participated in meditation training program for seven days. The results showed that a percentage of subjects with mild and severe stress were significantly reduced ($p < .001$) after practicing insight meditation from 63.4% to 34.0%.

In conclusion, meditation which is one kind of Buddhist practices can help reduce stress, anxiety/depression in various Thai populations. However, the researcher from four studies did not demonstrate that they have assessed whether the participants have stress, anxiety/ or depression before conducting the intervention program.

Summary

To date, no empirical research investigated the relationship among symptom experience, Buddhist practices, uncertainty, depression, and QOL among Thai patients with head and neck cancer. Some findings indicated that symptom distress and uncertainty were associated with poor QOL. Symptom experience tended to increase uncertainty. Buddhist practices tended to enhance QOL, and reduce depression.

However, the researchers did not use the same theory to guide those studies, the studies have been conducted varies in many period of time, and those findings have not strongly predicted the outcome either direct or indirect. Therefore, it still needs to be studied in Thai head and neck cancer patients for expanding on the acceptance of the UIT in various groups of cancer patients across cultural context. In addition, the knowledge about factors predicting depression and QOL will serve as guidelines in nursing interventions to enhance QOL and early prevention as well as reduce depression in these patients. In this study, the researcher will test the UIT (Mishel, 1988; Mishel et al., 2003) to predict QOL in Thai head and neck cancer patients.

CHAPTER III
METHODOLOGY

This study tests a conceptual model of uncertainty to predict QOL in Thai head and neck cancer patients. This chapter describes the methodology, including the research design, sample and setting,instrumentation and measurements, procedures for data collection, methods for data analysis, and protection of human subjects.

Research Design

A correlational, cross-sectional design was used for this study to test a conceptual model of uncertainty to predict QOL in Thai head neck cancer patients. According to Polit, Beck and Hungler (2001), this design can be used for testing the causal model based on two reasons: 1) when logical reasoning assures that one variable precedes the other, and 2) when theory guides the analysis. The causal relationships in the hypothesized model of this study are based on the Mishel Uncertainty in Illness Theory, which indicate that the antecedents come before the adaptation outcome. Thus, a cross-sectional design was used in this study.

Sample and Setting

The samples were Thai patients with head and neck cancer who come to follow up at the otolaryngological and radiological outpatient clinics. Due to complexities of treatments and limitation of sample in Thai head and neck cancer patients, five hospitals in Bangkok, Thailand were selected purposively. Three University hospitals were Ramathibodi Hospital, King Chulalongkorn Memorial Hospital, and Siriraj Hospital. The other two hospitals under the Ministry of Public Health and the Ministry of Defence were Rajavithi Hospital and Pramonkutklao Hospital, respectively. They were the appropriate areas to draw participants from a broad geographical region in Thailand.

Eligible criteria for the participants included:

1. Buddhist patients with head and neck cancer who had completed at least one month of treatment but no more than one year to avoid other confounding factors such as their symptoms may subside or they might have more experience in managing their symptoms which may affect the outcome variables in this study(depression and QOL).

2. Patients aged 18 years or older with no history of disease which might affect cognitive ability such as Alzheimer's disease or dementia (from patients' medical records). Participants were asked to complete the Set Test for screening of cognitive impairment. Those with a cut off score of 25 or over were postulated as mentally normal (Isaacs & Akhtar, 1972; Isaacs & Kennie, 1973).

3. being able to understand and communicate in Thai; and

4. being willing to participate in this study.

Sample size

Jöreskog and Sörbom (1996-2001) stated that there was no definite formula for calculating sample size for structural equation modeling (SEM). Munro (2001) suggested the required sample size for SEM should be calculated to be a minimum of 20 subjects for each observed variable.In this study, the hypothesized model to predict QOL in Thai head and neck cancer patients (Figure 1.2) proposed twelve observed variables. Thus, a minimum of 240 patients should be obtained which is consistent with the sample size requirements recommended by Hair, Anderson, Tatham, and Black (1998). They suggested that a sample size of at least 200 was considered appropriate. Thus, 240 patients were used in this study.

Instruments

The researcher divided the instruments into two categories: The Set Test for data screening; and instruments for data collection as follows:1) Demographic Questionnaire; 2) Modified Symptom Experience Scale; 3) Buddhist practices Scale; 4) Mishel's Uncertainty in Illness Scale: Community Form (MUIS-C); 5) Center for Epidemiologic Studies Depression Scale (CES-D); and 6) Functional Assessment of Cancer Therapy-General Scale (FACT-G). Each instrument was described in terms of the scoring, validity, reliability, and some empirical studies of each instrument.

Instrument for Data Screening

The Set Test (Isaacs & Kennie, 1973) was used to assess cognitive function of the eligible participants (see Appendix A). The test was performed by asking the participants to name as many items as they could recall in each of four successive sets—colors, animals, fruits, and towns. One point is counted for each correct item; each set has a maximum score of 10 and the maximum total score is 40. A score of fewer than 15 was reported by Isaacs and Kennie (1973) as indicating clinically diagnosable dementia, and a score of 25 and over is considered as normal mental functioning. In Thailand, many investigators have used the Set Test for screening cognitive and mental function and changed the town set into provinces which has a similar meaning in Thai (Lausawatchaikul, 1999; Nakaphonges, 1996; Prasertphol, 2001; Rawiworrakul, 2006; Saenmanoch, 1998; Sampao, 2005, Wongjunlongsin, 1999). Rawiworrakul (2006) reported the average Set Test scores of the experimental and control groups in her study as 38.08 (SD 3.30) and 36.71 (SD 3.67), respectively.

Instruments for Data Collection

1. Demographic Questionnaire

Demographic data (see Appendix B) was used to describe the personal characteristics of the samples and some health state conditions. The form to gather these data for personal factors consists of questions about age, gender, marital status, years of education, current occupation, family income per month, sources of payment, financial problem, presence of other chronic illnesses, a belief in Karma, and Buddhist practices belief. The health status questions are about site and stage of cancer, types of treatment, time period after treatment, and complication related to the treatment.

2. The Modified Symptom Experience Scale (MSES)

The Modified Symptom Experience Scale (see Appendix C) is an instrument for assessing severity and distress for Thai head and neck cancer patients. This instrument was modified from the 15-item Symptom Distress Scale (Mishel et al., 2002) that was used in an intervention study to help patients with localized prostate cancer manage uncertainty and treatment side effects.The modified version consists of 19 most common symptoms from disease and/or side effect of treatments and one open-ended question which asked patients to report whether they had experiences

other symptom(s).For this study, the researcher dealt with patients who had completed treatment at least one month to not more than one year prior to the study to allow for the short-term effects of treatment to subside before QOL assessment. Thus, all symptoms in this questionnaire were focused on this period of time. The instrument was divided into two parts, symptom severity and symptom distress. The patients considered and rated whether they had experienced a particular symptom in the past week.

Scoring

The score of the Modified Symptom Experience Scale in severity part ranged from "1 = never has symptoms" "2 = has symptom once in a while" "3 = usually has symptoms fairly often" and "4 = has symptoms all the time". Whenever patients rated the severity range from 2 to 4, then the individuals were rated as having symptom distress. The distress part ranged from "1 = not at all" "2 = mildly upsetting" "3 = very upsetting" and "4 = unbearable". The scoring of each component such as severity and distress in the Modified Symptom Experience Scale was obtained by summing. The higher scores reflected more symptom experience in each dimension of severity and distress.

Validity and Reliability

The original Symptom Distress Scale (SDS) was incorporated as a subscale of the Symptom Scale of the Southwest Oncology Group Quality of Life questionnaire (Maxwell & Delaney, 2000). It has revealed construct and convergent validity in cancer patients as shown by its high positive correlation with the Profile of Mood States (POMS). In addition, Morasso, Capelli, Viterbori et al. (1999) reported a significant positive correlation (r = .46) between the SDS and the Psychological Distress Inventory among 94 cancer patients of varying diagnoses. It showed an acceptable level of internal consistency of the intensity score for the prostate cancer patients at .70 and good reliability between .79 and .89 (McCorkle, 1987).

Due to cultural and language differences, a cross-cultural translation from English to Thai language for the Symptom Experience Scale was performed by the researcher.Brislin's model was used to guide the process of translation (Brislin, 1986). The goal of translation was to achieve measurement equivalence of the instrument in

both cultures (Willgerodt, Yashiro, & Ceria, 2005). The two experts who have fluency both in Thai and English were asked to assess the quality of forward translation. The first expert was an English instructor at the Department of Foreign Languages, Faculty of Arts, Mahidol University. Another was a doctoral-prepared nurse instructor who had graduated from a university overseas (see Appendix H). The rating scale of "agree" and "not agree" was used in this evaluation process. The researcher corrected the items followed by the experts' recommendations. Minor revision for suitable wording of each item was performed until reaching all congruence from both experts. Then, the investigator discussed all corrected items with advisor before testing psychometric properties.

As stated by Waltz, Strickland, and Lens (1991), the content validity index (CVI) of an item shown is based on the ratings of two or more content specialists. A CVI can be calculated from the number of items rated as quite / very relevant (3 or 4) by both experts divided by total items. Then, the average CVI value was obtained by dividing sum of all CVI value with 10.The modified version for this study was submitted to five Thai experts in otolaryngological cancer (two otolaryngological physicians, one speech therapist, one master-prepared nurse instructor and one clinical nurse specialist who has had extensive experience in taking care of patients with head and neck cancer over more than twenty five years) (see Appendix H) to examine the content validity. Minor revision for suitable wording of each item was performed. All experts rated each item as 3 and 4, which met the criteria for appropriate of content validity (Lynn, 1986). The CVI of each pair of experts' opinion was calculated. Its value was ranged from .95 to 1.00 and the average CVI was .98 (see Appendix I), which was in an acceptable value range (greater than or equal to .80) (Polit & Beck, 2006; Waltz, Strickland, & Lens, 1991).

In this study, the Cronbach's alpha coefficient (reliability coefficient) was used for internal consistency assessment. It was tested in 20 Thai patients who were similar to the samples and in 240 Thai patients with head and neck cancer. The Cronbach's alpha coefficient of the Modified Symptom Experience Scale Thai version was .90 and .91, respectively (see Appendix J),which was within the acceptable level (not less than .70)

3. The Buddhist Practices Scale (BPS)

The Buddhist practices Scale (see Appendix D) is a 13-items index of how often the subjects engaged in practice and participation in Buddhist activities. One open-ended question which patients were asked to give their opinion about "*How are Buddhist practices helping you solve your health problem?*" The researcher developed this scale guided by the concept of Three Fold Learning (*Sikkhattaya*: morality, concentration and wisdom) and the Three Signs of Being (*Tilakkhana*: impermanence, state of conflict and not-self) which are the essential ways to help solve problems or manage suffering from a stress situation in daily life (Chanchamnong, 2003; Payutto, 2002), as well as from reviewing the Buddhist practices Scale and Buddhist Participation Scale which have been used in theses of Comparative Religious studies (Praiwan, 1997; Ruamjai, 1999; Silapoth, 1999). The investigator also interviewed 20 Thai patients with head and neck cancer for the items confirmation.

The original versions were developed for use with AIDS patients, Thai Buddhist businessmen and primary school teachers, respectively. The scale development was based on the concepts of Three Fold Learning (*Sikkhattaya*: morality, concentration and wisdom) and the Three Signs of Being (*Tilakkhana*: impermanence,state of conflict and not-self) which are the essential ways to help solve the problems or manage suffering from a stress situation in daily life (Chanchamnong, 2003; Payutto, 2002).Various methods were conducted to develop the original questionnaires including: 1) reviewing knowledge from the three divisions of the Buddhist Canon: *Tipitaka*, works of Buddhist scholars or experts on Buddhism, theses, books, journals and other related documents, 2) interviewing ten AIDS patients, thirty Thai businessmen and nine teachers in Bangkok, 3) developing and 4) assessing content validity by the experts and ensuring internal consistency for reliability.

Scoring

For each item, participants indicate the frequency with which they practice and participate in Buddhist activities. Each item was assigned a rating from 1 to 4: "1 = none of the time" "2 = some of the time" "3 = moderate amount of the time" and "4 = all of the time. Total scores are calculated by summing responses of 13 items.

Possible scores ranged from 13 to 52, with higher scores indicating a greater level of practicing Buddhist activities.

Validity and Reliability

The original Buddhist practices Scale was assessed for content validity by five experts and tried out in thirty samples. It showed an acceptable reliability at .876 (Ruamjai, 1999). The other two scales had no report of reliability. In this study, the Buddhist practices Scale was submitted to five Thai experts in Buddhism and spiritual care (see Appendix D) for evaluating content validity (Waltz et al., 1991). Minor revision for suitable wording of each item was performed. Most experts rated each item as 3 and 4, which met the criteria for appropriate content validity (Lynn, 1986). The CVI of each pair of experts' opinion was calculated.Its value was ranged from .88 to 1.00 and the average CVI was .95 (see Appendix I), which was in an acceptable value range (greater than or equal to .80) (Polit & Beck, 2006; Waltz, et al., 1991).

Furthermore, the Cronbach's alpha coefficient was used for internal consistency, and it was tested in 20 Thai patients who were similar to the participants and in 240 Thai patients with head and neck cancer. The Cronbach's alpha coefficient of the Buddhist practices Scale was .90 and .91, respectively (see Appendix J), which was within the acceptable level (not less than .70)

4. The Mishel Uncertainty in Illness Scale: Community Version (MUIS-C)

Uncertainty was measured by the Mishel Uncertainty in Illness Scale-Community version (MUIS-C) (Mishel, 1997) Thai version (see Appendix E) translated from English to Thai by Kaewthumrong (2001).

The original Uncertainty in Illness Scale (MUIS) was developed by Mishel in 1981 to measure uncertainty in hospitalized patients. The MUIS was a 5-point Likert scale that contained 28 items measuring two dimensions of uncertainty (ambiguity and complexity). Later, Mishel (1984) revised the MUIS, adding six items. The scale was factor analyzed into four factors: ambiguity, complexity, lack of information, and unpredictability. Discriminate construct validity was shown by discriminating among patients admitted for diagnostic, medical, or surgical procedures. Findings indicated that hospitalized patients during the diagnosis phase had significantly higher uncertainty levels than those who were receiving medical or surgical treatments.

The community form of MUIS was modified from the original MUIS for use with chronically ill samples (Mishel, 1999); the 28-item MUIS-C was developed in 1986 for non-hospitalized individuals with chronic illness or for their families. The scale contained the same items as the MUIS, except that 6 items related to uncertainty during hospitalization and treatments were deleted. In 1989, The MUIS-C was tested by factor analysis. As a result, of 28 items, 5 were deleted because of inadequate loading. The MUIS-C has been used with subjects, who have colon and gynecological cancer, and subjects with coronary artery bypass surgery, post-myocardial infarction, irritable bowel disease, epilepsy, lupus, multiple sclerosis, and HIV-Aids (Mishel, 1997).

Scoring

The MUIS-C is a one-factor, 23-item scale with a 5-point Likert scale "1 = strongly not close to your feeling" "2 = not close to your feeling" "3 = not sure" "4 = close to your feeling" and "5 = strongly close to your feeling". All positive items (number 6, 8, 19, 20, 22, 23) receive reversed scoring before calculating the total score. A total score is obtained by summing the responses to the 23 items. Possible scores range from 23 to 115, higher scores indicating higher levels of uncertainty.

Validity and Reliability

In Thailand, Wonghongkul (1990) and Wongsunopparat (1990) translated the MUIS original version into Thai and tested reliability in cancer patients receiving radiotherapy; the coefficient alphas were .79 and .89, respectively. The MUIS was slightly modified; it was found that alpha reliability coefficient ranged from .74 to .89 (E-kasingh, 1999; Kaveevivitchai, 1993; Katekaewmanee, 1998; Limthongkul, 1992; Maneechai, 1999; Nilmanat, 1995; Norason, 1997; Srisuwattansakul, 1999; Vongsvivat, 1993).

The internal consistency of the MUIS-C showed a moderate to high range of reliability coefficients ranging from .74 to .92 (Mishel, 1997). In studies with Thai patients, Kaewthumrong (2001) translated The MUIS-C into Thai and used it in patients with Systemic Lupus Erymathosus (S.L.E). Afterwards, Bannasarn (2002) used the MUIS-C to study the relationship between symptom severity, illness duration, social support, uncertainty in illness, and adaptation in 100 chronic renal failure adult

patients. The alpha Cronbach's coefficient was .88. Wonghongkul, Moore, Musil, Schneider, and Deimling (2000) used the MUIS-C to examine the influence of uncertainty, stress appraisal, and hope on coping in 71 survivors of breast cancer. The finding demonstrated a Cronbach's alpha of .91.

The MUIS-C Thai version was back translated to evaluate its accuracy in Thai by Santawaja (2002). The content validity was performed by five experts. The CVI for conceptual equivalence was .83 (CVI = 19/23), clarity of items was .78 (CVI = 18/23), and colloquial language was .78 (CVI = 17/23). The 23 items were tested for construct validity by factor analysis during data analysis for this research. The finding showed that 22.2% of variance was explained when fixed with one factor as a theoretical base. The author used Cronbach's alpha coefficient to evaluate reliability in 300 post radiotherapy cervical cancer patients.The result revealed the alpha coefficient was .82. In conclusion, the reliability coefficient of the MUIS-C in Thai population ranged from .82 - .91. In this study, MUIS-C was evaluated for reliability by using Cronbach's alpha coefficient technique in 20 Thai patients who were similar to the participants and in 240 Thai patients with head and neck cancer. The MUIS-C Cronbach's alpha coefficient of both in pilot study and all participants was.90 (see Appendix J), which was within the acceptable level (not less than .70). In this study, the Thai version of MUIS-C was used with the permission of Dr. Mishel who developed this instrument (see Appendix N).

5. The Center for Epidemiologic Studies Depression Scale (CES-D)

The CES-D (see Appendix F) (Radloff, 1977) was used to measure symptoms of depression in this study. The researcher selected this instrument because it focuses primarily on cognitive and affective components of depression rather than physical manifestations of depression; it is a sensible tool to use with cancer patients (Hann, Winter, & Jacobsen, 1999). It is a 20-item self-report instrument, which was first developed in the context of community surveys, which were used specifically in the general (i.e. nonpsychiatric) population. It consists of four factors: depressed affect (item 3, 6, 9, 10, 14, 17, 18), positive affect (item 4, 8, 12, 16), somatic retarded activities (item 1, 2, 5, 7, 11, 13, 20), and interpersonal relationship (item 15, 19).

Scoring

For each item, respondents indicate the frequency with which a specific depressive feature has occurred during the preceding week. Each item is assigned a rating from 0 to 3: "0 = rarely or none of the time" "1 = some or little of the time" "2 = occasionally or a moderate amount of the time" and "3 = most or all of the time). For the four positive items, scores were in the reverse direction (i.e., a raw score of 0 = 3, 1 = 2, 2 = 1, and 3 = 0). Total scores are calculated by summing responses across the set of 20 individual items and can range from 0 to 60, with higher scores indicating a greater level of depressive symptoms (Devins, Orme, Costello, & Binik, 1988).According to Radloff (1977), a score from 0 to 15 is indicated as *not depressed;* scores equal to 16 or over is indicated as *depression.* Depression can be divided into 3 levels: 1) *mild depressed,* scores 16 to 20; 2) *moderate depressed*, scores 21 to 30; and 3) *severe depressed,* score 31 or over.

In Thailand, the cutoff score was reported as higher than in western countries. Vorapongsathorn, Pandi, and Traimchaisri (1990) reported the average score of the normal teacher's college as 19.5. Also Kuptniratsaikul and Ketuman (1997) stated a similar finding, that score of 19 or higher were considered to indicative depression in Thai people. Because of this cultural difference, the researcher used a cutoff score equal to or greater than 19 to indicate depressive symptoms for this study.

Validity and Reliability

Acceptable psychometric properties of the CES-D in cancer population have been reported. Construct validity has been demonstrated by moderate to high correlations with measures of fatigue, anxiety, and global mental health functioning, and also supported by findings indicating that patients undergoing cancer treatment reported more depressive symptomatology than healthy individuals. The internal consistency was ranged from .84-.89 (Devins et al., 1988; Hann et al, 1999; Ward, Viergutz, Tormey, deMuth, & Paulen, 1992). The sensitivity and specificity of the CES-D scale ranged between 73-93.3% and 84-94.2%, respectively (Koenig, George & Peterson, 1998; Kuptniratisaikul & Ketuman, 1997).

The Cronbach's alpha for the total CES-D scores in newly diagnosed patients with cancer was .87 and for the subscales it ranged from .61 to .84 (Beeber, Shea, &

McCorkle, 1998). The stability of this instrument's internal structure is evidenced by the fact that patients with cancer were found to be similar to community-dwelling healthy adults in depressive dimensions.

In this study, the researcher evaluated reliability of the CES-D by using Cronbach's alpha coefficient technique in patients. In this study, CES-D was evaluated for reliability by using Cronbach's alpha coefficient technique in 20 Thai patients who were similar to the participants and in 240 Thai patients with head and neck cancer. The Cronbach's alpha coefficient for total score was .86 and .87 and ranged from .55 to .92 and .55 to .80 for subscales, respectively (see Appendix J).

6. The Functional Assessment of Cancer Therapy-General (FACT-G) Scale

QOL was measured by Thai version of the Functional Assessment of Cancer Therapy-General (FACT-G) Scale version 4 (see Appendix G), which is a multidimensional outcome measure for evaluating cancer patients receiving treatment. The original English version of FACT-G was developed by Cella et al. (1993) and continuously improved by the Functional Assessment of Chronic Illness Therapy (FACIT) team. They changed some subscales, items, item numbering, scoring and wording into the positive meaning in 1997 (Lee et al., 2004). This scale was designed not only for patients self-administered but also can be administered by interview format. Version 4 consists of 27 items and four subscales: physical well-being (PWB = 7 items), social/family well-being (SFWB = 7 items), emotional well-being (EWB = 6 items), and functional well-being (FWB = 7 items). Among 27 items, 15 are positively stated (items GS1 to GS7, GE2, and GF1 to GF7), 12 are negatively stated (items GP1 to GP7, GE1, and GE3 to GE6). The difference of the Thai version 4 from the original version is deletion of the"relationship with doctor" subscale due to its lack of response variability and because treatment satisfaction encompasses multiple dimensions (Ratanatharathorn et al., 2001).

Scoring

Each item is scored from 0 to 4; "0 = not at all" "1 = a little bit" "2 = somewhat" "3 = quite a bit" and "4 = very much". Negatively stated items were reversed by subtracting the response from "4". After reversing proper items, all

subscale items were summed to a total. The total score ranges from 0 to 108. The higher the score indicates the better the QOL.

Validity and Reliability

The psychometric properties of the FACT-G have been reported systematically and extensively. It was developed in a multi-phase process that included focus groups and item generation, item review and reduction, scale construction, initial evaluation of factors, internal consistency, convergent and discriminant validity, and differentiating known groups, followed by test-retest reliability and sensitivity to change. All of the psychometric findings support the reliability and the validity of the FACT-G in measuring QOL construct (Ratanatharathorn et al., 2001).

In Thailand, Ratanatharathorn et al. (2001) translated the English version 4 of FACT-G into Thai using an iterative forward-backward translation process. The translated questionnaire was administered to 364 cancer patients. They reported that internal consistency by Cronbach's alpha and test-retest reliability measured by Spearman rank-correlation coefficient value for global QOL was .80. Cronbach's alphas for the subscales in this study ranged from .75 to .90. Validity was checked using two methods: factor analysis and known-groups comparison. Known-groups comparison analysis showed discrimination between subgroups of patients differing in clinical status as defined by disease stage (stage I/II vs stage III/IV, $p<.001$), treatment status (active treatment vs no treatment, $p < .05$), and financial burden (yes vs no, $p < .001$). In conclusion, the findings indicate that the Thai version of FACT-G is a reliable and valid measure of QOL.

The FACT-G is easy to complete and is sensitive to performance status and extent of the disease. Ratanatharathorn et al. (2001) reported that the Thai version of FACT-G can easily be completed in 15-20 minutes usually without assistance. Also Cella et al. (1993) stated many advantages of the FACT-G: "1) its items were systematically developed and represent a range of important aspects of QOL; 2) the total score can be broken down into subscale scores, which are responsive to known group differences; and 3) the inclusion of patient-rated appraisal of effect each dimension has on overall QOL, which allows for possibility of the measure's

usefulness in cost-effectiveness studies." Thus, the researcher selected the FACT-G to assess QOL in this study.

In this study, the researcher evaluated reliability of the FACT-G by using Cronbach's alpha coefficient technique in 20 Thai patients who were similar to the participants and in 240 Thai patients with head and neck cancer. The Cronbach's alpha coefficient for total score was .84 and .91 and ranged from .58 to .82 and .80 to .87 for physical well-being, social/family well-being, emotional well-being, and functional well-being subscales, respectively (see Appendix J). In this study, the Thai version of FACT-G was used with the permission of Dr.Cella who developed this instrument and Ben Arnold, the manager of translation project (see Appendix N).

In summary, the Cronbach's alpha coefficients of the total scores for the five scales used in this study ranged from .71 to .91, which were within acceptable to high values, except for the Interpersonal Relationship subscale of Center of Epidemiologic Studies Depression Scale (.55) (see Appendix J).

Protection of Human Subjects

The research plan was reviewed and approved by the Human Subject Committee of the five hospitals in Bangkok (see Appendix K) selected as research settings before the data collection. The protection of human rights follows the Helsinki Declaration of 1975, as revised in 2000. The investigator presented the purposes, and methods of this study, and an account of any inconvenience which might occur to participants before they agreed to participate and gave written signed consent. They were assured that they could refuse to participate at any time and it would not affect any services received from the hospitals (see Appendix L and M). Numbers were used on the questionnaires instead of their names. The participants were reassured that their responses were kept confidential and their identities were not revealed in research reports and publications of the study. Additionally, all data were kept in a safe place and destroyed at the end of the study.

Data Collection

The approval of the Ethical Committee on Human Rights from each of the five hospitals in Bangkok Metropolis, Thailand (see Appendix K) was obtained before following the procedure as below:

1. Participants were recruited from the otolaryngological and radiological outpatient clinic of each institution. All potential participants who were eligible were approached by the investigator and needed to give their informed consent before participating in this study. When the potential participants agreed to join the study, the investigator assessed their mental function by using the Set Test. The potential participant with the Set Test score of 25 or over were asked to participate in this study.

2. The investigator conducted data collection by using six instruments. Demographic data were obtained first because the questions are easily answered and non- threatening. Then, the administration of the rest of the instruments was organized by the variables in the hypothesized model as follows: 1) MSES; 2) BPS; 3) MUIS-C; 4) CES-D; and 5) FACT-G.

3. Participants who could read and write completed the questionnaires by themselves; however, the investigator made sure that they understood all instructions. For participants who were illiterate or had visual problems, the researcher read the questionnaires and the participants provided the responses by themselves. The interviews took around 30 to 40 minutes. After the interview finished, the investigator checked the completeness and correctness of the data in each instrument. Data collection was carried out continuously from August 2006 to July 2007.

Data Analyses

All data were double-checked before the data analyses process. The data analyses used in this study were the Statistical Package for the Social Science (SPSS) for Windows version 11.5 and LISREL 8.52. The statistical significance was set with an alpha at level .05. The analyses were performed as follows:

1. Descriptive statistics including frequency, percentage, range, mean, and standard deviation were used to assess the demographic data.

2. The reliability of all instruments was tested by Cronbach's alpha coefficient.

3. The assumptions underlying structural equation modeling (SEM) analysis were performed including normality of distribution, linearity of relationship, homogeneity of variance, and multicollinearity. Pearson Product Moment Correlation was used to test bivariate relationships among pairs of variables and to assess multicollinearity among the independent variables.

4. The measurement models were tested for construct validity by confirmatory factor analysis (CFA).

5. The hypothesized causal model was tested with SEM using LISREL 8.52. The model was tested using SEM rather than multiple regression because SEM tests the conceptual and measurement model simultaneously. Additionally, SEM allows for more precise estimation of the indirect effects of the exogenous variables on all endogenous variables (Tabachnick & Fidell, 2007). The chi-square (χ^2), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Error of Approximation (RMSEA) were examined to assess adequacy of model fit to the empirical data. The model was tested and modified for best fit and parsimony guided by the modification indices (MI) and the theoretical evidence.

The chi-square (χ^2) is the first index of goodness of fit statistics in SEM. The acceptable value of $\chi 2$ at a non-significant level with a p-value > .05 indicates that the actual and predicted input matrices are not statistically different; preferably the recommended value is closer to 1.00. However, $\chi 2$ is quite sensitive to large sample size,especially for cases in which the sample size exceeds 200 respondents (Hair et al., 1998), so the $\chi 2$ / degree of freedom (df) was performed for a pragmatic evaluation process. The appropriate $\chi 2$ / df ratio is less than two or three. The researcher should complement the $\chi 2$ measure with other goodness of fit measures.

The Goodness of Fit Index (GFI) is another measure provided by LISREL which represents the overall degree of fit (the residuals from prediction compared with the actual data). It is ranged from 0 (poor fit) to 1.00 (perfect fit). An acceptable level is a value greater than or equal to .90.

The Adjusted Goodness of Fit Index (AGFI) is an extension of the GFI, adjusted by the ratio of degree of freedom for the proposed model to the degree of freedom for the null model. The Root Mean Square Error of Approximation (RMSEA) is the discrepancy per degree of freedom. Values ranging from .05 to .08 are accepted.

CHAPTER IV
RESULTS

This chapter consists of four sections. Demographic characteristics of the samples are firstly displayed. The second section describes the descriptive statistics of the study variables. The third section presents preliminary testing results. The last section reports the results of hypotheses testing, the hypothesized model testing, and the results generated by the modified model.

Demographic Characteristics of the Samples

A sample of 240 patients with head and neck cancer who came for follow up at the otolaryngological and radiological outpatient clinics at five hospitals within Bangkok metropolitan area was recruited. The Set Test (Isaacs & Kennie, 1973) was used to assess cognitive function of the eligible participants before recruitment. In this study, the average Set Test scores of the samples were reported as 31.98 (SD = 4.426), with a range from 25 to 40. The age of samples ranged from 19 to 89 years, with a mean of 55.17 (SD = 13.09). Approximately two-thirds of participants (65.8%, n = 158) were middle-aged, and one-third (34.2%, n = 82) were older persons (The Act of older person, 2003). Education level ranged from 0 to 21 years with a mean of 7.58 years (SD = 4.922). Most of them, 72.9% were male (n = 175) and 27.1% were female (n = 65). More than two-thirds of the patients were married (70.4%, n = 169) and approximately 62.5% (n = 150) were employed. About one-third of them had a family income ranging from 5,001–10,000 baht/month (39.6%). With regard to medical payment, around half of them (52.9%, n = 127) used the service of 30 baht Health Care Coverage. Only 6.3% (n = 15) responded for the medical fees by their self-support. Most participants (97.1%) reported that they had no economic problems. More than two-thirds of samples had a moderate to strong belief in karma (77%, n = 187) and in Buddhist practices (85.8%, n = 206). The demographic characteristics are summarized in Table 4.1.

Table 4.1 Demographic Characteristics of the Study Samples (n = 240)

Characteristics of the Study Samples	n	%
Age (years)		
< 60	158	65.8
≥ 60	82	34.2
Mean = 55.17, SD = 13.09, Mode = 55, Range 19 – 89		
Years of Education		
Mean = 7.58, SD = 4.922, Mode = 4, Range 0 – 21	240	
Gender		
Female	65	27.1
Male	175	72.9
Marital Status		
Single	25	10.4
Married	169	70.4
Widowed/Divorced/Separated	46	19.2
Occupation		
Unemployed	90	37.5
Employee	45	18.8
Agriculturist	33	13.8
Government officer	30	12.5
Business	42	17.5
Monthly Income (Baht)		
≤ 5,000	40	16.7
5,001 - 10,000	95	39.6
10,001 - 15,000	20	8.3
15,001 - 20,000	27	11.3
> 20,000	58	24.2
Medical Payment		
30 Baht Health Care Coverage	127	52.9
Total reimbursement	73	30.4
Social Security Service	25	10.4
Self-support	15	6.3
Economic Problems		
No	233	97.1
Yes	7	2.9

Table 4.1 Demographic Characteristics of the Study Samples (n = 240) (Continued)

Characteristics of the Study Samples	n	%
Belief in Karma		
No belief	4	1.7
A little belief	49	20.4
Moderate belief	110	45.8
Strong belief	77	32.1
Buddhist Practices Belief		
No belief	6	2.5
A little belief	28	11.7
Moderate belief	110	45.8
Strong belief	96	40.0

Considering diagnosis, nearly one-third of the sample had lip and oral cavity cancer (30.0%, n = 72). In regard to the medical history of the sample, approximately half of them had stage III and IV (57.1%, n = 125) and only 12.1% (n = 29) had stage I. There were similar types of treatment for these patients**;** almost half of them had undergone combination treatment with surgery and radiotherapy (42.5%, n = 102). The time after completion of treatment ranged from 1 to 12 months with a mean of 5.27 months (SD = 4.039). Most samples had no complications related to treatments (91.7%, n = 220) and no other chronic diseases (85.4%, n = 205). The medical histories of the samples are displayed in Table 4.2.

Table 4.2 Medical History of the Study Samples (n = 240)

Medical History	n	%
Sites of Cancer		
lip /oral cavity (buccal mucosa, floor of mouth, gum, tongue)	72	30.0
thyroid	61	25.4
nasopharynx	60	25.0
larynx	19	7.9
ear	12	5.0
tonsil	8	3.3
nasal cavity / sinus	3	1.3
parotid gland	3	1.3
mandible	2	.8

Table 4.2 Medical History of the Study Samples (n = 240) (Continued)

Medical History	n	%
Stage of Cancer		
I	29	12.1
II	62	25.8
III	49	20.4
IV	76	36.7
Not specified	24	10.0
Type of Treatments		
Surgery only	20	8.3
Radiotherapy (RT) only	21	8.8
Surgery & RT	102	42.5
Concurrent RT & Chemotherapy (CT)	76	31.7
Surgery & RT & CT	21	8.7
Time Post Treatment (month)		
Mean = 5.27, SD = 4.039, Mode = 1, Range 1 – 12	240	
Complications Related to Treatments		
No	220	91.7
Yes	20	8.3
facial paralysis	4	
infected/ bulging flap/ exposed bone graft	3	
osteoradionecrosis (ORN)	3	
trismus (RT induced)	3	
esophageal stenosis	2	
hypocalcemia	2	
chronic submandibular sialadinitis	1	
fistula	1	
pneumonia during RT	1	
Other Chronic Diseases		
No	205	85.4
Yes	35	14.6

Descriptive Statistics of the Study Variables

This study included five major variables: symptom experience (symptom severity, symptom distress), Buddhist practices, uncertainty, depression, and QOL. The description of study variables are presented in the following section. Table 4.3 presents the possible range, actual range, mean, standard deviations (SD), skewness, and kurtosis for key study variables in 240 head and neck cancer patients. In addition, the meaning of the scores is included.

Symptom Experience

The scores of symptom experience ranged from 38-99 with a mean of 61.12 (SD = 13.397). The skewness value of symptom experience was highly positive (.509). According to Munro (2001), skewness values above 0.2 or below -0.2 indicate severe skewness. In this study, both mean score value and highly positive of symptom experience indicated that most participants had a low level of symptom experience. When the kurtosis value divided by the standard error is not beyond ± 1.96, the distribution has a normal peakedness curve (Munro, 2001). In this study, the kurtosis value of symptom experience was slightly flattened (-.227/.313 = -.72), indicating that the participants perceived a low level of symptom experience (see Table 4.3).

Table 4.3 Possible Range, Actual Range, Mean, SD, and Meaning of the Mean Score of the Symptom Experience (n = 240)

Variables	Possible Range	Actual Range	Mean	SD	Skewness (SE = .157)	Kurtosis (SE = .313)	Meaning (based on mean scores)
Symptom Experience	38-152	38-99	61.12	13.397	.509	-.227	Low
Symptom Severity	19-76	19-53	33.90	7.668	.315	-.369	
Symptom Distress	19-76	19-46	27.22	6.224	.636	-.209	

Regarding the occurrence of symptoms from the Modified Symptom Experience Scale (MSES), the most frequently reported of the top five symptoms were difficulty in swallowing (80.0%, n = 192), dry mouth (79.2%, n = 190), thick saliva (76.2%, n = 183), trouble sleeping (73.3%, n = 176), and taste change (72.5%, n = 174) (see Table Q.1 in Appendix Q). Considering mean scores of the symptom severity ratings, patients reported severity from the most common five symptoms as follows: dry mouth, difficulty in talking, thick saliva, difficulty in swallowing, and taste change (see Table Q.1 in Appendix Q). Of the 19 symptoms on the MSES, the most top five symptoms which patients felt distress were difficulty in swallowing, difficulty in talking, thick saliva, dry mouth, and difficulty in mastication.

Interestingly, all participants did not rate the symptom distress on the unbearable score (see Table Q.2 in Appendix Q).

Findings from an open-ended question of the MSES, one hundred and thirteen of patients (47.1%, n = 113) out of two hundred and forty reported that they had experienced of other six symptoms out of all of which presented in the MSES. Patients in this study demonstrated more than one symptom. Anosmia was the most common symptom (38.9%, n = 44), followed by hearing loss, numbness, aspiration, diplopia, and tinnitus. The details are presented in Table 4.4.

Table 4.4 Descriptive Data of Symptoms from the Open-ended Question of the Study Samples (n = 113)

Symptoms	n	%
Anosmia	44	38.9
Hearing loss	41	36.3
Numbness	22	19.5
Aspiration	16	14.2
Diplopia	3	2.7
Tinnitus	2	1.8

Note: One patient reported more than one symptom

Buddhist Practices

The score of Buddhist practices ranged from 14-49 with a mean of 26.03 (SD = 7.164). The skewness value of Buddhist practices was highly positive (.773), indicating that most participants had low to moderate levels of practicing Buddhist activities. However, the kurtosis value of Buddhist practices was close to zero (-.026/.313 = -.08), indicating that its distribution was within the normal peakedness curve (see Table 4.5).

Table 4.5 Possible Range, Actual Range, Mean, SD, and Meaning of the Mean Score of the Buddhist Practices, Uncertainty, Depression, and QOL (n = 240)

Variables	Possible Range	Actual Range	Mean	SD	Skewness (SE = .157)	Kurtosis (SE = .313)	Meaning (based on mean scores)
Buddhist Practices	13-52	14-49	26.03	7.164	.773	-.026	Moderate
Uncertainty	23-115	27-84	53.90	13.053	.010	-.722	Moderate
Depression	0-60	0-32	10.43	6.160	1.012	1.408	Low
Depressed Affect	0-21	0-13	1.46	2.157	2.704	9.432	
Positive Affect	0-12	0-11	3.89	1.994	.438	.613	
Somatic Retarded Activities	0-21	0-14	4.93	2.867	.479	.025	
Interpersonal Relationship	0-6	0-3	.14	.489	3.786	14.613	
Depressive Score	<19 = 218 (90.8%)						
	≥19 = 22 (9.2%)						
QOL	0-108	46-103	82.58	10.386	-.558	.203	High
Physical Well-being	0-28	12-28	23.57	3.505	-1.104	.844	
Social/Family Well-being	0-28	10-28	20.07	3.573	-.020	-.732	
Emotional Well-being	0-24	8-24	21.05	2.711	-2.136	6.034	
Functional Well-being	0-28	7-28	17.80	3.754	.046	.043	

Regarding to the open-ended question from the Buddhist Practices Scale, one hundred and twelve out of two hundred and forty participants reported that they had gained various benefits and good outcomes from practicing Buddhist activities. Firstly, nearly half of this group (47.32%, n = 53) reported that those activities helped them feel happy and relaxed as well as to establish a peaceful mind. Secondly, regularly Buddhist practices contributed to a thought of the nature of human life; nothing is

permanent and death is considered as a simple matter (16.07%, n = 18). Thirdly, they perceived that practice Buddhist activities, particularly, making a merit might redeem a past Karma and would help them have a good life both in present time and in the future (13.39%, n = 15). They also reported that the more they practiced, the more they had a good sleep and good health which was the way to gain more energy to face the suffering (11.61%, n = 13). Lastly, they had believed that the Buddhist practices would improve and empty their mind as well as help them cope by accepting their situation (11.61%, n = 13) (see Appendix R).

Uncertainty

The score of uncertainty ranged from 27-84 with a mean of 53.90 (SD = 13.053). The skewness coefficient of uncertainty was close to zero (0.01), indicating that the distribution of the uncertainty score was fairly symmetric. The kurtosis value was moderately flattened but insignificant (-.722/.313 = -2.31), indicating that its distribution was within the normal peakedness curve. Based on mean score of uncertainty, indicating that participants perceived a moderate level of uncertainty (see Table 4.5).

Depression

The score of depression ranged from 0-32 with a mean of 10.43 (SD = 6.160). The skewness value of depression was highly positive (1.012), indicating that most participants had a low level of depression. In this study, the kurtosis value of depression was highly peaked but insignificant (1.408/.313 = 4.49), indicating that the participants perceived a low level of depression. Based on a depression cutoff score for this study is 19 and over, most of the participants (90.8%) reported no risk for depression (see Table 4.5).

QOL

The score of QOL ranged from 46-103 with a mean of 82.45 (SD = 10.425). The skewness coefficient of QOL was highly negative (-.558), indicating that most participants had high QOL. The kurtosis value was moderately peaked (.203/.313 = .65), indicating that the participants perceived moderate to high level of QOL (see Table 4.5).

Preliminary Analysis

Before further analysis with Structural Equation Modeling (SEM), normality, linearity, and multicollinearity were tested in order to ensure that there was no violation of underlying assumptions. In the following section the results of normality, linearity, and multicollinearity testing are displayed.

Normality Testing

Descriptive statistics including percentage, mean, standard deviation, skewness and kurtosis were used to describe normality of variables. An absolute value of 2.0 for skewness is considered a departure from normality (Li, Harmer, Duncan, et al., 1998) and a value of univariate skewness greater than 3.0 indicate extreme skewness (Kline, 1998). In this study, the skewness values divided by the standard error (SE) of the skewness of five major variables ranged from -3.554 to 6.446 (see Table 4.5) which seem to be described as severe skewed. Regarding kurtosis, Hair and colleagues (1998) stated that kurtosis not exceeding ± 1.96 which corresponds to a .05 error level or ± 2.58 at the .01 probability level reflects a normal distribution. The data sets with absolute values of the univariate kurtosis greater than 20.0 have been indicated as extreme kurtosis (Kline, 1998). In this study, the results of kurtosis divided by the SE of kurtosis of the five major variables ranged from -.725 to 4.498 (see Table 4.5) which were within the normal curve. Thus, the data in this study were not transformed.

Linearity Testing

According to Hair et al. (1998), the bivariate scatter plot of the variables is the most common method to examine linearity. The linearity testing of this study was investigated through a bivariate scatter plot procedure under the PRELIS program. Examining the scatter plot between variables showed no evidence of nonlinearity between pairs of variables (see Appendix O).

Multicollinearity Testing

Two common criteria are used to examine multicollinearity: 1) Pearson's correlation coefficients, and 2) tolerance values and variance inflation factor (VIF) (Hair et al., 1998). The results of correlation coefficients indicated no evidence of multicollinearity because the correlation values among five major variables were ranged from -.795 to .624 (see Table 4.6) and the correlation matrix showed that the bivariate of all study variables were in an acceptable range (see Appendix P), which

did not exceed ± 0.85 (Munro, 2001). According to Hair et al. (1998), a usual threshold of tolerance is greater than 0.1 and VIF value is less than 10. The results of this study showed tolerance values and VIF values ranged from .332 to .608 and 1.664 to 3.011, respectively (see Table 4.7), which were within the usual threshold. Thus, the assumption of multicollinearity was accepted.

Table 4.6 Correlation Matrix of the Study Sample (n = 240)

Variables	Symptom Experience	Buddhist practices	Uncertainty	Depression	QOL
Symptom Experience	1.000				
Buddhist practices	.010	1.000			
Uncertainty	.585**	-.011	1.000		
Depression	.516**	-.025	.624**	1.000	
QOL	-.521**	.084	-.603**	-.795**	1.000

**p < .01

Table 4.7 Testing for Multicollinearity of the Study Sample (n = 240)

Variables	Tolerance	VIF
Symptom Experience	.608	1.664
Uncertainty	.504	1.986
Depression	.332	3.011
QOL	.342	2.925

Principal Analyses

The full model consists of two submodels: the measurement model, which describes the relationship between the latent variables and the observed variables; and the structural equation model (SEM) or theoretical model, which specifies the causal relationships among the latent variables (Jöreskog & Sörbom, 1996-2001). Both submodels need to be tested separately.

1. The Measurement Model Assessment

The Measurement Model Fit

In this study, the confirmatory factor analysis (CFA) was employed to test three measurement models of three major variables: symptom experience, depression, and QOL. Four goodness-of-fit indices - Chi-square test (χ^2), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Error of Approximation (RMSEA) - were used to determine the Fit Indices of the model (Jöreskog & Sörbom, 1996). The results from measurement model fit testing indicated that all three models fell into the good model fit. Four goodness-of-fit indices of three measurement models were at an acceptable level. The chi-square values of symptom experience, depression, and QOL had nonsignificant levels (p = 0.739, 0.589, 0.503 respectively), and χ^2 / df were less than 3.0. The remaining three goodness-of fit indices were at good levels as well (GFI = 0.999 to 1.000, AGFI = 0.991 to 0.999, RMSEA = 0.000) (see Table 4.8).

Table 4.8 The Measurement Model Goodness of Fit Indices (n = 240)

Variables	χ^2	df	p-value	GFI	AGFI	RMSEA
Symptom Experience	0.11	1	0.739	1.000	0.999	0.000
Depression	0.29	1	0.589	0.999	0.994	0.000
QOL	0.45	1	0.503	0.999	0.991	0.000

Note: χ^2 = Chi-square, df = Degree of Freedom,
GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index,
RMSEA = Root Mean Square error of Approximation

For parameter estimation, the results of the loading factors with t-values exceeded the critical value of ± 1.96, ± 2.58, and ± 3.29 at the significance levels of .05, .01, and .001, respectively, indicating valid relationships among observed variables and their constructs. For reliability indicator testing, the R^2 for most variables ranged from 0.28 to 0.99, which could indicate acceptability. The R^2 for interpersonal relationship and emotional well-being variables were rather low (0.04 and 0.18, respectively), which indicated there were not quite well served as measure of depression and QOL, respectively (see Table 4.9).

Table 4.9 The Measurement Model Construct Measure (n = 240)

Parameter	Loading Coefficients	t-value	SE	Factor Score	R^2
Symptom Experience					
Symptom Severity	1.00	-	-	0.07	0.99
Symptom Distress	0.99***	32.21	0.19	0.09	0.99
Depression					
Depressed Affect	0.72***	11.47	0.14	0.14	0.53
Positive Affect	0.69***	10.85	0.13	0.10	0.47
Somatic Retarded Activities	0.87***	13.96	0.18	0.21	0.76
Interpersonal Relationship	0.19*	2.19	0.04	-0.29	0.04
QOL					
Physical Well-Being	0.68***	9.53	0.25	0.06	0.46
Social/Family Well-Being	0.53***	7.65	0.24	0.32	0.28
Emotional Well-Being	0.42***	5.94	0.19	-0.004	0.18
Functional Well-Being	0.90***	11.81	0.29	0.19	0.81

Note: * p < .05, *** p < .001

In conclusion, the results demonstrated the acceptable level for all measurement models fitted indices for the symptom experience, depression, and QOL. All observed indicators (subscales) were a good representation of unobserved (latent) variables.

2. Model Testing and Modification

2.1 Hypothesized Model Testing

The hypothesized model consisted of one exogenous variable- Buddhist practices-and four endogenous variables-symptom experience, uncertainty, depression, and QOL, with twelve observed variables. The full hypothesized model was tested with SEM using LISREL 8.52. The variables were entered into SEM based on the hypothesized model. All the first indicators of each variable in this study - the symptom severity variable of symptom experience, Buddhist practices, uncertainty, depressed affect of depression, and physical well-being of QOL - were assigned values as 1.00 to fix them as reference variables.

The results demonstrated $\chi^2 = 308.47$, df = 48, $\chi^2/df = 6.43$, p = .000, GFI = .823, AGFI = .712, RMSEA = .151. These results showed that the Fit Index Statistics of the hypothesized model were not in the acceptable range. Moreover, the

largest standardized residuals ranged from -9.193 to 4.632, which exceeds normal values (± 2.58 or ± 3.29) (Pedhazur & Schmelkin, 1991) (See Table 4.10).

Table 4.10 Statistical Fitted Index Values of Hypothesized Model (N = 240)

Fitted Index	Hypothesized Model
Chi-square (χ^2)	308.47 (df = 48, p = .000)
χ^2 / df	6.43
GFI	.823
AGFI	.712
RMSEA	.151
Largest Standardized Residual	4.632
R^2	.953

Note: GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index,
RMSEA = Root Mean Square Error of Approximation

Most of the path coefficients in the hypothesized model were significant at p-value of .001 and conformed to the theory. There was some evidence of misspecified parameters from Buddhist practices to four paths of latent variables. Those were the paths to symptom experience, uncertainty, depression, and QOL (γ = -.04, -.01, -.03, .02, respectively) (see Table 4.11 and Figure 4.1).

For the square multiple correlation (R^2) of each observed variable, most of them were acceptable (.46 - .80). This indicated that they served quite well as measures of the latent variables (see Table 4.11). The R^2s for two observed variables were rather low; these variables were interpersonal relationship of depression and social/family well-being of QOL (.09 and .22, respectively). The model accounted for and explained 47% (R^2 = .47) of variance in uncertainty, 92% (R^2 = .92) in depression, and 95% (R^2 = .95) in QOL (see Figure 4.1).

In conclusion, the hypothesized model did not fit the empirical data because of poor goodness of fit statistics and some misspecified parameters. Thus, the hypothesized model had to be modified to improve fit indices.

Table 4.11 Path Coefficients, Standard Errors (SE), and T-values of Parameter Estimates of the Hypothesized Model (N = 240)

Path Diagram	Hypothesized Model			
	Standardized Path Coefficients	SE	t-value	R^2
LAMDA-Y				
Symptom Experience → Symptom Severity	.85	a	a	.72
Symptom Experience → Symptom Distress	1.01***	.06	16.67	1.02
Uncertainty → MUISC	.73	a	a	.54
Depression → Depressed Affect	.71	a	a	.51
Depression → Positive Affect	.69***	.09	10.07	.47
Depression → Somatic Retarded Activities	.89***	.13	12.87	.80
Depression → Interpersonal Relationship	.30***	.02	4.42	.09
QOL → Physical Well-Being	.87	a	a	.75
QOL → Social/Family Well-Being	.47***	.07	7.47	.22
QOL → Emotional Well-Being	.71***	.05	12.62	.51
QOL → Functional Well-Being	.68***	.07	11.72	.46
LAMDA-X				
Buddhist practices → BPRAC	1.00	a	a	1.00
GAMMA				
Buddhist practices → Symptom Experience	-.04	.06	-.56	
Buddhist practices → Uncertainty	-.01	.12	-.17	
Buddhist practices → Depression	-.03	.01	-.62	
Buddhist practices → QOL	.02	.03	.54	
BETA				
Symptom Experience → Uncertainty	.69***	.10	9.64	
Uncertainty → Depression	.96***	.01	10.27	
Uncertainty → QOL	-.98***	.02	-12.67	

Note: SE = Standard Error

a = values were not calculated because the coefficients were set to 1.00

***p < .001

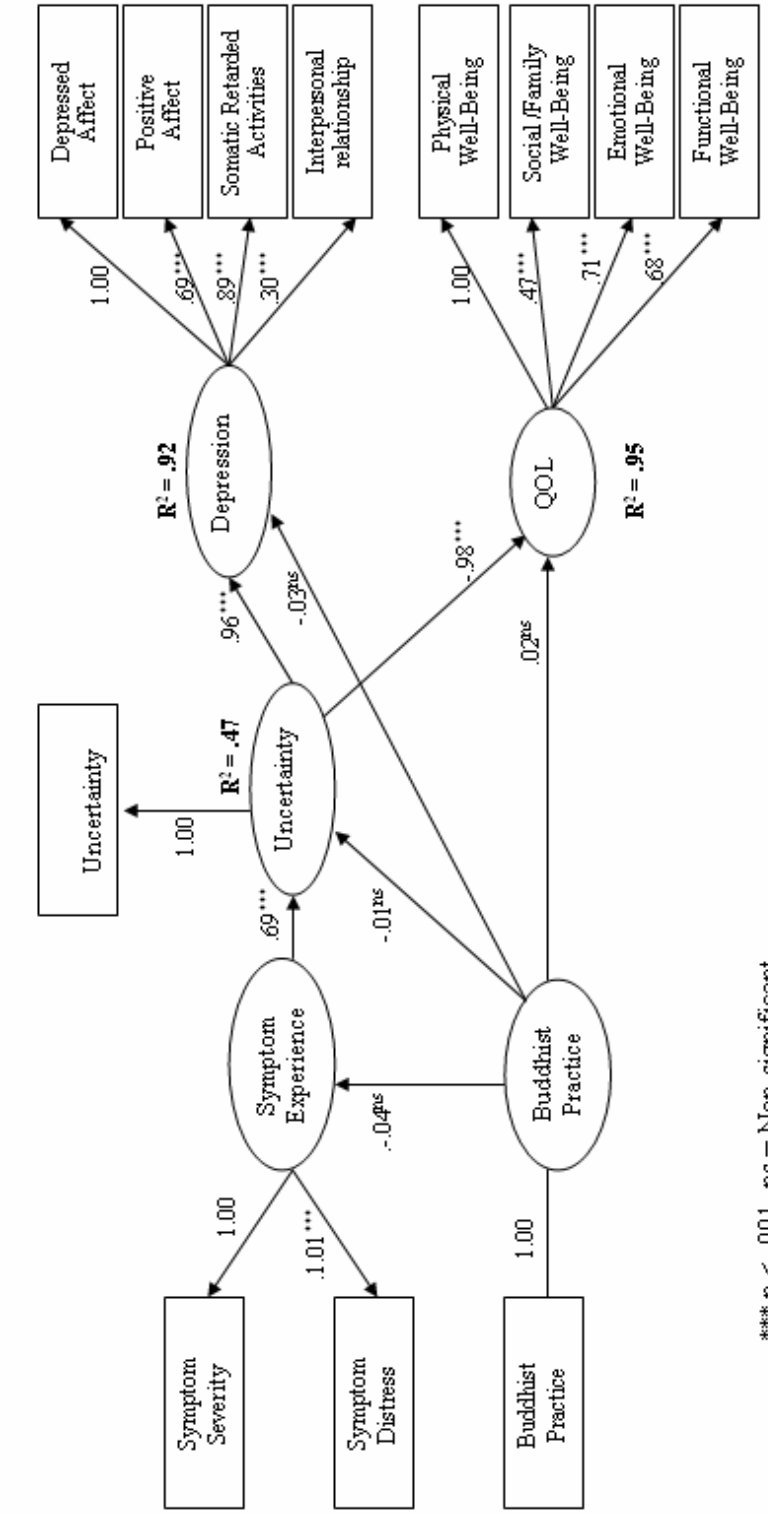

Figure 4.1 A Hypothesized Model of Uncertainty to Predict QOL in Thai Patients with Head and Neck Cancer

2.2 Model Modification

The model modification process was performed by using the modification indices (MI) and theoretical reasoning as a guideline for fitting the model. In this study, the path from Buddhist practices to symptom experience was deleted due to its nonsignificant parameter and the fact that its parameter estimation was quite low. However, Byrne (1998) suggested that the substantive theoretical interest must be considered even though the statistic demonstrates a nonsignificant parameter. In this analysis, the three paths from Buddhist practices to uncertainty, depression, and QOL were remained in the model because of the substantive interest in testing the effect of Buddhist practices as a new component of the structure providers in the UIT (Uncertainty in Illness Theory). The results showed increasing parameter estimation and had the right direction but was still nonsignificant (γ = -.11 , -.42, and .37, respectively). All other path coefficients in the modified model were significant at p-value of .001 and conformed to the theory (see Table 4.12).

Table 4.12 Path Coefficients, Standard Errors (SE), and T-values of Parameter Estimates of the Modified Model (N = 240)

Path Diagram	Modified Model			
	Standardized Path Coefficients	SE	t-value	R^2
LAMDA-Y				
Uncertainty → MUISC	.78	a	a	.61
Uncertainty → Interpersonal Relationship	- .66***	.011	-2.76	-
Depression → Depressed Affect	.69	a	a	.47
Depression → Positive Affect	.65***	.09	9.56	.43
Depression → Somatic Retarded Activities	.91***	.15	11.92	.84
Depression → Interpersonal Relationship	.90***	.08	3.86	.22
QOL → Physical Well-Being	.87	a	a	.76
QOL → Social/Family Well-Being	.50***	.10	5.87	.25
QOL → Emotional Well-Being	.69***	.05	12.23	.47
QOL → Functional Well-Being	.70***	.07	11.51	.49
LAMDA-X				
Symptom Experience → Symptom Severity	.86	a	a	.74
Symptom Experience → Symptom Distress	.99***	.05	18.62	.98
Buddhist practices → BPRAC	.08	a	a	.01
GAMMA				
Symptom Experience → Uncertainty	.81***	.11	11.36	
Buddhist practices → Uncertainty	-.11	4.52	-.45	
Buddhist practices → Depression	-.42	1.57	-.70	
Buddhist practices → QOL	.37	2.57	.78	
BETA				
Uncertainty → Depression	.82***	.01	8.87	
Uncertainty → QOL	-.85***	.02	-10.94	

Note: SE = Standard Error

a = values were not calculated because the coefficients were set to 1.00

***p < .001

The modifications were continued until all goodness-of-fit-indices were within an acceptable level. The process was performed by freeing 19 parameters of Theta-Epsilon, one parameter of Theta-Delta, six parameters of Theta-Delta-Epsilon, and adding one parameter from uncertainty to interpersonal relationship as suggested by the MI. The final modified model showed that the model fit the data well. The χ^2 = 28.00, df = 21, χ^2/df = 1.33, p = .14, GFI = .981, AGFI = .929, RMSEA=.037. The largest standardized residuals were within an acceptable level which not exceeded ± 2.58 or ± 3.29 (Pedhazur & Schmelkin, 1991) (see Table 4.13).

Table 4.13 Statistical Fitted Index Values of Modified Model (N = 240)

Fitted Index	Modified Model
Chi-square (χ^2)	28.00 (df = 21, p = .14)
χ^2 / df	1.33
GFI	.981
AGFI	.929
RMSEA	.037
Largest Standardized Residual	2.796
R^2	.92

Note: GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index,
RMSEA = Root Mean Square Error of Approximation

For the square multiple correlations (R^2) of each observed variable, most of them were acceptable (.43 - .98). This indicated that they served quite well as measures of the latent variables (see Table 4.12). The R^2s for three observed variables were quite low; Buddhist practices, interpersonal relationship of depression, and social/family well-being of QOL (.01, .22, and .25, respectively). The modified model accounted for and explained 66% (R^2 = .66) of variance in uncertainty, 93% (R^2 = .93) in depression, and 92% (R^2 = .92) in QOL (see Figure 4.2). Square multiple correlations (R^2) for structural equations is the portion of LISREL output which gives the percent of the variance in the latent variables accounted for by the latent independent variables. However, the R^2 of depression and QOL in this study were very high. One possible reason for explaining is the variables in the modified model have high correlation, the structural coefficients and R^2 will be high also (Structural

Equation Modeling from www2.chass.ncsu.edu/garson/pa765/structur.htm, 2006). In addition, correlations between depression and QOL was very high (-.795) (see Table 4.6), which seems to be some redundancy in measuring these two variables.

In summary, all the goodness-of-fit statistics of the modified model fitted the sample data. Therefore, this modified model was used to test the research hypotheses.

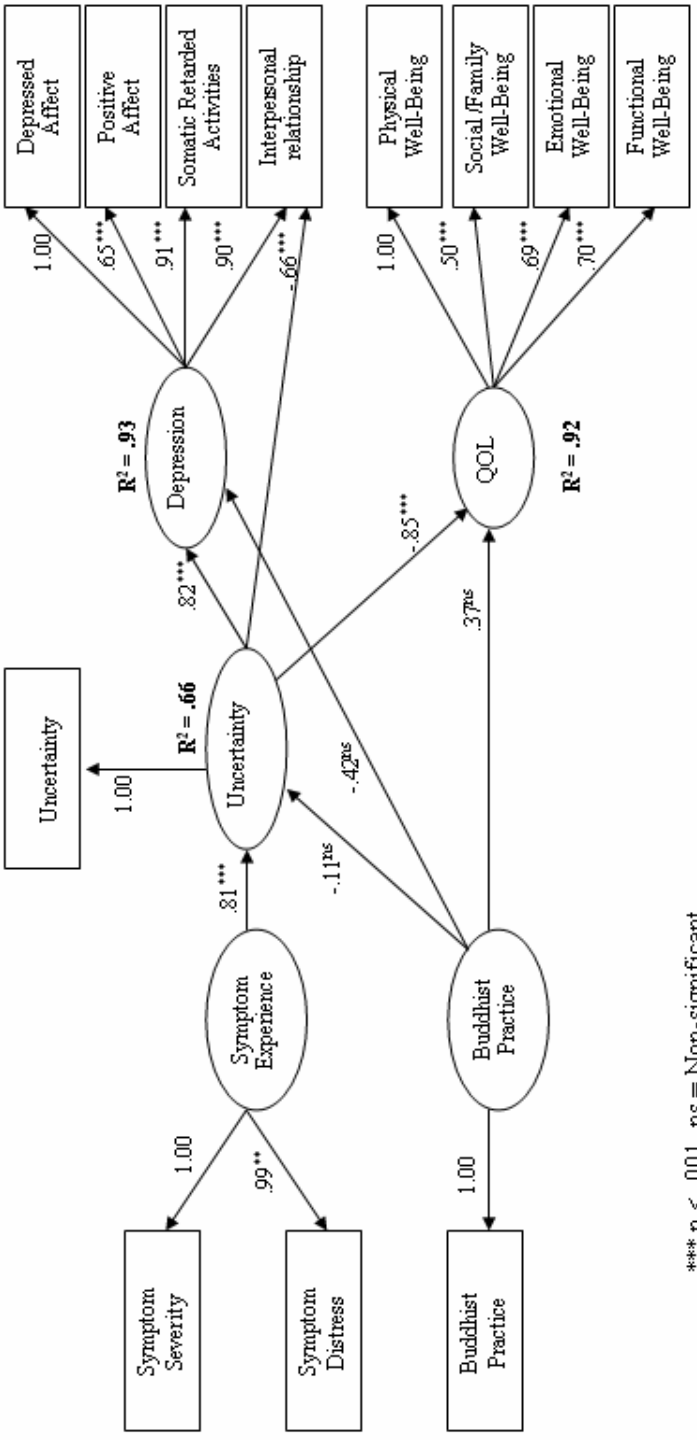

Figure 4.2 A Modified Model of Uncertainty to Predict QOL in Thai Patients with Head and Neck Cancer

Hypotheses Testing

The following study hypotheses were tested and reported. The results are summarized in Table 4.14

Hypothesis 1: Symptom experience has a direct positive impact on uncertainty and an indirect impact on QOL and depression mediated through uncertainty in Thai patients with head and neck cancer.

The parameter estimated in Table 4.12 and Figure 4.2 showed that symptom experience had a significant direct positive impact on uncertainty (γ = .81, $p<.001$) and an indirect impact on depression and QOL mediated through uncertainty (β = .66; -.68, $p<.001$, respectively). Therefore, hypothesis one was supported.

Hypothesis 2: Buddhist practices have a direct negative impact on symptom experience and uncertainty or an indirect impact on uncertainty mediated through symptom experience in Thai patients with head and neck cancer.

The results showed that Buddhist practices had neither a direct negative impact on symptom experience nor an indirect effect on uncertainty mediated through symptom experience. Buddhist practices had a non-significant direct negative impact on uncertainty (γ = -.11, $p>.05$). Therefore, hypothesis two was not supported.

Hypothesis 3: Buddhist practices have a direct positive impact on QOL or an indirect impact mediated through uncertainty in Thai patients with head and neck cancer.

The results of analysis indicated that Buddhist practices had neither a significant direct positive impact on QOL (γ = .37, $p>.05$) nor an indirect effect mediated through uncertainty (γ = .09, $p>.05$). Therefore, hypothesis three was not supported.

Hypothesis 4: Buddhist practices have a direct negative impact on depression or an indirect impact mediated through uncertainty in Thai patients with head and neck cancer.

The estimated parameter revealed that Buddhist practices had neither a significant direct negative effect on depression (γ = -.42, $p>.05$) nor an indirect impact mediated through uncertainty (γ = -.09, $p>.05$). Therefore, hypothesis four was not supported.

Hypothesis 5: Uncertainty has a direct negative impact on QOL and a direct positive impact on depression in Thai patients with head and neck cancer.

The analysis result showed that uncertainty had a significant direct negative impact on QOL ($\beta = -.85$, $p<.001$) and a direct positive impact on depression ($\beta = .82$, $p<.001$). Therefore, hypothesis five was supported.

Summary

In conclusion, this chapter stated the demographic characteristics of Thai patients with head and neck cancer from five hospitals in Bangkok Metropolitan. Descriptive statistics of the participants were also reported. SPSS 11.5 and PRELIS were used to analyze preliminary results. The LISREL 8.52 was employed to test measurement, and the hypothesized and modified models. The final modified model had a good fit with the empirical data and explained 66%, 93%, and 92% of the variance in uncertainty, depression, and QOL, respectively, in Thai patients with head and neck cancer.

Table 4.14 Direct, Indirect, and Total Effects of Causal Variables on Affected Variables

Causal Variables	Affected Variables								
	Uncertainty			Depression			QOL		
	TE	IE	DE	TE	IE	DE	TE	IE	DE
Symptom Experience	.81***	-	.81***	.66***	.66***	-	-.68***	-.68***	-
Buddhist Practices	-.11	-	-.11	-.51	-.09	-.42	.46	.09	.37
Uncertainty	-	-	-	.82***	-	.82***	-.85***	-	-.85***
Structural Equation Fit	R^2 = .66			R^2 = .93			R^2 = .92		
Modified Model	$\chi^2 = 28.00$, df = 21, χ^2/ df = 1.33, p = .14, GFI = .981, RMSEA = .037								

Note: TE = Total Effect, IE = Indirect Effect, DE = Direct Effect

*** $p < .001$

CHAPTER V
DISCUSSION

A discussion of the research findings is provided in this chapter. Demographic characteristics of the sample and the five major study variables - Buddhist practices, symptom experience, uncertainty, depression, and QOL – are firstly presented. Later, the hypotheses testing is discussed.Lastly, the discussion of methodological issues and contributions to nursing science and knowledge development are presented.

Demographic Characteristics of the Samples

The age of the sample group ranged from 19 to 89 years, with a mean of 55.17 (SD = 13.09). Most participants were male (72.9%) and married (70.4%). These findings were similar to previous studies in Thai patients with head and neck cancer (Kitbuncha, 2000; Komolprasert, 2001; Rasmeeloung-on, 1993; Wongsunopparat, 1990). These findings were also consistent with the studies of American head and neck cancer patients (Holloway et al.,2005), Australian samples (Rose & Yates, 2001), German samples (Sehlen et al., 003), and Dutch patients (De Leeuw et al., 2001). The findings were slightly differed from the studies of Detprapon (2003), and Likitsinsopon (2000), which were reported a mean of age as 66.2 and 64.07, respectively.

A mean of education level was 7.58 years (SD = 4.922), reflecting the elementary school level. This is in the same direction as the findings of Detprapon (2003), Kitbuncha (2000), Komolprasert (2001), Likitsinsopon (2000), and Rasmeeloung-on (1993).Most of participants (97.1%) reported that they had no economic problems although approximately half of them (56.3%) had a monthly income lower than 10,000 Baht. It was quite similar to those findings of Likitsinsopon (2000) and Rasmeeloung-on (1993) in Thai patients,as well as Rose & Yates (2001) in Australian samples.With regard to the medical payment, it was found that half of them (52.9%, n = 127) used the service of 30 baht Health Care Coverage. Only 6.3% (n = 15) responded for the medical fees by their self-support. The findings differed

from Likitsinsopon (2000) and Rasmeeloungon (1993) which found that nearly half of participants had to pay the medical fees by themselves. One possible explanation may be related to a policy of the universal health coverage (UC or 30 baht treating all diseases) which had been implemented in Thailand since 2001 (Pannarunothai, Patmasiriwat, Kongsawatt, Srithamrongsawat, Suttayakorn, & Rodsawaeng, 2002). This 30 baht policy may help the participants reduce financial burden on household income. As a result, most of participants perceived that they had no economic problems.

Regarding the feature of medical history of the samples, nearly one-third of the sample had lip and oral cavity cancer (30.0%). Approximately half of them had stage III and IV (57.1%). There were similar types of treatment for these patients**;** almost half of them had undergone combination treatment with surgery and radiotherapy (42.5%). These findings were similar to other reports in Thai patients with head and neck cancer (Kitbuncha, 2000; Komolprasert, 2001; Rasmeeloung-on, 1993; Rattanaanekchai et al., 2003; Wongsunopparat, 1990). Moreover, the findings were similar to those findings of Bjordal, Ahlner-Elmqvist, Hammerlid, Boysen, Evensen, Biorklund et al. (2001), Holloway et al. (2005), Katz et al. (2004), and Sehlen et al. (2003). It was slightly differed from the study of Rose and Yates (2001), which found that most of samples were laryngeal cancer patients, cancer of hypopharynx, followed by cancer of the tongue.

Characteristics of Study Variables

The discussions of five major variables used in this study are presented as followed.

Symptom Experience

Most participants in this study reported a low to moderate level of symptom experience (mean = 61.12, SD = 13.397) with the possible score ranging from 38-99. This finding was similar to the result of Mishel and colleagues (2002) who reported that intensity of the symptoms decreased overtime for all groups of men with prostate cancer. According to a difference of the sample studies, it is difficult to compare these two findings. One possible reason in explaining this similar finding may be due to the fact that the patients from this study had completed treatment nearly six months (mean

of the time post treatment = 5.27 months).This might cause a reduction of severity and distress of some symptoms which were subscales in the MSES such as mucositis, shoulder dysfunction, drooling, nasal bleeding, and difficulty in closing lip which patients perceived as the five lowest scores in severity and distress (see Table Q.1 and Q.2 in Appendix Q).

Moreover, most of participants (61.7%) were middle-aged; they had become more aware of their own physical health and they may have had effective stress management strategies with problem-focused and emotion-focused coping to help them adaptively cope with stress from severity and distress experiences (Berk, 2001; Dillon, 2007). Furthermore, some patients in this study (5%, n = 12) took regular exercise even when they were sick. Regularly exercising confers many physical and psychosocial benefits, enhances physical fitness, and helps people feel better about their physical selves. It substantially reduces stress and perhaps helps them gain better control over their lives (Berk, 2001). Therefore, they perceived their symptom experience in low to moderate level.

Regarding the most frequently reported of the five symptom occurrences, they were difficulty in swallowing (80.0%, n = 192), dry mouth (79.2%, n = 190), thick saliva (76.2%, n = 183), trouble sleeping (73.3%, n = 176), and taste change (72.5%, n = 174). The findings were quite differed from the study of De Boer, Pruyn, Van Den Borne and colleagues (1995), which found that the patients reported the most symptoms of hoarseness (58%), phlegm in mouth and throat (57%), disfigurement (45%), choking (41%), and fatigue (40%). One possible explanation may be related to the difference in sites of cancer, which most of participants in this study had lip and oral cavity cancer (30.0%, n = 72), followed by cancer of thyroid (25.4%, n = 61) and nasopharynx (25.0%, n = 60) while laryngeal cancer was the most prevalence group in the study of De Boer and colleagues (1995). As a result, the symptoms related to the treatments may be different.

With regard to the severity of symptoms, it was found that patients reported severity from the most common five symptoms as follows: dry mouth, difficulty in talking, thick saliva, difficulty in swallowing, and taste change. This finding is consistent with the study of Huang, Wilkie, Schubert, and Ting (2000), which found

that dry mouth is the most prevalent symptom in nasopharyngeal cancer during radiation therapy. On the other hand, the most five symptoms which patients felt distress were difficulty in swallowing, difficulty in talking, thick saliva, dry mouth, and difficulty in mastication. The findings reflected the problems which patients concerned were the problems related to eating, speaking and suffering from xerostomia. This was consistent with the reports of Semple and colleagues (2004) and De Boer and colleagues (1999),which reported that head and neck cancer patients may have compounding problems which are often directly related to the change in many basic functions such as eating, speaking, and suffering from xerostomia for more than one year after curative treatment. Moreover, Beeken and Calman (1994) also concluded that following curative treatment for head and neck cancer, most patients could not return to normal eating and had poorly speech.

The finding that patients perceived the difficulty in swallowing as the most symptom distress is consistent with those of Borggreven, Verdonck-de Leeuw, Rinkel, Langendijk, Roos, David and colleagues (2007) and Lazarus, Logemann, Pauloski, Rademaker, Helenowski, Vonesh and colleagues (2007). Borggreven and colleagues (2007) reported that the majority of the eighty patients showed impaired swallowing status six months after treatment, which did not improve after one year of follow-up. Lazarus and colleagues (2007) found that all forty six oral cancer patients demonstrated reduced tongue base function for swallowing after treatment completion. From this finding, it may conclude that there is overwhelming evidence of swallowing limitations in patients treated for oral or oropharyngeal cancer.

Buddhist Practices

Buddhist practices as reported by patients in this study was in low to moderate level of practicing Buddhist activities (mean = 26.03, SD = 7.164), with possible range of scores were14-49. This finding may be explained by the fact that most of the Buddhist activities in the Buddhist Practices Scale could perform both alone and by participating at the temple or any Buddhist club. Four out of thirteen items (chanting, reading religious books, keeping the Five Precepts, and walking up and down) were the activities that patients can practice by themselves. The other activities participants had to participate at temples or other Buddhist clubs such as making merit by going

to a temple on a holy day or Buddhist festival and walking with lighted candles in hands around temple.

It is believed that Thais had the moderate to strong beliefs in getting a good result from practicing the Buddhist activities. The participants in this study were expected to join the Buddhist activities. However, most of them were employed and had the responsibilities to do their jobs or earned money for their families, they may not have the opportunity to participate in any Buddhist activities although they had the moderate to strong beliefs in getting a good result from Buddhist practices.In addition, the patients were asked to check the Buddhist activities which they might have practiced or participated since they had the diagnosis of head and neck cancer. With regard to its treatments, patients may concern with their general appearance and may not join to the Buddhist activities. It probably did not tap the real situation. As a result, they may have affected the total scores of this scale in low to moderate levels of practicing Buddhist activities.

Uncertainty

The patients in this study perceived a moderate level of uncertainty at a mean of 53.90. This finding was considered a higher level of uncertainty score comparing with those from a study of women patients with cervical cancer of 47.17 (Santawaja, Hanucharurnkul, Sirapo-ngam, Sitthimongkol, & Vorapongsathorn, 2002) and a study of breast cancer survivors of 46.72 (Wonghongkul, 1999) but it reached to nearly level with the uncertainty score in a study of Thai breast cancer survivors of 57.08 (Wonghongkul, 2006), patients with heart failure of 54.9 (Winters, 2001) and Systemic Lupus Erythematosus (S.L.E.) (Kaewthumrong, 2000). However, it was found that the patients in this study perceived lower level of uncertainty score than the patients with atrial fibrillation (Kang, Daly, & Sun Kim, 2004). One possible explanation may be due to the fact that the participants in this study were newly diagnosed with head and neck cancer, they may perceive less familiarity and more ambiguity with physical symptoms which may have been affected by their illness and treatments. Even though they reported a low to moderate level of symptom experience, they still had some problems that affected from their treatments such as difficulty in

swallowing, dry mouth or difficulty in talking. They may do not know how long these symptoms be existed. Therefore, they perceived a moderate level of uncertainty score.

For the structural path, the researcher added one parameter from uncertainty to interpersonal relationships subscales of depression as suggested by the MI during the modification process. Even though there was no prior study directly conducted to examine the relationship between these two variables in Thai patients with head and neck cancer, this present study was strongly supported by the Uncertainty in Illness Theory proposed by Mishel (1988).Regarding this theory, information which is sought from others aid in the reduction of uncertainty by providing interpreting events. The sense of disorganization resulting from uncertainty can be reduced by contact with others who have faced the same experience. Thus, in the modified model, a path from uncertainty to interpersonal relationships subscales was added.

Depression

The score of depression ranged from 0-32 with a mean of 10.43 indicating that most participants had a low level of depression. The mean score of depressive symptoms in this study was lower than the average of the cutoff score to indicative depression in Thai people (equal to or greater than 19) which was proposed for use in this study. Most of the participants (90.8%) had the depressive score less than 19. The findings show a lower score than that in a study of depression in patients with HIV (Pakdeewong, 2006), breast cancer (Hann, Winter, & Jacobson, 1999), and Korean adult population (Kim, Ahn Jo, Yun Hwang, Shin, Kwan Kim, Kyung Woo, et al., 2004).

This result may be explained by the fact that depression is a state of mind in which a person might not bother to show up for the interview (Lazarus & Folkman, 1984). This seems to be particularly true of men who were the majority group in this study (72.9%). Because of cultural beliefs, men are expected to be household heads and to display strength; this may have caused a trend to underreport which could have translated into the low depression scores shown in this study.

However, patients in this study reported the problem of disfigurement but in low severity and distress. Their concerns quite differed from the study of Semple and colleagues (2004) which found that many people with facial disfigurement feel

stigmatized in society and also reported difficulties making friends, obtaining jobs. As a consequence of these difficulties patients can experience reduced self-esteem, social anxiety, depression, and a generalized sense of reduced QOL. One possible explanation may be due to the fact that participants in this study were still employed; they could earn a living and had no economic problems in their families. Considering the social/family subscales of the FACT-G, they still had the good relationship among family members and got the support from their families and friends. These interpersonal factors consider as antecedents of depressive symptom (Joiner & Coyne, 1999). This helps them have a feeling of hope, increase self-value and self-esteem. Therefore, they may perceive low level of depressive symptom score.

QOL

The score of QOL ranged from 46-103 with a mean of 82.45 indicating that most participants had a high level QOL. One of the possible reasons that may be explained this finding is an expectation of Thai culture that men have to be the household heads and to show strength, this may have caused some bias resulted in the higher score of QOL shown in this study. Moreover, most of the patients in this study were middle aged men; they may have had hardiness characteristics. Hardiness may help people to cope with stress adaptively (Berk, 2001). They may view a stressful situation as a challenge which helps them remain healthy in the face of stress. They may appraise these problems as manageable and interesting situations. They may tend to seek social support,to engage in health-promoting behaviors, they are more likely to use active problem-focused coping strategies and consequently may experience stressful situations as controllable (Mishel et al., 2002). Furthermore, most of them (70.4%) were married which in Thai culture they may have their wives take care of them during the illness as well as the majority group of them (97.1%) also reported no financial problem, so they might have less stressor in their lives. It was consistent with the study of Hanucharurnkul (1988) who found that marital status was significantly related to QOL and socioeconomic status was strong predictor for QOL by accounted for 19% of the variance. Therefore, they perceived higher scores of QOL

Overall Model and the Relationships

Symptom Experience, Uncertainty, Depression, and QOL

Not surprisingly, the finding from this study showed that symptom experience had a strong direct positive impact on uncertainty. This finding was consistent with many studies which have reported that severity of illness and severity of symptom had a positive association with uncertainty (Braden, 1990; Hilton, 1994; Kaveevivitchai, 1993; Mishel, 1997; Rojtinnakorn, 1993; Sitthichamlong, 1999; Vadtanapong, 1996)

Moreover, the results revealed that symptom experience had an indirect impact on depression and QOL mediated through uncertainty. In addition, uncertainty had a strong direct negative impact on QOL and a strong direct positive impact on depression in Thai patients with head and neck cancer. These findings conform to the UIT (Mishel, 1988) which proposed that symptom experience is an antecedent of uncertainty. The nature of the severity of symptoms presents difficulties in delineating a symptom pattern about the extent of the disease, resulting in uncertainty. Uncertainty will be increased when patterns among symptoms cannot be detected and predicted. If the patients use the effective coping strategies, a positive adaptation outcome (QOL) will occur. In turn, if they use ineffective coping strategies, a negative outcome (depression) will occur. This finding was congruent with Santawaja and colleagues (2002) who found that psychosocial adjustment was explained by symptom distress and uncertainty. Symptom distress had direct effects and indirect effects on psychosocial adjustment through uncertainty in cervical cancer women post radiotherapy.

Symptom Experience, Buddhist Practices, Uncertainty, Depression, and QOL

The result revealed that Buddhist practices had a nonsignificant direct negative impact on symptom experience,uncertainty and depression as well as a non-significant direct positive impact on QOL. Furthermore, Buddhist practices had a non-significant indirect effect on uncertainty through symptom experience, and had a non-significant indirect effect on depression and QOL through uncertainty in Thai patients with head and neck cancer. A possible reason to explain that Buddhist practices did not influence all of the variables in the Thai patients in this study lies in Thai culture and belief; the

patients may have coped with their difficulties in life by accepting their situation, disease, and the effects from treatment. As shown in findings of the additional data from an open-ended question of the Buddhist practices Scale; some participants (n = 13, 5.42%) had believed that the Buddhist practices would improve and empty their mind as well as help them cope by accepting their situation. On the other hand, the participants in this study had a low to moderate level of practicing Buddhist activities, it may influence to a weak relationship among Buddhist practices and other variables in the model. Thus, its relationship was not significant.

Thai Buddhist cancer patients have linked Thai culture and beliefs to the Buddhist religion for relief of some symptoms such as fatigue (Lunberg & Rattanasuwan, 2007). In Thai culture, most people believe in Karma; this was supported by the result from this study which found that 77.9% had belief in Karma ranging from moderate to strong. They might have thought that illness is a karmic consequence of a person's past action. Patients may feel that their disease is the outcome of things they did wrong in their previous life; therefore they accept it (Lunberg & Rattanasuwan, 2007).

Although significant relationships between Buddhist practices and other affected variables were not found in this study, the additional data that the patients gave during the interviews indicated that they had believed that there are good effects from practicing Buddhist activities. Approximately 85.8% of participants had a moderate to strong Buddhist belief. Buddhist practices such as merit making, praying, meditation, or *vipassana kammathana* helped them to feel happy and relaxed, to establish a peaceful mind, to be hopeful, to empty the mind, to increase the energy levels needed to face the suffering, and to come to terms with their situation. They also perceived that practice Buddhist activities, particularly, making a merit might redeem a past Karma and would help them have a good life both in present time and in the future.

These findings are supported by the work of Vora-Urai (2005) who reported that meditation or *samatha kammathana* is a way leading to tranquility which is usually referred to as "calmness meditation" while *vipassana kammathana* is a form of meditation leading to "insight or intuitive wisdom" which is the power to eliminate all

kinds of suffering. The patients who accepted their situation managed the problems with little or no worry and stress. They lived their lives as normally as possible (Junda, 2004). This explanation was supported by the results from this study which found that patients perceived moderate level of symptom experience and uncertainty, a low level of depression, and a high level of QOL. Thus, Buddhist practices may help patients as a coping method or a mediator to facilitate the reduction of uncertainty and depression and to enhance QOL.

Concerning the instruments used in this study, the Buddhist practices Scale was merely used to measure how often the patients engaged in practice and participation in Buddhist activities; it was not used to detect a belief in Buddhism. Therefore, further study should use in-depth interviews with patients to explore subjective beliefs in Buddhism which may lead to the practice of Buddhist activities.

Contribution to Nursing Science

This study was conducted to test the UIT (Mishel, 1988; Mishel et al., 2003) and to predict the factors contributing to QOL in head and neck cancer patients. These findings expand knowledge of the relationships among the variables in the hypothesized model, namely,symptom experience, Buddhist practices, depression, and QOL, by specifying the mediating effect of uncertainty.This model clarifies how those factors influence depression and QOL and provides a model to predict QOL in Thai patients with head and neck cancer. In particular, it is essential to gain knowledge, which provides culturally competent care for Thai Buddhist patients who differ in cultural and religious aspects from patients in Western countries.

Moreover, the hypotheses from this study that were partially supported could help clarify and strengthen the UIT in Thai patients with head and neck cancer. They also help establish concepts that are empirically testable and could be directly applied in clinical practice, particularly for newly emergent concepts of religious participation (Buddhist practices) coming from the UIT in 2003 (Mishel et al., 2003). In addition, it could help to expand the UIT in these patients. According to Burns and Grove (2005), the ultimate goal of nursing is to provide evidence-based care that promotes quality outcomes for patients, families, health care providers, and the health care system. The empirical evidence about the factors influencing QOL in patients and knowledge from

this study contributes to the betterment of nursing science, nursing practice, and nursing research. It especially contributes to, the provision of appropriate theoretical-based interventions by nurses and other health care professional teams in their task of caring for these groups of patients. Nurses can play an important role in symptom management research and provide patient supportive education program to help them manage uncertainty to alleviate depressive symptoms and improve QOL.

According to the finding in this study, uncertainty had a strong direct negative impact on QOL and a strong direct positive impact on depression in patients with head and neck cancer. As cancer becomes a chronic illness, learning to live with chronic uncertainty may be a necessary adaptive coping mechanism for these patients (Brashers et al., 2001; Mishel, 1990). Thus, understandable information how to maintain optimism, to reframe events as manageable and generate approaches to manage problems should be provided to them.

Methodological Issues

The discussion of methodological issues related to these study findings emphasizes instrument issues, data collection procedures, and data analysis procedures. The information on each issue is presented as follows.

Instrument Issues

The Buddhist practices Scale was newly developed by the researcher based on the Thai context and it had good psychometric properties, this scale can not claim to represent the whole essence of Buddhism. The Buddhist practices Scale was merely used to measure how often patients engaged in practice and participation in Buddhist activities, it was not used to a belief in Buddhism. Therefore, in further in-depth interview with patients exploring subjective beliefs in Buddhism which may lead to the practice of Buddhist activities should be conducted. The Buddhist practices Scale needs be re-arranged and to be explored for construct validity.

Data Collection Procedures

Because of the sample selection which represented only the Bangkok metropolitan areas, the generalization may be limited.

Due to the one-third of participants were the older and the questionnaires consisted of more than one hundred items, it may affect the response from the older samples.

During the data collection procedures, there was major flooding in some parts of Thailand. Some participants in this study suffered from this natural disaster. As one participant said “Not only do the physical problems cause me stress but so too do the other problems in my life such as the flood disaster. It was very difficult when I had to travel from my home to the hospital.” This may have affected responses and thus measurements obtained from the MUIS-C, CES-D and FACT-G.

Data Analysis Procedures

It should be noted that a cross-sectional design was used in this study while the structural equation modeling technique was considered as a causal analysis procedure. This may lead to limitations in being able to establish causality relationships among these variables. A comprehensive explanation and summary of the causal relationship of the final fitted model requires both strong theoretical based and empirical data. A prospective study may be more appropriate.

In conclusion, this chapter presents a discussion of the study findings, demographic characteristics of the patients and major study variables, the research hypotheses are discussed. Finally, contribution to nursing science and methodological issues are also presented.

CHAPTER VI
CONCLUSION

This chapter presents the detail of two sections. A summary of the study is firstly revealed. Then, the implications and applications of the findings to nursing and recommendations for further study follow.

Summary of the Study

This cross-sectional descriptive study used the Uncertainty in Illness Theory (UIT) (Mishel, 1988) combined with the new concept of religious participation (Mishel et al., 2003) to test the causal relationships among selected variables and to predict the factors influencing QOL in Thai patients with head and neck cancer. The selected variables were symptom experience, Buddhist practices (as two antecedents), uncertainty (as a mediating factor), as well as depression and QOL (as two adaptation outcomes).

Sample Characteristics

Two hundred and forty Thai patients with head and neck cancer at the otolaryngological and radiological outpatient clinics from five hospitals within the Bangkok Metropolitan area participated in this study from August 2006 to July 2007. Most of the patients were male (72.9%) with ages ranged from 19 to 89 years (mean = 55.17 years). The mean of education level was equal to 7.58 years. More than two-thirds of the patients were married (70.4%) and most of them (97.1%) reported that they had no economic problems. Approximately half of the patients had stage III and IV (57.1%) with nearly one-third of them having lip and oral cavity cancer (30.0%).

Instruments

The instruments used in this study were: (1) The Set Test (Isaacs & Kennie, 1973) for data screening; (2) Demographic Questionnaire; (3) The Modified Symptom Experience Scale modified from the 15-item Symptom Distress Scale (Mishel et al., 2002) and translated from English into Thai by the researcher; (4) The Buddhist

practices Scale developed by the investigator (2006); (5) The Mishel Uncertainty in Illness Scale-Community version (MUIS-C) (Mishel, 1997) Thai version translated from English to Thai by Kaewthumrong (2001); (6) The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977); and (7) The Functional Assessment of Cancer Therapy-General (FACT-G) Scale version 4 in Thai which was translated from English into Thai by Ratanatharathorn et al. (2001).

The content validity of the Modified Symptom Experience Scale was examined by a panel of seven experts and the Buddhist practices Scale was assessed by five experts. Some revisions were made following the experts' recommendations. Reliabilities of all instruments were evaluated first with 20 Thai head and neck cancer patients who were similar to the participants and from the samples, all of which were acceptable, ranging from .87 to .91. Confirmatory factor analyses of each tool and model testing were employed under LISREL 8.52 with 240 study samples. However, some subscales revealed a low Cronbach's alpha coefficient; exploratory factor analysis in Thai participants therefore needs to be undertaken in further study.

Research Findings

The SPSS 11.5 was employed to obtain the descriptive data and the assumption testing results as well as the LISREL 8.52 which was used to test and modify the model. The modified model was performed to fit the empirical data at χ^2 = 28.00, df = 21, χ^2/df = 1.33, p = .14, GFI = .981, AGFI = .929, RMSEA = .037. The final model could explain 66% of variance in uncertainty, 93% in depression, and 92% in QOL.

The findings indicated that two out of five of the research hypotheses were supported. It was found that symptom experience had a strong direct positive impact on uncertainty and an indirect impact on depression and QOL mediated through uncertainty. In addition, uncertainty had a strong direct negative impact on QOL and a strong direct positive impact on depression in Thai patients with head and neck cancer.

Buddhist practices had a non-significant direct negative impact on symptom experience, uncertainty and depression as well as a non-significant direct positive impact on QOL. Furthermore, Buddhist practices had a non-significant indirect effect on uncertainty through symptom experience, and had a non-significant indirect effect

on depression and QOL through uncertainty in Thai patients with head and neck cancer.

Conclusion

In summary, the findings derived from this modified model partially supported the UIT (Mishel, 1988) but significant effects of Buddhist practices on symptom experience**,** uncertainty, depression, and QOL were not found in this study. Since Buddhist practices is a newly emergent concept of religious participation coming from the UIT in 2003 and one that has been tested for the first time in this study, further study to test the effect of this new concept on other related variables is needed. The qualitative study should be conducted in further study for deeply detection of the Buddhist belief.

Implications and Recommendations

The implications and recommendations section of this study emphasized the implication for nursing practice and recommendations for further studies.

Implication to Nursing Practice

The finding of this study showed that the patients reported the severity from the most common top five symptoms as follows: dry mouth, difficulty in talking, thick saliva, difficulty in swallowing, and taste change. On the other hand, the most top five symptoms which patients felt distress were difficulty in swallowing, difficulty in talking, thick saliva, dry mouth, and difficulty in mastication. Nurses should develop an intervention program to prevent or manage those symptoms. Currently, most of the practice guidelines for providing care to the Thai head and neck cancer patients were in general. Thus, for better management of those symptoms nurses and health care providers should develop the specific practice guidelines for helping manage specific most common symptoms which patients perceived severity and distress as demonstrated in the findings of this study. The effective symptom management program may help reduce uncertainty, appraise the uncertainty as an opportunity, and use effective coping strategies, thereby contributing to preventing or reducing depression and improving QOL.

Recommendations for Further Studies

This study was a cross-sectional descriptive design in Thai patients with head and neck cancer which assessed patients in five hospitals in Bangkok. It is noted that further studies should be cautious in inferring causal relationships among these study variables. However, the study can be used as preliminary data for intervention studies. A longitudinal study is needed to provide more causal explanation.

Regarding generalizing, results can only be generalized to the type of sample that was used to estimate and test the structural equation model. Therefore, these results cannot be generalized to all head and neck cancer patients. Further studies should be conducted in different settings for more explanation and generalization among Thai head and neck cancer patients.

Considering the instruments used in this study, the Buddhist practices Scale was developed and used for the first time.Its reliability showed an acceptable level but it might not have been good enough to measure the variables in this study. In the case of the Buddhist practices acting as a causal variable in this model, the significant relationships were not found and it could not explain the variance of whole model. Thus, further studies should test the construct validity and reliability of this instrument to increase the accuracy of measurement and confirm its reliability. In addition, the researcher may consider other emergent findings of the relationship between Buddhist practice and other variables that might be more appropriate in Thai population such as evaluating this concept as a mediator to help patients cope with the stressful situations in life.

Qualitative research methods can provide a mechanism for understanding the patient’s experience of symptoms and physical status in a way not achievable through quantitative scales or methods. Combining quantitative and qualitative methods can obtain the most complete descriptions of QOL from cancer patients. In addition, a qualitative study may be needed to understand more in-depth on the Buddhist belief and Buddhist practices.

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APPENDIX

APPENDIX A

The Set Test

Instruction: This questionnaire asks you to name as many items as you can recall in each set of color, animal, fruit, and province.

Color:		**Animal:**
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10
Fruit:		**Province:**
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10

Thai Version of the Set Test

แบบประเมินเกี่ยวกับการนึกคิดและการจำ

คำชี้แจง : ข้อคำถามต่อไปนี้เป็นการประเมิน**ความสามารถในการนึกคิดและความจำ**ของท่าน โปรดบอกชื่อของสี สัตว์ ผลไม้ และจังหวัด ที่ท่านรู้จัก**ให้มากที่สุดเท่าที่ท่านจำได้**

สี:		**สัตว์:**
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10
ผลไม้:		**จังหวัด:**
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10

APPENDIX B

Demographic Questionnaire

Code……... Hospital…….....

Instruction: Please fill your personal data in the blank or check ✓ in the ☐ in front of the statement.

1. Age …….years
2. Gender
   ☐ 1. Female ☐ 2.Male
3. Marital status
   ☐ 1. Single ☐ 2. Married ☐ 3. Widowed, divorced or separated
4. Education……..years of schooling completed.
5. Occupation
   ☐ 1. Unemployed ☐ 2. Employee (please specify……..)
   ☐ 3. Agriculturist ☐ 4. Government Officer
   ☐ 5. Business ☐ 6. Other (please specify……..)
6. Average family income……..Baht/month
7. Sources of payment
   ☐ 1. Self-support ☐ 2. Social coverage
   ☐ 3. Universal coverage 30 baht ☐ 4. Government
   ☐ 5. Other (please specify……)
8. Financial problem
   ☐ 1. No ☐ 2. Yes
9. Other chronic disease
   ☐ 1. No ☐ 2. Yes
10. A belief in Karma

☐ 1. Not belief ☐ 2. A little belief ☐ 3. Moderate belief ☐ 4. Strong belief

11. A belief that Buddhist practices would be bring to good outcome

☐ 1. Not belief ☐ 2. A little belief ☐ 3. Moderate belief ☐ 4. Strong belief

Patients' illness data (from patients' files)

12. Diagnosis…….

13. Stage of disease……..

14. Types of treatment……

15. Duration after completing treatment……..months.

16. Complication related to the treatment (please specify……)

Thai Version of the Demographic Questionnaire

แบบสอบถามข้อมูลส่วนบุคคล

หมายเลขแบบสอบถาม.....โรงพยาบาล……

คำชี้แจง :โปรดเติมคำลงในช่องว่าง หรือทำเครื่องหมาย ✓ ลงใน ☐ ตรงกับข้อมูลส่วนบุคคลของท่าน

1. อายุ.....ปี
2. เพศ
   ☐ 1. หญิง ☐ 2. ชาย
3. สถานภาพสมรส
   ☐ 1. โสด ☐ 2. สมรส ☐ 3. หม้าย หย่า / แยก
4. ระยะเวลาที่ได้รับการศึกษาทั้งหมด ..... ปี
5. อาชีพปัจจุบัน
   ☐ 1. แม่บ้าน / ไม่ได้ประกอบอาชีพ ☐ 2. รับจ้าง (ระบุ).....
   ☐ 3. เกษตรกรรม ☐ 4. รับราชการ / พนักงานรัฐวิสาหกิจ
   ☐ 5. ค้าขาย ☐ 6. อื่น ๆ (ระบุ) .....
6. รายได้ครอบครัวต่อเดือน (โดยประมาณ) ..... บาท
7. แหล่งสนับสนุนทางด้านการเงินค่ารักษาพยาบาล
   ☐ 1. ชำระเอง ☐ 2. ประกันสังคม
   ☐ 3. โครงการ 30 บาทรักษาทุกโรค ☐ 4. เบิกราชการ / รัฐวิสาหกิจ
   ☐ 5. อื่น ๆ (ระบุ) .....
8. ปัญหาค่ารักษา ☐ 1. ไม่มีปัญหา ☐ 2. มีปัญหา
9. โรคประจำตัวอื่น ☐ 1. ไม่มี ☐ 2. มี (ระบุ)……..

ข้อมูลเกี่ยวกับความเชื่อทางศาสนาพุทธ

10. ความเชื่อเรื่องกฎแห่งกรรม
    ☐ 1. ไม่เชื่อเลย ☐ 2. เชื่อน้อย ☐ 3. เชื่อปานกลาง ☐ 4.เชื่อมาก
11. ความเชื่อเรื่องการปฏิบัติกิจกรรมทางศาสนาพุทธช่วยให้เกิดผลดีต่อผู้ปฏิบัติ
    ☐ 1. ไม่เชื่อเลย ☐ 2. เชื่อน้อย ☐ 3. เชื่อปานกลาง ☐ 4.เชื่อมาก

ข้อมูลเกี่ยวกับการเจ็บป่วย (เก็บข้อมูลจากแฟ้มประวัติผู้ป่วย)

12. การวินิจฉัยโรค.....

13. ระยะของโรค.....

14. การรักษาที่ได้รับ .....

15. ระยะเวลาหลังจากได้รับการรักษาครบ ..... เดือน

16. ปัญหาแทรกซ้อนที่เกี่ยวข้องกับการรักษา (ถ้ามีระบุ)…….

APPENDIX C

The Modified Symptom Experience Scale (MSES)

Instruction: Each of the following describes side effects you may have with treatment of head and neck cancer. Think about what each statement says, then place a circle around the **one** statement that most closely tells how you have been feeling during the past week, including today.

: If you circle choices 4, 3 or 2 for part A, answer part B which asks how upsetting it is. Circle one answer.

1. **Nasal bleeding**

A 1. I never have nasal bleeding
2. I have nasal bleeding once in a while
3. I have nasal bleeding fairly often
4. I have nasal bleeding all the time

B. How upsetting is it to have nasal bleeding?

1. Not at all
2. Mildly upsetting
3. Very upsetting
4. Unbearable

…….....

19. **Fatigue**

A 1. I never have fatigue
2. I have fatigue once in a while
3. I have fatigue fairly often
4. I have fatigue all the time

B. How upsetting is it to have fatigue?

1. Not at all
2. Mildly upsetting
3. Very upsetting
4. Unbearable

Thai Version of the MSES

แบบสอบถามประสบการณ์เกี่ยวกับอาการ

คำชี้แจง: อาการต่อไปนี้เป็นผลข้างเคียงจากการรักษาโรคมะเร็งบริเวณศีรษะและคอที่อาจเกิดขึ้นกับท่าน โปรดพิจารณาและวงกลมล้อมรอบตัวเลขที่อยู่หน้าข้อความที่ตรงกับความรู้สึกของท่านต่ออาการเหล่านั้นได้ใกล้เคียงมากที่สุดในช่วง 1 สัปดาห์ที่ผ่านมา (รวมทั้งวันนี้)

: ถ้าท่านเลือกข้อ 2, 3, หรือ 4 ในส่วน ก. ให้ท่านตอบในส่วน ข. โดยวงกลมล้อมรอบข้อที่ต้องการเพียงหนึ่งข้อซึ่งอธิบายถึงระดับความทุกข์ทรมานจากอาการเหล่านั้น

1. เลือดออกทางจมูก

ก. 1. ฉันไม่เคยมีอาการเลือดออกทางจมูก
2. ฉันมีอาการเลือดออกทางจมูกนานๆ ครั้ง
3. ฉันมีอาการเลือดออกทางจมูกค่อนข้างบ่อย
4. ฉันมีอาการเลือดออกทางจมูกตลอดเวลา

ข. ท่านรู้สึกทุกข์ทรมานจากอาการเลือดออกทางจมูกมากน้อยเพียงใด
1. ไม่รู้สึกทุกข์ทรมานเลย
2. รู้สึกทุกข์ทรมานเล็กน้อย
3. รู้สึกทุกข์ทรมานมาก
4. รู้สึกทุกข์ทรมานมากที่สุดจนทนไม่ได้

.....

19. เหนื่อยล้า

ก. 1. ฉันไม่เคยมีอาการเหนื่อยล้า
2. ฉันมีอาการเหนื่อยล้านานๆ ครั้ง
3. ฉันมีอาการเหนื่อยล้าค่อนข้างบ่อย
4. ฉันมีอาการเหนื่อยล้าตลอดเวลา

ข. ท่านรู้สึกทุกข์ทรมานจากอาการเหนื่อยล้ามากน้อยเพียงใด
1. ไม่รู้สึกทุกข์ทรมานเลย
2. รู้สึกทุกข์ทรมานเล็กน้อย
3. รู้สึกทุกข์ทรมานมาก
4. รู้สึกทุกข์ทรมานมากที่สุดจนทนไม่ได้

APPENDIX D

The Buddhist Practices Scale (BPS)

Instruction: Below is a list of statements about the Buddhist activities you might have practiced and participated. Please tell me how often you did by checking in the selected items.

Statements	None of the time	Some of the time	Moderate amount of time	All of the time
1. Practicing, concentration, or meditation				
2. Chanting				
3. Listening to a preaching				
4. Reading religious books				
…….				
…….				
…….				
…….				
…….				
10. Offering dedicated to monks				
11. Donating money to monks				
12. Wholesome donating money…….				
13. Keeping the Five Precepts				

14. How are Buddhist practices helping you solve your health problem?

…….

……

……

……

……

Thai Version of the BPS

แบบวัดการปฏิบัติกิจกรรมทางพุทธศาสนา

คำชี้แจง : ข้อความต่อไปนี้เป็นข้อความเกี่ยวกับกิจกรรมทางพุทธศาสนา ซึ่งท่านอาจปฏิบัติและเข้าร่วมกิจกรรมเหล่านั้น โปรดทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับการปฏิบัติของท่านมากที่สุดว่าท่านปฏิบัติหรือเข้าร่วมกิจกรรมบ่อยเพียงใด

ข้อความ	ไม่เคยทำ	ทำ บางครั้ง	ทำ ค่อนข้างบ่อย	ทำเป็น ประจำ
1. ฝึกสมาธิตามแนวทางพุทธศาสนา				
2. สวดมนต์				
3. ฟังเทศน์ / ฟังธรรมเทศนา				
4. อ่านหนังสือธรรมะ				
……...				
…….				
…….				
…….				
…….				
10. ถวายสังฆทาน				
11. บริจาคเงินให้พระสงฆ์				
12. บริจาคเงินหรือสิ่งของเพื่อช่วยเหลือผู้อื่น				
13. รักษาศีลห้าหรือศีลแปด				

14. ท่านคิดว่าการปฏิบัติกิจกรรมทางศาสนาพุทธช่วยในการแก้ปัญหาเกี่ยวกับโรคที่ท่านเป็นอยู่ได้อย่างไรบ้าง

.....

.....

APPENDIX E

Thai Version of the MUIS-C

แบบสอบถามความรู้สึกไม่แน่นอนในความเจ็บป่วย

คำชี้แจง : โปรดพิจารณาข้อความต่อไปนี้แต่ละข้อ แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความรู้สึกที่แท้จริงของท่านมากที่สุด**ในช่วงสัปดาห์ที่ผ่านมารวมทั้งวันนี้** โดยขอให้ท่านเลือกตอบเพียงคำตอบเดียว และกรุณาตอบทุกข้อ

	ตรงกับความรู้สึกมากที่สุด	ตรงกับความรู้สึกมาก	ไม่แน่ใจ	ไม่ตรงกับความรู้สึกมาก	ไม่ตรงกับความรู้สึกมากที่สุด
1. ฉันไม่รู้ว่าฉันป่วยเป็นอะไร					
2. ฉันมีคำถามมากมายที่หาคำตอบไม่ได้					
3. ฉันไม่แน่ใจว่า อาการเจ็บป่วยของฉันจะดีขึ้นหรือแย่ลง					
4. ฉันไม่แน่ใจว่า ฉันจะต้องเจ็บป่วยอีกมากน้อยเพียงใด					
…….					
…….					
…….					
…….					
…….					
20. การฉายแสงที่ฉันได้รับนั้นเป็นที่รู้กันว่ามีโอกาสรักษาโรคนี้ให้หายได้					
21. หมอไม่ได้บอกการวินิจฉัยโรคที่แน่นอนให้ฉันทราบ					
22. ฉันสามารถประเมินความรุนแรงของความเจ็บป่วยของฉันได้					
23. หมอและพยาบาลใช้คำพูดง่าย ๆ ที่ฉันเข้าใจได้					

APPENDIX F

The Center for Epidemiologic Studies Depression Scale (CES-D)

Instruction: Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	Rarely or none of the time (less than 1 day)	A little of the time (1-2 days)	A moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually…….				
2. I did not feel like eating……				
3. I felt that I could not shake off the blues…				
4. …….				
18. I felt sad.				
19. I felt that people dislike me.				
20. I could not get "going"				

Thai Version of the CES-D

แบบสอบถามภาวะซึมเศร้า

คำชี้แจง : โปรดพิจารณาข้อความต่อไปนี้แต่ละข้อ แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความรู้สึกที่แท้จริงของท่านมากที่สุด**ในช่วงสัปดาห์ที่ผ่านมารวมทั้งวันนี้** โดยขอให้ท่านเลือกตอบเพียงคำตอบเดียว และกรุณาตอบทุกข้อ

	ไม่เลย < 1 วัน ต่อสัปดาห์	นาน ๆ ครั้ง 1-2 วัน ต่อสัปดาห์	ค่อนข้างบ่อย 3-4 วัน ต่อสัปดาห์	บ่อยครั้ง 5-7 ครั้ง ต่อสัปดาห์
1. ฉันรู้สึกหงุดหงิดง่าย				
2. ฉันรู้สึกเบื่ออาหาร				
3. ฉันรู้สึกว่าฉันไม่สามารถขจัดความหม่นหมองออกไป....				
4.				
18. ฉันรู้สึกไม่มีความสุข				
19. ฉันรู้สึกว่าผู้คนรอบข้างไม่ชอบฉัน				
20. ฉันรู้สึกท้อถอยในชีวิต				

APPENDIX G

The Functional Assessment of Cancer Therapy – General Scale (FACT-G)

Instruction: Below is a list of statements that other people with your illness have said are important. By circling one (1) number per line, please indicate how true each statement has been for you **during the past 7 days.**

	PHYSICAL WELL-BEING	Not at all	A little bit	Some what	Quite a bit	Very much
GP1	I have a lack of energy	0	1	2	3	4
GP2	.....					
GP7	I am forced to spend time in bed	0	1	2	3	4

	SOCIAL/FAMILY WELL-BEING	Not at all	A little bit	Some what	Quite a bit	Very much
GS1	I feel close to my friends	0	1	2	3	4
GS2	.....					
GS7	I am satisfied with my sex life	0	1	2	3	4

	EMOTIONAL WELL-BEING	Not at all	A little bit	Some what	Quite a bit	Very much
GE1	I feel sad	0	1	2	3	4
GE2	.....					
GE6	I worry that my condition will get worse	0	1	2	3	4

	FUNCTIONAL WELL-BEING	Not at all	A little bit	Some what	Quite a bit	Very much
GF1	I am able to work (include work at home)	0	1	2	3	4
GF2	.....					
GF7	I am content with the quality of my life right now	0	1	2	3	4

Thai Version of the FACT-G

แบบสอบถามคุณภาพชีวิต

คำชี้แจง: ข้อความข้างล่างนี้เป็นข้อความที่ผู้ป่วยโรคเดียวกับท่านกล่าวว่ามีความสำคัญ ขอให้ท่านอ่านแล้วเลือกวงกลมเพียงหนึ่งหมายเลขในแต่ละหัวข้อ ตามความรู้สึกที่แท้จริงของท่าน ในระยะเวลา 7 วันที่ผ่านมาท่านรู้สึกว่าเป็นอย่างไรบ้าง

	ความผาสุกด้านร่างกาย	**ไม่เลย**	**เล็กน้อย**	**ปานกลาง**	**ค่อนข้างมาก**	**มากที่สุด**
GP 1	ข้าพเจ้ารู้สึกหมดเรี่ยวแรง	0	1	2	3	4
GP 2	.....					
GP 7	ข้าพเจ้าจำต้องใช้เวลาส่วนใหญ่นอนอยู่บนเตียง	0	1	2	3	4

	ความผาสุกด้านสังคม/ ครอบครัว	**ไม่เลย**	**เล็กน้อย**	**ปานกลาง**	**ค่อนข้างมาก**	**มากที่สุด**
GS 1	ข้าพเจ้ารู้สึกใกล้ชิดสนิทสนมกับเพื่อนๆ	0	1	2	3	4
GS 2	.....					
GS 7	ข้าพเจ้าพึงพอใจกับชีวิตทางเพศของตนเอง.....	0	1	2	3	4

	ความผาสุกด้านอารมณ์ จิตใจ	**ไม่เลย**	**เล็กน้อย**	**ปานกลาง**	**ค่อนข้างมาก**	**มากที่สุด**
GE 1	ข้าพเจ้ารู้สึกเศร้าใจ	0	1	2	3	4
GE 2	.....					
GE 6	ข้าพเจ้ากังวลว่าอาการจะแย่ลง	0	1	2	3	4

	ความผาสุกด้านการปฏิบัติกิจกรรม	**ไม่เลย**	**เล็กน้อย**	**ปานกลาง**	**ค่อนข้างมาก**	**มากที่สุด**
GF 1	ข้าพเจ้าสามารถทำงานทั่วไปได้ (รวมถึงงานบ้าน)	0	1	2	3	4
GF 2	…….					
GF 7	ข้าพเจ้าพึงพอใจกับคุณภาพชีวิตของ ตนเองในขณะนี้	0	1	2	3	4

APPENDIX H

List of Experts

H.1 List of Experts for Content Validating of the MSES

1. Associate Professor Darunee Junhavat
   Department of Nursing, Faculty of Medicine, Ramathibodi Hospital, Mahidol University.
2. Associate Professor Dr. Sumalee Dechongkit
   Department of Otolaryngology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University
3. Miss Suwimon Suntisuktana
   Department of Nursing, Faculty of Medicine, Ramathibodi Hospital, Mahidol University
4. Assistant Professor Dr. Thongchai Bhongmakapat
   Department of Otolaryngology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University.
5. Assistant Professor Dr. Phawin Keskul
   Department of Otolaryngology, Faculty of Medicine, Siriraj Hospital, Mahidol University.

H.2 List of Experts for Linguistic Validating of the MSES

1. Associate Professor Dr. Songsri Soranastaporn
   Faculty of Arts, Mahidol University.
2. Assistant Professor Dr. Manee Apanantikul
   Department of Nursing, Faculty of Medicine, Ramathibodi Hospital, Mahidol University.

H.3 List of Experts for Content Validating of the Buddhist Practices Scale

1. Associate Professor Dr. Arphorn Chuaprapaisilp
   Department of Adult and Elderly Nursing, Faculty of Nursing,
   Prince of Songkla University
2. Assistant Professor Dr. Pratoom Angurarohita
   Department of Philosophy, Faculty of Arts,
   Chulalongkorn University
3. Assistant Professor Dr. Tassanee Tongprateep
   Department of Medical-Surgical Nursing,
   Kuakarun College of Nursing
4. Assistant Professor Dr. Wanlapa Kunsongkeit
   Department of Medical-Surgical Nursing, Faculty of Nursing,
   Burapha University
5. Lecturer Dr. Hunsa Sethabouppha
   Department of Psychiatric Nursing, Faculty of Nursing,
   Chiang Mai University

APPENDIX I

Content Validity Index (CVI)

The average CVI of the *MSES* = .98. The details of all experts' opinion are as follows:

Expert 1 & 2	= 1 (CVI = 19 / 19)
Expert 1 & 3	= 1 (CVI = 19 / 19)
Expert 1 & 4	= .97 (CVI = 19 / 18)
Expert 1 & 5	= .97 (CVI = 19 / 18)
Expert 2 & 3	= 1 (CVI = 19 / 19)
Expert 2 & 4	= .97 (CVI = 19 / 18)
Expert 2 & 5	= .97 (CVI = 19 / 18)
Expert 3 & 4	= .97 (CVI = 19 / 18)
Expert 3 & 5	= .97 (CVI = 19 / 18)
Expert 4 & 5	= .95 (CVI = 18 / 18)

The average CVI of the *Buddhist practices Scale* = .95. The details of all experts' opinion are as follows:

Expert 1 & 2	= .88 (CVI = 11 / 12)
Expert 1 & 3	= .92 (CVI = 11 / 13)
Expert 1 & 4	= .92 (CVI = 11 / 13)
Expert 1 & 5	= .92 (CVI = 11 / 13)
Expert 2 & 3	= .96 (CVI = 12 / 13)
Expert 2 & 4	= .96 (CVI = 12 / 13)
Expert 2 & 5	= .96 (CVI = 12 / 13)
Expert 3 & 4	= 1 (CVI = 13 / 13)
Expert 3 & 5	= 1 (CVI = 13 / 13)
Expert 4 & 5	= 1 (CVI = 13 / 13)

APPENDIX J

Table J.1 Reliability of the Instruments from the Pilot Study (n = 20)

Scale	Number of Items	Alpha Coefficient (α)
Modified Symptom Experience Scale	38	.8973
Symptom Severity	19	.7986
Symptom Distress	19	.8162
Buddhist Practices Scale	13	.9012
Mishel Uncertainty in Illness Scale: Community Version (MUIS-C)	23	.8964
Center of Epidemiologic Studies Depression Scale (CES-D)	20	.8609
Depressed Affect	7	.7616
Positive Affect	4	.6987
Somatic Retarded Activity	7	.5485
Interpersonal Relationship	2	.9191
Functional Assessment of Cancer Therapy-General Scale (FACT-G)	27	.8379
Physical Well-being (PWB)	7	.7922
Social/family Well-being (SFWB)	7	.5815
Emotional Well-being (EWB)	6	.7950
Functional Well-being (FWB)	7	.8245

Table J.2 Reliability of the Instruments Used in this Study (n = 240)

Scale	Number of Items	Alpha Coefficient (α)
Modified Symptom Experience Scale	38	.9132
Symptom Severity	19	.8098
Symptom Distress	19	.8866
Buddhist Practices Scale	13	.9064
Mishel Uncertainty in Illness Scale: Community Version (MUIS-C)	23	.8957
Center of Epidemiologic Studies Depression Scale (CES-D)	20	.8691
Depressed Affect	7	.8035
Positive Affect	4	.7065
Somatic Retarded Activity	7	.7234
Interpersonal Relationship	2	.5456
Functional Assessment of Cancer Therapy-General Scale (FACT-G)	27	.9088
Physical Well-being (PWB)	7	.8177
Social/family Well-being (SFWB)	7	.8013
Emotional Well-being (EWB)	6	.8010
Functional Well-being (FWB)	7	.8738

APPENDIX K

Documentary Proof of Ethical Clearance

คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
ถนนพระราม 6 กทม. 10400
โทร. (662) 354-7275, 201-1296 โทรสาร (662) 354-7233
Faculty of Medicine, Ramathibodi Hospital, Mahidol University
Rama VI Road, Bangkok 10400, Thailand
Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

Documentary Proof of Ethical Clearance Committee on Human Rights Related to Researches Involving Human Subjects Faculty of Medicine, Ramathibodi Hospital, Mahidol University

MURA2006/250

Title of Project	Testing a Conceptual Model of Uncertainty to Predict Quality of Life in Thai Patients with Head and Neck Cancer
Protocol Number	ID 07-49-07
Principal Investigator	Mrs. Mukda Detprapon
Official Address	Department of Nursing Faculty of Medicine, Ramathibodi Hospital Mahidol University

The aforementioned project has been reviewed and approved by Committee on Human Rights Related to Researches Involving Human Subjects, based on the Declaration of Helsinki.

Signature of Secretary Committee on Human Rights Related to Researches Involving Human Subjects	..... Assoc. Prof. Duangrurdee Wattanasirichaigoon, M.D.
Signature of Chairman Committee on Human Rights Related to Researches Involving Human Subjects	..... Prof. Boonsong Ongphiphadhanakul, M.D.
Date of Approval	July 19, 2006

2 ถนนพรานนก 2 PRANNOK Rd.
บางกอกน้อย BANGKOKNOI
กรุงเทพฯ 10700 BANGKOK 10700

Tel. (662) 4197000 ต่อ 6405-6
FAX (662) 4197000 ต่อ 6405

Siriraj Ethics Committee

Certificate of Approval

COA no.Si 001/2007

Protocol Title : Testing a Conceptual Model of Uncertainty to Predict Quality of Life in Thai Patients with Head and Neck Cancer.

SiEC number : 354/2549

Principal Investigator/Affiliation : Mrs. Mukda Detprapon / Department of Nursing
Faculty of Medicine Ramathibodi Hospital, Mahidol University

Research site : Faculty of Medicine Siriraj Hospital

Approval includes :

1. EC Submission form
2. Protocol
3. Participant information sheet
4. Informed consent form
5. Questionnaire

Approval date : January 3, 2007

Expired date : January 2, 2008

This is to certify that Siriraj Ethics Committee is in full Compliance with International Guidelines For Human Research Protection such as Declaration of Helsinki, The Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

(Prof. Sumalee Nimmannit, M.D.)
Chair Person

April 24, 2007
date

(Clin. Prof. Piyasakol Sakolsatayadorn)
Dean of Faculty of Medicine Siriraj Hospital

April 25,2007
date

No.555/2006
REC.NO. 228/49

Certificate of Approval

The Institutional Review Board of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, has approved the following study which is to be carried out in compliance with the ICH/GCP according to the protocol of the principal investigator.

The Institutional Review Board of the Faculty of Medicine, Chulalongkorn University, reviewed the protocol based on the international guidelines for human research protection and ICH-GCP

Study Title	: Testing a Conceptual Model of Uncertainty to Predict Quality of Life in Thai Patients with Head and Neck Cancer
Study Code	: -
Center	: Chulalongkorn University
Principal Investigator	: Mrs. Mukda Detprapon
Document Reviewed	:

: .....
(Emeritus Professor Anek Aribarg, M.D.)
Chairman of Institutional Review Board

: .....
(Associate Professor Vilai Chentanez, M.D.)
Associate Dean for the Research Affairs
With Representative of Dean

Date of Approval : November 21, 2006

Approval Expire Date : November 21, 2007

Approval is granted subject to the following conditions: (See back of this Certificate)

Documentary Proof of Ethics Committees on Researches Involving Human Subjects
Rajavithi Hospital, Bangkok, THAILAND

No. 098 / 2006

Title of Project : Testing a Conceptual Model of Uncertainty to Predict Quality of Life in Thai Patients with Head and Neck Cancer

Principal Investigator : Mrs. Mukda Detprapon

Name of Department : Department of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University

The aforementioned project and informed consent have been reviewed and approved by Committee on Human Right to Researches Involving Human Subjects.

Date of Approval : July 20, 2006

Signature of Chairman
Ethics Committee on Researches Involving Human Subjects : .....
Siriwat Arnantapunpong, M.D.

Signature of Acting Director : .....
Sompong Thanapaisarnkit, M.D.

บันทึกข้อความ

ส่วนราชการ สพว.วพม./รพ.รร.๖ โทร.๙๓๖๘๑

ที่ กห ๐๔๔๖.๑๖/๐๕๗ **วันที่** ๓๑ ส.ค.๔๙

เรื่อง ขอความอนุเคราะห์ในการเก็บข้อมูล

เรียน ผอ.รพ.รร.๖ (ผ่าน สง.ผบช.รพ.รร.๖)

อ้างถึง หนังสือ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ที่ ศธ ๐๕๑๗.๐๕(ปร.ด.)/๒๗๕ ลง ๑๒ ก.ค.๔๙

๑. ตามที่ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ได้ขอความร่วมมือมายัง รพ.รร.๖ ให้ นางมุกดา เดชประพนธ์ นิสิตระดับปริญญาดุษฎีบัณฑิต สาขาการพยาบาล(หลักสูตรนานาชาติ และหลักสูตรร่วมกับมหาวิทยาลัยในต่างประเทศ) ซึ่งดำเนินการวิจัยเรื่อง "การทดสอบทฤษฎีความไม่แน่นอนในความเจ็บป่วยเพื่อทำนายคุณภาพชีวิตในผู้ป่วยมะเร็งหู คอ จมูก (Testing a Conceptual Model of Uncertainty to Predict Quality of Life in Thai Patients with Head and Neck Cancer)" เข้าเก็บรวบรวมข้อมูลโดยการตอบแบบสอบถามด้วยตนเอง จากกลุ่มตัวอย่างผู้ป่วยมะเร็งหู คอ จมูก ซึ่งได้รับการรักษาครบแล้วในช่วงระหว่าง ๑ เดือนถึง ๑ ปี ณ ห้องตรวจโรคหู คอ จมูก และแผนกรังสีรักษา กองรังสีกรรม โรงพยาบาลพระมงกุฎเกล้า จำนวน ๒๐ ราย โดยโครงการวิจัยดังกล่าวได้ผ่านการพิจารณาจากคณะอนุกรรมการพิจารณาโครงการวิจัย พบ. เมื่อวันที่ ๑๘ ส.ค.๔๙ นั้น

๒. สพว.วพม./รพ.รร.๖ พิจารณาแล้วเห็นสมควรดำเนินการดังนี้.-

๒.๑ สำเนาส่ง กองโสต ศอ นาสิกกรรม รพ.รร.๖ และกองรังสีกรรม รพ.รร.๖ ทราบ เพื่อดำเนินการในส่วนที่เกี่ยวข้อง

๒.๒ แจ้ง นางมุกดา เดชประพนธ์ ทราบ

๒.๓ นำเรียน ผู้บริหาร รพ.รร.๖ เพื่อกรุณาทราบ

จึงเรียนมาเพื่อกรุณาพิจารณา หากเห็นสมควรกรุณาอนุมัติในข้อ ๒.

สำเนาถูกต้อง

เสนอ... มุกดา เดชประพนธ์

พ.ท.หญิง (ปานัดดา หัตถโชติ)

พ.อ.ผศ. (สุธี พานิชกุล)

หน.สพว.วพม./รพ.รร.๖

อนุมัติในข้อ ๒.

รับคำสั่ง ผอ.รพ.รร.๖ ๓๑ / ส.ค. / ๔๙

เลขานุการ สพว.วพม./รพ.รร.6

- ทราบ

พ.อ. (สถิตย์ เรืองดิลกรัตน์)

รอง ผอ.รพ.รร.๖ (๒)

๓๐ / ส.ค. / ๔๙

พล.ต. (ภานุวิชญ์ พุ่มหิรัญ)

ผอ.รพ.รร.๖

๓๑ / ส.ค. / ๔๙

- ทราบ

พ.อ.

รอง ผอ.รพ.รร.๖ (๒)

๓๐ / ส.ค. / ๔๙

APPENDIX L

Participant Information Sheet

Project Title

Testing the Uncertainty in Illness Theory to Predict Quality of Life in Thai Patients with Head and Neck Cancer

Researcher's Name

Mrs. Mukda Detprapon

Doctoral student & Investigator

Ramathibodi School of Nursing, Faculty of Medicine and Faculty of Nursing, Mahidol University

Tel. 085-0737458

Project Summary

This research project is in partial fulfillment of the requirement for degree of Doctor of Philosophy in Nursing. I am studying about develop and test the uncertainty in illness theory to discover factors that predict quality of life in Thai patients with head and neck cancer who have completed at least one month of treatment but no more than one year.

Patients age 18 years or older are potential participants in this study. You can get the information from the investigator before making your decision whether you willingly participate. After you participate in the study, you will be asked to complete questionnaires or be interviewed by the investigator. The questionnaires consist of the demographic data, symptom experience, Buddhist practices, uncertainty, depression, and quality of life. Data from this study will provide nurses and health care providers to improve caring in patients with head and neck cancer in the future.

This study has no potential risk for participants. You are free to withdraw from this study at anytime without penalty. Your personal identifying information will be confidentiality kept by the investigator. Only results reported, as a group, will be presented to the public. The disclosure of the information will be permitted only for the academic purpose.

You could participate in this study by designing in the informed consent form attached. If you have any question or need more information, please feel free to contact the investigator at the given address and telephone number.

Thank you,
Mukda Detprapon
Doctoral Student & Investigator

Thai Version of the Participant Information Sheet

เอกสารชี้แจงโครงการวิจัย

ชื่อโครงการ การทดสอบทฤษฎีความไม่แน่นอนในความเจ็บป่วยเพื่อทำนายคุณภาพชีวิตของผู้ป่วยมะเร็งบริเวณศีรษะและคอ

ผู้วิจัย มุกดา เดชประพนธ์
นักศึกษาปริญญาเอกสาขาการพยาบาล
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี และคณะพยาบาลศาสตร์
มหาวิทยาลัยมหิดล
โทรศัพท์ 085-0737458

การดำเนินการของโครงการโดยสรุป

โครงการนี้เป็นส่วนหนึ่งของการศึกษา ในระดับปริญญาเอกทางการพยาบาล มหาวิทยาลัยมหิดล ดำเนินการโดย นางมุกดา เดชประพนธ์ ซึ่งขณะนี้อยู่ในระหว่างการศึกษาวิจัยเกี่ยวกับปัจจัยที่มีผลต่อคุณภาพชีวิตและความซึมเศร้าของผู้ป่วยมะเร็งบริเวณศีรษะและคอ ว่ามีปัจจัยอะไรบ้างที่สามารถช่วยป้องกันหรือลดความซึมเศร้าและเพิ่มคุณภาพชีวิตในผู้ป่วยกลุ่มนี้ได้ โดยมีวัตถุประสงค์เพื่อทดสอบทฤษฎีความไม่แน่นอนในความเจ็บป่วย และศึกษาหาข้อมูลเกี่ยวกับปัจจัยทำนายคุณภาพชีวิตของผู้ป่วยมะเร็งบริเวณศีรษะและคอ

ผู้ป่วยซึ่งได้รับการรักษาครบถ้วนแล้วในช่วงระหว่าง 1 เดือนถึง 1 ปี และมีอายุตั้งแต่ 18 ปีขึ้นไป ท่านจะได้รับคำอธิบายจากผู้วิจัยพร้อมกับเอกสารชี้แจงโครงการวิจัย ก่อนการตัดสินใจเข้าร่วมโครงการดังกล่าว ซึ่งเป็นการตอบแบบสอบถาม หรือได้รับการสัมภาษณ์ข้อมูลตามแบบสอบถามที่เกี่ยวกับปัจจัยต่างๆ ที่มีผลต่อความซึมเศร้าและคุณภาพชีวิตของท่าน แบบสอบถามประกอบด้วยข้อคำถาม จำนวน 6 ชุด ดังนี้ 1) ข้อมูลพื้นฐานส่วนบุคคล 2) ประสบการณ์การเกิดอาการต่างๆ จากโรคและการรักษา 3) การปฏิบัติกิจกรรมทางศาสนาพุทธ 4) ความไม่แน่นอนในความเจ็บป่วย 5) ความซึมเศร้า และ 6) คุณภาพชีวิตโดยจะใช้เวลาในการตอบประมาณ 45-60 นาที

ความรู้ที่ได้จากการวิจัยครั้งนี้ จะช่วยให้ทราบถึงปัจจัยที่ส่งผลต่อความรู้สึกไม่แน่นอนในความเจ็บป่วยของผู้ป่วยไทยที่เป็นมะเร็งบริเวณศีรษะและคอ ซึ่งสามารถนำข้อมูลต่างๆ เหล่านั้นมาค้นหาวิธีการจัดการกับความไม่แน่นอนในความเจ็บป่วยที่เกิดขึ้น เพื่อช่วยป้องกันหรือลดภาวะซึมเศร้า และส่งเสริมคุณภาพชีวิตให้ดีขึ้นต่อไป

การศึกษาครั้งนี้เป็นการตอบแบบสอบถามจึงไม่มีผลข้างเคียงที่กระทบต่อด้านร่างกาย แต่อาจมีคำถามบางคำถามที่อาจจะกระทบความรู้สึกของท่านได้ ดังนั้นท่านมีสิทธิที่จะปฏิเสธการตอบแบบสอบถาม ให้สัมภาษณ์ หรือถอนตัวออกจากการศึกษาครั้งนี้ได้ทุกเวลาที่ท่านต้องการ ข้อมูลทั้งหมดของท่านจะได้รับการเก็บรักษาไว้เป็นความลับ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม การเปิดเผยข้อมูลเกี่ยวกับท่านต่อหน่วยงานต่างๆ ที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น ผู้วิจัยจะทำการทำลายแบบสอบถามเหล่านั้นด้วยตนเองภายหลังเสร็จสิ้นการวิจัย

หากท่านสมัครใจที่จะเข้าร่วมในการศึกษาวิจัยครั้งนี้ โปรดลงนามยินยอมในแบบฟอร์มยินยอมร่วมการวิจัยที่แนบมาพร้อมกันนี้ และหากท่านมีคำถามเพิ่มเติมเกี่ยวกับการวิจัย หรือต้องการข้อมูลเพิ่มเติม ท่านสามารถติดต่อผู้วิจัยได้ตามที่อยู่และเบอร์โทรศัพท์ที่ให้ไว้ในเอกสารฉบับนี้

ด้วยความขอบคุณยิ่ง
นางมุกดา เดชประพนธ์
นักศึกษาปริญญาเอกและผู้วิจัย

APPENDIX M

Informed Consent Form

Title: Testing the Uncertainty in Illness Theory to Predict Quality of Life in Thai Patients with Head and Neck Cancer

Researcher: Mukda Detprapon

Participant name……..**Age**…….year.

I have received all details of research conducted in this study as well as my potential risk and benefit for me from the investigator. I clearly understand and am willing to participate in this study. I understand that I can ask the investigator whenever I have any question and am free to withdraw from this study anytime without penalty. Also, I understand that the investigator will protect my personal identifying information against disclosure to the public. Only results reported, as a group, will be presented to the public. The disclosure of my personal identifying information to allied agencies will be permitted only for the academic purpose. Additionally, the investigator will disclose any information influencing the study to me.

I have had clearly explained all of the details in this study and commit to participate with my signature in the space at the end of this consent form.

Signature…….. (Participant)

…….. (Witness)

…….. (Witness)

Date…….Month……Year……

Thai Version of the Informed Consent Form

หนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ

ชื่อโครงการ การทดสอบทฤษฎีความไม่แน่นอนในความเจ็บป่วยเพื่อทำนายคุณภาพชีวิตของผู้ป่วยมะเร็งบริเวณศีรษะและคอ

ชื่อผู้วิจัย นางมุกดา เดชประพนธ์

*ชื่อผู้เข้าร่วมการวิจัย ---------- อายุ ---------- ปี

คำยินยอมของผู้เข้าร่วมการวิจัย

ข้าพเจ้า นาย/นาง/นางสาว ---------- ได้ทราบรายละเอียดของโครงการวิจัยตลอดจนประโยชน์ และข้อเสี่ยงที่จะเกิดขึ้นต่อข้าพเจ้าจากผู้วิจัยแล้วอย่างชัดเจน ไม่มีสิ่งใดปิดบังซ่อนเร้นและยินยอมให้ทำการวิจัยในโครงการที่มีชื่อข้างต้น และข้าพเจ้ารู้ว่าถ้ามีปัญหาหรือข้อสงสัยเกิดขึ้น ข้าพเจ้าสามารถสอบถามผู้วิจัยได้ และข้าพเจ้าสามารถไม่เข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ โดยไม่มีผลกระทบต่อการรักษาที่ข้าพเจ้าพึงได้รับ นอกจากนี้ผู้วิจัยจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ลงชื่อ……(ผู้เข้าร่วมการวิจัย)

……..(พยาน)

……..(พยาน)

วันที่ ……

APPENDIX N

Permission to Use the Instruments

Permission to Use the MUIS-C

Mark as: Move | Copy This message to Back to Inbox

Date: Mon, 10 Apr 2006 15:28:00 -0400 [04/10/06 3:28:00 PM EDT]
From: Merle Mishel <mishel@email.unc.edu>
To: mukda@email.unc.edu
Subject: Re: My proposal information

Mukda, I am so sorry re the earlier email. It was swamped with so many emails that I missed it. Re the Symptom Distress Scale, you have my permission to use the version we used and yes, you can use the Thai version of MUIS-C. Re the religious participation - Yes, you can include it under structure providers in the theory. Glad to hear that you are moving right along. Keep in touch and take care. It was so wonderful to see you last January. Merle

----- Original Message ----- From: <mukda@email.unc.edu>
To: "Dr.Mishel" <mishel@email.unc.edu>
Cc: <mukda_det@yahoo.com>
Sent: Monday, April 10, 2006 12:30 PM
Subject: My proposal information

Permission to Use the FACT-G Thai Version 4

Date : Thu, 6 Apr 2006 15:53:41 -0500
From : Helen Morrow <hmorrow@facit.org>
To : g4537288@student.mahidol.ac.th
Subject : The letter of permission to use the FACT-G Thai version

เอกสารที่แนบมาด้วย :	Scoring FACT-G v4-REVISED.doc	(35.58 KB)
	Administration Guidelines.doc	(49.95 KB)
	FACT-G_THA_Final_Ver4_30Nov01.doc	(108.79 KB)

Hello:

Thank you for the additional information. After reviewing your request, and speaking with Ben Arnold, Manager of the Translation Project, he has granted you permission to use the FACT-G in Thai for this study only, waiving the standard licensing fee normally associated with the use of translated questionnaires. I have attached a copy of the most current version of the FACT-G questionnaire (Version 4) in Thai for your review and possible use. Please keep in mind that the questionnaire has a copyright attached and can not be altered without strict permission from Ben Arnold.
If you have additional questions, please do not hesitate to contact me again.

Thank you,

Helen

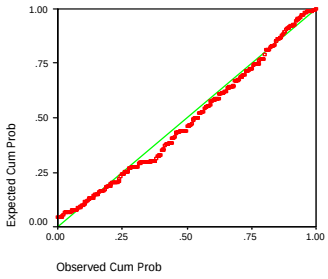
Helen A. Morrow, MA
Manager, Business Operations
www.facit.org
hmorrow@facit.org
----- Original Message -----

APPENDIX O

Linearity Testing

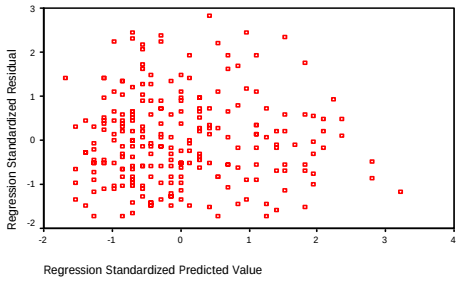
Normal P-P Plot of Regression Standardized Re

DV: Symptom Experience



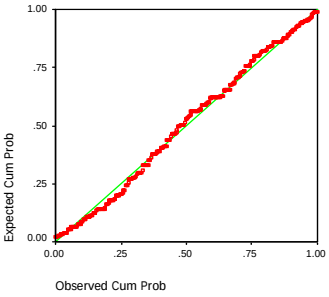
Scatterplot

DV: Symptom Experience



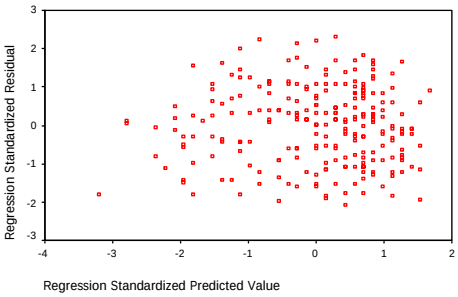
Normal P-P Plot of Regression Standardized

DV: Uncertainty



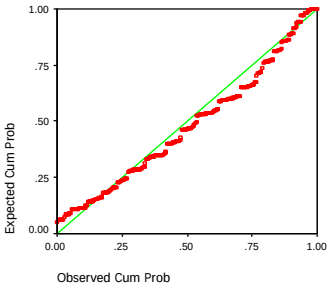
Scatterplot

DV: Uncertainty



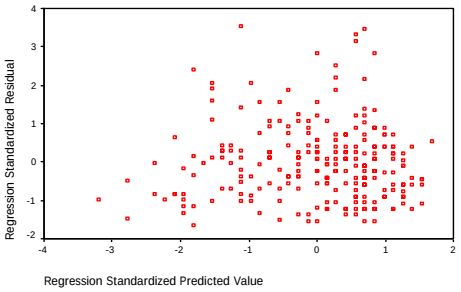
Normal P-P Plot of Regression Standardized R

DV: Depression



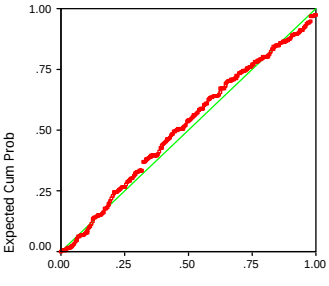
Scatterplot

DV: Depression



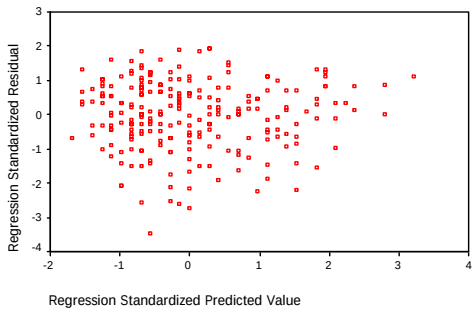
Normal P-P Plot of Regression Standardiz

DV: QOL



Scatterplot

DV: QOL



APPENDIX P
Assumption Testing: Multicollinearity Testing

Table P: Correlation Matrix of All Observed Variables (n = 240)

	muisc	depa	posa	somra	intrel	pwb	sfwb	ewb	fwb	symsev	symdis	bprac
muisc	1.000											
depa	0.448**	1.000										
posa	0.525**	0.495**	1.000									
somra	0.623**	0.632**	0.597**	1.000								
intrel	0.087	0.402**	0.124	0.308**	1.000							
pwb	-0.616**	-0.557**	-0.529**	-0.721**	-0.211**	1.000						
sfwb	-0.331**	-0.297**	-0.433**	-0.460**	-0.186**	0.360**	1.000					
ewb	-0.466**	-0.760**	-0.477**	-0.584**	-0.325**	0.652**	0.251**	1.000				
fwb	-0.451**	-0.355**	-0.539**	-0.591**	0.002	0.612**	0.473**	0.377**	1.000			
symsev	0.512**	0.265**	0.331**	0.536**	0.012	-0.549**	-0.126	-0.269**	-0.455**	1.000		
symdis	0.629**	0.380**	0.428**	0.607**	0.039	-0.609**	-0.212**	-0.410**	-0.473**	0.858**	1.000	
bprac	-0.011	0.036	-0.026	-0.062	-0.007	-0.007	0.185**	0.049	0.032	0.043	-0.032	1.000
Mean	53.900	1.463	3.888	4.933	0.142	23.567	20.025	21.054	17.800	33.896	27.221	26.025
SD	13.053	2.157	1.994	2.867	0.489	3.505	3.536	2.711	3.754	7.668	6.224	7.164

** Correlation is significant at the 0.01 level (2-tailed)

Note: muisc = Uncertainty in Illness, depa = Depressed Affect, posa = Positive Affect, somra = Somatic Retarded Activities, intrel = Interpersonal Relationship, pwb = Physical Well-Being, sfwb = Social/Family Well-Being, ewb = Emotional Well-Being, fwb = Functional Well-Being, symsev = Symptom Severity, symdis = Symptom Distress, bprac = Buddhist Practices

APPENDIX Q

Descriptive Statistics of the Study Variables

Table Q.1 Descriptive Statistics of the Symptom Severity Arranged from the Highest Mean to the Lowest Mean (n = 240)

Items	Mean	Never n (%)	Once in awhile n (%)	Fairly often n (%)	All the time n (%)
11. Dry mouth	2.47	50 (20.8)	72 (30.0)	73 (30.4)	45 (18.8)
6. Difficulty in talking	2.43	77 (32.1)	55 (22.9)	35 (14.6)	73 (30.4)
12. Thick saliva	2.40	57 (23.8)	71 (29.6)	70 (29.2)	42 (17.5)
8. Difficulty in swallowing	2.35	48 (20.0)	92 (38.3)	67 (27.9)	33 (13.8)
13. Taste change	2.28	66 (27.5)	74 (30.8)	66 (27.5)	34 (14.2)
7. Difficulty in mastication	2.09	98 (40.8)	63 (26.3)	38 (15.8)	41 (17.1)
18. Trouble sleeping	1.95	64 (26.7)	125 (52.1)	49 (20.4)	2 (.8)
15. Hoarseness	1.95	140 (58.3)	30 (12.5)	11 (4.6)	59 (24.6)
14. Loss of appetite	1.88	78 (32.5)	119 (49.6)	38 (15.8)	5 (2.1)
4. Difficulty in opening mouth	1.84	121 (50.4)	66 (27.5)	23 (9.6)	30 (12.5)
19. Fatigue	1.74	96 (40.0)	114 (47.5)	26 (10.8)	4 (1.7)
3. Odynophagia	1.72	109 (45.4)	98 (40.8)	24 (10.0)	9 (3.8)
10. Disfigurement	1.57	144 (60.0)	65 (27.1)	22 (9.2)	9 (3.8)
16. Trouble breathing	1.43	146 (60.8)	86 (35.8)	8 (3.3)	-
2. Mucositis	1.35	170 (70.8)	59 (24.6)	9 (3.8)	2 (.8)
17. Shoulder dysfunction	1.26	196 (81.7)	30 (12.5)	9 (3.8)	5 (2.1)
9. Drooling	1.08	227 (94.6)	9 (3.8)	3 (1.3)	1 (.4)
1. Nasal bleeding	1.06	225 (93.8)	15 (6.3)	-	-
5. Difficulty in closing lip	1.03	237 (98.8)	-	1 (.4)	2 (.8)

Table Q.2 Descriptive Statistics of the Symptom Distress Arranged from the Highest Mean to the Lowest Mean (n = 240)

Items	Mean	Not at all n (%)	Mildly upsetting n (%)	Very upsetting n (%)	Unbearable n (%)
8. Difficulty in swallowing	1.79	90 (37.5)	111 (46.3)	39 (16.3)	-
6. Difficulty in talking	1.70	112 (46.7)	88 (36.7)	40 (16.7)	-
12. Thick saliva	1.69	100 (41.7)	115 (47.9)	25 (10.4)	-
11. Dry mouth	1.68	96 (40.0)	124 (51.7)	20 (8.3)	-
7. Difficulty in mastication	1.63	120 (50.0)	90 (37.5)	30 (12.5)	-
13. Taste change	1.60	110 (45.8)	115 (47.9)	15 (6.3)	-
18. Trouble sleeping	1.59	124 (51.7)	91 (37.9)	25 (10.4)	-
14. Loss of appetite	1.57	117 (48.8)	109 (45.4)	14 (5.8)	-
19. Fatigue	1.53	130 (54.2)	93 (38.8)	17 (7.1)	-
15. Hoarseness	1.45	160 (66.7)	52 (21.7)	28 (11.7)	-
3. Odynophagia	1.43	152 (63.3)	73 (30.4)	15 (6.3)	-
4. Difficulty in opening mouth	1.41	155 (64.6)	71 (29.6)	14 (5.8)	-
10. Disfigurement	1.38	163 (67.9)	63 (26.3)	14 (5.8)	-
16. Trouble breathing	1.32	167 (69.6)	70 (29.2)	3 (1.3)	-
2. Mucositis	1.23	189 (78.8)	47 (19.6)	4 (1.7)	-
17. Shoulder dysfunction	1.16	206 (85.8)	30 (12.5)	4 (1.7)	-
9. Drooling	1.05	232 (96.7)	5 (2.1)	3 (1.3)	-
1. Nasal bleeding	1.02	237 (98.8)	2 (.8)	1 (.4)	-
5. Difficulty in closing lip	1.01	238 (99.2)	2 (.8)	-	-

Table Q.3 Descriptive Statistics of the Buddhist Practices Scale Arranged from the Highest Mean to the Lowest Mean (n = 240)

Items	Mean	None of the time n (%)	Some of the time n (%)	Moderate amount of time n (%)	All of the time n (%)
2. Chanting	2.70	18 (7.5)	97 (40.4)	65 (27.1)	60 (25.0)
8. Making merit	2.53	5 (2.1)	131 (54.6)	77 (32.1)	27 (11.3)
7. Offering food to monks	2.40	20 (8.3)	138 (57.5)	48 (20.0)	34 (14.2)
12. Wholesome donating money or clothes to help people	2.28	28 (11.7)	135 (56.3)	59 (24.6)	18 (7.5)
11. Donating money to monks	2.22	36 (15.0)	130 (54.2)	59 (24.6)	15 (6.3)
3. Listening to a preaching	2.10	66 (27.5)	105(43.8)	49 (20.4)	20 (8.3)
4. Reading religious books	2.08	70 (29.2)	107 (44.6)	36 (15.0)	27 (11.3)
10. Offering dedicated to monks	1.92	68 (28.3)	125 (52.1)	45 (18.8)	2 (2.8)
9. Making a respectful triple circumambulate	1.76	81 (33.8)	138 (57.5)	19 (7.9)	2 (.8)
1. Practicing concentration or meditation	1.70	130 (54.2)	68 (28.3)	26 (10.8)	16 (6.7)
13. Keeping the Five Precepts	1.62	151 (62.9)	47 (19.6)	25 (10.4)	17 (7.1)
5. Participating in religious discussions with experts	1.45	158 (65.8)	61 (25.4)	16 (6.7)	5 (2.1)
6. Walking up and down	1.28	185 (77.1)	45 (18.8)	8 (3.3)	2 (.8)

Table Q.4 Descriptive Statistics of the MUIS-C Arranged from the Highest Mean to the Lowest Mean (n = 240)

ข้อคำถาม	Mean	ตรงกับความรู้สึกมากที่สุด n (%)	ตรงกับความรู้สึกมาก n (%)	ไม่แน่ใจ n (%)	ไม่ตรงความรู้สึกมาก n (%)	ไม่ตรงความรู้สึกมากที่สุด n (%)
18. ผลของการรักษาทำให้ฉันต้องเปลี่ยนแปลง....	3.57	8 (3.3)	58 (24.2)	14 (5.8)	109 (45.4)	51 (21.3)
14. ฉันได้รับความคิดเห็นที่แตกต่างกันมากมาย....	3.52	5 (2.1)	72 (30.0)	12 (5.0)	96 (40.0)	55 (22.9)
15. ฉันไม่รู้ว่าต่อไปนี้จะมีอะไรเกิดขึ้นกับฉันบ้าง	3.52	21 (8.8)	54 (22.5)	18 (7.5)	74 (30.8)	73 (30.4)
4. ฉันไม่แน่ใจว่า ฉันจะต้องเจ็บป่วยอีกมากน้อยเพียงใด	3.37	26 (10.8)	39 (16.3)	34 (14.2)	102 (42.5)	39 (16.3)
2. ฉันมีคำถามมากมายที่หาคำตอบไม่ได้	2.95	46 (19.2)	64 (26.7)	17 (7.1)	83 (34.6)	30 (12.5)
3. ฉันไม่แน่ใจว่า อาการเจ็บป่วยของฉันจะดีขึ้นหรือแย่ลง	2.93	34 (14.2)	76 (31.7)	30 (12.5)	74 (30.8)	26 (10.8)
7. อาการของฉันยังคงเปลี่ยนแปลงตลอดเวลา....	2.74	36 (15.0)	97 (40.0)	21 (8.8)	66 (27.5)	20 (8.3)
13. อาการของฉันเปลี่ยนแปลงอยู่เสมอ....	2.71	43 (17.9)	93 (38.8)	19 (7.9)	61 (25.4)	24 (10.0)
11. ฉันไม่แน่ใจว่า การรักษาหรือยาที่ฉันได้รับ....	2.61	54 (22.5)	85 (35.4)	29 (12.1)	45 (18.8)	27 (11.3)
12. ฉันไม่สามารถวางแผนสำหรับอนาคตได้ เนื่องจาก....	2.57	38 (15.80)	112 (46.7)	25 (10.4)	45 (18.8)	20 (8.3)
17. ประสิทธิภาพของการรักษาที่ฉันได้รับ....	2.54	42 (17.5)	103 (42.9)	36 (15.0)	42 (17.5)	17 (7.1)
19. ฉันแน่ใจว่าหมอจะไม่พบสิ่งผิดปกติที่เกิดขึ้นกับฉันอีก	2.53	49 (20.4)	63 (26.3)	92 (38.3)	25 (10.4)	11 (4.6)
9. สิ่งที่หมอบอกฉันนั้นสามารถตีความได้หลายอย่าง	2.30	45 (18.8)	122 (50.8)	32 (13.3)	38 (15.8)	3 (1.3)
10. การรักษาที่ฉันได้รับ มีความซับซ้อนเกิน....	1.85	83 (34.6)	129 (53.8)	13 (5.4)	12 (5.0)	3 (1.3)
16. ผลการตรวจของฉันไม่ค่อยตรงกัน	1.85	76 (31.7)	139 (57.9)	14 (5.8)	7 (2.9)	4 (1.7)
22. ฉันสามารถประเมินความรุนแรงของความเจ็บป่วย....	1.84	89 (37.1)	103 (42.9)	46 (19.2)	2 (.8)	-
8. ฉันเข้าใจคำอธิบายที่ได้รับทุกอย่าง	1.73	96 (40.0)	116 (48.3)	24 (10.0)	4 (1.7)	-
5. ฉันไม่เข้าใจคำอธิบายของหมอและพยาบาล....	1.70	101 (42.1)	117 (48.8)	14 (5.8)	8 (3.3)	-
6. ฉันเข้าใจจุดมุ่งหมายของการรักษาที่ได้รับอย่างชัดเจน	1.63	115 (47.9)	103 (42.9)	18 (7.5)	3 (1.3)	1 (.4)
20. การรักษาที่ฉันได้รับนั้นเป็นที่รู้กันว่ามีโอกาสรักษา....	1.51	139 (57.9)	81 (33.8)	19 (7.9)	1 (.4)	-
23. หมอและพยาบาลใช้คำพูดง่าย ๆ ที่ฉันเข้าใจได้	1.48	129 (53.8)	108 (45.0)	2 (.8)	1 (.4)	-
21. หมอไม่ได้บอกการวินิจฉัยโรคที่แน่นอนให้ฉันทราบ	1.29	189 (78.8)	39 (16.3)	7 (2.9)	4 (1.7)	1 (.4)
1. ฉันไม่รู้ว่าฉันป่วยเป็นอะไร	1.19	202 (84.2)	33 (13.8)	3 (1.3)	2 (.8)	-

Note: MUIS-C = Mishel Uncertainty in Illness Scale: Community Version

Table Q.5 Descriptive Statistics of the CES-D Arranged from the Highest Mean to the Lowest Mean (n = 240)

Items	Mean	Rarely /none of time n (%)	a little of time n (%)	a moderate of time n (%)	all of time n (%)
Depressed Affect Subscales					
18. I felt sad.	.57	127 (52.9)	91 (37.9)	19 (7.9)	3 (1.3)
3. I felt that I could not shake off the blues even with help from my family or friends.	.34	170 (70.8)	59 (24.6)	10 (4.2)	1 (.4)
6. I felt depressed.	.18	203 (84.6)	31 (12.9)	5 (2.1)	1 (.4)
10. I felt fearful.	.16	206 (85.8)	30 (12.5)	4 (1.7)	-
17. I had crying spells.	.09	221 (92.1)	17 (7.1)	2 (.8)	-
9. I thought my life had been a failure.	.06	227 (94.6)	11 (4.6)	2 (.8)	-
14. I felt lonely.	.05	230 (95.8)	7 (2.9)	3 (1.3)	-
Positive Affect Subscales					
16. I enjoyed life.	1.15	23 (9.6)	161 (67.1)	53 (22.1)	3 (1.3)
4. I felt was just as good as other people.	.96	60 (25.0)	147 (61.3)	16 (6.7)	17 (7.1)
12. I was happy	.93	44 (18.3)	172 (71.7)	21 (8.8)	3 (1.3)
8. I felt hopeful about the future.	.85	80 (33.3)	129 (53.8)	18 (7.5)	13 (5.4)
Somatic Retarded Activities Subscales					
13. I talked less than usual.	1.02	71 (29.6)	109 (45.4)	45 (18.8)	15 (6.3)
11. My sleep was results.	.88	68 (28.3)	136 (56.7)	34 (14.2)	2 (.8)
2. I did not feel like eating; my appetite was poor.	.84	72 (30.0)	136 (56.7)	30 (12.5)	2 (.8)
1. I was bothered by things that usually don't bother me.	.81	81 (33.8)	125 (52.1)	33 (13.8)	1 (.4)
7. I felt that everything I did was an effort.	.75	95 (39.6)	111 (46.3)	33 (13.8)	1 (.4)
5. I had trouble keeping my mind on what I was doing.	.42	148 (61.7)	85 (35.4)	6 (2.5)	1 (.4)
20. I could not get "going"	.23	194 (80.8)	38 (15.8)	8 (3.3)	-
Interpersonal Relationships Subscales					
15. People were unfriendly.	.08	226 (94.2)	11 (4.6)	2 (.8)	1 (.4)
19. I felt that people dislike me.	.07	224 (93.3)	16 (6.7)	-	-

Note: CES-D = Center for Epidemiologic Studies Depression Scale

Table Q.6 Descriptive Statistics of the FACT-G Arranged from the Highest Mean to the Lowest Mean (n = 240)

	Items	Mean	Not at all n (%)	A little bit n (%)	Some what n (%)	Quite a bit n (%)	Very much n (%)
Physical Well-Being Subscales							
GP2	I have nausea	3.96	-	-	-	10 (4.2)	230 (95.8)
GP7	I am forced to spend time in bed.	3.85	-	1 (.4)	6 (2.5)	20 (8.3)	213 (88.8)
GP4	I have pain	3.61	-	2 (.8)	17 (7.1)	53 (22.1)	168 (70.0)
GP6	I feel ill	3.50	-	5 (2.1)	20 (8.3)	65 (27.1)	150 (62.5)
GP1	I have a lack of energy	3.35	-	6 (2.5)	24 (10.0)	89 (37.1)	121 (50.4)
GP3	Because of my physical condition, I have trouble meeting the needs….	2.75	5 (2.1)	30 (12.5)	54 (22.5)	83 (34.6)	68 (28.3)
GP5	I am bothered by side effects of treatment	2.54	3 (1.3)	27 (11.3)	70 (29.2)	117 (48.8)	23 (9.6)
Social/Family Well-Being Subscales							
GS4	My family has accepted my illness	3.49	-	-	3 (1.3)	117 (48.8)	120 (50.0)
GS2	I get emotional support from my family	3.46	-	-	3 (1.3)	124 (51.7)	113 (47.1)
GS5	I am satisfied with family communication about my illness	3.38	-	-	9 (3.8)	132 (55.0)	99 (41.3)
GS6	I feel close to my partner (or the person who is my main support)	3.35	1 (.4)	4 (1.7)	12 (5.0)	117 (48.8)	106 (44.2)
GS7	I am satisfied with my sex life	2.25	21 (8.8)	39 (16.3)	66 (27.5)	88 (36.7)	26 (10.8)
GS1	I feel close to my friends	2.13	2 (.8)	52 (21.7)	108 (45.0)	70 (29.2)	8 (3.3)
GS3	I get support from my friends	1.99	3 (1.3)	65 (27.1)	110 (45.8)	56 (23.3)	6 (2.5)
Emotional Well-Being Subscales							
GE5	I worry about dying	3.83	1 (.4)	3 (1.3)	5 (2.1)	18 (7.5)	213 (88.8)
GE4	I feel nervous	3.82	-	3 (1.3)	5 (2.1)	25 (10.4)	207 (86.3)
GE3	I am losing hope in the fight against my illness	3.81	1 (.4)	2 (.8)	7 (2.9)	22 (9.2)	208 (86.7)
GE1	I feel sad	3.48	-	5 (2.1)	14 (5.8)	81 (33.8)	140 (58.3)
GE6	I worry that my condition will get worse	3.18	-	9 (3.8)	46 (19.2)	77 (32.1)	108 (45.0)
GE2	I am satisfied with how I am coping with my illness	2.93	-	2 (.8)	38 (15.8)	174 (72.5)	26 (10.8)
Functional Well-Being Subscales							
GF4	I have accepted my illness	3.06	-	-	13 (5.4)	199 (82.9)	28 (11.7)
GF5	I am sleeping well	2.87	2 (.8)	3 (1.3)	42 (17.5)	170 (70.8)	23 (9.6)
GF7	I am content with the quality of my life right now	2.56	-	7 (2.9)	110 (45.8)	105 (43.8)	18 (7.5)
GF1	I am able to work (include work at home)	2.43	4 (1.7)	28 (11.7)	82 (34.2)	113 (47.1)	13 (5.4)
GF3	I am able to enjoy life	2.36	2 (.8)	26 (10.8)	110 (45.8)	87 (36.3)	15 (6.3)
GF2	My work (include work at home) is fulfilling	2.30	4 (1.7)	34 (14.2)	94 (39.2)	101 (42.1)	7 (2.91)
GF6	I am enjoying the things I usually do for fun	2.21	3 (1.3)	30 (12.5)	128 (53.3)	71 (29.6)	8 (3.3)

Note: FACT-G = Functional Assessment of Cancer Therapy-General Scale

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