A STRUCTURAL EQUATION MODELING OF SPIRITUAL WELL-BEING, DEPRESSION, AND HEALTH-RELATED QUALITY OF LIFE AMONG THAI ADOLESCENTS WITH CANCER

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Dedication

I dedicate this work to all Thai adolescents with cancer in the hope that this research will enable nurses to provide care that will lead to the best possible quality of life for these adolescents as they face the challenges of a life-threatening illness during this important stage of their development.
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HEALTH-RELATED QUALITY OF LIFE IN THAI ADOLESCENTS WITH CANCER

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Abstract

Adolescence is a time of significant and potentially stressful development during which constructing self-identity, continuing to develop autonomy, and exploring intimacy occur. Experiencing and dealing with cancer during adolescence has been shown to have an impact on Health-related quality of life (HRQOL). HRQOL is recognized as a crucial indicator of health outcomes of individuals in different age groups, both in the United States and Thailand. Studies in mixed-age groups of adolescents and other age groups with cancer showed that HRQOL could be predicted by age, gender, cancer type, treatment, time since diagnosis, spiritual well-being, and depression. Findings involving mixed-age groups can, however, blur the associations between quality of life and its predictors in adolescents. Few studies regarding quality of life and its predictors have been conducted in exclusively adolescents with cancer, particularly in Thailand where most of the population are Buddhists and consequently draw their predominant spiritual faith and references from Buddhism. As a result, Thai adolescents may view experiencing cancer differently than adolescents from other cultures and belief systems. Exploring the predictors of HRQOL in Thai adolescents with cancer will, therefore, broaden our understanding of HRQOL in this cultural context. Additionally, a model demonstrating predictors of HRQOL using structural equation modeling (SEM), capturing HRQOL as a latent variable and taking measurement errors into account, had not yet been utilized in adolescents with cancer. And so, this study applied SEM to examine the associations between HRQOL and
age, gender, cancer type, treatment, time since diagnosis, spiritual well-being, and depression exclusively among Thai adolescents with cancer.

A Conceptual Model of HRQOL (Ferrans, Zerwic, Wilbur, & Larson, 2005) was used to guide this cross-sectional, predictive, correlational study. The Spiritual Well-Being Scale for Thai Buddhist Adults with Chronic Illness (SWS-TBACI), Pediatric Quality of Life Inventory Generic Score Scales (PedsQL 4.0), and Children Depression Inventory (CDI) were used to collect data among 140 Thai adolescents with cancer (12-18 years old) from four tertiary hospitals in Bangkok, the capital city of Thailand. The SWS-TBACI, PedsQL 4.0, and CDI indicated good internal consistency with Cronbach alphas of .81, .90, and .83, respectively. The Analysis of Moment Structures (AMOS) software Version 24.0 was applied to generate SEM results.

Males comprised two-thirds of the study’s participants. The participants’ mean age was 14 years (SD = 1.73). About half of the participants (46.7%) were diagnosed with leukemia, and 47.7% of all participants were receiving chemotherapy. Participants’ total mean score HRQOL was 70.4 (SD = 15.22). The total mean score of spiritual well-being in Thai adolescents with cancer was 54.2 (SD = 6.23) and 10.5 (SD = 6.38) for the CDI.

Age, gender, diagnosis, treatment, and time since diagnosis were not significantly associated with HRQOL in the current study. Depression and spiritual well-being, however, significantly predicted HRQOL ($\beta = -5.16, p < .001$ and $\beta = 3.64, p < .001$, respectively) in Thai adolescents with cancer. Depression also significantly predicted spiritual well-being ($\beta = -2.80, p < .01$). These findings are in line with Ferrans et al.’s (2005) conceptual model of HRQOL in that depression both directly and indirectly impacts quality of life, and spiritual well-being directly influences quality of life. SEM analysis showed that the hypothesized model fit the data.
well. Developing and testing interventions designed to enhance spiritual well-being and to prevent or minimize depression can be utilized to improve HRQOL in this population. Also, future research which examines predictors of HRQOL among the target population in other cultures will be beneficial so that generalizability of the results can be expanded beyond Thailand.
Chapter I

Introduction
Background and Significance

Cancer, a serious, life-threatening disease, is the second-leading cause of death worldwide in children ages 5 to 14 (Murphy, Xu, & Kochanek, 2013). In Thailand, the 2008 cancer incidence per 100,000 people younger than 20 years of age was 11.8 in females and 12.6 in males (Kruhaprema, Attasara, Sriplung, Wiangnon, & Sangrajrang, 2013). In 2007 and 2008, cancer-related mortality rates among Thai children (6-12 years old) and adolescents (13-18 years old) were 2.16 and 2.13 per 100,000, respectively (Sutra, Chirawatkul, Bundhamcharoen, Ekachampaka, & Wattanamano, 2009). The number of Thai children ages 1 to 15 diagnosed with cancer was between 1,000 and 1,500 cases per year with almost half diagnosed with leukemia, followed by brain tumor, lymphoma, and neuroblastoma (Phatrabuddha, 2014). Evidence suggests that individuals with cancer are likely to have less than optimal quality of life (QOL). Individuals with low QOL are likely to be less adherent to treatment and to have low self-esteem and suicidality (Fulginiti & Brekke, 2015; Nabolsi, Wardam, & Al-Halabi, 2015; Pompili et al., 2009).

Since adolescence is the stage of life during which biological, cognitive, psychological, and social developments occur, a diagnosis of cancer can have serious consequences. In addition to experiencing the physical changes related to puberty, adolescents are at the stage during which they construct their own identities, continue to develop autonomy, and explore their spirituality (Benson & Roehlkepartain, 2008; Steinberg, 2014). Experiencing a life-threatening chronic illness like cancer while confronting and coping with multidimensional changes can significantly minimize an adolescent’s ability to achieve normal developmental milestones.

Vulnerability to cancer and its treatment can affect adolescents and young adults (AYAs) more than children and older adults as a result of the many differences between these two groups.
which include hormonal activities, drug responses, and genomic properties (Bleyer et al., 2008). For example, AYAs who experienced acute lymphoblastic leukemia and those with acute myeloid lymphoblastic leukemia had a higher incidence of obesity than younger patients (Butturini et al., 2007; Lange et al., 2005). In addition, the adolescent puberty process involves physical, physiological, and psychological changes (e.g., changes in body structure, hormonal levels, and emotional stability) which can influence the pharmacokinetics and pharmacodynamics in the adolescent (Veal, Hartford, & Stewart, 2010). These challenging phenomena could contribute to adolescents having more difficult experiences with cancer than children and adults with cancer.

Adolescents with cancer reported being negatively impacted by cancer symptoms, treatments, and complications. They suffered from fatigue, pain, and reduced body image due to changes in physical appearance, especially hair loss and weight gain (Castellano-Tejedor et al., 2015; Daniel, Brumley, & Schwartz, 2013; Erickson et al., 2013; G. M. A. Shosha, 2016). Many adolescents with cancer experienced serious psychosocial problems including depression (Lertcheewakarn, Louthrenoo, & Charoenkwan, 2010; Pakakasama et al., 2010; Patterson, McDonald, Zebrack, & Medlow, 2015; Sittanomai, Hosiri, Chatree, & Jittisak, 2014; Williamson, Harcourt, Halliwell, Frith, & Wallace, 2010) and antisocial behavior (e.g., isolation and social withdrawal) (Jones, Parker-Raley, & Barczyk, 2011; Williamson et al., 2010). They reported a loss of autonomy, self-identity, and social-identity (Jones et al., 2011; Larouche & Chin-Peuckert, 2006; Williamson et al., 2010). They also experienced cognitive limitations, especially having trouble with mathematics and difficulty concentrating in class (Donnan et al., 2015; Jones et al., 2011).
Conversely, some adolescents have been positively impacted by their cancer experiences. Several researchers reported that some adolescents with cancer experienced post-traumatic growth (e.g., finding new meaning in life, enhancing confidence, and adopting a positive attitude) (Arpawong, Oland, Milam, Ruccione, & Meeske, 2013; Jones et al., 2011; Wicks & Mitchell, 2010). Additionally, adolescents with cancer from several countries shared that they learned to appreciate their lives and other people more, to focus on the moment, and to be stronger and more mature (Jones et al., 2011; Lee et al., 2012; Wu, Chin, Haase, & Chen, 2009).

QOL is a broad subjective concept consisting of the multiple domains of physical health, psychological conditions, and social relationships (The WHOQOL Group, 1994, 1995). It is important to examine QOL because individuals with low QOL tend to have low self-esteem, less adherence to treatment, and high levels of hopelessness and suicidality (Fulginiti & Brekke, 2015; Nabolsi et al., 2015; Pompili et al., 2009). Previous studies are not in agreement regarding the level of QOL in adolescents with cancer. For example, adolescent cancer survivors (10-18 years old) reported poor QOL in the areas of physical and mental health (Barakat et al., 2015; Nolan et al., 2014). Evidence shows that adolescents with cancer had a lower level of QOL when compared to other age groups with cancer (Engelen et al., 2011; Smith et al., 2013; van Riel et al., 2014).

In contrast, other studies found that American adolescents with cancer reported high QOL (Lyon, Jacobs, Briggs, Cheng, & Wang, 2014; Mannix, Feldman, & Moody, 2009). Children and adolescents with cancer reported high levels of QOL in two Thai studies (Punthmatharith, Buddharat, & Wattanasit, 2008; Punthmatharith, Wattanasit, & Buddharat, 2014). Also, the self-reported QOL of adolescent cancer survivors in Norway was not different from their healthy peers’ QOL (Eilertsen, Jozefiak, Rannestad, Indredavik, & Vik, 2012).
Evidence shows that QOL in participants from different age groups with cancer (i.e., children with adolescents, adolescents with young adults, and adults only) can be predicted by demographic variables (gender and age), cancer-related variables (cancer type, treatment, and time since diagnosis), depression, and spiritual well-being (Bai, Lazenby, Jeon, Dixon, & McCorkle, 2015; Li, Williams, Lopez, Chung, & Chiu, 2013; Perez-Campdepadros et al., 2015; Punthmatharit et al., 2014; Ruccione, Lu, & Meeske, 2013; Smith et al., 2013; Stokke, Sung, Gupta, Lindberg, & Rosenberg, 2015; Trevino, Fasciano, Block, & Prigerson, 2013). However, conflicting findings have emerged regarding the associations between QOL and age in children and adolescents with cancer. A positive association appeared between QOL and age in studies conducted in Switzerland and Indonesia (Landolt, Vollrath, Niggli, Gnehm, & Sennhauser, 2006; Sitaresmi, Mostert, Gundy, Sutaryo, & Veerman, 2008), whereas a negative relationship was found in Canadian children and adolescents with cancer (Sung et al., 2009). Similarly, the associations between QOL and gender are inconsistent. A study in Spain showed that male adolescent cancer survivors reported better QOL than females (Perez-Campdepadros et al., 2015). Being both older and female was associated with poor QOL in a group of American children, adolescents, and young adults with bone tumors (Stokke et al., 2015). Conversely, gender and age of Polish children and adolescents with cancer was not associated with QOL (Pogorzała et al., 2010), and QOL did not vary by gender in Turkish adolescent cancer survivors (Tuna & Elcigil, 2012).

The cancer-related variables: cancer type, treatment, and time since diagnosis have also been found to be associated with QOL in children and adolescents with cancer. Studies conducted in several countries have reported the level of QOL in children and adolescents with cancer varied depending on cancer type (Chung, Li, Chiu, & Lopez, 2012; Eilertsen et al., 2012;
Landolt et al., 2006; Pogorzala et al., 2010; Ruccione et al., 2013). For example, children and adolescents with leukemia in Canada and Taiwan had better QOL than those with other types of cancer (Chou & Hunter, 2009; Sung et al., 2009). Six weeks after diagnosis, Swiss children and adolescents with leukemia reported significantly lower QOL than those with brain tumors; interestingly however, one year after diagnosis, the brain tumor patients reported lower QOL than those with leukemia (Landolt et al., 2006).

Similar to cancer type, several studies showed treatment was significantly associated with QOL in children and adolescents with cancer (Chung et al., 2012; Li et al., 2013; Pogorzala et al., 2010; Ruccione et al., 2013; Sung et al., 2009; Tuna & Elcigil, 2012). For example, Canadian children and adolescents with cancer receiving chemotherapy reported poor QOL (Sung et al., 2009). Researchers found the same results in American adolescents and young adults (AYA) with cancer (Smith et al., 2013). Receiving radiation was also associated with poor QOL in several specific groups: Canadian children and adolescent survivors (Speechley, Barrera, Shaw, Morrison, & Maunsell, 2006); American adolescents who completed cancer treatment (Ruccione et al., 2013); and adult childhood cancer survivors in Canada and the U.S. (Zeltzer et al., 2008).

Studies examining the relationships between QOL and time since diagnosis have produced conflicting results. Time since diagnosis was found to be positively associated with QOL in children and adolescents with cancer in both Eastern and Western cultures (Landolt et al., 2006; Larsson, Mattsson, & von Essen, 2010; Mannix et al., 2009; Punthmatharith et al., 2014). American adolescents with cancer who had the longest time since diagnosis reported the highest QOL in physical functioning (Mannix et al., 2009), and time since diagnosis predicted QOL in Thai children and adolescents with cancer who were undergoing chemotherapy.
Little is known about depression and spiritual well-being as predictors of QOL in exclusively adolescents with cancer. The few studies that have examined the association between depression and QOL with children and adolescents with cancer combined have found a negative relationship (Chung et al., 2012; Li et al., 2013; Ruccione et al., 2013). Depression was also negatively associated with QOL in other populations including: adults with cancer (Abbes et al., 2015; Alacacioglu et al., 2014; Karakas, 2014); adolescent survivors of a traumatic brain injury (Di Battista, Godfrey, Soo, Catroppa, & Anderson, 2014); adolescents with heart disease (Wang, Hay, Clarke, & Menahem, 2014); and adolescents with juvenile idiopathic arthritis (Abdul-Sattar, Elewa, El-Shahawy Eel, & Waly, 2014). Similarly, no existing studies have examined the association between spiritual well-being and QOL in adolescents with cancer; however, this association has been extensively researched in the adult cancer population. Findings revealed that spiritual well-being predicts QOL in adults with cancer in several countries (Bai et al., 2015; Jafari et al., 2013; Kim, Carver, Spillers, Crammer, & Zhou, 2011; Lazenby & Khatib, 2012; Salsman, Yost, West, & Cella, 2011; Samuelson, Fromme, & Thomas, 2012). Similar findings emerged in studies involving other populations such as adolescents with HIV (Lyon, Garvie, et al., 2014), college students (Anye, Gallien, Bian, & Moulton, 2013), elderly people (Ali, Marhemat, Sara, & Hamid, 2015), and women with HIV (Dalmida, Holstad, Diiorio, & Laderman, 2011).

Overall, the literature review revealed a gap in knowledge regarding QOL and its predictors in adolescents with cancer. The majority of previous studies were conducted with
mixed-age participants with cancer (e.g., children and adolescents; adolescents and young adults) which can blur the associations between QOL and its predictors in adolescents. The findings from these studies were inconsistent, and the limited studies in exclusively adolescents with cancer also showed conflicting results. Finally, no study regarding QOL and its predictors had been conducted exclusively in adolescents with cancer in Thailand where most of the population are Buddhist (Central Intelligence Agency, 2016) and consequently draw their predominant spiritual faith and references from Buddhism. As a result, Thai adolescents may view experiencing cancer differently than adolescents from other cultures and belief systems. Exploring the predictors of HRQOL in Thai adolescents with cancer will, therefore, broaden our understanding of HRQOL in this cultural context.

A Conceptual Model of Health-Related Quality of Life (HRQOL) (Ferrans, Zerwic, Wilbur, & Larson, 2005) was used to guide this study. Studying HRQOL among individuals with cancer is more beneficial than QOL because HRQOL is more pertinent to individuals with cancer whose physical, psychological, and social functioning can be influenced by the illness, treatment, and symptoms of the cancer itself (Varni, Seid, & Rode, 1999). HRQOL has been studied widely in combined age groups with cancer without separating out adolescents (Barakat et al., 2015; Punthmatharith et al., 2014; Ruccione et al., 2013; Sung et al., 2009). Additionally, a model demonstrating predictors of HRQOL using structural equation modeling (SEM) to capture HRQOL as a latent variable and taking measurement errors into account had not been utilized with the target population. Therefore, this study used SEM to examine the associations between HRQOL and age, gender, cancer type, treatment, time since diagnosis, depression, and spiritual well-being in Thai adolescents with cancer.
An understanding of HRQOL and its influencing factors could enable healthcare professionals, especially nurses, to address problematic HRQOL in adolescents with cancer which is in line with the priorities of Thailand’s current health policy (The Ministry of Public Health, 2016) and Healthy People 2020 (U.S. Department of Health Human Services, 2010). Results from this study can guide healthcare professionals to develop appropriate and holistic interventions to improve the target population’s HRQOL.

**Research Objectives**

This study has two objectives: (1) to examine predictors of HRQOL in Thai adolescents with cancer; and (2) to test how well the hypothetical model of HRQOL in Thai adolescents with cancer fit the sample data.

**Research Questions**

This cross-sectional, predictive, correlational study was designed to examine relationships among depression, spiritual well-being, and HRQOL in Thai adolescents with cancer. The research questions are: (1) Which factor(s) best predict(s) HRQOL in Thai adolescents with cancer? and (2) Does the hypothetical model fit the sample data?

**Conceptual Framework**

Ferrans et al.’s (2005) Conceptual Model of HRQOL was used to examine the interrelationships between HRQOL and its influencing factors in Thai adolescents with cancer and to test the model fit in the sample data (Figure 2). Of the seven concepts contained in the model, the current study retained characteristics of the individual, biological function, symptoms, and overall QOL. Biological function is defined as the function of cells, organs, and organ systems. Examples of the indicators of biological function are physical assessment and medical
diagnosis. In this study, biological function is represented by cancer type, treatment, and time since diagnosis. Symptoms refer to physical, emotional, and cognitive symptoms as perceived by the patient (Ferrans et al., 2005). Depression is the concept representing symptoms in the current study. In addition to age and gender, spiritual well-being is included in the study model under characteristics of the individual because it has been reported to be significantly associated with QOL (Bai et al., 2015; Jafari et al., 2013; Lazenby & Khatib, 2012; Rabow & Knish, 2015). The relationships among concepts in the study and corresponding relational directions (Figure 2) were derived from a modified Ferrans et al.’s (2005) model and the literature review.
**Figure 1.** The Study’s Theoretical Subtraction
Figure 2. The Study’s Structural Equation Model of HRQOL among Thai Adolescents with Cancer
Conceptual Definitions of the Study Variables

Health-related quality of life (HRQOL) is the physical, psychological, and social functioning of an individual as influenced by symptoms originating from cancer and its treatment (Varni et al., 1999).

Characteristics of the individual refers to the age and gender of adolescents.

Biological function consists of cancer type, treatment, and length of time since diagnosis.

Spiritual well-being is an individual’s self-perception about being peaceful and happy in life, understanding self and the nature of life, and having a sense of connectedness and hope (Promkaewngam, Pothiban, Srisuphan, & Sucamvang, 2014). The conceptual definition of spiritual well-being and its components are based on Buddhist teachings. “Being happy” refers to having a positive attitude in life regardless of the circumstances, comparable to how the Buddha taught people to confront suffering happily and mindfully without avoidance (Hạnh, 1998).

Depression is characterized by specific changes in emotions (e.g., sadness or loneliness), thoughts (e.g., negative self-concept, self-blame or a desire to escape), and behavior or activity level (e.g., insomnia, anorexia, agitation) (Beck, 1973).
Chapter II

Literature Review

This chapter begins with a brief overview of the Influence of Buddhism on Thai culture and cancer in adolescents, followed by a review of the literature addressing HRQOL and the selected factors consisting of demographic and cancer-related variables, depression, and spiritual well-being.

The Influence of Buddhism on Thai Culture

Thailand, formally known as Siam, is a country located in Southeast Asia (Ross & Ross, 2012). Over 93% of the population is Buddhist (Central Intelligence Agency, 2016), and consequently, the predominant spiritual faith and references are based on the doctrines of Buddhism. The Four Nobel Truths constitute the core Buddhist doctrine and consist of: (1) suffering or bitter; (2) the roots of suffering; (3) the cessation of creating suffering; and (4) the path that leads to ceasing from doing the things that cause suffering (Hanh, 1998). Additionally, the Three Universal Characteristics of Existence are impermanence, suffering, and non-self (Narada Mahathera, 1998). Other important foundational concepts taught by the Buddha are middle way, mindfulness, and the law of cause and effect (Hanh, 1998). These Buddhist principles strongly influence Thai culture regarding beliefs, attitudes, and practices including how Thais view health and illness. Buddhism views the human beings as having the potential for mind, body, and spirit harmony (Hanh, 1998). Additionally, many Thais believe in “Karma” (i.e., you will harvest what you plant) which encourages them to “make merit”, the practice of giving to others and doing good deeds (Plamintr, 1998).
Cancer in Adolescents

Cancer is a group of cellular disorders in which the cells differ from their original structure (Greaves, 2002). These abnormal cells grow out of control, proliferate, and invade other normal tissues (American Cancer Society, 2014; Greaves, 2002; National Cancer Institute, 2014). Cancer cells affect the organs they invade by disrupting regular cellular processes; old cells do not die when they should, and new cells proliferate more than the organs need. Normal human cells grow and distribute to serve the needs of the body; old or damaged cells die and are eliminated or absorbed by the body (National Cancer Institute, 2014).

Prevalence of Cancer in Adolescents

Cancer is a serious, life-threatening disease occurring throughout the life span worldwide. Following accidents, it is the second-leading cause of death in children ages five to 14 years old (Murphy et al., 2013). Ward, DeSantis, Robbins, Kohler, and Jemal (2014) estimated the incidence rate of cancer in 2014 to be 18.66 per 100,000 for American children from birth to 19 years old. Approximately one of every 750 individuals in the U.S. is a survivor of childhood or adolescent cancer (Robison & Hudson, 2014). In the United States, major types of cancer in children and adolescents (newborn - 19 years old) are leukemia, cancer of the brain and central nervous system, and lymphoma (American Cancer Society, 2014).

In Thailand, pediatric cancer is also a healthcare concern and a major cause of death in children and adolescents. In 2008, the cancer incidence per 100,000 of those under 20 years of age was 11.8 in females and 12.6 in males (Kruhaprema et al., 2013). Wiangnon et al. (2011) reported leukemia as the most common cancer in Thai children and adolescents, followed by lymphoma and neoplasm of the central nervous system. The five-year overall survival rates
varied with lymphoblastic leukemia at 64.5%, lymphoma at 59.5%, and retinoblastoma at 73.1% (Wiangnon et al., 2011). In 2007 and 2008, cancer-related mortality rates among Thai children (6-12) and adolescents (13-18) were 2.16 and 2.13 per 100,000, respectively (Sutra et al., 2009).

**Impacts of Cancer in Adolescents**

Adolescents with cancer are likely to suffer from fatigue, pain, and reduced body image due to changes in physical appearance, especially hair loss and weight gain from cancer and its treatment (Castellano-Tejedor et al., 2015; Daniel et al., 2013; Hooke, McCarthy, Taylor, & Hockenberry, 2015; Lee et al., 2012; Perdikaris et al., 2009; Wesley, Zelikovsky, & Schwartz, 2013; Williamson et al., 2010). Some adolescents with cancer experienced serious psychosocial problems such as depression (Lertcheewakarn et al., 2010; Pakakasama et al., 2010; Patterson et al., 2015; Sittanomai et al., 2014; Williamson et al., 2010), and antisocial behavior such as social isolation and social withdrawal (Jones et al., 2011; Williamson et al., 2010). Cancer-afflicted adolescents reported a loss of autonomy, self-identity, and social-identity (Jones et al., 2011; Larouche & Chin-Peuckert, 2006; Williamson et al., 2010). They also experienced cognitive limitations such as having trouble with mathematics and difficulty concentrating in class (Donnan et al., 2015; Jones et al., 2011). Spanish adolescent cancer survivors who were off treatment for at least one year reported five negative cancer-related consequences: (1) bodily impairments and dysfunctions; (2) limitations in activity and social participation; (3) psychological impact and re-experiencing; (4) altered body appearance; and (5) time lost (Castellano-Tejedor et al., 2015).

Conversely, adolescents can be positively impacted by the cancer experience. Several researchers reported adolescents with cancer experienced post-traumatic growth (e.g., finding new meaning in life, enhancing confidence, and adopting a positive attitude) (Arpawong et al.,
A study of post-traumatic growth among an ethnically diverse sample of adolescent and young adult cancer survivors found that the majority of participants reported positive growth (Arpawong et al., 2013). Additionally, adolescents with cancer shared they learned to appreciate their lives and others more, to focus on the moment, and to be stronger and more mature (Castellano-Tejedor et al., 2015; Jones et al., 2011; Lee et al., 2012; Wu et al., 2009).

Based on a metasynthesis of qualitative research findings, children and adolescents who experienced cancer gained more emotional maturity and confidence and changed the way they view their lives and others. After experiencing cancer, for example, children and adolescents could handle problems with a positive attitude (Lee et al., 2012). Adolescents with cancer in New Zealand expressed they felt more confident, mature, and connected to friends and family (Wicks & Mitchell, 2010). Taiwanese adolescents with cancer shared that the cancer experience helped them to rebuild their hope by adjusting their thoughts, learning to appreciate what they have, and developing hopeful images and goals (Wu et al., 2009).

**Conceptual Framework**

Ferrans et al.’s (2005) Conceptual Model of HRQOL provides the framework by which this study examines HRQOL. Derived from the paradigms of the biological and social sciences, this model is specific to HRQOL and has real world application (Bakas et al., 2012). It is a modification of Wilson and Cleary’s (1995) model of HRQOL (Figure 3) and includes seven major concepts: characteristics of the individual, characteristics of the environment, biological function, symptoms, functional status, general health perceptions, and overall QOL (Figure 4).
Wilson and Cleary (1995) described overall QOL as subjective well-being which refers to the individual’s happiness and satisfaction with life as a whole. In the model, characteristics of the individual, characteristics of the environment, and general health perceptions directly influence overall QOL. Biological function, symptoms, and functional status indirectly affect overall QOL (Ferrans et al., 2005; Wilson & Cleary, 1995). The current study used the concept of HRQOL instead of overall QOL since HRQOL is more specific and relevant to adolescents with cancer.

Biological function, originally called biological and psychological variables (Wilson & Cleary, 1995), refers to the function of cells, organs, and organ systems that can be operationalized via medical diagnoses, laboratory tests, and physiological function tests (Ferrans et al., 2005; Wilson & Cleary, 1995). Biological function directly and/or indirectly impacts all variables in the model including overall QOL, general health perceptions, functional status, and symptoms. Ferrans et al.’s (2005) model extended the influence of both individual and environmental characteristics to biological function (Figure 4). Cancer type, treatment, and length of time since diagnosis represent biological function in the current study.

Symptoms are described as the perception of abnormal physical, psychophysical, and psychological conditions. Symptoms directly and/or indirectly impact functional status, general health perceptions, and overall QOL. Symptoms are also influenced by characteristics of the individual and the environment (Wilson & Cleary, 1995). The current study measured depression to represent symptoms. Depression has been reported to be a major, long-term psychosocial problem in Thai survivors of childhood cancer (Pakakasama et al., 2010).

In Ferrans et al.’s (2005) model, characteristics of the individual directly influences all other concepts except for characteristics of the environment and includes demographic factors
(e.g., gender and age), biological factors (e.g., skin color and body mass index), developmental status, and psychological factors (Ferrans et al., 2005). According to the model, the psychological factors are cognitive appraisal (knowledge, beliefs, and attitudes), affective response (emotions), and motivation (intrinsic and extrinsic) (Cox, 1982, 2003; Ryan & Deci, 2000). In the current study, spiritual well-being represents psychological factors and is based on the individual’s perception of the following domains: being peaceful and happy in life; having an understanding of oneself and the nature of life; and possessing a sense of connectedness and hope (Promkaewngam et al., 2014). These components are in line with the description of psychological factors. Spiritual well-being and HRQOL have been found to be associated in several populations, but this association has not been examined in adolescents with cancer. Also, age and gender were included under demographic factors in this study.

Three Ferrans et al.’s (2005) concepts not included in this study because they largely overlap with other concepts in the current study are: functional status, general health perceptions, and characteristics of the environment. For example, functional status, defined as the ability to carry out physical, social, role, and psychological tasks (Wilson & Cleary, 1995) is strongly associated with physical functioning, a domain measured by the Pediatric Quality of Life Inventory (PedsQL 4.0). Also, general health perceptions, depicted in Wilson and Cleary’s (1995) model, was omitted in this study because this concept heavily overlaps with biological function and symptoms (Gordijn et al., 2013). Finally, characteristics of the environment and the social and physical functions in Ferrans et al.’s (2005) model heavily capture an individual’s friends and family support (Barakat et al., 2010; Cavusoglu & Saglam, 2015; Elwell, Grogan, & Coulson, 2011; Gilliam et al., 2012; Spangler, 2009; Wesley et al., 2013; Wicks & Mitchell, 2010; Williamson et al., 2010). Therefore, excluding functional status, general health
perceptions, and characteristics of the environment could minimize redundancy of the concepts measured in this study.

Figure 3. Relationships among Measures of Patient Outcome in Health-Related Quality of Life Conceptual Model

Figure 4. Ferrans and Colleagues’s Model of HRQOL Revised from Wilson & Cleary’s Model of HRQOL


**Quality of life (QOL) and Health-Related Quality of Life (HRQOL)**

**Defining QOL and HRQOL**

Quality of life (QOL) is a broad subjective concept composed of multiple domains such as physical health, psychological conditions, and social relationships (The WHOQOL Group, 1994, 1995). Health-related quality of life (HRQOL) is a more specific concept than QOL and focuses on the patient’s physical, psychological, and social functioning as influenced by illness, treatment, and symptoms originating from the disease/treatment (Varni et al., 1999).
Based on interviews with children and adolescents (8-18 years old) who were receiving cancer treatment, Hinds et al. (2004) defined QOL as a perception of well-being derived from the ability to: join routine activities; connect with others and feel cared about; handle physical, emotional, and cognitive difficulties; and find meaning in the illness experience. In another qualitative study, researchers interviewed American children and adolescents with cancer (8-18 years old) regarding their HRQOL. Six domains of HRQOL emerged: (1) symptoms (disease and treatment related); (2) usual activities; (3) social/family interactions; (4) health status; (5) mood; and (6) meaning of illness (Momani et al., 2015).

QOL and HRQOL in Adolescents with Cancer

Although the literature review revealed that previous studies have examined HRQOL among adolescents with cancer, many of the studies grouped adolescents with children and/or young adults. Additionally, results regarding HRQOL levels are inconsistent. For example, 30% of survivors of adolescent cancer who were diagnosed with cancer between the ages of 10 and 18 reported poor physical and/or mental HRQOL (Nolan et al., 2014). Barakat et al. (2015) concluded that adolescent and young adult survivors of childhood brain tumors are vulnerable to poor QOL. Findings of some studies, however, support an opposing conclusion. A longitudinal study found that American adolescents with cancer (14-21 years old) reported high QOL scores when assessed at baseline and also three months later (Lyon, Jacobs, et al., 2014). Likewise, a study by Mannix, Feldman, and Moody (2009) found that American adolescents with cancer (13-21 years old) reported high HRQOL scores. Based on Fakhry et al.’s (2013) literature review, childhood cancer survivors (aged 18 or younger) had a high level of HRQOL. Children and adolescents afflicted with cancer undergoing chemotherapy reported high levels of overall QOL.
in two studies conducted in Thailand—one in the southern region and the other encompassing four regions (Punthmatharith et al., 2008; Punthmatharith et al., 2014).

Also inconsistent are findings regarding HRQOL levels from studies that compared adolescents with cancer to other groups. Some studies revealed that adolescents with cancer reported lower HRQOL than others. For example, teenage patients with cancer (15-17 years old) reported lower HRQOL than older patients with cancer (18-25 years old) (Smith et al., 2013). A study in Pakistan found that adolescents with cancer reported significantly lower levels of overall HRQOL and in all domains (physical health, psychosocial health, emotional functioning, and social functioning) than healthy adolescents (Chaudhry & Siddiqui, 2012). Canadian adolescent survivors of cancer in childhood (15-19 years old) reported lower overall HRQOL than the general adolescent population (J. Grant et al., 2006). Adolescents in the Netherlands who had bone tumors reported significantly lower scores on physical well-being, autonomy, social support and peers, and school environment QOL than healthy peers (van Riel et al., 2014).

In addition to inconsistencies in overall HRQOL, results regarding the level of HRQOL among domains varied in some studies. For example, American adolescents with cancer reported higher HRQOL scores on the psychological health than the physical health domains (Barakat et al., 2010). About 30% of American adolescent cancer survivors reported poor physical and/or mental QOL (Nolan et al., 2014). Thai children and adolescents with cancer had the lowest score on psychological QOL and the highest score on life satisfaction QOL (Punthmatharith, Buddharat, & Wattanasit, 2013). As reported by their parents, Lebanese children and adolescents with cancer had the highest scores of HRQOL in communication and cognitive problems, whereas the lowest scores were in the domains of nausea, treatment anxiety, and worry (Abu-Saad Huijer, Sagherian, & Tamim, 2013).
Factors Associated with QOL and HRQOL

Few studies have examined the associations among HRQOL and its influencing factors exclusively in adolescents with cancer; however, these associations have been examined in other populations such as children and adolescents with cancer, adolescents and young adults with cancer, and adults with cancer. In general, the associations have been found to be inconsistent.

The following section illustrates the findings regarding the associations among selected factors (age, gender, cancer type, treatment, time since diagnosis, depression, and spiritual well-being) and HRQOL in children, adolescents, and young adults with cancer.

Demographic Factors: Age and Gender

Findings conflict regarding the associations between HRQOL and age and gender among children and adolescents with cancer. A positive association was found between HRQOL and age in studies conducted in the U.S., Switzerland, and Indonesia (Landolt et al., 2006; Sitaresmi et al., 2008; Smith et al., 2013). In Swiss children and adolescents with cancer, age was positively associated with the autonomy and social functioning domains of HRQOL at six weeks after diagnosis and was associated with the emotional functioning domain at one year after diagnosis (Landolt et al., 2006). American teenage patients with cancer (15-17 years old) reported lower physical and work/school functioning HRQOL than older patients with cancer (18-25 years old) (Smith et al., 2013). A study in Canada found that among children and adolescents with cancer, males had better social QOL than females, and the younger their ages for both males and females, the better the physical QOL they reported (Sung et al., 2009).

Similarly, male children and adolescents with cancer in Switzerland reported better HRQOL in cognitive and emotional domains than their female counterparts, whereas females scored better
in the autonomy domain than males (Landolt et al., 2006). Spanish male adolescent cancer survivors reported better scores than their female counterparts in the physical well-being and autonomy domains (Perez-Campdepadros et al., 2015).

Interestingly, a systematic review and meta-analysis of HRQOL among child, adolescent, and young adult bone tumor survivors demonstrated that being female and being older at time of diagnosis were associated with poor HRQOL (Stokke et al., 2015). Similarly, poor HRQOL in American and Canadian adult childhood cancer survivors was associated with being female (Zeltzer et al., 2008). Conversely, neither the gender nor age of Polish children and adolescents with cancer was associated with QOL (Pogorzala et al., 2010). HRQOL did not vary by gender in Turkish adolescent cancer survivors (Tuna & Elcigil, 2012) or in Indonesian children and adolescents with cancer (Sitaresmi et al., 2008). The majority of these studies grouped adolescents together with children and/or young adults; therefore, the associations between age and gender and HRQOL exclusively in adolescents with cancer warrants further examination especially in Thailand.

Cancer-Related Variables

Type of Cancer.

Studies conducted in several countries including the U.S., Canada, Switzerland, Taiwan, and Hong Kong have reported that the level of HRQOL in children and adolescents with cancer varied by cancer type (Chung et al., 2012; Eilertsen et al., 2012; Landolt et al., 2006; Pogorzala et al., 2010; Ruccione et al., 2013; Smith et al., 2013). Evidence reveals that children and adolescents with leukemia in Taiwan and Canada had better HRQOL than those with other types of cancer (Chou & Hunter, 2009; Sung et al., 2009). Conversely, Swiss children and
adolescents with leukemia reported significantly lower physical symptoms and motor functioning HRQOL than those with brain tumors at six weeks after diagnosis; however, one year after diagnosis the findings were interestingly reversed (Landolt et al., 2006). Non-central nervous system cancer survivors in Spain reported better HRQOL than those with central nervous system cancer in two domains—physical well-being and social support and peers (Perez-Campdepados et al., 2015). Children and adolescents afflicted with central nervous system tumors, sarcoma, and neuroblastoma in the U.S. and Canada reported poor HRQOL (Barrera, Gee, Andrews, Armstrong, & Saunders, 2006; Ruccione et al., 2013; Smith et al., 2013).

**Type of Treatment.**

Studies showed that type of cancer treatment was significantly associated with HRQOL in children and adolescents with cancer (Chung et al., 2012; Li et al., 2013; Pogorzala et al., 2010; Ruccione et al., 2013; Sung et al., 2009; Tuna & Elcigil, 2012). For example, Canadian children and adolescents with cancer who received chemotherapy reported poor QOL (Sung et al., 2009). Researchers found similar results in American adolescents and young adults with cancer (Smith et al., 2013). Receiving radiation was also associated with low HROQL in children and adolescents with cancer in the U.S., Canada, and Poland (Pogorzala et al., 2010; Ruccione et al., 2013; Speechley et al., 2006; Zeltzer et al., 2008). Lower psychosocial HROQL was associated with receiving radiation in American adolescents with cancer who had completed cancer treatment within the past six months (Ruccione et al., 2013). Pediatric cancer survivors in Poland who were receiving radiotherapy reported low physical HRQOL (Pogorzala et al., 2010). Additionally, receiving both chemotherapy and radiotherapy had significantly lower levels of HRQOL than those who received other types of treatment (e.g., chemotherapy, surgery, and
chemotherapy combined with bone marrow transplantation) in Hong Kong Chinese children and adolescents with cancer (Li et al., 2013).

**Time Since Diagnosis.**

Previous studies revealed conflicting results regarding the associations between time since diagnosis and HRQOL in children and adolescents with cancer. Time since diagnosis was positively associated with HRQOL in children and adolescents with cancer in both Eastern and Western countries: Brazil, the U.S., and Thailand (Landolt et al., 2006; Larsson et al., 2010; Punthmatharith et al., 2014; Rodrigues et al., 2013; Stokke et al., 2015). For example, time since diagnosis predicted QOL in Thai children and adolescents with cancer who were undergoing chemotherapy (Punthmatharith et al., 2014). American adolescents with cancer who had the longest time since diagnosis reported the highest levels of HRQOL in the physical function domain (Mannix et al., 2009). Brazilian adolescents with cancer reported low HRQOL during the first three months of treatment but better HRQOL after four to six months of treatment (Rodrigues et al., 2013).

Conversely, years since cancer diagnosis was negatively related to HRQOL among Spanish adolescents and Canadian children and adolescents (Perez-Campdepadros et al., 2015; Speechley et al., 2006). Specifically, Perez-Campdepadros et al. (2015) concluded that years since diagnosis was negatively related to HRQOL in the following domains: psychological well-being, parent-child relations and home life, social support from peers, and school environment. Interestingly, Barakat et al. (2010) found no association among HRQOL and time since diagnosis as well as cancer type and treatment in American adolescents with cancer who were undergoing cancer treatment.
In conclusion, the literature review shows inconsistent findings regarding the associations between cancer-related variables (cancer type, treatment, and time since diagnosis) and HRQOL in previous studies. Also, little is known about these associations in exclusively adolescents with cancer, particularly in Thailand. Therefore, these associations warrant further studies to provide a better understanding.

**Depression**

**Definition of Depression.**

Depression is a common mental disorder exemplified by a feeling of sadness, exhaustion, guilt, loss of interest or enjoyment, altered sleep or appetite, and poor concentration (WHO, 2015). In Beck’s Cognitive Theory of Depression, depression manifests from a negative cognitive triad which consists of a negative view of the self, the world, and the future (Beck, 1967; Wright & Beck, 1983). Regarding clinical aspects of depression, Beck (1973) suggested that depression comprises (1) specific alterations in mood such as sadness and loneliness, (2) a negative self-concept such as self-blame, (3) regressive and self-punitive wishes such as desires to escape and to die, (4) somatic changes such as anorexia and insomnia, and (5) changes in activity level such as agitation or lethargy. The current study utilized Beck’s (1973) definition of depression which is characterized by changes in mood, activity level, and somatic changes, and negative and regressive thoughts of self.

**Depression in Adolescents with Cancer.**

Depression in adolescents can lead to suicide attempts (Bridge, Barbe, Birmaher, Kolko, & Brent, 2014), educational underachievement (Jaycox et al., 2009; McCarty et al., 2008), and decreased QOL (Jaycox et al., 2009). Depression in adolescents is a serious problem worldwide,
particularly in adolescents with cancer. American adolescent cancer survivors reported depressive symptoms at varying degrees with 8.5% reporting moderate/severe symptoms (Bitsko, Stern, Dillon, Russell, & Laver, 2008). About 63% of hospitalized Hong Kong Chinese children and adolescents with cancer reported some depressive symptoms (Li, Chung, & Chiu, 2010). Up to six months after cancer diagnosis, Swedish adolescents (13-19 years old) reported a higher level of depression than the reference group (individuals aged 13-23 from the civil registration) (Larsson et al., 2010). Adolescents with cancer (13-17 years old) reported higher levels of depression than children with cancer (7-12 years old) (Matziou, Perdikaris, Galanis, Dousis, & Tzoumakas, 2008). Adolescents with cancer were more depressed than their healthy siblings (Jörngården, Mattsson, & von Essen, 2007).

Little is known about depression exclusively Thai adolescents with cancer; however, in a study involving Thai survivors of childhood acute lymphoblastic leukemia, depression was noted as a major psychosocial problem reported to have long-term effects (Pakakasama et al., 2010). In another study which grouped adolescents and children with cancer together, the prevalence of depression was reported to be 1.59% (Lertcheewakarn et al., 2010). Additionally, between 2007 and 2011, 7.7% of hospitalized Thai children and adolescents were diagnosed with depression, most of whom were cancer patients aged 13-14 years (Sittanomai et al., 2014).

**Depression and QOL/HRQOL.**

The associations between depression and QOL in children and adolescents with cancer have received little attention. Ruccione et al. (2013) found that depression and QOL had a strong negative correlation in American adolescents with cancer. This result is in line with the findings of two studies involving Chinese children and adolescents with cancer (Chung et al., 2012; Li et al., 2013). Depression was also found to be negatively associated with QOL in other populations.
including adult cancer patients (Abbes et al., 2015; Alacacioglu et al., 2014; Karakas, 2014), adolescent survivors of traumatic brain injuries (Di Battista et al., 2014), adolescents with heart disease (Wang et al., 2014), and adolescents with juvenile idiopathic arthritis (Abdul-Sattar et al., 2014). However, no studies emerged from the literature review that examined the associations between depression and quality life in Thai adolescents with cancer.

**Spiritual Well-Being**

**Definition and Dimensions.**

Spiritual well-being does not have universal definition but is generally conceptualized as a multidimensional concept. For example, the National Interfaith Coalition on Aging (1975 as cited in Fisher, 2011) defined spiritual well-being as having relationships with God, self, community, and environment that encourage and praise wholeness. Gomez and Fisher (2003) defined spiritual well-being as a state of being characterized by a sense of wholeness, positive attitudes, inner peace, and harmony, all of which are expressed by positive feelings, behaviors, and relationships with self, others, and nature. Fisher (1998) postulated that spiritual well-being consists of four domains—personal, communal, environmental, and transcendental—and is dependent upon the quality of the relationships within each domain, (i.e., when people live in harmony within their relationships, they can achieve spiritual health).

Since over 93% of the population in Thailand is Buddhist (Central Intelligence Agency, 2016), a majority of Thais connect spirituality and spiritual well-being to Buddhist precepts. In Buddhism, the term “wisdom” equates with “spirituality” (Chokevivat, 2008). Wasi (2001) defined spiritual well-being in the Buddhist context as a high spiritual state which refers to being moral, unselfish, wise, and engaged in enlightenment, or Nibbāna. In conjunction with their
study conducted in Thai Buddhist adults with chronic illness, Promkaewngam et al. (2014) conceptualized spiritual well-being as an individual’s perception of being peaceful and happy in life, understanding self and the nature of life, and having a sense of connectedness and hope.

**Spiritual Well-Being in Adolescents with Cancer.**

Adolescence is the stage of life during which biological, cognitive, psychological, social, and spiritual developments occur. During this period, adolescents develop autonomy and construct their own identity (Steinberg, 2014), including their own spirituality (Benson & Roehlkepartain, 2008; Good & Willoughby, 2008). Australian adolescents expressed that spirituality fostered their resilience by providing: (1) a feeling of protection, comfort, and security; (2) a sense of meaning, coherence, and optimism; and (3) an opportunity for increased self-awareness and self-efficacy (Raftopolous & Bates, 2011).

Spiritual well-being in adolescents with cancer has received little attention, and prior to the current study, this concept was unexplored as it relates to Thai adolescents with cancer. In a study conducted by Hendricks-Ferguson (2006), American middle adolescents (15-17 years old) reported the highest spiritual well-being scores as compared to early and late adolescents (11-14 years old and 18-20 years old, respectively), and girls reported higher spiritual well-being than boys. Another study found that American adolescents who had been diagnosed with cancer for less than two years reported higher spiritual well-being scores than those with a diagnosis of two years or more (Hendricks-Ferguson, 2008). Korean adolescents with leukemia reported medium levels of spiritual well-being (Hong & Park, 2015).
**Spiritual Well-being and QOL/HRQOL.**

The association between spiritual well-being and QOL has been extensively researched in the adult cancer population but has not been studied in adolescents with cancer. Positive associations were found in studies involving adults with cancer in the U.S., Taiwan, and Iran (Bai et al., 2015; Jafari et al., 2013; Kim et al., 2011; Lazenby & Khatib, 2012; Salsman et al., 2011; Samuelson et al., 2012). Iranian women with breast cancer undergoing radiation therapy had total spiritual well-being scores that significantly correlated with general QOL (Jafari et al., 2013). Similarly, spiritual well-being positively correlated with QOL in American patients newly diagnosed with advanced cancer (Bai et al., 2015). Comparable findings appeared in studies involving other populations such as adolescents with HIV (Lyon, Garvie, et al., 2014), college students (Anye et al., 2013), older adults (Ali et al., 2015), and women with HIV (Dalmida et al., 2011).

In summary, a review of the literature revealed that little is known about HRQOL and its associated factors in exclusively adolescents with cancer, especially in Thailand. Thus, the intent of the current study was to examine the predictors of HRQOL in this population in order to fill the gap in knowledge. Findings from this study can help healthcare professionals have a better understanding of these associations and can guide the development of interventions designed to improve HRQOL in the target population.
Chapter III

Methods

The purposes of this study were to: (1) examine predictors of HRQOL in Thai adolescents with cancer; and (2) test how well the model fit the sample data. This chapter describes the methodology that was used to test the study hypotheses.

H1: HRQOL can be predicted by depression, spiritual well-being, age, gender, cancer type, treatment, and time since diagnosis in Thai adolescents with cancer.

H2: The hypothetical model fits the sample data well.

Design

This study used a cross-sectional, predictive, correlational study design to examine predictors of HRQOL in Thai adolescents with cancer. A cross-sectional design, also known as a one-shot or status study (Kumar, 2014), measures all variables at a single point of time without any follow-up data collection (Carlson & Morrison, 2009; Hulley, Cummings, Browner, Grady, & Newman, 2013). In addition, cross-sectional data collection involves collecting data from participants without manipulating the study environment. The current study utilized this design because it works well for examining associations and predictions.

An advantage of a cross-sectional design is that it allows researchers to compare many different variables at the same time. Since only one interaction with the study population is involved, it is also relatively inexpensive and can be undertaken quickly (Creasey, 2006; Hulley et al., 2014; Kumar, 2014). Additionally, attrition and issues related to repeated measures will not occur since the study examines participants only once (Creasey, 2006). On the other hand,
this design might not be a good choice when examining cause-and-effect relationships due to the single collection of data (Carlson & Morrison, 2009; Hulley et al., 2013; Kumar, 2014).

**Study Setting and Sample**

Based on an analysis of childhood neoplasm in Thailand, most children and adolescents with cancer (86.1%) undergo treatment at tertiary hospitals (Wiangnon et al., 2011). Therefore, four tertiary governmental hospitals located in Bangkok, the capital city of Thailand, were selected for this study. These hospitals provide healthcare services to patients from several provinces throughout Thailand. All of these hospitals follow the same service regulations and policies as guided by the Thailand Ministry of Public Health.

**Sample**

The target population for this study consisted of Thai adolescents with cancer (aged 12-18) who were receiving healthcare services at these settings. The 12-18 age range used to describe adolescence was derived from Erikson’s (1968) Theory of Psychosocial Development. Participants were recruited from pediatric oncology clinics and inpatient units using convenience sampling. Although this type of sampling creates a selection bias and threatens the generalizability of study findings (Henry, 1990), the researcher determined that accessibility of participants outweighed these concerns.

**Sample Criteria**

The study sample was obtained from the population of Thai adolescents with cancer who were receiving healthcare services at pediatric oncology clinics or inpatient units at the study settings. Eligible participants were: (1) aged between 12-18 years; (2) diagnosed with any cancer type and in any phase/stage of cancer; (3) able to communicate in Thai; and (4) willing to
participate in the study. To determine eligibility regarding adequate Thai literacy, the researcher asked each potential participant to read the first two questions of the spiritual well-being scale as this scale contains the most abstract concepts. If the adolescent understood the questions, his/her literacy was considered adequate.

To minimize psychological and/or physical harm, adolescents with: (1) cognitive disabilities and/or (2) critical conditions were excluded. Cognitive disabilities and/or severe mental illnesses include schizophrenia, Down's syndrome, and severe Attention Deficit Hyperactivity Disorder (ADHD); examples of critical conditions are dyspnea, severe pain, severe fatigue, and active bleeding (Appendix B participant eligibility checklist). The parent’s and/or child’s report was used to determine if the adolescent met inclusion/exclusion criteria. One hundred fifty-five (155) adolescents and their parent(s) were approached. Ten adolescents and/or parents refused to participate with physical fatigue being reported as the primary reason for refusal. During the recruitment process, the researcher excluded two adolescents with Down's syndrome and three adolescents who were experiencing significant fatigue.

**Sample Size**

The sample size was calculated utilizing a 5-20:1 ratio of the number of cases (N) to the number of model parameters that required statistical examination (q) (Kline, 2016). Based on the study model (Figure 2), 50 parameters were to be estimated (latent variables = 2, paths coefficient/structural regression paths = 11, measurement regression paths = 7, error variances = 7, residual variances = 2, exogenous variances = 6, and covariance = 15). The recommended sample size was calculated to be 250 (N:q = 5:1), however; because of the time limitation for data collection, the researcher was able to obtain only 140 participants.
Research Instruments

The researcher used four instruments in this study: the Pediatric Quality of Life Inventory™ (PedsQL™) 4.0 Generic Core Scales Adolescent Form (Varni et al., 1999), the Spiritual Well-being Scale for Thai Buddhist Adults with Chronic Illness (SWS-TBACI) (Promkaewngam et al., 2014), the Children’s Depression Inventory (CDI) (Kovacs, 1985), and the Demographic Data Questionnaire (Appendix A).

Health-Related Quality of Life

Health-related quality of life (HRQOL) is the physical, psychological, and social functioning of an individual as influenced by illness, treatment, and symptoms originating from disease/treatment (Varni et al., 1999). In this study, HRQOL was measured with the PedsQL™ 4.0 Generic Core Scales Adolescent Form (Varni, Seid, & Kurtin, 2001) which had been translated into Thai by Sritipsukho, Wisai, and Thavorncharoensap (2013).

The PedsQL 4.0 was developed to measure the essential health dimensions as delineated by WHO (Varni et al., 2001). The 23-item PedsQL 4.0 Generic Core Scales instrument consists of 4 domains: 1) physical functioning (8 items); 2) emotional functioning (5 items); 3) social functioning (5 items); and 4) school functioning (5 items). This scale comprises parallel forms for child self-report and parent proxy-report, each of which captures four health dimensions of children in three different age groups: 5 to 7; 8 to 12; and 13 to 18. Parent proxy-reports include children aged 2 to 4 (toddler), 5 to 7 (young child), 8 to 12 (child), and 13 to 18 (adolescent).

The PedsQL 4.0 assesses the degree to which the child had problems with various areas of functioning in the past month. For each item, the score ranges from 0 (never) to 4 (almost always) (Varni et al., 2001). Items are reverse scored and linearly transformed to a 0-100 scale:
$0 = 100$, $1 = 75$, $2 = 50$, $3 = 25$, and $4 = 0$. A total score is created by summing the dimension scores (Varni, Burwinkle, & Lane, 2005). Examples of items include “It is hard for me to do sport activity or exercise,” “I worry about what will happen to me,” and “Other teens tease me” (Varni et al., 2001).

The PedsQL 4.0 Generic Core Scales Adolescent Form has been translated into over 50 languages and used in over 60 countries around the world (Mapi Research Trust, 2016). This tool has been used with both healthy adolescents and those experiencing illness. The PedsQL 4.0 has been used to measure HRQOL among adolescents diagnosed with cancer in many countries including the U.S. (Barakat et al., 2010; Ruccione et al., 2013), the Netherlands (Sulkers et al., 2013), Pakistan (Chaudhry & Siddiqui, 2012), Taiwan (Pan, Wu, & Wen, 2016), and Thailand (Ruksrithong, 2015). The PedsQL 4.0 has shown excellent internal consistency with Cronbach’s alpha coefficients ranging from 0.87 to 0.91 in adolescents with cancer (Barakat et al., 2010; Ruccione et al., 2013). In previous studies, the known group technique was used to examine the tool’s construct validity demonstrating the tool’s ability to distinguish between healthy adolescents and those with acute or chronic health conditions (Varni, Burwinkle, Seid, & Skarr, 2003; Varni et al., 2001). In addition, the tool demonstrated responsiveness, construct validity, and predictive validity in hospitalized adolescent patients (Desai et al., 2014).

The Thai version of PedsQL 4.0 has been used in diverse groups of healthy children and adolescents (Wisai & Sritipsukho, 2010) as well as children and adolescents diagnosed with varied health issues: Attention-Deficit/Hyper Activity Disorder (Pongwilairat, Louthrenoo, Charnsil, & Witoonchart, 2005); Thalassemia (Duangchu, Wongchanchailert, & Khotchawan, 2014); cerebral palsy (Tantilipikorn, 2012); and cancer (Ruksrithong, 2015). The Thai version demonstrated good reliability and validity in Thai children and adolescents in academic and
hospital settings. The Cronbach’s alpha coefficients ranged from 0.84 to 0.87 for the total scale (Sritipsukho et al., 2013; Wisai & Sritipsukho, 2010); however, most studies have not reported the tool’s psychometric properties in the publications. Based on known group technique, healthy children and adolescents reported better HRQOL scores for all subscales than those with chronic conditions indicating good construct validity (Punpanich et al., 2010; Sritipsukho et al., 2013). The PedsQL 4.0 was selected for use in this study because it captures the construct of HRQOL and has been widely used in Thai children and adolescents with cancer.

**Spiritual Well-Being**

Spiritual well-being is defined as an individual’s self-perception about being peaceful and happy in life, understanding self and the nature of life, and having a sense of connectedness and hope (Promkaewngam et al., 2014). The conceptual definition of spiritual well-being and its components are based on Buddhist teachings. For example, the component “being happy” refers to having a positive attitude in all life circumstances. Buddhism teaches people to confront suffering with peace and mindfulness (Hạnh, 1998). Spiritual well-being was measured by the Spiritual Well-being Scale for Thai Buddhist Adults with Chronic Illness (SWS-TBACI) (Promkaewngam et al., 2014).

The 13-item SWS-TBACI was developed based on Thai Buddhist beliefs and contains three domains: (1) having hope and a sense of connectedness (5 items); (2) understanding self and the nature of life (4 items); and (3) being happy (4 items). The SWS-TBACI was designed for self-administration and uses a 5-point likert scale (1 = strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, and 5 = strongly agree). All items are positive statements that represent the presence of the construct of interest (DeVellis, 2012). Examples of items include “I feel hopeful about my life” and “My illness has changed my life.” The total score ranges from
13 to 65, with higher scores indicating higher degrees of spiritual well-being (Promkaewngam et al., 2014).

Although the SWS-TBACI is a new tool and was used only with Thai adults with chronic illness, it demonstrated high internal consistency with Cronbach’s alpha coefficients of 0.88 overall and 0.81, 0.80, and 0.76 in each domain, respectively (Promkaewngam et al., 2014). An exploratory factor analysis yielded that the three domains of this tool explained 61.67% of the variance indicated satisfied construct validity (Promkaewngam et al., 2014). This tool was selected for use in this study because it is the most culturally-appropriate tool found in the literature.

**Depression**

Depression is characterized by changes in emotions (e.g., sadness, loneliness), thoughts (e.g., negative self-concept, self-blame, desire to escape), and behavior or activity level (e.g., insomnia, anorexia, agitation) (Beck, 1973). Depression was measured with the Children’s Depression Inventory (CDI) Thai version (Trangkasombat & Likanapichitkul, 1997). The CDI (Kovacs, 1985) is a modified version of the Beck Depression Inventory (Beck, Ward, & Mendelson, 1961).

The 27-item CDI is a self-report scale designed to assess the severity of depressive symptoms among children and adolescents aged 7 to 17 (Kovacs, 1985, 2004). Each CDI item consists of three descriptive statements for individuals to select one statement that best described them in the past two weeks. The answers range from 0 (no symptom) to 2 (definite symptom). For instance, 0 = “I am sad once in a while,” 1 = “I am sad many times,” and 2 = “I am sad all
the time.” Scores of all items are summed to generate the total score ranging from 0-54. Higher scores represent higher levels of depressive symptoms (Kovacs, 1985).

The CDI English version revealed good internal consistency with Cronbach’s alpha coefficients ranging from 0.71 to 0.88 in children and adolescents with cancer (Howard Sharp, Rowe, Russell, Long, & Phipps, 2015; Kovacs, 1985; Stewart, Mishel, Lynn, & Terhorst, 2010; Thompson et al., 2012). One month test-retest correlation coefficient appeared as strong (r = .82, p < .001) in juvenile diabetics (Kovacs, 1985). Among 860 children (8-12 years old) in the Toronto public schools, factor analysis generated satisfied construct validity of the CDI with 63.7% of the explained variance (Miezitis, Friedman, Butler, & Blanchard, 1978). In other studies involving normative and clinical samples, factor analysis of the CDI yielded five factors: (1) negative mood; (2) ineffectiveness; (3) anhedonia; (4) negative self-esteem; and (5) interpersonal problems (Craighead, Smucker, Craighead, & Ilardi, 1998; Kovacs, 1992; Weiss, Emanuel, Fairclough, & Emanuel, 2001).

The CDI has been translated into 43 languages (Kovacs, 2015) and widely used around the world among children and adolescents in various populations such as students in schools (Bang, Park, & Kim, 2015; Wattanapailin, Pratum, & Sitthimongkol, 2011; Wisitpongaree, Kolkijnovin, & Techakasem, 2014), pediatric cancer patients (Lertcheewakarn et al., 2010), children and adolescents with chronic pain (Logan et al., 2013), adolescents with eating disorder (Watson, Egan, Limburg, & Hoiles, 2014), adolescents with inflammatory bowel disease (Thompson et al., 2012), and pediatric psychiatric patients (Friedberg & Sinderman, 2011). A systematic review of 21 studies using the CDI with children and adolescents from many countries demonstrated that the CDI has excellent psychometric properties. Cronbach’s alpha coefficients ranged from 0.75 to 0.90 and the test-retest had acceptable stability with a
coefficient of $r = 0.62$ to $0.82$. Additionally, sensitivity and specificity were high, ranging from 0.63 to 0.95 and 0.65 to 0.95, respectively (Stockings et al., 2015).

Trangkasombat and Likanapichitkul (1997) translated the CDI into Thai and tested its psychometric properties with 139 children aged 10-15 who were receiving healthcare services at a pediatric outpatient and psychiatric department. Based on this study, the CDI indicated good internal consistency with Cronbach’s alpha coefficient of 0.83. The results derived from using the Receiver Operating Characteristic (ROC) Curve indicated that cut-off scores of 15 and above yielded the best overall screening characteristics (sensitivity = 79%, specificity = 91%, and accuracy = 87%). This Thai version of CDI has been used widely in children and adolescents with both non-medical and medical conditions including cancer and HIV infection (Boon-Yasidhi et al., 2016; Kaewpornasawan & Tuntasood, 2012; Lee, Chhabra, & Oberdorfer, 2011; Lertcheewakarn et al., 2010; Pilukpakawat, 2014). The CDI revealed good internal consistency with Cronbach’s alpha coefficient of 0.86 in one study among eighth grade Thai adolescents (Wattanapailin et al., 2011).

**Demographic and Health Information**

Multiple choice and fill-in-the-blank questions were used for demographic and health variables (e.g., age, gender, diagnosis, treatment, and time since diagnosis). Most adolescents filled out this section themselves except for the item time since diagnosis which some adolescents asked their parents to complete.
Table 1 Variable, Conceptual Definition, and Operational Definition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Conceptual definition</th>
<th>Operational definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRQOL</td>
<td>The physical, psychological, and social functioning of an individual as influenced by illness, treatment, and symptoms originating from the disease/treatment (Varni et al., 1999).</td>
<td>HRQOL was measured with the PedsQL 4.0 Generic Scale Score Adolescent Form (Varni et al., 2001) translated into Thai by Sritipsukho et al. (2013). The PedsQL 4.0 consists of 23 5-point Likert scale items. The higher score indicates a higher level of HRQOL.</td>
</tr>
<tr>
<td>Spiritual well-being</td>
<td>An individual’s self-perception about being peaceful and happy in life, understanding self and the nature of life, and having a sense of connectedness and hope (Promkaewngam et al., 2014).</td>
<td>Spiritual well-being was measured with the Spiritual Well-being Scale for Thai Buddhist Adults with Chronic Illness: SWS-TBACI (Promkaewngam et al., 2014). It consists of 13 5-point Likert scale items. The higher score, the higher level of spiritual well-being.</td>
</tr>
<tr>
<td>Depression</td>
<td>Depression is characterized by changes in emotions (e.g., sadness, loneliness), thoughts (e.g., negative self-concept, self-blame, desire to escape), and behavior or activity level (e.g., insomnia, anorexia, agitation) (Beck, 1973).</td>
<td>The Children’s Depression Inventory (CDI)—Thai version (Kovacs, 1985; Trangkasombat &amp; Likanapichitkul, 1997) was used to measure depression. The CDI comprises 27 3-point Likert scale items. The higher score, the higher depressive level. Note: The item “suicide” was dropped to avoid sensitive content.</td>
</tr>
</tbody>
</table>
Table 1 (Continue)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Conceptual definition</th>
<th>Operational definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic and Health Information</td>
<td>Demographic and health refers to the adolescent’s age, gender, diagnosis, treatment, and time since diagnosis.</td>
<td>Multiple choice and fill-in-the-blank questions were used for demographic and health variables (age, gender, diagnosis, treatment, and time since diagnosis).</td>
</tr>
</tbody>
</table>

**Study Procedures**

**Data Collection**

**Data Collection Packet.**

To minimize participants’ emotional burden and to engage their interest (Krosnick & Presser, 2010), the questionnaires were arranged in the following order: SWS-TBACI, PedsQL 4.0, CDI, and demographic and health information. The SWS-TBACI was ordered first because it is a positive concept that contains only positive statements. Since depression is a negative concept and some items of the CDI could cause emotional distress, the CDI was placed at the end before demographic and health information.

The design of data collection forms/packets determines the ease or difficulty the participants will experience during data collection (Byers, 1995; Center for Disease Control and Prevention: CDC, 2010). To maximize the ease for this study’s participants, the data collection packet had the following design: (1) black text printed on white letter-sized paper; (2) Thai Cordia New font style with font sizes 16-36; (3) adequate space between questions; (4) clear and
easy instructions; (5) clear and simple language; and (6) expression of gratitude (i.e., Thank you).

**Data Collection Procedure.**

After the approval from the Institutional Review Boards (IRB) of Kent State University and the four hospitals in Thailand, the researcher requested permission to collect data at the hospitals. Once permission was received, the researcher introduced herself and the study to the pediatric oncologists/hematologists and nurses at each hospital and visited their units.

To start the recruitment process, the researcher approached parents of potential participants and informed them about the study’s purpose, procedure, benefits, risks, confidentiality and rights. Parents had the opportunity to ask questions and review the consent and assent forms as well as the questionnaires (Appendix C). After receiving parental permission, the researcher approached the adolescents (with or without parental presence depending on the adolescents’ preference) and provided for them the same information (Appendix D). The researcher emphasized that their participation in the study was entirely voluntary and would have no impact on their healthcare services.

Upon their agreement to participate, the parents and adolescents signed consent and assent forms, respectively. Adolescents then completed the data collection packet via the self-administered method. Only a few participants asked the researcher to read out loud and fill out the questionnaires for them because of their fatigue. Participants took approximately 15 to 20 minutes to complete the 70-item questionnaire packet. The entire data collection process took three months from July to September, 2016.
After questionnaire completion, the researcher did a debriefing to assess participants’ emotional status by asking the following questions: (1) “How do you feel?”; (2) “Did you think the questions were easy or difficult to answer?”; and (3) “Did any of the questions upset you?”. None of the adolescents verbalized and/or displayed any non-verbal emotional distress. Hotline numbers (the National Mental Health hotline is 1667 and the Adolescent Mental Health Counselling hotline is 1323) were provided in the consent and assent forms in case emotional distress arose later. Additionally, the consent and assent forms stated that the adolescent was encouraged to talk with the parent and/or seek help from his/her physicians/nurses if he/she felt sad or emotionally distressed later (Appendix E and Appendix F). At the end, the researcher gave each adolescent a thank-you note and $5 (150 Baht in Thai currency) as compensation for their time.

**Storage of Data.**

To ensure confidentiality, questionnaires were separated from the signed consent and assent forms immediately after completion and later locked in a drawer in the dissertation chair’s office for safe keeping. They will remain secured for a minimum of three years from the study completion date. Data were entered and saved on the researcher’s laptop which is secured by password protection. Only the researcher and her dissertation chair have access to the completed questionnaires and saved data.
Data Management and Analysis

Data Management.

To ensure the raw data were “clean,” the researcher performed a cleaning process called editing (Kumar, 2014) by checking each questionnaire prior to entering the data into the statistical software program file, using double data entry technique (Hulley et al., 2013), and Missing Values Analysis (MVA) to determine the mechanisms, patterns, and proportion of missing data. In general, three mechanisms of missing data are missing at random (MAR), missing completely at random (MCAR), and missing not at random (MNAR) (Tabachnick & Fidell, 2013), and three patterns of missing data include: univariate (same participants have missing data on one or more variables); monotone (data are missing in sequence); and arbitrary (missing data occur randomly) (Dong & Peng, 2013).

Based on MVA results, MCAR was the missing data mechanism in this study which indicates that the missing values of one variable do not depend on any other variable. The patterns of missing data were univariate and arbitrary. The total percentage of missing data values was 3.65%. Diagnosis and time since diagnosis both had the highest percentage of missing data (14.3%). Eight of 140 participants (5.7%) did not fill out the HRQOL questionnaire so their data were excluded from the analysis (See Appendix G). Full information maximum likelihood (FIML) was used to manage missing data because it is less likely to introduce bias for SEM analysis than other methods. FIML identifies the parameter values that have the highest probability of producing the sample data by using all available data (Baraldi & Enders, 2010).
Testing Statistical Assumptions.

The researcher tested the assumptions of SEM including multivariate normality, linearity, and absence of multicollinearity (Tabachnick & Fidell, 2013). The data were screened for outliers (both univariate and multivariate), skewness, and kurtosis to evaluate normality. Bivariate scatterplots were used to evaluate linearity and correlation matrix to determine multicollinearity (Tabachnick & Fidell, 2013) (See Appendix H).

In this study, the normal Q-Q plot and values of skewness and kurtosis indicated multivariate normality. Outlier detection methods using box-plot and Mahalanobis distance showed two cases as outliers; however, these outliers were included in the final analysis because they represent extreme cases in real life. No multicollinearity was detected among dependent and independent variables as all variance inflation factor (VIF) values were less than three and tolerance values were greater than 0.1. Lastly, linearity analysis indicated that relationships between the outcome variable (HRQOL) and spiritual well-being, depression, and age showed sufficient linearity based on the F value, p value, and bivariate scatterplots.

Methods of Statistical Analysis.

The researcher analyzed the data using the Statistical Package for the Social Science (SPSS) software Version 24.0 and the Analysis of Moment Structures (AMOS) software Version 24.0. Descriptive statistics summarized the demographic information and each variable by calculating distributions, means, and standard deviations.

The researcher used structural equation modeling (SEM), a group of statistical approaches that yields a set of correlations between one or more independent variables and one or more dependent variables (Kline, 2016; Ullman, 2006), to examine predictors of HRQOL and
tested how well the model fit the sample data. SEM includes the evaluation of both a measurement and a path model (Lei & Wu, 2007). In this study, the HRQOL and spiritual well-being measurement models were evaluated through confirmatory factor analysis (CFA) (Lei & Wu, 2007; Mueller & Hancock, 2010). The path or structural equation model, an expansion of multiple regression, allows the researcher to evaluate structural relationships among study variables and to test the hypothetical model (Lei & Wu, 2007).

The criteria to determine a good model fit in this study are based on the results of three SEM fit indices (Mueller & Hancock, 2010). First, the value of the standardized root mean square residual (SRMR), an absolute index, must be below .08 (McDonald & Ho, 2002) (Mueller & Hancock, 2010). Second, the root mean square error of approximation (RMSEA), a parsimonious index, must be less than .08 (Hooper, Coughlan, & Mullen, 2008). Third, the values of the following incremental indices must be above .90: (1) the normed fit index (NFI), (2) non-normed fit index (NNFI), also referred to as the Tucker-Lewis index (TLI), and/or (3) the comparative fit index (CFI) (Mueller & Hancock, 2010).

**Ethical Considerations**

In accordance with the Belmont Report, the researcher adhered to the three basic ethical principles for research involving human subjects: respect for persons, beneficence, and justice (U.S. Department of Health and Human Service, 2014).

Respect for persons was accomplished by providing adolescents and their parents detailed information (verbal and written) regarding the study. Additionally, voluntary informed consent/assent free from coercion (R. W. Grant & Sugarman, 2004) was secured from both adolescents and parents prior to data collection. The informed consent/assent forms
include the research purpose, procedures, and risks and benefits; a notification of the participants’ right to ask questions and/or to withdraw from the study at any time; an explanation of the participation selection criteria, and the researcher’s contact information (U.S. Department of Health and Human Service, 2014). In order to respect adolescent autonomy and the important role of parents as protectors of adolescents (Santelli et al., 2003), the researcher emphasized that participation was entirely voluntary and that the decision to participate or not would have no impact on healthcare services and/or relationships with their healthcare professionals. The adolescents also had the right to stop and/or withdraw at any time without repercussions. To respect participants’ time and effort, each adolescent was given $5 in cash as compensation.

Beneficence was applied by providing clear and detailed information regarding the potential risks and benefits of participating in the study.

To comply with the principle of justice, each eligible adolescent with cancer was given an equal chance to participate; only those who did not meet study criteria were excluded. In order to avoid injustice and potential harm, the researcher had determined that vulnerable persons, including adolescents with critical conditions such as severe fatigue, would not be eligible for the study (U.S. Department of Health and Human Service, 2014). Finally, to ensure confidentiality, research questionnaires contain no identifiable information such as participants’ names, and/or addresses; code numbers were used on all completed questionnaires to prevent them from being connected to the associated participants. Only the researcher and the dissertation chair have access to completed questionnaires and signed assent/consent forms. Finally, the data are secured by password protection, and research findings will be presented in an aggregate form.
Chapter IV

Findings

This cross-sectional, predictive, correlational study design among Thai adolescents with cancer aimed to: (1) identify HRQOL predictors including the characteristics of the individual (gender, age, and spiritual well-being), biological function (cancer type, treatment, and time since diagnosis), and symptoms (depression); and (2) to test how well the hypothetical model fits the sample data.

Demographic Data

The researcher collected data from 140 participants receiving services at pediatric oncology clinics and pediatric inpatient units at four tertiary hospitals located in Bangkok, the capital city of Thailand. Demographic and cancer-related variables include gender, age, current school attendance, current education level, major caregiver, current hospitalization, cancer type, treatment, and time since diagnosis (Table 2).

Males comprised two-thirds of Thai adolescents with cancer who participated in this study. Participants’ mean age was 14 years old (SD = 1.73). Those 12 to 14 years old made up the largest group (n = 104, 75.4%). The ratio of adolescents who attended school to those who did not attend school was 59:41. At the time of this research, about half of the participants were in middle school and one-third in elementary school. More than half had both mother and father as major caregivers, while one-fifth had only their mother as the major caregiver. Most participants (84.6%) visited pediatric oncology clinics for treatment or follow up during the data collection. Almost half of the participants (46.7%) had been diagnosed with leukemia. At the
time of data collection, 47.7% were receiving chemotherapy. For the duration of time since cancer diagnosis, almost half (49.1%) had been diagnosed with cancer for one to five years.

Table 2

*Demographic Characteristics and Cancer-Related Variables of Participants*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
<th>N total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>139</td>
</tr>
<tr>
<td>Male</td>
<td>93 (66.9)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46 (33.1)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>138</td>
</tr>
<tr>
<td>12-14 years</td>
<td>104 (75.4)</td>
<td></td>
</tr>
<tr>
<td>15-17 years</td>
<td>28 (20.3)</td>
<td></td>
</tr>
<tr>
<td>18 years</td>
<td>6 (4.3)</td>
<td></td>
</tr>
<tr>
<td>(Range = 6.4, Mean = 14, SD = 1.73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current school attendance</td>
<td></td>
<td>139</td>
</tr>
<tr>
<td>Yes</td>
<td>82 (59)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>57 (41)</td>
<td></td>
</tr>
<tr>
<td>Current educational level</td>
<td></td>
<td>136</td>
</tr>
<tr>
<td>Elementary school</td>
<td>47 (34.6)</td>
<td></td>
</tr>
<tr>
<td>Middle school</td>
<td>70 (51.5)</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>11 (8.1)</td>
<td></td>
</tr>
<tr>
<td>Others (e.g., vocational study, no schooling)</td>
<td>8 (5.9)</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 (Continue)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
<th>N total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major caregiver</td>
<td></td>
<td>139</td>
</tr>
<tr>
<td>Mother and father</td>
<td>78 (56.1)</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>30 (21.6)</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>9 (6.5)</td>
<td></td>
</tr>
<tr>
<td>Others (grandparents, aunts)</td>
<td>15 (10.8)</td>
<td></td>
</tr>
<tr>
<td>Multiple caregivers (e.g., parents and relatives)</td>
<td>7 (5)</td>
<td></td>
</tr>
<tr>
<td>Currently hospitalized</td>
<td></td>
<td>136</td>
</tr>
<tr>
<td>Yes</td>
<td>21 (15.4)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>115 (84.6)</td>
<td></td>
</tr>
<tr>
<td>Time since diagnosis</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>20 (16.7)</td>
<td></td>
</tr>
<tr>
<td>1-5 years</td>
<td>59 (49.1)</td>
<td></td>
</tr>
<tr>
<td>5-10 years</td>
<td>29 (24.2)</td>
<td></td>
</tr>
<tr>
<td>&gt; 10 years</td>
<td>12 (10)</td>
<td></td>
</tr>
<tr>
<td>(Range = 15.5, Mean = 4.4, SD = 3.90)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description of the Dependent and Independent Variables**

The dependent variable for this study was HRQOL as measured by the Thai version of PedsQL 4.0. Independent variables included spiritual well-being as measured by the SWS-TBACI and depression as measured by the Thai version of CDI. Table 3 presents the overall scores of HRQOL, spiritual well-being, and depression of Thai adolescents with cancer.
Table 3

Scores of HRQOL, Spiritual Well-Being, and Depression in Thai Adolescents with Cancer

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Possible scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRQOL</td>
<td>70.4</td>
<td>15.22</td>
<td>0-100</td>
</tr>
<tr>
<td>Spiritual Well-Being</td>
<td>54.2</td>
<td>6.23</td>
<td>13-65</td>
</tr>
<tr>
<td>Depression</td>
<td>10.5</td>
<td>6.38</td>
<td>0-52</td>
</tr>
</tbody>
</table>

Health-Related Quality of life of Thai Adolescents with Cancer

Tables 4 and 5 present raw and transformed scores (the higher the score, the higher HRQOL). In this study, the reliability of the tool’s total scale was excellent (α =.90). All but one of the subscales’ reliability were acceptable or good (α = .77-.85); the school functioning subscale had the lowest internal consistency (α =.65) (Table 5). However, this is not problematic because only the composite scores were used in the analysis.

Thai adolescents with cancer reported the lowest score on school functioning (mean = 65.3) and the highest score on social functioning (M = 76.3). See Table 5. Participants reported the lowest mean score on items “I miss school to go to the doctor or hospital” followed by “I miss school because of not feeling well” (Table 7).
Table 4

*Raw and Transformed Scores of PedsQL 4.0*

<table>
<thead>
<tr>
<th>Transform score</th>
<th>Never</th>
<th>Almost</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw score</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>0-100 scale score</td>
<td>100</td>
<td>75</td>
<td>50</td>
<td>25</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 5

*Internal Consistency for PedsQL 4.0 in Thai Adolescents with Cancer*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Number of items</th>
<th>N</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total scale score</td>
<td>23</td>
<td>115</td>
<td>.90</td>
</tr>
<tr>
<td>Physical health</td>
<td>8</td>
<td>127</td>
<td>.84</td>
</tr>
<tr>
<td>Psychological health</td>
<td>15</td>
<td>120</td>
<td>.85</td>
</tr>
<tr>
<td>Emotional functioning</td>
<td>5</td>
<td>132</td>
<td>.78</td>
</tr>
<tr>
<td>Social functioning</td>
<td>5</td>
<td>127</td>
<td>.77</td>
</tr>
<tr>
<td>School functioning</td>
<td>5</td>
<td>127</td>
<td>.65</td>
</tr>
</tbody>
</table>
Table 6

Mean, SD, Minimum, and Maximum Scores of Health-Related Quality of life in Thai Adolescents with Cancer

<table>
<thead>
<tr>
<th>Scale</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total scale score</td>
<td>115</td>
<td>70.4</td>
<td>15.22</td>
<td>32.6</td>
<td>95.7</td>
</tr>
<tr>
<td>Physical health</td>
<td>127</td>
<td>69.4</td>
<td>20.01</td>
<td>18.8</td>
<td>100</td>
</tr>
<tr>
<td>Psychological health</td>
<td>120</td>
<td>71.1</td>
<td>14.72</td>
<td>38.3</td>
<td>96.7</td>
</tr>
<tr>
<td>Emotional functioning</td>
<td>132</td>
<td>71.2</td>
<td>19.24</td>
<td>25</td>
<td>100</td>
</tr>
<tr>
<td>Social functioning</td>
<td>127</td>
<td>76.3</td>
<td>18.67</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>School functioning</td>
<td>121</td>
<td>65.3</td>
<td>16.52</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 7

*The Top Ten Items of Health-Related Quality of life in Thai Adolescents with Cancer with the Lowest Mean Scores*

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I miss school to go to the doctor or hospital.</td>
<td>41.3</td>
<td>25.95</td>
</tr>
<tr>
<td>I miss school because of not feeling well.</td>
<td>56.2</td>
<td>27.33</td>
</tr>
<tr>
<td>It is hard for me to lift something heavy.</td>
<td>61.7</td>
<td>30.96</td>
</tr>
<tr>
<td>It is hard for me to do sport activity or exercise.</td>
<td>63.3</td>
<td>33.76</td>
</tr>
<tr>
<td>I hurt or ache.</td>
<td>63.8</td>
<td>25.34</td>
</tr>
<tr>
<td>It is hard for me to run.</td>
<td>63.9</td>
<td>32.25</td>
</tr>
<tr>
<td>I have low energy.</td>
<td>66.1</td>
<td>26.60</td>
</tr>
<tr>
<td>I feel angry.</td>
<td>67.8</td>
<td>25.94</td>
</tr>
<tr>
<td>I cannot do things that other teens my age can do.</td>
<td>67.9</td>
<td>29.02</td>
</tr>
<tr>
<td>I worry about what will happen to me.</td>
<td>68.6</td>
<td>27.74</td>
</tr>
</tbody>
</table>
Spiritual Well-Being of Thai Adolescents with Cancer

In this study, the reliability of the SWS-TBACI was good ($\alpha = .81$). The subscales’ reliability of having hope and a sense of connectedness and being happy were acceptable ($\alpha = .68$ and .72, respectively). The understanding self and nature of life subscale had the lowest internal consistency ($\alpha = .50$).

In Tables 9 and 10, the total spiritual well-being mean score was 54.2. The highest mean was found on item “I have strength of mind to encounter my chronic illness,” and the lowest mean on item “My illness has led to self-knowledge.”

Table 8

Subscale Descriptive and Internal Consistency Reliability for Spiritual Well-Being Scale in Thai Adolescents with Cancer

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of items</th>
<th>N</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total scale score</td>
<td>13</td>
<td>137</td>
<td>.81</td>
</tr>
<tr>
<td>Having hope and sense of</td>
<td>5</td>
<td>140</td>
<td>.68</td>
</tr>
<tr>
<td>connectedness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding self and</td>
<td>4</td>
<td>138</td>
<td>.50</td>
</tr>
<tr>
<td>nature of life</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being happy</td>
<td>4</td>
<td>139</td>
<td>.72</td>
</tr>
</tbody>
</table>
Table 9

*Mean of Summative Scores of Spiritual Well-Being in Thai Adolescents with Cancer*

<table>
<thead>
<tr>
<th>Scale</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total scale score</td>
<td>137</td>
<td>54.2</td>
<td>6.23</td>
<td>26</td>
<td>65</td>
</tr>
<tr>
<td>Having hope and sense of</td>
<td>140</td>
<td>21.6</td>
<td>2.43</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>connectedness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding self and nature of</td>
<td>138</td>
<td>16.1</td>
<td>2.47</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being happy</td>
<td>139</td>
<td>16.5</td>
<td>2.83</td>
<td>6</td>
<td>20</td>
</tr>
</tbody>
</table>
Table 10

*Mean and SD of Each Item of Spiritual Well-Being in Thai Adolescents with Cancer*

<table>
<thead>
<tr>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel hopeful about my life.</td>
<td>140</td>
<td>4.4</td>
<td>0.66</td>
</tr>
<tr>
<td>2. I have strength of mind to encounter my chronic illness.</td>
<td>140</td>
<td>4.5</td>
<td>0.66</td>
</tr>
<tr>
<td>3. I have a life goal that I have to reach.</td>
<td>140</td>
<td>4.4</td>
<td>0.72</td>
</tr>
<tr>
<td>4. I believe that the Buddhist doctrine I respect is always true.</td>
<td>140</td>
<td>4.1</td>
<td>0.82</td>
</tr>
<tr>
<td>5. I believe in the statement, “I can only rely on myself.”</td>
<td>140</td>
<td>4.1</td>
<td>0.81</td>
</tr>
<tr>
<td>6. My illness helps me learn to forgive myself and others.</td>
<td>139</td>
<td>4.0</td>
<td>0.88</td>
</tr>
<tr>
<td>7. My illness has changed my life.</td>
<td>139</td>
<td>4.0</td>
<td>1.16</td>
</tr>
<tr>
<td>8. My illness has led to self-knowledge.</td>
<td>140</td>
<td>3.8</td>
<td>1.00</td>
</tr>
<tr>
<td>9. I can accept my physical condition.</td>
<td>140</td>
<td>4.4</td>
<td>0.87</td>
</tr>
<tr>
<td>10. I feel that my life is happy.</td>
<td>140</td>
<td>4.2</td>
<td>0.94</td>
</tr>
<tr>
<td>11. My illness can strengthen my mind.</td>
<td>140</td>
<td>4.0</td>
<td>1.03</td>
</tr>
<tr>
<td>12. I live normally at the present time.</td>
<td>140</td>
<td>4.2</td>
<td>0.90</td>
</tr>
<tr>
<td>13. I will keep living regardless of my symptoms.</td>
<td>139</td>
<td>4.1</td>
<td>0.99</td>
</tr>
</tbody>
</table>
Depression in Thai Adolescents with Cancer

In this study, the reliability of the CDI was good ($\alpha = .83$). Thai adolescents with cancer’s mean score for the summative CDI scale was 10.5. One out of four participants (25.8%) had a CDI score of 15 or above. More than half of the participants had concerns about their appearance (57.4%), “There are some bad things about my looks.”

Table 11

*Children Depression Inventory Scores in Thai Adolescents with Cancer*

<table>
<thead>
<tr>
<th>Summative score</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 14</td>
<td>92</td>
<td>74.2</td>
</tr>
<tr>
<td>15 – 28</td>
<td>32</td>
<td>25.8</td>
</tr>
</tbody>
</table>

Note: score ≥ 15 indicates significant depressive symptoms

Mean of summative score = 10.5, SD = 6.38

(Minimum = 0, maximum = 28)
Table 12

*The Top Five Highest Percentages of CDI’s Statements with an Answer Selected as “Frequent” among Thai Adolescents with Cancer*

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are some bad things about my looks.</td>
<td>57.4</td>
</tr>
<tr>
<td>I can be as good as other kids if I want to.</td>
<td>52.7</td>
</tr>
<tr>
<td>I have fun in some things.</td>
<td>45.8</td>
</tr>
<tr>
<td>I am not sure if things will work out for me.</td>
<td>37.2</td>
</tr>
<tr>
<td>My schoolwork is not as good as before.</td>
<td>37.0</td>
</tr>
</tbody>
</table>

**Structural Equation Modeling Analysis and Results**

SEM in this study includes a structural model and two measurement models of latent variables (HRQOL and spiritual well-being) as evaluated through CFA.

**The Measurement Models of HRQOL**

The PedsQL 4.0 Thai version was used to measure HRQOL with four-factors: physical, emotional, social, and school functioning. CFA with these four factors was conducted using AMOS.

Table 13 shows the standardized factor loadings of each item loaded on its corresponding factor. Results showed that standardized factor loadings of the scale items ranged from .27 to .86. Four out of 23 standardized factor loadings were lower than .5 (.27 - .40). These four items
are “I hurt or ache,” “Other teens tease me,” “I miss school because of not feeling well,” and “I miss school to go to the doctor or hospital.” Overall, the model fit indices indicated a good model fit of the HRQOL measurement model (Chi-square = 409.245, df = 224, p = .000; RMSEA < .08; and CFI close to .9) (Figure 5).

Through CFA, the researcher determined construct validity, which covers convergent and discriminant validity. Convergent validity was verified by assessing the factor loadings of the items, average variance extracted (AVE), and composite reliability (CR). Results showed that 19 out of 23 standardized factor loadings were .50 or higher suggesting that these indicators are strongly related to their associated constructs (Hair, 2010). The AVE values of four indicators (dimensions) of PedsQL 4.0 were lower than .5 (ranging from .28 to .43), indicating that items in each dimension belong somewhat well to their relevant dimension (Kline, 2016). The CRs of all but one dimension exceeded .7 (ranging from .65 to .84) which indicates adequate convergent validity (Hair, 2010). Discriminant validity can be verified if AVE of each construct is greater than the squared correlations between the construct (Hair, 2010). In the present study, the four constructs of PedsQL 4.0 displayed somewhat sufficient discriminant validity since all but one of AVE was lower than the squared correlations between the constructs (Table 14).
### Table 13

*Standardized Loading Factors of Health-Related Quality of Life in Thai Adolescents with Cancer*

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical</td>
</tr>
<tr>
<td>1. It is hard for me to walk more than one block.</td>
<td>.59</td>
</tr>
<tr>
<td>2. It is hard for me to run.</td>
<td>.71</td>
</tr>
<tr>
<td>3. It is hard for me to do sports activity or exercise.</td>
<td>.77</td>
</tr>
<tr>
<td>4. It is hard for me to lift something heavy.</td>
<td>.72</td>
</tr>
<tr>
<td>5. It is hard for me to take a bath or shower by myself.</td>
<td>.55</td>
</tr>
<tr>
<td>6. It is hard for me to do chores around the house.</td>
<td>.73</td>
</tr>
<tr>
<td>7. I hurt or ache.</td>
<td>.32</td>
</tr>
<tr>
<td>8. I have low energy.</td>
<td>.64</td>
</tr>
<tr>
<td>9. I feel afraid or scared.</td>
<td>.61</td>
</tr>
<tr>
<td>10. I feel sad or blue.</td>
<td>.76</td>
</tr>
<tr>
<td>11. I feel angry.</td>
<td>.61</td>
</tr>
<tr>
<td>12. I have trouble sleeping.</td>
<td>.50</td>
</tr>
<tr>
<td>13. I worry about what will happen to me.</td>
<td>.77</td>
</tr>
<tr>
<td>14. I have trouble getting along with other teens.</td>
<td>.54</td>
</tr>
<tr>
<td>15. Other teens do not want to be my friend.</td>
<td>.56</td>
</tr>
<tr>
<td>16. Other teen tease me.</td>
<td>.38</td>
</tr>
<tr>
<td>17. I cannot do things that other teens my age can do.</td>
<td>.66</td>
</tr>
<tr>
<td>18. It is hard to keep up with my peers.</td>
<td>.86</td>
</tr>
<tr>
<td>19. It is hard to pay attention in class.</td>
<td>.67</td>
</tr>
<tr>
<td>20. I forget things.</td>
<td>.59</td>
</tr>
<tr>
<td>21. I have trouble keeping up with my schoolwork.</td>
<td>.63</td>
</tr>
<tr>
<td>22. I miss school because of not feeling well.</td>
<td>.40</td>
</tr>
<tr>
<td>23. I miss school to go to the doctor or hospital.</td>
<td>.27</td>
</tr>
</tbody>
</table>
Chi-square = 409.245, df = 224, p = .000;

IFI = .828, CFI = .820, RMSEA = .079

Figure 5. Confirmatory Factor Analysis of PedsQL 4.0 in Thai Adolescents with Cancer
Table 14

*Factor Correlation, Correlation Squared, and AVE of PedsQL 4.0*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Factor Correlation</th>
<th>Squared Correlation</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical &lt;--- Emotional</td>
<td>.66</td>
<td>.44</td>
<td>.41, .43</td>
</tr>
<tr>
<td>Physical &lt;--- Social</td>
<td>.73</td>
<td>.53</td>
<td>.41, .38</td>
</tr>
<tr>
<td>Physical &lt;--- School</td>
<td>.67</td>
<td>.45</td>
<td>.41, .28</td>
</tr>
<tr>
<td>Emotional &lt;--- Social</td>
<td>.62</td>
<td>.38</td>
<td>.43, .38</td>
</tr>
<tr>
<td>Emotional &lt;--- School</td>
<td>.74</td>
<td>.55</td>
<td>.43, .28</td>
</tr>
<tr>
<td>Social &lt;--- School</td>
<td>.81</td>
<td>.66</td>
<td>.38, .28</td>
</tr>
</tbody>
</table>

The Measurement Model of the Spiritual Well-Being Scale

In this study, the spiritual well-being was measured by the SWS-TBACI with three factors: having hope and a sense of connectedness; understanding self and the nature of life; and being happy. CFA results based on AMOS indicated a lack of fit (Chi-square = 130.274, df = 62, p = .001; RMSEA = .092; IFI = .826; and CFI = .812). Because full information maximum likelihood (FIML) was used, modification indices could not be generated in the current study. Thus, exploratory factor analysis (EFA) was performed to examine alternative loadings of the items on the spirituality scale. The loading values for items 1, 4, and 7 (“I feel hopeful about my life,” “I believe that the Buddhist doctrine I respect is always true,” and “My illness has changed my life.”) were lower than .5 and the meaning of each item is ambiguous in Thai, thus these
items were deleted. Final EFA results show that, indeed, a one-factor structure is more appropriate both statistically and conceptually than the original three-factor structure for the current study. Therefore, spiritual well-being was treated as a manifest variable for the final SEM analysis. The 10-item spiritual well-being scale (loadings values = .52-.71) generated an alpha of .82.

**Structural Model Analysis**

The researcher analyzed the predictive model for HRQOL in Thai adolescents with cancer using AMOS with “Maximum Likelihood” as the estimation method. The proposed hypothetical model identified predictors of HRQOL in Thai adolescents with cancer based on an adapted Ferrans and colleagues’ (2005) HRQOL conceptual model. In the model, the latent, endogenous variable is HRQOL, whereas the manifest variables include both endogenous variable (spiritual well-being) and exogenous variables (age, gender, diagnosis, treatment, time since diagnosis, and depression). (Figures 6 and 7 as well as Tables 15 and 16).

In the original model, the data fit the hypothetical model well (Figure 6). The goodness of fit is not statistically significant (p > .05) indicating good fit of the model. The absolute fit indices and incremental fit indices indicate that the model fits the data well (RMSEA < .05, CFI, TLI, and IFI > .90). Spiritual well-being significantly had a positive direct effect on HRQOL, while depression had a significantly negative direct effect on spiritual well-being and HRQOL (Figure 6).

The researcher trimmed the model by preserving only significant paths among independent variables and outcome variables (Figure 7). Based on the model fit criteria, the trimmed model showed good fit (RMSEA < .08, CFI, TLI, and NFI > .90). The significant
results among depression, spiritual well-being, and HRQOL remained the same as in the initial model (Table 16).

Chi-square = 28.823, df = 25, p = .271

NFI = .894, IFI = .985, TLI = .951, CFI = .981, RMSEA = .034

*Figure 6.* Original Model Identifying Predictors of HRQOL in Thai Adolescents with Cancer
Table 15

*Unstandardized Estimates of Regression Weight: The Original Model*

<table>
<thead>
<tr>
<th>Regression Weights</th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWB `&lt;--- Depression</td>
<td>-.216</td>
<td>.077</td>
<td>-2.794</td>
<td>.005</td>
</tr>
<tr>
<td>SWB `&lt;--- TimesinceDx</td>
<td>.008</td>
<td>.125</td>
<td>.068</td>
<td>.946</td>
</tr>
<tr>
<td>SWB `&lt;--- Age</td>
<td>.168</td>
<td>.288</td>
<td>.581</td>
<td>.561</td>
</tr>
<tr>
<td>SWB `&lt;--- Gender</td>
<td>.375</td>
<td>1.001</td>
<td>.375</td>
<td>.708</td>
</tr>
<tr>
<td>HRQOL `&lt;--- SWB</td>
<td>.828</td>
<td>.228</td>
<td>3.638</td>
<td>***</td>
</tr>
<tr>
<td>HRQOL `&lt;--- Age</td>
<td>1.245</td>
<td>.712</td>
<td>1.749</td>
<td>.080</td>
</tr>
<tr>
<td>HRQOL `&lt;--- Gender</td>
<td>-.846</td>
<td>2.412</td>
<td>-.351</td>
<td>.726</td>
</tr>
<tr>
<td>HRQOL `&lt;--- Diagnosis</td>
<td>.005</td>
<td>.004</td>
<td>1.334</td>
<td>.182</td>
</tr>
<tr>
<td>HRQOL `&lt;--- Treatment</td>
<td>-.559</td>
<td>.726</td>
<td>-.770</td>
<td>.441</td>
</tr>
<tr>
<td>HRQOL `&lt;--- TimesinceDx</td>
<td>.509</td>
<td>.336</td>
<td>1.516</td>
<td>.129</td>
</tr>
<tr>
<td>HRQOL `&lt;--- Depression</td>
<td>-1.076</td>
<td>.209</td>
<td>-5.157</td>
<td>***</td>
</tr>
</tbody>
</table>

*** indicate p-value < .001
Chi-square = 12.252, df = 8, p = .140

NFI = .943, IFI = .979, TLI = .942, CFI = .978, RMSEA = .064

*Figure 7.* Trimmed Model Identifying Predictors of HRQOL in Thai Adolescents with Cancer
Table 16

*Unstandardized Estimates of Regression Weight: The Trimmed Model*

<table>
<thead>
<tr>
<th>Regression Weights</th>
<th>Unstandardized</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>S.E.</td>
<td>C.R.</td>
<td>p-value</td>
</tr>
<tr>
<td>SWB &lt;--- Depression</td>
<td>-.220</td>
<td>.076</td>
<td>-2.902</td>
<td>.004</td>
</tr>
<tr>
<td>HRQOL &lt;--- SWB</td>
<td>.866</td>
<td>.233</td>
<td>3.715</td>
<td>***</td>
</tr>
<tr>
<td>HRQOL &lt;--- Depression</td>
<td>-1.098</td>
<td>.209</td>
<td>-5.244</td>
<td>***</td>
</tr>
</tbody>
</table>
Chapter V

Discussion

This cross-sectional, predictive, correlational study was conducted to examine predictors of HRQOL in Thai adolescents with cancer and to test how well the hypothetical model fit the sample data. This chapter presents a discussion of the study’s findings, strengths, limitations, implications, and recommendations for future research.

HRQOL in Thai adolescents with cancer

The current study’s findings revealed a 70.4 total mean score of HRQOL in Thai adolescents with cancer (ages 12-18). Although different in setting, participants’ ages, and sample size from the current study, a pilot study conducted by Ruksrithong (2015) found a similar HRQOL mean score (75.1) among Thai children and adolescents (ages 5-15). Participants in the current study reported the lowest score on school functioning (M = 65.3) and the highest score on social functioning (M = 76.3). These scores are similar to the results from other previous studies. Ruksrithong (2015) found that Thai children and adolescents reported the lowest score on school functioning (M = 68.3) and the highest score on social functioning (M = 85.0). In a study in the U.S., adolescents with cancer (ages 15-17) reported the lowest score on school functioning (M = 58.9) and the highest score on social functioning (M = 75.4) (Smith et al., 2013). Similarly, Taiwanese children and adolescents with cancer (ages 7-18) reported the lowest score on school functioning (M = 72.2) and the highest score on social functioning (M = 88.6) (Pan et al., 2016).

In the current study, the mean score of school functioning was the lowest among the four domains of HRQOL. Two items of this domain had the lowest mean scores of the 23 HRQOL
items: “I miss school to go to the doctor or hospital” (M = 41.3) and “I miss school because of not feeling well” (M = 56.2). These low scores are understandable because at the time of data collection, 41% of participants reported not attending school and almost half of the participants (47.7%) were receiving chemotherapy. A systematic review of 23 studies focusing on educational engagement and school life among teenagers with cancer concluded that cancer and its subsequent treatment negatively impacted school attendance (Pini, Hugh-Jones, & Gardner, 2012). Debilitating treatment-related symptoms (e.g., pain, fatigue, and nausea) can interfere with school attendance as well as the adolescents’ ability to function academically (Erickson et al., 2013; Walker, Gedaly-Duff, Miaskowski, & Nail, 2010).

Participants reported the highest scores on social functioning which measured their interactions with peers and how they compared themselves to others. The participants’ responses on the social functioning items indicate that they perceived themselves to be getting along with other teens and that their peers want to be friends with them. A previous study revealed that American adolescents with cancer reported that their support comes from their friends (Kavanaugh, 2013). A Canadian adolescent with cancer from a study by Larouche and Chin-Peuckert (2006) stated, “My friends, it’s like my metal shield, like a bubble on top of me, if somebody will say something about me, they won’t be scared to defend me” (p. 205). Thus, receiving peer support could have generated the high social functioning scores for the participants in this study. Interestingly, even though school attendance is likely to be affected by cancer and its treatment, the participants in the current study did not seem to lack peer interaction, which may conceivably be attributable to their use of social media. A survey conducted in Thai children and adolescents reported that 75.7% of the 3,058 participants used social media daily (Quality Learning Foundation, 2013).
Spiritual Well-Being in Thai Adolescents with Cancer

This study is, to my knowledge, the first to examine spiritual well-being in Thai adolescents with cancer, and the total mean score of this 10-item concept was 41.6 out of 50. This relatively high score may have been influenced by the overall Thai cultural context and, particularly, its Buddhist teachings which focus on self-reliance and mindfulness and emphasize that suffering can lead to enlightenment (Hạnh, 1998). The average of 4.4 years for time since diagnosis may also have influenced their spiritual well-being scores as the passage of time would have provided them the opportunity to adjust to their cancer experience and for their psychological growth. A meta-analysis of coping and adjustment in children and adolescents with cancer concluded that participants were able to cope better as time since diagnosis increased (Aldridge & Roesch, 2007).

Of the 13 spiritual well-being items, “I have strength of mind to encounter my chronic illness” had the highest mean score. For most participants (83.3%), time since diagnosis ranged from one to 15.5 years. Conceivably, as time passed, their continued survival had allowed the participants to feel mentally stronger and to have a sense of hope for the future. A qualitative study reported that Thai adolescents with leukemia (ages 12-19) who were aware they had leukemia were hopeful that it would be cured (Treenai, Chaıyawat, & Yunibhand, 2015). Significantly, more than half of the current study’s participants (56.1%) reported having both parents as their primary caregivers, and an additional 5% had multiple family caregivers (e.g., parents and a grandparent). Being surrounded by their parents and extended family, as well as their friends, may have provided a sense of security and confidence to participants, thus enhancing their resilience (Cheng et al., 2016; Sharp et al., 2015).
At the other end of the spectrum, the item “My illness has led to self-knowledge” had the lowest mean in the present study. It is possible the participants may not have been able to perceive their cancer experience in a way that led to self-knowledge because as adolescents, they are still involved in the process of constructing their self-identity as a part of their development (Steinberg, 2014). They may in fact not have fully understood the term self-knowledge. Although adolescents’ cognitive competence includes the ability to think abstractly (Piaget, 1950), participants in the present study may have encountered delays in cognitive development which can occur during episodes of prolonged illness or as a result of complications from treatments (Mucci & Torno, 2015). Evidence shows that Australian and U.S. adolescents with cancer are likely to have cognitive limitations, such as having trouble understanding abstract concepts (Donnan et al., 2015; Jones et al., 2011). Since 60.6% of participants in the current study were undergoing cancer treatment (e.g., chemotherapy and/or radiation) during data collection, their cognitive abilities including abstract understanding may have been delayed. The participants may in fact have had a very negative overall view of cancer’s impact on their lives. In a study involving Danish adolescents and young adults with cancer, 22.1% of participants worried “very much” about dying from their cancer and 18.7% worried “quite a bit” (Holge-Hazelton, 2016). A major theme that emerged from interviews with 32 childhood cancer survivors was that they were “searching for being normal” (Tang, 2016). Focusing on fear, worry, and the desire for normalcy may possibly diminish adolescents’ capacity to know themselves. Thus, future qualitative research is needed to explore in-depth how Thai adolescents with cancer understand the concept of self-knowledge.

Also, as indicated by the current study’s results from confirmatory and exploratory factor analyses, the spiritual well-being scale (SWS-TBACI) is unidimensional instead of
multidimensional as proposed by the tool developers (Promkaewngam et al., 2014). The one-structure nature also makes sense conceptually. Thus, future research can use the tool unidimensionally among adolescents with cancer in Thailand.

**Depression in Thai Adolescents with Cancer**

The mean CDI score (10.5) of participants in the present study was higher than those among children and adolescents with cancer in Greece, the Netherlands, Thailand, and the United States (Gordijn et al., 2013; Howard Sharp et al., 2015; Lertcheewakarn et al., 2010; Matziou et al., 2008). The current study’s focus on adolescents and its absence of children among participants may be a factor in its higher CDI mean score as depression is generally more prevalent in adolescents than in children. In Thailand, for example, the prevalence of depression in adolescents was 3.8% to 11.3% as compared to 1.6% in children (Kaewpornasawan & Tuntasood, 2012; Leelatrakarnkun & Trangkasombat, 2013; Wisitpongaree et al., 2014). Similarly, in the United States, children have a lower depression rate (2.3%) than adolescents (6-8%) (Anxiety and Depression Association of America, 2016; Mojtabai, Olfson, & Han, 2016).

One out of four participants (25.8%) in the present study had a CDI score of 15 or above, which is considered the cut off score for depression in Thai children and adolescents (Trangkasombat & Likanapichitkul, 1997). This rate is considerably higher than the rate (6.4%) in a previous study conducted in Thai children and adolescents with cancer (Lertcheewakarn et al., 2010). Again, the inclusion of children in this previous study could likely have contributed to its lower depression rates.

In the current study, more than half of the participants expressed concerns regarding their body image (57.4%) as evidenced by the selection of “frequent” on the item “There are some bad
things about my looks.” This result is consistent with prior studies which found that adolescents with cancer suffer from reduced body image due to changes in physical appearance, especially hair loss and weight gain (Castellano-Tejedor et al., 2015; Lee et al., 2012; Williamson et al., 2010). A majority of the current study’s participants (75.4%) were 12-14 years old and therefore in the early adolescent stage during which the most fluctuation in self-image occurs as compared to older adolescence (ages 15 and older) and preadolescence (ages 8-11) (Steinberg, 2014). Additionally, 60.6% of the study’s participants were undergoing cancer treatment (e.g., chemotherapy and/or radiation) during data collection. Changes in physical appearance while receiving chemotherapy (especially alopecia, weight changes, and altered skin conditions) have been found to be extremely upsetting for children and adolescents with cancer in several studies (Cicogna, Nascimento, & Lima, 2010; G. A. Shosha, Abushaikha, Marnocha, & Al Kalaldeh, 2013; Shosha, 2016).

**Predictors of HRQOL in Thai Adolescents with Cancer**

Based on SEM analysis, depression and spiritual well-being significantly predicted HRQOL ($\beta = -5.16$, $p < .01$ and $\beta = 3.64$, $p < .001$, respectively) and depression significantly predicted spiritual well-being ($\beta = -2.80$, $p < .001$). In other words, participants who reported higher levels of spiritual well-being and lower levels of depression reported higher levels of HRQOL. Participants who reported lower levels of depression reported higher levels of spiritual well-being. Depression affected HRQOL directly and indirectly.

The findings in the current study support Ferrans et al.’s (2005) conceptual model of HRQOL which proposes that symptoms (depression) directly and indirectly impact HRQOL and the characteristics of the individual (spiritual well-being as a proxy in this study) directly influence HRQOL.
The current study’s results are in line with those in previous studies. For example, depression was found to be a strong predictor of HRQOL in both American and Chinese adolescents diagnosed with cancer (Chung et al., 2012; Li et al., 2013; Ruccione et al., 2013). Prior to the present study, no research in adolescents with cancer has examined the relationship between spiritual well-being and HRQOL and between spiritual well-being and depression. However, spiritual well-being in adults with cancer has been found to be positively correlated with QOL (Bai et al., 2015; Jafari et al., 2013; Lazenby & Khatib, 2012; Rabow & Knish, 2015) and negatively correlated with depression (Avis et al., 2013; Gonzalez et al., 2014).

Age, gender, diagnosis, treatment, and time since diagnosis did not significantly predict HRQOL in the current study. These results are not in line with Ferrans et al.’s (2005) conceptual model in which characteristics of the individual (age and gender in current study) and biological functions (diagnosis, treatment, and time since diagnosis in current study) influence QOL. However, based on the literature review, the associations between HRQOL and these demographic and biological variables have, in fact, been inconsistent (Barakat et al., 2010; Perez-Campdepadros et al., 2015; Pogorzala et al., 2010; Punthmatharith et al., 2014; Smith et al., 2013; Stokke et al., 2015; Tuna & Elcigil, 2012).

In the current study, the trimmed (final) model fits the sample data well. The whole model accounts for 44% of the explained variance for HRQOL and 6% for spiritual well-being. Thus, the model can be used to guide the development of interventions to improve HRQOL in the target population.
Strengths, Limitations, and Future Recommendations

The current study has several strengths. First, this is the first study to use SEM and a modified Ferrans et al.’s (2005) conceptual model to examine predictors of HRQOL exclusively in adolescents with cancer. The study results indicated that the hypothetical model was a good fit and could, therefore, be utilized for future studies in adolescents with cancer. Second, by not combining adolescents with other age groups, the results from the current study have better generalizability. Third, this study examined spiritual well-being in Thai adolescents with cancer, an area of research that was underrepresented in the literature. Thus, the results on spirituality add new knowledge to nursing science which may prompt an awareness of spiritual well-being by nurses who care for their adolescent patients with cancer. Fourth, the data were collected at four tertiary hospitals in Bangkok, the capital city of Thailand, where adolescents with cancer come from all regions of the country to receive healthcare services. Therefore, the findings from the current study can be generalized to the target population around the country. Finally, the use of SEM helped minimize measurement errors of the study’s model, thus, maximizing the validity of the statistical results and conclusions.

The current study also has some limitations. First, the use of convenience sampling may have caused selection bias, and therefore, the sample may not represent the population (Henry, 1990). Future studies should consider using probability sampling to reduce bias and obtain a sample that will better represent the target population. In addition, the sample size used in this SEM study (N = 132) was smaller than the minimum recommended sample size (N = 250) (Kline, 2016). Since SEM relies on covariance which is influenced by sample size (Ullman, 2006), future studies should consider including a larger sample size in order to provide a more stable covariance and thus more stable results.
Second, because the current study used an adapted Ferrans et al.’s (2005) conceptual model of HRQOL, its results may not be comparable to the findings of previous studies that utilized the entire model. Future studies should consider adopting the entire model in the target population in order to obtain more comprehensive information about HRQOL and its antecedents. Lastly, because the current study is quantitative in nature, the findings lack the breadth and depth that qualitative research can provide. Qualitative data would support and provide additional understanding of HRQOL, spiritual well-being, and depression in the target population. Future research can benefit from mixed methods to study HRQOL in this population.

**Implications for Nursing Practice**

Based on the high rate of depression in the current study, routine assessments for depression will be beneficial so that early treatment can be provided to Thai adolescents with cancer. Also, since depression and spiritual well-being explained 44% of the variance for HRQOL in this study, developing nursing interventions that can minimize depression and maximize spiritual well-being can help elevate HRQOL by the significant amount of 44%.

Possessing high levels of HRQOL is crucial for Thai adolescents with cancer because evidence shows that HRQOL is positively associated with treatment adherences. Adhering to cancer treatment will result in better health overall and higher survival levels. Moreover, enhancing patients’ spiritual well-being is part of a holistic care approach which is fundamental in nursing and can undoubtedly generate positive patient satisfaction and outcomes.
Implications for Nursing Education

The inclusion of HRQOL in relation to spiritual well-being and depression in nursing curricula may promote a more holistic approach to nursing care when nursing students advance to clinical settings and gain employment after graduation. Teaching nursing students to assess HRQOL, spiritual well-being, and depression may foster them to facilitate their patients’ overall well-being especially patients with chronic life-threatening illnesses like cancer.

Implications for Future Research

This SEM study is the first to analyze a predictive model of HRQOL in Thai adolescents with cancer based on an adapted Ferrans et al.’s (2005) conceptual model of HRQOL. Since the current study’s results showed that the trimmed-adjusted model fits the sample data well, future research could be conducted using the final model with a larger sample size so that results will be more stable and generalizable. Also, interventions enhancing spiritual well-being and minimizing depression with the aim of increasing HRQOL should be developed and tested in future research among Thai adolescents with cancer before making any policy changes. Finally, examining predictors of HRQOL among the target population in other countries would be beneficial so that the generalizability of the results can be extended beyond Thailand.
Appendix A

Research Instruments

Adolescents’ Questionnaires

Thank you so very much for agreeing to participate
The Spiritual Well-being Scale

Explanation of answering

The following statements in this part are lists of being the state of your mind.
Please answer every question by selecting the best answer as indicated in the criterions as below:

- **Strongly agree** means you strongly agree with the item
- **Agree** means you agree with the item
- **Moderately agree** means you agree with the item in moderate level
- **Disagree** means you disagree with the item
- **Strongly disagree** means you strongly disagree with the item
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Moderately agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel hopeful about my life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I have strength of mind to encounter my chronic illness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I have a life goal that I have to reach.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I believe that Buddhist doctrine I respect is always true.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I believe in the statement that “I can only rely on myself”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>My illness helps me learn to forgive myself and others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>My illness has changed my life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>My illness has led to self-knowledge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I can accept my physical condition.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I feel that my life is happy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>My illness can strengthen my mind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I live normally at the present time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I will keep living regardless of my symptoms.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PedSQL™
Pediatric Quality of Life
Inventory
Version 4.0
Teen Report (ages 13-18)

Directions
On the following page is a list of things that might be a problem for you. Please tell us how much of a problem each one has been for you during the past ONE month by circling:

0 if it is never a problem
1 if it is almost never a problem
2 if it is sometimes a problem
3 if it is often a problem
4 if it is almost always a problem

There are no right or wrong answers.
If you do not understand a question, please ask for help.
**In the past **ONE month, **how much of a problem** has this been for you ...

### ABOUT MY HEALTH AND ACTIVITIES (problems with…)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is hard for me to walk more than one block (100 meters).</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. It is hard for me to run.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. It is hard for me to do sport activity or exercise.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. It is hard for me to lift something heavy.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. It is hard for me to take a bath or shower by myself.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. It is hard for me to do chores around the house.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I hurt or ache.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I have low energy.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### ABOUT MY FEELINGS (problems with…)

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel afraid or scared.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I feel sad or blue.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I feel angry.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I have trouble sleeping.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I worry about what will happen to me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
### HOW I GET ALONG WITH OTHERS

*problems with...*

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have trouble getting along with other teens.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Other teens do not want to be my friend.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Other teens tease me.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I cannot do things that other teens my age can do.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. It is hard to keep up with my peers.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### ABOUT SCHOOL

*problems with ...*

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is hard to pay attention in class.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I forget things.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I have trouble keeping up with my schoolwork.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I miss school because of not feeling well.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I miss school to go to the doctor or hospital.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Children’s Depression Inventory

Directions:

Please CHECK (√) the box with the answer from each set of three BEST describes how you have felt in the past two weeks. Please be careful to choose only one. If you want to change the one you marked, fill in the whole box and then check the new one.

1. □ I am sad once in a while.
   □ I am sad many times.
   □ I am sad all the time.

2. □ Nothing will ever work out for me.
   □ I am not sure if things will work out for me.
   □ Things will work out for me O.K.
3.  □  I do most things O.K.
    □  I do many things wrong.
    □  I do everything wrong.

4.  □  I have fun in many things.
    □  I have fun in some things.
    □  Nothing is fun at all.

5.  □  I am bad all the time.
    □  I am bad many times.
    □  I am bad once in a while.

6.  □  I think about bad things happening to me once in a while.
    □  I worry that bad things will happen to me.
    □  I am not sure that terrible things will happen to me.

7.  □  I hate myself.
    □  I do not like myself.
    □  I like myself.
8. ☐ All bad things are my fault.
   ☐ Many bad things are my fault.
   ☐ Bad things are not usually my fault.

9. ☐ I feel like crying every day.
   ☐ I feel like crying many days.
   ☐ I feel like crying once in a while.

10. ☐ Things bother me all the time.
    ☐ Things bother me many times.
    ☐ Things bother me once in a while.

11. ☐ I like being with people.
    ☐ I do not like being with people many times.
    ☐ I do not want to be with people at all.

12. ☐ I cannot make up my mind about things.
    ☐ It is hard to make up my mind about things.
    ☐ I make up my mind about things easily.
13. I look O.K.
   - There are some bad things about my looks.
   - I look ugly.

14. I have to push myself all the time to do my schoolwork.
   - I have to push myself many times to do my schoolwork.
   - Doing schoolwork is not a big problem.

15. I have trouble sleeping every night.
   - I have trouble sleeping many nights.
   - I sleep pretty well.

16. I am tired once in a while.
   - I am tired many days.
   - I am tired all the time.

17. Most days I do not feel like eating.
   - Many days I do not feel like eating.
   - I eat pretty well.
18. □ I do not worry about aches and pains.
   □ I worry about aches and pains many times.
   □ I worry about aches and pains all the time.

19. □ I do not feel lonely.
   □ I feel lonely many times.
   □ I feel lonely all the time.

20. □ I never have fun at school.
   □ I have fun at school only once in a while.
   □ I have fun at school many times.

21. □ I have plenty of friends.
   □ I have some friends but I wish I had more.
   □ I do not have any friends.

22. □ My schoolwork is alright.
   □ My schoolwork is not as good as before.
   □ I do very badly in subjects I used to be good in.
23. □ I can never be as good as other kids.
□ I can be as good as other kids if I want to.
□ I am just as good as other kids.

24. □ Nobody really loves me.
□ I am not sure if anybody loves me.
□ I am sure that somebody loves me.

25. □ I usually do what I am told.
□ I do not do what I am told most times.
□ I never do what I am told.

26. □ I get along with people.
□ I get into flight many times.
□ I get into flight all the time.
Demographic and Health Information

1. Your age …….years……..months

2. What is your gender?
   □ Male                □ Female

3. Do you currently attend school?
   □ Yes                □ No

   What is your current education level?
   □ Elementary school in grade……..
   □ Middle school in grade ………….
   □ High school in grade …………..
   □ Other please specific ………………………………..

4. Who is your current major caregiver?
   □ Mother
   □ Father
   □ Both mother and father
   □ Other please specific ………………………………..
5. Are currently admitted at the hospital?
   ☐ Yes ………days until today ☐ No

6. Diagnosis ………………………………………………………………………

7. Treatment
   ☐ Chemotherapy and which routes (oral, intrathecal, intravenous, ect.)
   ☐ Radiotherapy
   ☐ Surgery
   ☐ Other please specific ……………………………………………

8. Time since diagnosis ………years………………months……………weeks

Thank you so very much
for sharing your thoughts
with us
แบบสอบถาม
สำหรับเด็กวัยรุ่น
ขอบคุณมาก ๆ ค่ะ/ครับ

💖💖
แบบวัดความผ่าสุกทางจิตวิญญาณ

คำชี้แจง ข้อความต่อไปนี้เป็นข้อความที่เกี่ยวกับความรู้สึกภายในจิตใจของคุณ
ขณะที่คุณเจ็บป่วยเรื้อรัง

กรุณาเลือกคำตอบที่ตรงกับความรู้สึกของคุณมากที่สุด โดยใส่เครื่องหมายถูก (√) ลงในช่องด้านขวาของ ตามคำอธิบาย ดังต่อไปนี้

เห็นด้วยมากที่สุด หมายถึง คุณรู้สึกเช่นเดียวกับข้อความดังกล่าวมากที่สุด
เห็นด้วยมาก หมายถึง คุณรู้สึกเช่นเดียวกับข้อความดังกล่าว มาก
เห็นด้วยปานกลาง หมายถึง คุณรู้สึกเช่นเดียวกับข้อความดังกล่าว ปานกลาง
เห็นด้วยน้อย หมายถึง คุณรู้สึกเช่นเดียวกับข้อความดังกล่าวน้อย
ไม่เห็นด้วยอย่างมาก หมายถึง คุณไม่รู้สึกเช่นเดียวกับข้อความดังกล่าว อย่างมาก
ข้อที่ | ข้อความ | เห็นด้วยมากที่สุด | เห็นด้วย | เห็นด้วยปานกลาง | เห็นด้วยน้อย | ไม่เห็นด้วยอย่างมาก
--- | --- | --- | --- | --- | --- | ---
1 | ฉันรู้สึกว่าชีวิตยังมีความหวัง | | | | | |
2 | ฉันมีจิตใจที่เชื่อมแข็งในการต่อสู้กับการเจ็บป่วยเรื้อรัง | | | | | |
3 | ฉันมีความสุขในชีวิตที่ดี городе | | | | | |
4 | ฉันเชื่อว่าหลักคติสอนของพุทธศาสนาที่ฉันยึดถือเป็นจริงเสมอ | | | | | |
5 | ฉันเชื่อในคำว่า "ตนเป็นที่พึ่งแห่งตน" | | | | | |
6 | การเจ็บป่วยทำให้ฉันรู้ว่าต้องไม่ให้อภัยตนเองและผู้อื่น | | | | | |
7 | การเจ็บป่วยของฉันทำให้ชีวิตของฉันเปลี่ยนแปลงไป | | | | | |
8 | การเจ็บป่วยของฉันทำให้ฉันรู้จักตนเองมากขึ้น | | | | | |
9 | ฉันยอมรับสภาพร่างกายของฉันได้ | | | | | |
10 | ฉันรู้สึกว่าชีวิตของฉันมีความสุข | | | | | |
11 | การเจ็บป่วยของฉันทำให้ผิดใจของฉันเข้มแข็งขึ้น | | | | | |
12 | ทุกวันฉันดื่มด่ำเนินชีวิตได้อย่างปกติ | | | | | |
13 | ฉันจะดำเนินชีวิตต่อไปโดยไม่สนใจว่าการเจ็บป่วยของฉันจะดีขึ้นหรือแย่ลง | | | | |
แบบสอบถามคุณภาพชีวิต
สำหรับเด็ก
รายงานสำหรับวัยรุ่น (อายุ 13-18 ปี)

คำแนะนำ

ในหน้าต่อไปเป็นรายการสิ่งต่าง ๆ ที่อาจเป็นปัญหาสำหรับคุณ
กรุณาตอบ เร็ว ๆ แต่ละสิ่ง เป็นปัญหา สำหรับคุณ มากเพียงใด ในระยะเวลา ช่วงหนึ่ง
เดือนที่ผ่านมา โดยการวงกลม:

0 ไม่เคย เป็นปัญหา
1 แทบไม่เคย เป็นปัญหา
2 เป็นปัญหา บางครั้ง
3 เป็นปัญหา บ่อยครั้ง
4 เป็นปัญหา เกือบทุกวัน

ไม่มีคำตอบที่ถูกหรือผิด
ถ้าคุณไม่เข้าใจคำถาม กรุณาขอความช่วยเหลือจากคนที่คุณรู้จัก
ในช่วงหนึ่งเดือนที่ผ่านมาสิ่งต่อไปนี้เป็นปัญหาส่าหรับคุณมากเพียงใด...

<table>
<thead>
<tr>
<th>เกี่ยวกับสุขภาพและกิจกรรมของฉัน</th>
<th>ไม่เคย</th>
<th>แทบไม่เคย</th>
<th>บางครั้ง</th>
<th>บ่อยครั้ง</th>
<th>เกือบทั้งเวลา</th>
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<tbody>
<tr>
<td>1. มันลำบากสำหรับฉันที่จะเดินมากกว่าหนึ่งช่วงตึก (100 เมตร)</td>
<td>0</td>
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<td>2. มันลำบากสำหรับฉันที่จะวิ่ง</td>
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<td>3. มันลำบากสำหรับฉันที่จะทำกิจกรรมกีฬาหรือออกกำลังกาย</td>
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<td>7. ฉันเจ็บหรือปวด</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>เกี่ยวกับความรู้สึกของฉัน (ปัญหาเกี่ยวกับ...)</th>
<th>ไม่เคย</th>
<th>แทบไม่เคย</th>
<th>บางครั้ง</th>
<th>บ่อยครั้ง</th>
<th>เกือบทั้งเวลา</th>
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<tr>
<td>1. ฉันรู้สึกกลัว</td>
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<td>2. ฉันรู้สึกเศร้า</td>
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<td>3. ฉันรู้สึกโกรธ</td>
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<tr>
<td>5. ฉันกังวลว่าจะเกิดอะไรขึ้นกับฉัน</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>เรื่องกับโรงเรียน (ปัญหาเกี่ยวกับ...)</td>
<td>ไม่เคย</td>
<td>แทบ ไม่เคย</td>
<td>บางครั้ง</td>
<td>บ่อยครั้ง</td>
<td>เกือบทุกเวลา</td>
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</tr>
<tr>
<td>1. มันลำบากที่จะเอาใจใส่ในชั้นเรียน</td>
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<td>2. ฉันไม่สามารถจ้างบางสิ่งบางอย่างได้</td>
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<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. ฉันมีปัญหาในการทำงานในชั้นเรียนและการบ้าน ของฉันให้ทัน</td>
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<td>4. ฉันขาดเรียนเพราะรู้สึกไม่สบาย</td>
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<tr>
<td>5. ฉันขาดเรียนเพื่อไปหาหมอหรือโรงพยาบาล</td>
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แบบวัดภาวะซึมเศร้าในเด็ก

เลือกประโยคที่ตรงกับความรู้สึกหรือความคิดของคุณมากที่สุด

ในระยะ 2 สัปดาห์ที่ผ่านมา โดยใส่เครื่องหมายถูก (√) ใน □

1. □ ก. ฉันรู้สึกเศร้านาน ๆ ครั้ง
   □ ข. ฉันรู้สึกเศร้าบ่อยครั้ง
   □ ค. ฉันรู้สึกเศร้าตลอดเวลา

2. □ ก. อะไร ๆ ก็มีอุปสรรคไปเสียหมด
   □ ข. ฉันไม่แน่ใจว่าสิ่งต่าง ๆ จะเป็นไปด้วยดี
   □ ค. สิ่งต่าง ๆ จะเป็นไปด้วยดีสำหรับฉัน

3. □ ก. ฉันทำอะไร ๆ ได้ค่อนข้างดี
   □ ข. ฉันทำผิดพลาดหลายอย่าง
   □ ค. ฉันทำอะไรผิดพลาดไปหมด

4. □ ก. ฉันรู้สึกสนุกกับหลายสิ่งหลายอย่าง
   □ ข. ฉันรู้สึกสนุกกับบางสิ่งบางอย่าง
   □ ค. ไม่มีอะไรสนุกสนานเลยสำหรับฉัน
5. ก. ฉันทำตัวไม่ดีเสมอ
   ข. ฉันทำตัวไม่ดีบ่อยครั้ง
   ค. ฉันทำตัวไม่ดีนาน ๆ ที่

6. ก. นาน ๆ ครั้งฉันจะคิดถึงสิ่งไม่ดีที่อาจจะเกิดขึ้นกับฉัน
   ข. ฉันวิตกว่าจะมีสิ่งไม่ดีเกิดขึ้นกับฉัน
   ค. จะต้องมีสิ่งแสบระabyteเกิดขึ้นกับฉันแน่น ๆ

7. ก. ฉันเกลียดตัวเอง
   ข. ฉันไม่ชอบตัวเอง
   ค. ฉันชอบตัวเอง

8. ก. สิ่งแสบระabyteทั้งหมดที่เกิดขึ้นเป็นความผิดของฉัน
   ข. สิ่งแสบระabyteหลายสิ่งที่เกิดขึ้นเป็นความผิดของฉัน
   ค. สิ่งแสบระabyteที่เกิดขึ้นมักไม่ใช่ความผิดของฉัน

9. ก. ฉันรู้สึกอยากกรอกให้ทุกคน
   ข. ฉันรู้สึกอยากกรอกให้บ่ายครั้ง
   ค. ฉันรู้สึกอยากกรอกให้นาน ๆ ครั้ง
10.  ก. ฉันรู้สึกภูติใจตลอดเวลา
    ข. ฉันรู้สึกภูติใจบ่อยครั้ง
    ค. ฉันรู้สึกภูติใจนาน ๆ ครั้ง

11.  ก. ฉันชอบอยู่กับคนอื่น
    ข. ฉันไม่ค่อยชอบอยู่กับคนอื่น
    ค. ฉันไม่ต้องการอยู่กับใครเลย

12.  ก. ฉันไม่สามารถตัดสินใจอะไรต่าง ๆ ด้วยตนเอง
    ข. ฉันตัดสินใจเรื่องอะไรต่าง ๆ ได้ลำบาก
    ค. ฉันตัดสินใจเรื่องอะไรต่าง ๆ ได้ง่าย

13.  ก. ฉันเป็นคนหน้าตาดี
    ข. ฉันเป็นคนหน้าตาไม่ค่อยดี
    ค. ฉันเป็นคนหน้าตาแก่เกลียด

14.  ก. ฉันต้องใช้ความพยายามอย่างหนักทุกครั้งที่ทำบ้าน
    ข. ฉันต้องใช้ความพยายามอย่างหนักปะการังเวลาทำการบ้าน
    ค. การทำบ้านไม่ใช่ปัญหาใหญ่สำหรับฉัน
15. ก. ฉันนอนไม่หลับทุกคืน
    ข. ฉันนอนไม่หลับหลายคืน
    ค. ฉันนอนหลับสบาย

16. ก. ฉันรู้สึกเหนื่อยนาน ๆ ครั้ง
    ข. ฉันรู้สึกเหนื่อยบ่อยครั้ง
    ค. ฉันรู้สึกเหนื่อยตลอดเวลา

17. ก. มีหลายวันที่ฉันไม่รู้สึกอยากกินอาหาร
    ข. มีบางวันที่ฉันไม่รู้สึกอยากกินอาหาร
    ค. ฉันกินอาหารได้ดี

18. ก. ฉันไม่กังวลเกี่ยวกับการเจ็บป่วย
    ข. ฉันกังวลเกี่ยวกับการเจ็บป่วยบ่อยครั้ง
    ค. ฉันกังวลเกี่ยวกับการเจ็บป่วยตลอดเวลา

19. ก. ฉันไม่รู้สึกเหงา
    ข. ฉันรู้สึกเหงาบ่อย ๆ
    ค. ฉันรู้สึกเหงาตลอดเวลา
20. ก. ฉันไม่รู้สึกสนุกเลยเวลาอยู่ที่โรงเรียน
   ข. ฉันรู้สึกสนุกนาน ๆ ครั้ง เวลาอยู่ที่โรงเรียน
   ค. ฉันรู้สึกสนุกบ่อยครั้ง เวลาอยู่ที่โรงเรียน

21. ก. ฉันมีเพื่อนมาก
   ข. ฉันมีเพื่อนไม่กี่คน และอยากมีมากกว่านี้
   ค. ฉันไม่มีเพื่อนเลย

22. ก. การเรียนของฉันอยู่ในขั้นใช้ได้ดี
   ข. การเรียนของฉันไม่ค่อยดีเหมือนเมื่อก่อน
   ค. การเรียนของฉันแย่ลงมาก

23. ก. ฉันทำอะไรไม่ได้ดีเท่าคนอื่น
   ข. ฉันทำอะไรได้ดีเท่าคนอื่น ถ้าฉันพยายาม
   ค. ฉันทำได้ดีพอ ๆ กับคนอื่นอยู่แล้ว
24. □ ก. ไม่มีใครรักฉันจริง
   □ ข. ฉันไม่แน่ใจว่ามีใครรักฉันหรือเปล่า
   □ ค. ฉันแน่ใจว่ามีใครบางคนรักฉัน

25. □ ก. ฉันทำตามคำสั่งที่ได้รับเสมอ
   □ ข. ฉันไม่ทำตามคำสั่งบ่อยครั้ง
   □ ค. ฉันไมเคยทำตามคำสั่ง

26. □ ก. ฉันเข้ากับคนอื่นได้ดี
   □ ข. ฉันทะเลาะกับคนอื่นบ่อยครั้ง
   □ ค. ฉันทะเลาะกับคนอื่นตลอดเวลา
ข้อมูลส่วนบุคคลและสุขภาพ

1. ชั้นอายุ ..........ปี ..........เดือน

2. เพศของฉัน

☐ ชาย ☐ หญิง

3. ในปัจจุบันฉันไปโรงเรียน

☐ ใช่ ☐ ไม่ใช่

ระดับการศึกษาของฉัน

☐ ประถมศึกษา ชั้นปีที่ ........
☐ มัธยมศึกษาตอนต้น ชั้นปีที่ ...........
☐ มัธยมศึกษาตอนปลาย ชั้นปีที่ ............
☐ อื่นๆ โปรดระบุ ...........................................

4. ผู้ที่ดูแลฉันอย่างใกล้ชิดในปัจจุบัน คือ

☐ มารดา
☐ บิดา
☐ มารดาและบิดา
☐ อื่น ๆ โปรดระบุ...........................................
5. ฉันนอนรักษาตัวอยู่ในโรงพยาบาล
   □ ใช้ ……เป็นระยะเวลา …… วัน จนกระทั่งถึงวันนี้ □ ไม่ใช้

6. การวินิจฉัยโรค….

7. การรักษาในปัจจุบัน
   □ เคมีบัต ได้รับตัวยาใด
   □ รับประทาน □ ฉีดเข้าทางหลอดเลือด □ ฉีดเข้าทางไขสันหลัง
   □ ฉายแสง หรือรังสีรักษา
   □ ผ่าตัด
   □ วิธีอื่นๆ โปรดระบุ ……………………

8. ระยะเวลาตั้งแต่วินิจฉัยโรคจนถึงปัจจุบัน ……ปี ……เดือน ……วัน

ขอบคุณมาก ๆ ค่ะ/ครับ

❤❤
Appendix B
Participant Eligibility Checklist

All participants enrolled must meet eligibility criteria based on the inclusion/exclusion criteria detailed in the application approved by the IRB.

**The Study Title:** A Structural Equation Modeling of Social Support, Depression, Spiritual Well-Being, and Health-Related Quality of Life among Thai Adolescents with Chronic Illness

**Site:** ___________________________ **Participant code:** ____________

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<th>Inclusion Criteria</th>
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<td>2. Diagnosis.........</td>
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<td>3. Thai literacy</td>
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<table>
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<th>Exclusion Criteria</th>
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<td>1. Cognitive disabilities and/or severe mental illnesses</td>
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<td>1.1 Down’s Syndrome</td>
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<td>1.2 Severe Attention Deficit Hyperactivity Disorder (ADHD)</td>
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<td>1.3 Schizophrenia</td>
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<td>2. Critical conditions</td>
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<td>2.4 Active bleeding</td>
<td></td>
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<tr>
<td>2.5 Others..................</td>
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</table>

Principal Investigator’s Signature: ___________________________ Date __/______/____
รายการตรวจสอบคุณสมบัติที่เหมาะสมของอาสาสมัคร
อาสาสมัครเข้าร่วมการวิจัยทุกคน ต้องผ่านเกณฑ์คุณสมบัติที่เหมาะสม ตามรายละเอียดของเกณฑ์การคัดเลือกผู้เข้าร่วมการวิจัย และเกณฑ์การคัดออกผู้เข้าร่วมการวิจัย ที่ได้รับการอนุมัติจากคณะกรรมการวิจัยในคน

โครงการวิจัย เรื่อง: ความม่ำพุททางจิตวิญญาณ ภาวะซึมเศร้า และคุณภาพชีวิตของเด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรัง

สถานที่ดำเนินการวิจัย: __________________________________________ รหัสผู้เข้าร่วมวิจัย: ____________

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<th>ไม่ใช่</th>
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<td>2. การวินิจฉัยโรค</td>
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<td>3. ความสามารถในการอ่านและเข้าใจภาษาไทย (Thai literacy)</td>
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<th>ใช่</th>
<th>ไม่ใช่</th>
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<td>1. ภาวะบกพร่องทางสติปัญญาและหรือปัญหาสุขภาพจิต (Cognitive disabilities and/or severe mental illnesses)</td>
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</tr>
<tr>
<td>1.1 ภาวะบกพร่องทางสติปัญญา (Down’s Syndrome)</td>
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<td></td>
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<tr>
<td>1.2 สมดุลสุขภาพ (Severe Attention Deficit Hyperactivity Disorder: ADHD)</td>
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<td></td>
</tr>
<tr>
<td>1.3 โรคจิตเภท (Schizophrenia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ภาวะอาการรุนแรง (Critical conditions)</td>
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<td></td>
</tr>
<tr>
<td>2.1หายใจลำบาก หอบเหนื่อย (Dyspnea)</td>
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<td></td>
</tr>
<tr>
<td>2.2 ปวดรุนแรง (Severe pain)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 อ่อนเพลียมาก (Severe fatigue)</td>
<td></td>
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<tr>
<td>2.4 มีภาวะเลือดออกรุนแรง (Active bleeding)</td>
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<td></td>
</tr>
<tr>
<td>2.5 อื่นๆ</td>
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ลายมือชื่อผู้วิจัย: ___________________________ วันที่ __/_____/______

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Appendix C

Parental Recruitment Script

**Study Title:** Spiritual Well-Being, Depression, and Health-Related Quality of Life among Thai Adolescents with Chronic Illness

**Principal Investigator:** Dr. Ratchneewan Ross
**Co-Investigator:** Miss Sureeporn Suwannaosod

Hi, ________________.

My name is [Co-PI]. I am a PhD student in the nursing program at Kent State University, USA. I am not employed by this hospital.

I am conducting a research study to learn more about the quality of life among adolescents with chronic illness in Thailand.

In order to learn more about this, I am asking adolescents like your child to complete questionnaires that should take less than 25 minutes of your child’s time. I will talk with your child only after you give me permission.

Before you make your decision, I would like to talk to you about our research. You can ask me questions at any time.

Do you want to hear more about this research? [We will only continue if the parent gives an affirmative response].

Read the consent form [the paper] to the parent and provide sample items from the questionnaires.

Do you have any additional questions regarding the study? [Clarify if necessary].
แนวทางการสัมภาษณ์ผู้ปกครอง

โครงการวิจัย เรื่อง: ความผาสุกทางจิตวิญญาณ ภาวะซึมเศร้า และคุณภาพชีวิตของเด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรัง

ผู้วิจัยหลัก: ดร. รัชนีวรรณ รอส
ผู้วิจัยร่วม: นางสาวสุรีภรณ์ สุวรรณโอสถ

สวัสดีค่ะ คุณพ่อ แม่ ผู้ปกครอง …………………………………

ผู้วิจัย ชื่อ สุรีภรณ์ สุวรรณโอสถ เป็นนักศึกษาปริญญาเอก คณะพยาบาลศาสตร์ มหาวิทยาลัยเดนการ์ต ประเทศสหรัฐอเมริกา และผู้วิจัยไม่ได้ทำงานที่โรงพยาบาลนี้

ผู้วิจัยกำลังดำเนินการวิจัย เพื่อที่จะเรียนรู้เพิ่มเติมเกี่ยวกับคุณภาพชีวิตของเด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรัง ค่ะ

เพื่อที่จะเรียนรู้เพิ่มเติมเกี่ยวกับเรื่องนี้ ผู้วิจัยต้องการเด็กวัยรุ่นอย่างเด็กในปกครองของคุณท่านอย่างเด็กในปกครองของคุณท่าน ตอบแบบสอบถาม ซึ่งอาจใช้เวลาประมาณ 20-25 นาที ค่ะ ผู้วิจัยจะพูดคุยกับเด็กในปกครองของคุณท่านหลังได้รับอนุญาติตามคุณพ่อ/แม่/ผู้ปกครองค่ะ

ก่อนที่คุณพ่อ/แม่/ผู้ปกครองจะตัดสินใจให้เด็กในปกครองของคุณท่านร่วมการวิจัยหรือไม่ร่วม ผู้วิจัยจะอธิบายรายละเอียดของการวิจัยให้คุณพ่อ/แม่/ผู้ปกครองฟังก่อนค่ะ ถ้าคุณพ่อ/แม่/ผู้ปกครองสงสัย ถามผู้วิจัยได้ตลอดเวลานะคะ

คุณพ่อ/แม่/ผู้ปกครองสนใจที่จะฟังรายละเอียดของการวิจัยนี้ไหมคะ (อธิบายต่อเฉพาะคุณพ่อ/แม่/ผู้ปกครองแสดงความต้องการ)

อ่านและทำความเข้าใจในเอกสารทั้งหมดของผู้วิจัย และเอกสารแสดงความยินยอมให้คุณพ่อ/แม่/ผู้ปกครองฟัง และให้ถูดด้วยความเข้าใจของแบบสอบถาม

คุณพ่อ/แม่/ผู้ปกครองมีคำถามอื่น ๆ เพิ่มเติมเกี่ยวกับการวิจัยนี้ไหมคะ (อธิบายเพิ่มเติมถ้าคุณพ่อ/แม่/ผู้ปกครองต้องการ)
Appendix D

Adolescent Recruitment Script

Study Title: *Spiritual Well-Being, Depression, and Health-Related Quality of Life among Thai Adolescents with Chronic Illness*

Principal Investigator: Dr. Ratchneewan Ross  
Miss Sureeporn Suwannaosod

Hi, ________________.

My name is [Co-PI]. I am a PhD student in the nursing program at Kent State University, USA. I am not employed by this hospital.

Your parent(s) gave me permission to talk to you about a research study I am conducting to learn more about the quality of life among adolescents in Thailand.

Do you understand what quality of life is? [If the adolescent answers NO, we will describe that quality of life is about how you think or feel about your life. For example, you feel good about it].

In order to learn more about this, I am asking adolescents like you to complete questionnaires that should take less than 40 minutes of your time.

Before you make your decision, I would like to talk to you about our research. You can ask questions at any time.

Do you want to hear more? [We will only continue if the adolescent gives an affirmative response].

Read the assent form [the paper] to the adolescent and provide sample items from the questionnaires.

Do you have any additional questions regarding the information or the study? [Clarify if necessary].
แนวทางการพูดคุยกับเด็กวัยรุ่น

โครงการวิจัย เรื่อง: ความมุ่งมั่นทางจิตวิญญาณ ภาวะซึมเศร้า และคุณภาพชีวิตของเด็กวัยรุ่นไทย
ที่ป่วยด้วยโรคเรื้อรัง

ชื่อผู้วิจัย นางสาวสุรีภรณ์ สุวรรณโอสถ

สวัสดีค่ะ น้อง………………………………

ผู้วิจัยชื่อ สุรีภรณ์ สุวรรณโอสถ เป็นนักศึกษาปริญญาเอก คณะพยาบาลศาสตร์ มหาวิทยาลัยเคนท์
ประเทศสหรัฐอเมริกา และผู้วิจัยไม่ได้ทำงานที่โรงพยาบาลนี้

คุณพ่อ/คุณแม่ (หรือ…………) ออนุญาตให้ ผู้วิจัยมาคุยกับน้องเกี่ยวกับการวิจัยที่ ผู้วิจัยกำลังศึกษา เพื่อที่จะเรียนรู้เพิ่มเติมเกี่ยวกับคุณภาพชีวิตของเด็กวัยรุ่นไทย ค่ะ

น้องทราบไหมว่าคุณภาพชีวิตคืออะไร (ถ้าเด็กวัยรุ่นตอบว่าไม่ทราบ ทิ้งไว้ว่า คุณภาพชีวิตคือ
n้องคิดและรู้สึกอย่างไรเกี่ยวกับชีวิตของน้อง เช่น รู้สึกดีกับชีวิตดั้งเดิม)

เพื่อที่จะเรียนรู้เพิ่มเติมเกี่ยวกับเรื่องนี้ ผู้วิจัยต้องการเด็กวัยรุ่นอย่างน้อย ตอบแบบสอบถาม ซึ่งอาจใช้เวลาประมาณ 20-25 นาที ค่ะ

ก่อนที่น้องจะตัดสินใจว่าจะเข้าร่วมการวิจัยหรือไม่ก็ตาม ผู้วิจัยจะอธิบายรายละเอียดของการวิจัยให้น้องฟัง

ก่อนค่ะ ถ้าน้องสงสัย น้องถามได้ตลอดเวลาคะ

น้องสนใจที่จะให้ผู้วิจัยคุยกับน้องเกี่ยวกับการวิจัยนี้ไหมคะ (ถ้ามี) อธิบายเพิ่มเติมถ้าเด็กวัยรุ่นต้องการ)

น้องสนใจที่จะให้ผู้วิจัยคุยกับน้องเกี่ยวกับการวิจัยนี้ไหมคะ (ถ้ามี) อธิบายเพิ่มเติมถ้าเด็กวัยรุ่นต้องการ)
Appendix E

Parental Informed Consent to Participate in a Research Study

**Study Title:** Spiritual Well-Being, Depression, and Health-Related Quality of Life among Thai Adolescents with Chronic Illness

**Principal Investigator:** Dr. Ratchneewan Ross  
**Co-Investigator:** Miss Sureeporn Suwannaosod

Your child is being invited to participate in a research study. This consent form will provide you with information on the study, what your child will need to do, and the potential risks and benefits of the research. Your child’s participation is completely voluntary. Please read this form carefully or ask us to read it to you. It is important that you ask questions and fully understand this information in order to make an informed decision. You will receive a copy of this form to take with you.

**Purpose:**
A high quality of life has been linked to positive health outcomes such as treatment adherence and increased survival rates. However, research regarding quality of life in Thai adolescents with chronic illness is limited.

The purpose of this study is to learn more about health-related quality of life, spiritual well-being, and depression in Thai adolescents with chronic illness.

**Procedures**
Your child’s participation will require him/her to complete self-reported questionnaires. This data collection will be conducted in a private room at the hospital. The Co-Investigator will approach your child and give him/her questionnaires to complete individually and privately. Additional space/room will be arranged where you can wait while your child is answering the questionnaires. The 67-item paper questionnaires will take about 25 minutes to complete.

**Benefits**
This research will not benefit you or your child directly. However, by completing the questionnaires, your child has a chance to learn more about him/herself. Additionally, your child’s participation in this study will help us to better understand the quality of life of Thai adolescents who are experiencing a chronic illness.
**Risks and Discomforts**

There are no anticipated physical, psychological, social, or legal risks associated with participating in this study. However, some of the questionnaire items may be upsetting, or your child may feel uncomfortable answering them. If your child does not wish to answer a question, he/she may skip it and go on to the next question. You will be provided sample items from the questionnaire before deciding whether or not to authorize your child’s participation. Your child has the right to withdraw from the study at any time. Your child’s participation or non-participation will not affect you or your child and your relationships with healthcare professionals and/or any services you or your child receive currently or in the future.

Your child will have a chance to talk and share his/her feelings with us after completing the questionnaires. If your child shows any signs of emotional distress (verbal and/or non-verbal) such as being tearful, and/or expressing negativity, we will ask you to join us for discussion and/or to decide whether or not your child needs to be referred to his/her physicians/nurses for further evaluation.

Once you and your child are no longer with us, if your child feels sad or emotionally distressed, you are encouraged to talk with him/her and/or to seek help from your child’s physicians/nurses. You can also seek professional assistance via phone. The National Mental Health hotline is 1667 and the Adolescent Mental Health Counselling hotline is 1323.

**Privacy and Confidentiality**

Your child’s participation in this study will be kept private and confidential. No identifying information will be connected to your child’s questionnaires. This signed parental consent form and the child’s signed assent form will be kept separate from completed questionnaires, and responses will not be linked to your child. Only the researchers will have access to the questionnaires collected from your child. You donot have access to your child’s data. Research participants will not be identified in any publication or presentation of research results; only aggregate data will be used.

In certain circumstances, your child’s research information may be disclosed to the Institutional Review Boards (IRB), which oversee research at Kent State University and your hospital, or to certain federal agencies. Your child’s confidentiality will not be maintained if there is an indication that he/she may harm him/herself or others.

**Compensation**

Your child will receive $5 (150 Thai Baht) in cash after completing the questionnaires as compensation for his/her time.
Voluntary Participation
Taking part in this research study is entirely up to you and your child. You and/or your child may choose to not participate or may discontinue participation at any time without penalty or loss of benefits to which your child is otherwise entitled. You will be informed of any new, relevant information that may affect your child’s health, welfare, or willingness to continue participation in this study.

Contact Information
If you have any questions or concerns about this research, you may contact:

Miss Sureeporn Suwannaosod at 083-040-3033 or by email at ssuwanna@kent.edu and/or Dr. Ratchneewan Ross at 1-330-672-8785 or by email at rross1@kent.edu.

If you have any questions about your rights as a research participant or complaints about the research, you may call the KSU IRB at 1-330-672-2704.

Consent Statement and Signature
I have read this consent form and have had the opportunity to have my questions answered to my satisfaction. I voluntarily agree to grant permission for my child to participate in this study. I understand that a copy of this consent will be provided to me for future reference.

__________________________________________
Parental Printed Name

__________________________________________
Parental Signature

__________________________________________
Signature of Person Obtaining Informed Consent

__________________________________________
Signature of Principal Investigator
เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัยและแสดงความสมัครใจเข้าร่วมโครงการวิจัยสำหรับเด็กวัยรุ่น

(Parental Informed Consent to Participate in a Research Study)

ชื่อโครงการวิจัย ความผาสุกทางจิตวิญญาณ ภาวะซึมเศร้า และคุณภาพชีวิตของเด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรัง

ผู้วิจัยหลัก: ดร. รัชนีวรรณ รอส

ผู้วิจัยร่วม: นางสาวสุรีภรณ์ สุวรรณโอสถ

เด็กในปกครองของท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้ เอกสารนี้จะช่วยให้ท่านทราบข้อมูลรายละเอียดของโครงการวิจัย ซึ่งที่เคยในปกครองของท่านจะต้องทำ ความเสี่ยงและประโยชน์ที่อาจได้รับจาก การวิจัยนี้ การเข้าร่วมโครงการวิจัยของเด็กในปกครองของท่านอยู่ในความประกอบโดยสิ้นเชิง ท่านและเอกสารนี้อย่างละเอียดหรือขอให้ผู้ที่อยู่ในการบังคับบัญชาเด็กในปกครองของท่านให้ทราบ ท่านและเอกสารนี้ถูกต้อง โดยที่ท่านมีสิทธิ์ในการถามคำถามเกี่ยวกับข้อมูลที่ให้ในเอกสารนี้ เอกสารนี้ก็ถูกต้อง

วัตถุประสงค์ของโครงการวิจัย

คุณภาพชีวิตในระดับเด็กมีความสัมพันธ์กับผลลัพธ์ทางสุขภาพที่ดี เช่น ความสม่ำเสมอในการเข้ารับการรักษาและมีชีวิตที่ยั่งยืน แต่การศึกษาเกี่ยวกับคุณภาพชีวิตของเด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรังนั้นมีน้อยมาก

การศึกษาล่าสุดที่จะเรียนรู้เพิ่มเติมเกี่ยวกับคุณภาพชีวิต ความผาสุกทางจิตวิญญาณ และภาวะซึ่มเศร้าของเด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรัง

ขั้นตอนการวิจัย

หากเด็กในปกครองของท่านเข้าร่วมโครงการวิจัย เด็กในปกครองของท่านจะได้รับแบบสอบถามให้ตอบด้วยตนเอง ในห้องหรือสถานที่ที่เป็นส่วนตัวของโรงพยาบาล ผู้วิจัยจะพูดคุยกับเด็กในปกครองของท่านและให้เด็กในปกครองของท่านตอบแบบสอบถามด้วยตนเอง ทำสำหรับเด็กในปกครองของท่านตอบแบบสอบถามในห้องหรือสถานที่ที่เด็กตั้งใจให้แบบสอบถามจ้านาน 70 ชั่วโมงอาจใช้วิเคราะห์แบบสอบถาม 20-25 นาทีในการตอบ
ประโยชน์ที่คิดว่าจะได้รับจากการวิจัย

เด็กในปกครองของท่านอาจไม่ได้รับประโยชน์โดยตรงจากการวิจัยนี้ แต่การตอบแบบสอบถามอาจช่วยให้เด็กในปกครองของท่านมีความเข้าใจเพิ่มมากขึ้น เกี่ยวกับคุณภาพชีวิตของเด็กวัยรุ่นไทยที่มีประสบการณ์การเจ็บป่วยด้วยโรคเรื้อรัง

ความเสี่ยงและความไม่สบายที่อาจเกิดขึ้นเมื่อเข้าร่วมการวิจัย

การเข้าร่วมการวิจัยนี้ ไม่มีความเสี่ยงหรือส่งผลให้เกิดอันตรายใดๆ โดยตรงต่อเด็กในปกครองของท่าน ทั้งทางร่างกาย จิตอารมณ์สังคม และทางกฎหมาย แต่การตอบแบบสอบถามบางข้ออาจทำให้เด็กในปกครองของท่านมีความรู้สึกไม่สบายใจ หรือเกิดความไม่สะดวกใจในการตอบแบบสอบถาม ถ้าเด็กในปกครองของท่านไม่ต้องการตอบ สามารถข้ามข้อไปได้

ผู้วิจัยจะให้ท่านคุ้มครองข้อมูลที่ท่านให้ ไม่มีการเปิดเผยข้อมูลของเด็กในปกครองของท่านแก่ที่สามโดยไม่ได้รับอนุญาตจากท่าน แต่การตอบแบบสอบถามบางข้ออาจทำให้เด็กในปกครองของท่านมีความรู้สึกไม่สบายใจ หรือเกิดความไม่พอใจเมื่อตอบคิดที่ไม่ต้องการตอบ ท่านอาจร้องขอให้ผู้วิจัยให้ข้อมูลในแบบสอบถามคำขอที่ท่านจะให้เด็กในปกครองของท่านเข้าร่วมการวิจัยหรือไม่ ตามที่ท่านพึงพอใจ

เด็กในปกครองของท่านจะมีโอกาสได้รับการพื้นฐานเพื่อพัฒนาการเจริญเติบโตของเด็กในปกครองของท่านในด้านการรักษาความสุข ความดี ความมั่นคง และการมีส่วนร่วมในสังคม ที่มีผลกระทบต่อการพัฒนาของเด็กในปกครองของท่าน

ความเป็นส่วนตัวและความลับ

การเข้าร่วมการวิจัยของเด็กในปกครองของท่านจะถูกเก็บรักษาไว้เป็นความลับ แบบสอบถามที่เด็กในปกครองของท่านตอบ ไม่มีข้อมูลที่เป็นที่รู้หรือไม่มีผลกระทบต่อการพัฒนาการเจริญเติบโตของเด็กในปกครองของท่าน
เลขโรงพยาบาล เอกสารนี้ที่ท่านและเด็กในปกครองของท่านลงชื่อ จะถูกเก็บแยกต่างหากจากแบบสอบถาม ที่เด็กในปกครองของท่านตอบ มีเพียงแค่ที่ผู้วิจัยที่สามารถคุมข้อมูลเฉพาะนี้ได้ ท่านในฐานะผู้ปกครองก็ไม่สามารถคุมข้อมูลของเด็กในปกครองของท่านได้ ในการนำเสนอหรือตีพิมพ์ผลงานวิจัย จะไม่มีการนำเสนอเป็นรายบุคคล จะนำเสนอโดยรวมเท่านั้น

ในบางกรณี ข้อมูลของเด็กในปกครองของท่านอาจถูกเปิดเผยต่อคณะกรรมการจริยธรรมในคน ในกรณีที่มีข้อบ่งชี้ว่าเด็กในปกครองของท่านหรือคนอื่นอาจได้รับอันตราย

ค่าตอบแทน
เด็กในปกครองของท่านจะได้รับเงินจำนวน 150 บาท หลังตอบแบบสอบถาม เพื่อเป็นค่าตอบแทนเวลาของเด็กในปกครองของท่าน

การมีส่วนร่วมโดยสมัครใจ
การเข้าร่วมการวิจัยขึ้นอยู่กับความสมัครใจของท่านและเด็กในปกครองของท่านโดยสินั้นเด็ก ท่านและ/หรือเด็กในปกครองของท่านมีสิทธิ์ที่จะไม่เข้าร่วม หรือถอนตัวออกจากกระบวนการวิจัยเมื่อใดก็ได้ โดยจะไม่มีผลกระทบใดๆ หากมีข้อมูลเพิ่มเติมเกี่ยวกับประโยชน์ หรือผลกระทบของการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบ

ข้อมูลติดต่อ
หากท่านมีคำถามหรือข้อสงสัยเกี่ยวกับการวิจัยนี้ ท่านสามารถติดต่อ

นางสาวสุรีภรณ์ สุวรรณโอสถ ได้ที่ 083-040-3033 หรือ ทางอีเมล์ suwanna@kent.edu และ/หรือ

ดร. รัชนีวรรณ รอส ได้ที่ 1-330-672-8785 หรือ ทางอีเมล์ rross1@kent.edu

ถ้าท่านมีค่าถามเกี่ยวกับการวิจัย ท่านสามารถติดต่อ คณะกรรมการจริยธรรมการวิจัยในคน ของมหาวิทยาลัยเคนท์ ได้ที่ 1-330-672-2704
ข้อความแสดงความยินยอมและลายมือชื่อ

หนูแม่ได้อ่านเอกสารนี้แล้วมีโอกาสได้รับการตอบคำถามที่สงสัยจนเป็นที่พึงพอใจแล้ว หนูยินยอมเข้าร่วมการวิจัยนี้ด้วยความสมัครใจ หนูเข้าใจว่าหนูจะได้รับล้านเอกสารนี้ด้วย

ชื่อผู้ปกครองด้วยบรรจุ

___________________________________________
ชื่อ
ผู้ปกครอง
ตัวบรรจุ

__________________________________________
ลายมือชื่อ
ผู้ปกครอง
วันที่

__________________________________________
ลายมือชื่อของบุคคลที่ขอความยินยอมจากผู้ปกครอง
วันที่

__________________________________________
ลายมือชื่อของผู้วิจัยหลัก
วันที่
Appendix F

Adolescent Assent to Participate in a Research Study

Study Title: Spiritual Well-Being, Depression, and Health-Related Quality of Life among Thai Adolescents with Chronic Illness

Principal Investigator: Dr. Ratchneewan Ross
Co-Investigator: Miss Sureeporn Suwannaosod

Please read this form carefully or ask the Co-investigator Miss Sureeporn Suwannaosod to read it to you. If you do not understand or have any questions, please ask until you fully understand. Also, you can take this form home to discuss it with anyone who is important to you to help you decide whether or not to join the study.

What does voluntary participation mean?

Voluntary participation in the study means joining without being forced by anyone once you understand and feel comfortable with the study. We have already gotten permission from your parent(s) to talk to you.

What is a research study?

A research study is a project that has been carefully designed to find the answers to important questions about health in order to help people who are ill.

Why does this study need to be done?

The purpose of this study is to learn more about how Thai adolescents who are ill view or think about their lives in order to help them improve their quality of life.

Why am I being asked to join this study?

Because you are an adolescent between the ages of 12 and 18 who is experiencing an illness and receiving healthcare services at this hospital.
Will other adolescents join this study?

Yes, we are asking other adolescents to join this study and would like to have 140 participants.

Could I be hurt and what should I do?

We do not expect you to be hurt in any way; however, completing some questions may cause you to feel sad or uncomfortable. If this happens, you can skip the question(s), go to the next section, or let us know you want to stop.

You will have a chance to talk and share your feelings with us after completing the questionnaires. We will ask your parent(s) to join us if you need further help.

If you feel sad or uncomfortable once you are no longer with us, we recommend you talk with your parent(s) and/or seek help from your healthcare providers.

You can also seek help via phone. The National Mental Health hotline is 1667 and the Adolescent Mental Health Counselling hotline is 1323.

How will this study benefit me?

You may not benefit directly; however, by completing the questionnaires, you have a chance to learn more about yourself. Your parent(s), physicians, and nurses can help you with any concerns you discover.

Do I need to join this study?

No, you do not need to join if you do not want to. It is entirely up to you; no one can force you. Your decision will not impact you or your family or your healthcare services.

What do I need to do if I decide to join this study?

1. Sign this assent form.
2. Fill out questionnaires about quality of life, spiritual well-being, depression, and demographic/health information which will take you about 20-25 minutes.

What will happen if I want to stop answering questions?

Nothing will happen. You can stop anytime. Your medical care and services will not be affected.
**Will my answers be kept private and confidential?**

Yes, your participation in this study will be kept private and confidential. The questionnaires will have NO identifying information on them – no name, address, or hospital number. This signed assent form will be kept separate from your completed questionnaires. Your answers will be combined with all the other adolescents and the results will be presented as a group.

Only the researchers and organizations that approved this study will have access to your information. If you want to share your answers with your parent(s), you may but are not required to do so.

If you tell us that you might harm yourself or someone else, we will need to notify your parent.

**Will I get any compensation?**

You will receive $5 (150 Thai Baht) in cash after completing the questionnaires as compensation for your time.

**Has anyone approved this study?**

Yes, Institutional Review Board (IRB) committee members from both Kent State University (KSU) and your hospital have approved this study. They reviewed the study’s details and gave us permission to conduct this research.

**Contact Information**

If you have any questions or concerns about this research, you or your parent(s) may contact:

Miss Sureeporn Suwannaosod at 083-040-3033 or by email at ssuwanna@kent.edu and/or Dr. Ratchneewan Ross at 1-330-672-8785 or by email at rross1@kent.edu.

If you have any questions about your rights as a research participant or complaints about the research, you or your parent(s) may call the KSU IRB at 1-330-672-2704.
**Assent Statement and Signature**
I have read this assent form and have had the opportunity to have my questions answered to my satisfaction. I voluntarily agree to participate in this study. I understand that a copy of this assent will be provided to me for future reference.

___________________________________________  
Adolescent Printed Name

___________________________________________  
Adolescent Signature  
Date

___________________________________________  
Signature of Person Obtaining Adolescent Assent  
Date

___________________________________________  
Signature of Principal Investigator  
Date
เอกสารชี้แจงผู้เข้าร่วมการวิจัยและแสดงความสมัครใจเข้าร่วมโครงการวิจัยสำหรับเด็กวัยรุ่น
(Adolescent Assent to Participate in a Research Study)

โครงการวิจัย เรื่อง: ความผาสุกทางจิตวิญญาณ ภาวะซึมเศร้า และคุณภาพชีวิตของเด็กวัยรุ่นไทย
ที่ป่วยด้วยโรคเรื้อรัง

ผู้วิจัยหลัก: ดร. รัชนีวรรณ รอส
ผู้วิจัยร่วม: นางสาวสุรีภรณ์ สุวรรณโอสถ

โปรดอ่านข้อมูลนี้อย่างละเอียด หรือขอให้ผู้วิจัยร่วม (นางสาวสุรีภรณ์ สุวรรณโอสถ) อ่านข้อมูลนี้ให้หนูฟัง ถ้าหนูไม่เข้าใจหรือมีข้อสงสัย ขอให้สอบถามผู้วิจัยร่วมจนกว่าหนูจะเข้าใจดี หนูอาจจะขอเอกสารนี้กลับบ้าน เพื่อปรึกษาหรือกับบุคคลอื่นๆ ที่มีความสำคัญกับหนู เพื่อช่วยในการตัดสินใจว่าจะเข้าร่วมโครงการวิจัยหรือไม่

การแสดงความสมัครใจเข้าร่วมโครงการวิจัยคืออะไร?

การแสดงความสมัครใจเข้าร่วมโครงการวิจัย หมายความว่า หลังจากหนูเข้าใจข้อมูลดีแล้ว และรู้สึกสบายใจกับการวิจัยนี้ หนูสมัครใจเข้าร่วมโครงการวิจัยโดยไม่มีใครบังคับ ทีมผู้วิจัยได้รับอนุญาตจากผู้ปกครองของหนูก่อนที่จะมาพูดคุยกับหนู

การวิจัยคืออะไร?

การวิจัยเป็นโครงการที่ได้รับการวางแผนมาแล้วอย่างละเอียดครอบครอบ เพื่อค้นหาคำตอบเกี่ยวกับสุขภาพที่จะสามารถช่วยเหลือผู้คนที่เจ็บป่วยมีสุขภาพที่ดีขึ้น

ทำไมจึงต้องทำโครงการวิจัยนี้?

วัตถุประสงค์ของการวิจัยนี้เพื่อที่จะเรียนรู้เพิ่มเติมว่า เด็กวัยรุ่นไทยที่ป่วยด้วยโรคเรื้อรังรู้สึกเกี่ยวกับคุณภาพชีวิตของตนเองอย่างไรบ้าง เพื่อมีความรู้ที่จะไปช่วยให้เด็กวัยรุ่นเกลียบเกี่ยวเพื่อมีคุณภาพชีวิตเด็กขึ้น
ทำไมหนูจึงถูกขอให้เข้าร่วมโครงการ?

เพราะหนูอยู่ในช่วงวัยรุ่น ที่มีอายุระหว่าง 12-18 ปี และหนูมีประสบการณ์เกี่ยวกับความเจ็บป่วยตัว
โรคเรื้อรัง และได้รับบริการสุขภาพที่โรงพยาบาลแห่งนี้

จะมีเด็กคนอื่นๆ เข้าร่วมโครงการด้วยหรือไม่?

ใช่ ทีมผู้วิจัยเชิญเด็กวัยรุ่นคนอื่นๆ เข้าร่วมโครงการวิจัยนี้ด้วย และการศึกษาค้นต้องการอาสาสมัคร
จำนวน 140 คน

หนูอาจได้รับความเสี่ยงหรือความไม่สบายต่างๆ หรือไม่

ทีมผู้วิจัยคาดว่าโครงการวิจัยนี้จะไม่มีความเสี่ยงเกิดขึ้นกับหนู แต่ขณะตอบแบบสอบถามบางข้อ
อาจทำให้หนู มีความผิดสังเกตๆ หรือรู้สึกไม่สบายใจ ถ้าความผิดสังเกตๆ หนูสามารถข้ามข้อเป็นไป หรือบอกให้
ทีมผู้วิจัยทราบว่าหนูไม่ต้องการทำต่อ

หนูจะมีโอกาสได้พูดคุยกับทีมผู้วิจัยเกี่ยวกับความรู้สึกของหนู หลังจากตอบแบบสอบถาม เราจะเชิญ
ผู้ปกครองของหนูมาร่วมพูดคุยด้วย ในการนี้ทีมผู้วิจัยจะไม่ร้องเรียนหนูคุย แต่จะให้หนู
รู้ว่ามีอะไรที่บิดามารดาผู้ปกครอง แพทย์ หรือผู้เชี่ยวชาญทางสุขภาพของหนู

หนูสามารถขอความช่วยเหลือหรือปรึกษาผู้เชี่ยวชาญทางโทรศัพท์ได้ที่ สายด่วนสุขภาพจิต 1667
และ/หรือ สายด่วนสุขภาพจิตวัยรุ่น 1323

การเข้าร่วมการวิจัยจะมีประโยชน์กับหนูหรือคนอื่นๆ หรือไม่?

การเข้าร่วมการวิจัยนี้อาจไม่เกิดประโยชน์โดยตรงกับหนู แต่การตอบแบบสอบถามอาจทำให้หนู
เรียนรู้เกี่ยวกับตนเองเพิ่มมากขึ้น บิดามารดา ผู้ปกครอง แพทย์ และพยาบาล สามารถจะช่วยหนูได้ในลังที่หนู
ต้องการหรือมีความจำเป็นต้องได้รับความช่วยเหลือ นอกจากนี้ผลการศึกษาครั้งนี้สามารถช่วยเด็กวัยรุ่น
คนอื่นๆ ได้ในอนาคต

หนูจำเป็นต้องเข้าร่วมโครงการวิจัยหรือไม่?

ไม่ หนูไม่จำเป็นต้องเข้าร่วมการวิจัยถ้าหนูไม่ต้องการ การตัดสินใจนี้อยู่กับหนูโดยสิ้นเชิง และการ
ตัดสินใจนี้ของหนูจะไม่มีผลกระทบใดๆ ต่อหนู ครอบครัวของหนู หรือการบริการทางสุขภาพที่หนูได้รับ
ถ้าหนูตกลงที่จะเข้าร่วมโครงการวิจัย หนูจะต้องทำอะไรบาง?

1. เขียนชื่อลงในเอกสารนี้
2. ตอบแบบสอบถามด้วยตนเอง เกี่ยวกับ ความผันผวนทางจิตวิญญาณ ภาวะซึมเศร้า คุณภาพชีวิต และข้อมูลส่วนตัวและสุขภาพ ซึ่งอาจใช้เวลาประมาณ 20-25 นาที

จะเกิดอะไรขึ้นถ้าหนูต้องการที่จะยุติการเข้าร่วมโครงการ?

จะไม่มีอะไรเกิดขึ้น หนูสามารถยุติการเข้าร่วมโครงการได้ทุกเมื่อ การยุติการเข้าร่วมโครงการจะไม่กระทบต่อการรักษาพยาบาลที่หนูได้รับ

ข้อมูลของหนูในการวิจัยนี้จะถูกเก็บรักษาไว้เป็นความลับหรือไม่?

ใช่ ข้อมูลของหนูจะถูกเก็บรักษาไว้เป็นความลับ แบบสอบถามที่หนูตอบ ไม่มีข้อมูลที่บ่งชี้ว่าเป็นตัวหนู ไม่มีชื่อ-สกุล ไม่มีที่อยู่ หรือไม่มีเลขโรงพยาบาล เอกสารนี้ที่หนูลงชื่อ จะถูกเก็บแยกต่างหากจากแบบสอบถามที่หนูตอบ คำตอบที่ได้จากหนูจะถูกนำไปรวมกับคำตอบของเด็กวัยรุ่นคนอื่นๆ และนำมาเสนอในภาพรวม

มีเพียงแค่ทีมผู้วิจัยและสถาบันที่ตรวจสอบการวิจัยเท่านั้นที่สามารถดูข้อมูลของหนูได้ ถ้าหนูต้องการให้ผู้ปกครองดูข้อมูลของหนู หนูสามารถทำได้ ทั้งนี้ขึ้นอยู่กับหนู

ทีมผู้วิจัยอาจจำเป็นต้องบอกแจ้งผู้ปกครองของหนูทราบ ในกรณีที่หนูบอกทีมผู้วิจัยว่าหนูอาจทำร้ายตนเองหรือผู้อื่น

หนูจะได้รับค่าตอบแทนหรือไม่?

หนูจะได้รับเงินจำนวน 150 บาท หลังจากตอบแบบสอบถาม เพื่อตอบแทนเวลาของหนู

มีผู้ใดตรวจสอบหรือไม่ว่างานวิจัยดีพอที่จะทำได้?

ใช่ คณะกรรมการจริยธรรมการวิจัยในคน ของมหาวิทยาลัยเคนท์ ประเทศสหรัฐอเมริกา และโรงพยาบาลของหนู มีการตรวจสอบวิจัยอย่างละเอียดแล้ว ผลจากจะได้รับฎีกาให้ดำเนินโครงการวิจัยได้
ข้อมูลติดต่อ

หากคุณมีคำถามหรือข้อสงสัยเกี่ยวกับการวิจัยนี้ คุณหรือผู้ปกครองของคุณสามารถติดต่อด้วย

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ถ้าคุณมีคำถามเกี่ยวกับสิทธิ์ของคุณในฐานะผู้เข้าร่วมการวิจัย หรือ มีข้อร้องเรียนเกี่ยวกับการวิจัย
หนูหรือผู้ปกครองของหนู สามารถติดต่อกับคณะกรรมการจริยธรรมการวิจัยในคน ของมหาวิทยาลัยเคนท์ ได้ที่
1-330-672-2704

ข้อความแสดงความยินยอมและลายมือชื่อ

คุณได้อ่านเอกสารนี้และมีโอกาสได้รับการตอบคำถามที่สงสัยจนเป็นที่พอใจแล้ว คุณยินยอมเข้าร่วมการวิจัยนี้ด้วยความสมัครใจ คุณเข้าใจว่าคุณจะได้รับสำเนาเอกสารนี้ด้วย

ชื่อเด็กวัยรุ่นตัวบรรจง

ชื่อเด็กวัยรุ่นตัวบรรจง

ลายมือชื่อเด็กวัยรุ่น

วันที่

ลายมือชื่อของบุคคลที่ขอความยินยอมจากเด็กวัยรุ่น

วันที่

ลายมือชื่อของผู้วิจัยหลัก

วันที่

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Appendix G

Missing Values Analysis

Overall Summary of Missing Values

Variables

Cases

Values

Missing Value Patterns

Type
Nonmissing
Missing

Variable

Pattern
The 10 most frequently occurring patterns are shown in the chart.
Appendix H

Assumption Testing Results

![Normal Q-Q Plot of QOL](image1)

![Normal Q-Q Plot of SWB](image2)
Box-plot
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