CHAPTER 2

Literature Review

The literature review is presented in three parts as follows: overview of critical illness, psychological well-being among parents of a critically ill child, and factors related to psychological well-being among parents of a critically ill child in PICU.

Overview of Critical Illness

Critical illness is a life-threatening condition which is often sudden and unpredictable, and its consequences affect both children and their families. Critically ill children need intensive care and intensive treatment to save their lives. Between 2013 and 2015, there were 59,696 pediatric intensive care unit admissions (aged under 16 years) in the United Kingdom (UK) (Paediatric Intensive Care Audit Network, 2016). In Thailand, 10.00% of all pediatric patients were hospitalized in PICUs (Stawon, 2002). At Ramathibodi Hospital, the incidence of critically ill children in the PICU in 2015 and 2016 was 545 and 558 cases respectively (12.24% and 11.95% of all hospitalized children respectively) (Ramathibodi Hospital Statistics, 2017). Similarly, at Maharaj Nakorn Chiang Mai Hospital, in 2015 and 2016, 387 and 507 cases of critically ill children were hospitalized to the PICU respectively (8.00% and 10.04% of all hospitalized children respectively) (Maharaj Nakorn Chiang Mai Hospital Statistics, 2017).

Definition of Critical Illness

Critical illness has been similarly defined by consensus and experts' opinion as a heterogeneous group of conditions and disorders that share a risk of organ dysfunction, long-term morbidity, and mortality (Watson & Hartman, 2009). Likewise, Frost and Wise (2007) defined critical illness as any disease process which causes physiological instability leading to disability or death within minutes or hours. Disturbance of the neurological and

cardio-respiratory systems generally has the most immediate life-threatening effects. For a child, critical illness is a life-threatening condition as in adults. The child requires generally early recognition, intensive treatment and care in PICU consisting of 24-hour close monitoring, advanced medical equipment, and expertise multidisciplinary PICU team (Hazinski, 2013).

Health Condition Need Admission in Pediatric Intensive Care Unit (PICU)

Basically, the most common conditions of critically ill children leading to intensive care are as follows:

1. Respiratory conditions. The majority of respiratory conditions of children requiring PICU admission are acute respiratory failure requiring emergency endotracheal intubation and mechanical ventilation, rapidly progressive pulmonary disease, upper or lower airway obstruction with risk of progression to respiratory failure, severe asthma, high oxygen requirement ($FiO_2 \geq 0.5$), acute barotrauma, and need for more repeated or continuous nebulization therapy (AAP & SCCM, 1999; Slota, 2006).

2. Cardiovascular conditions. Pediatric patients with life-threatening or unstable cardiovascular disease require PICU admission. The critical cardiovascular conditions include cardiac failure, congenital heart disease with unstable cardio-respiratory status, shock, unstable congestive heart failure, arrhythmias, post-cardiopulmonary resuscitation, and requirement for monitoring of arterial, central venous, or pulmonary artery pressures (AAP & SCCM, 1999; Slota, 2006).

3. Sepsis and septic shock. The most common condition of critically ill children that requires intensive care is sepsis or septic shock. Sepsis is a potentially life-threatening condition resulting from serious infection that is marked by immune dysfunction, systemic inflammation, microcirculatory dysfunction, and organ dysfunction (Slota, 2006).

4. Surgical conditions. Postoperative pediatric patients requiring close observation and monitoring, as well as intensive care, including cardiovascular surgery, thoracic surgery, neurological surgery, organ transplantation, multiple trauma with or without hemodynamic instability, orthopedic surgery, general surgery with hemodynamic instability, and major blood loss during surgery (AAP & SCCM, 1999).

5. Multiple organ dysfunction syndrome (MODS). Multiple organ dysfunction syndrome is a common condition of critically ill children leading to PICU admission. Multiple organ dysfunction syndrome is diagnosed when the organ dysfunction of at least two systems concurrently occurs (Villeneuve, 2016).

6. Neurological conditions. The most common neurological conditions of critically ill children requiring PICU admission are potential life-threatening or unstable neurologic diseases, seizures with requiring continuous infusion of anticonvulsive drugs, brain herniation, status epilepticus, head injury with increased intracranial pressure (IICP), alteration of consciousness, acute inflammation of brain or the spinal cords, pre-operative neurosurgical conditions with neurologic deterioration, and neuromuscular dysfunction (AAP & SCCM, 1999; Slota, 2006).

7. Hematologic and oncologic conditions. The most common hematologic and oncologic conditions of critically ill children requiring PICU admission are life-threatening hematologic or oncologic diseases, active bleeding, severe coagulopathy, severe anemia resulting in hemodynamic and/or respiratory compromise, exchange transfusions, tumor lysis syndrome, and severe complications of chemotherapy (AAP & SCCM, 1999; Demaret, Pettersen, Hubert, Teira, & Emeriaud, 2012).

8. Endocrine/metabolic conditions. The most common endocrine/metabolic conditions of critically ill children that require intensive care are life-threatening endocrine or metabolic disease, severe diabetic ketoacidosis, severe inborn errors of metabolism, and severe electrolyte imbalance (such as hyperkalemia, severe hypo-or hypernatremia, hypo-or hypercalcemia, and severe metabolic acidosis) (AAP & SCCM, 1999).

9. Gastrointestinal conditions. The most common gastrointestinal conditions of critically ill children requiring PICU admission are life-threatening gastrointestinal diseases, severe gastrointestinal bleeding with hemodynamic instability, and acute liver failure (AAP & SCCM, 1999).

10. Renal conditions. Children with life-threatening or unstable renal diseases are one of the indicators for PICU admission. Acute kidney injury (AKI) requiring continuous replacement renal therapy (CRRT) is commonly found in seriously ill children hospitalized in PICU. The etiologies of AKI may be sepsis, hypoxia, heart failure, obstructive uropathy,

dehydration, glomerulonephritis, toxic nephropathy, multi-organ system failure (MOSF), tumor lysis syndrome, and renal neoplasm (Shalaby et al., 2014; Slota, 2006).

In summary, the most common conditions of critically ill children requiring PICU admission include respiratory conditions, cardiovascular conditions, sepsis and septic shock, surgical conditions, multiple organ dysfunction syndrome, hematologic and oncologic conditions, gastrointestinal conditions, renal conditions. These children need intensive care and advanced equipment to save their lives.

Care of Critically Ill Children in the PICU

1. PICU Context

The PICU is a unit within a hospital specializing in the care of seriously ill children from newborn to teenagers. Critically ill children require intensive care from medical and nursing professionals who have been trained and are experienced in pediatric intensive care. According to ICU guidelines, the ratio of professionals to children in PICU is specifically higher than other units of the hospitals, indicating the severity of illness and the high risk of life-threatening conditions. This unit is generally equipped with advanced and high technology medical equipment such as mechanical ventilator, monitoring machine, external pacemakers, defibrillators, dialysis equipment, and so on (Coventry, 1996). Generally, PICU setting is often structured as units with small separate rooms which are designed as a closed environment to prevent infection. Some PICUs may have a positive-pressure room for low immune compromised patients depending on the hospital policy.

2. Levels of Care Available in PICU

The children hospitalized to PICU generally have diverse critical illnesses that require different levels of care. According to Advanced Life Support Group in 2008, intensive care is classified into five categories depending on high dependency care (Byrne, Fisher, Fortune, Lawn, & Wieteska, 2008) as follows:

Level 1 High-dependency care. Children need close observation and monitoring but do not need life-support equipment, such as ECG monitoring in children with brain tumor removal or seizure, respiratory monitoring and oxygen saturation monitoring in children who have recently been extubated or children who require oxygen therapy. This level requires a nurse-to-patient ratio of at least .5: 1.

Level 2 is for children who require continuous monitoring and vigilant nursing care, such as respiratory care. These children may be intubated with endotracheal tube or tracheostomy tube for mechanical ventilation. Some unintubated children may also fall into this category, such as those with acute upper airway obstruction, whose condition is unstable, and who may be receiving nebulized adrenaline. This level requires a nurse-to-patient ratio of at least 1: 1.

Level 3 is for children who need intensive care at all times, or needs advanced medical procedures. This include children who have unstable ventilation, unstable conditions, and receive inotropes and vasopressor agents, as well as children with multiple organ failure. A nurse-to-patient ratio is 1.5: 1.

Level 4 is for children who require the most intensive treatments such as renal replacement therapy. A nurse-to-patient ratio is 2: 1.

Level 5 is for children who need intensive and advanced treatment modalities available only in excellent center or supra-tertiary care. Practically, this level refers to children using Extracorporeal Membrane Oxygenation (ECMO) therapy. A nurse-to-patient ratio may be >2: 1.

Effects of Critical Illness on Children

The seriously ill children suffer from both disease and its treatment. For physical suffering, children with critical illness usually need invasive procedures for disease investigation and treatment. Their health problems are always so severe, causing many serious symptoms such as shock, sepsis, respiratory distress, pain, vomiting, diarrhea, and weakness (de Weerd, van Tol, Albers, Sauer, & Verkerk, 2015). Moreover, the children may describe significant discomforts and pain relating to various intrusive procedures, such as insertion of endotracheal tube, nasogastric tube, central venous catheter, urinary catheter,

and thoracic catheter (Carnevale & Gaudreault, 2013). Restraint is frequently required during intrusive procedures, heightening the children's suffering and increasing the perception of pain. In addition, PICU environment (e.g., light, sound, monitors alarm, and uncomfortable bed) remains a source of distress and sleep disturbance for children (Carnevale & Gaudreault, 2013; Kudchadkar, Aljohani, & Punjabi, 2014).

Regarding psychological suffering, hospitalization of children in PICU is extremely stressful. Separation from parents and friends, invasive procedures and treatment, and PICU environment are major sources of psychological suffering in children. These factors can result in short and long term negative psychological effects and behavioral problems. Some children may be presented with anxiety, depression, fear, worries, intense stress, bad dreams, post-traumatic stress disorder (PTSD), negative memories of experiences in ICU and behavioral change (Carnevale & Gaudreault, 2013). Moreover, some studies have reported intensive care syndrome that is the shorter period of psychological problems in patients during or after their ICU admission, including confusion, delirium, disorientation, interference in consciousness, hallucinations, sleep pattern disturbance, and manifestations of aggression (Baker, 2004). In addition, long term negative psychological effects include anxiety, symptom of post-traumatic stress disorder, and externalizing behaviors after PICU discharge for 6-12 months (Melnyk et al., 2004). Critical illness also affects social well-being of children. Most children complain that they have a feeling of estrangement, being isolated from families and friends, and being worried about academic performance (Carnevale & Gaudreault, 2013).

Effects of the Children's Critical Illness on Parents

Critical illness of children may affect their parents physically, socially, economically, and psychologically. For physical effects, parents with critically ill children who have been admitted in the PICU experience fatigue, sleep disturbance, and eating disturbance (Busse et al., 2013; Shudy et al., 2006). From a previous study, the result showed that mothers of seriously ill children expressed more sleep pattern disturbances and fatigue than fathers, leading to poor health outcomes (Lee et al., 2007). Additionally, the psychological symptoms of parents such as stress, anxiety, depression, and grief often have negative impacts on physical well-being of parents such as headache, and low energy (Shudy et al.,

2006). Parental stress and eating disturbance such as loss of appetite and changes in eating pattern induce peptic ulcer (Shudy et al., 2006).

Regarding social effects, parents take many roles in society, such as raising the children, taking care of the home and family members, and providing the financial resources necessary for family demands. Having a child hospitalized in PICU affects parents in many ways such as changes in roles, role conflicts, role strains, and decreased social participation. Most parents need to pay attention on and take care of their hospitalized child with life-threatening illness while they still need to take care of other children and family members (Jintrawet, 2005; Shudy et al., 2006). Additionally, the parents also need to perform other roles at the same time. This will cause them to be unable to effectively perform other roles. Also, some parents express alteration of the marital relationship and divorce occurring after their child's admission in PICU (Shudy et al., 2006). Some parents have decreased social participation and change in relationships with others such as friends, relatives, and neighbors (Sawatzky & Fowler-Kerry, 2003; Shudy et al., 2006).

With regard to economic effects, a systematic literature review of Shudy and colleagues (2006) demonstrated that common economic effects, including the financial stress, job loss, and other negative economic effects, were found in parents and families of children with serious illness. Similarly, a finding of Jintrawet (2005) showed that some parents had to leave their job, lost income and experienced increased living expenses during their child's hospitalization in PICU because they would like to be with their child in the critical condition.

Regarding psychological effects, as the child's life-threatening illness is a stressful experience to the parents, prior research showed that parents with seriously ill children reported a high level of anxiety (Busse et al., 2013; Colville et al., 2009), stress (Pooni et al., 2013), depression (Busse et al., 2013) feeling of uncertainty (Jee et al., 2012; Latour et al., 2011), helplessness (Aamir et al., 2014; Jee et al., 2012), fear (Jintrawet, 2005), grief, disbelief (Diaz-Caneja, Gledhill, Weaver, Nadel, & Garralda, 2005), and guilt (Colville et al., 2009). Moreover, parents experienced significantly more stress with the unplanned PICU admission rather than the planned admission (Eberly, Miles, Carter, Hennessey, & Riddle, 1985). A study of Huckabay and Tilem-Kessler (1999) found that the highest level of stress and anxiety was described as "near-panic levels" on the first day of admission in

PICU. Fear and anxiety might be related to severity of the illness and treatment received such as the number of invasive procedures (Huckabay & Tilem-Kessler, 1999).

Other studies reported that sources of stress of parents included separation from the child (Carter et al., 1985; Hagstrom, 2017), uncertainty over the outcomes of illness (de Weerd et al., 2015; Jee et al., 2012), fear of the child's suffering from invasive procedures, especially endotracheal tube intubation (Board & Ryan-Wenger, 2003), unfamiliar equipment (Lewandowski, 1980), unfamiliar PICU environment (Aamir et al., 2014; Carter et al., 1985; Diaz-Caneja et al., 2005), sights and sounds (Aamir et al., 2014; Board & Ryan-Wenger, 2003; Carter et al., 1985), healthcare providers' communication (Carter et al., 1985), the alteration of the parental roles (Aamir et al., 2014; Carter et al., 1985; LaMontagne & Pawlak, 1990), possibility for child death (Diaz-Caneja et al., 2005), and long-term consequences of the child's illness (Hazinski, 2013; Rothstein, 1980). In addition, psychological stressors of parents included lack of privacy, inadequate knowledge and insufficient understanding of situation, leading to psychological distress in parents. Alteration of parental role also leads to psychological distress because they are unable to care for and protect their child (Board, 2004; Colville & Gracey, 2006). Thus, parents may have increased psychological distress, contributing to decreased psychological well-being (Hazinski, 2013). A high level of anxiety in parents diminishes their attention, perception, and learning ability. These factors affect their quality of life, leading to poor participation in care and decreased ability to take parental role (Carter et al., 1985).

In summary, having a child hospitalized in the PICU is a stressful situation that causes many problems to the parents. Previous studies reported that most parents showed the negative emotional responses. Therefore, it affects the parents' psychological well-being.

Psychological Well-being among Parents of a Critically Ill Child

Definition of Psychological Well-being

Psychological well-being is a broad concept with which a wide variety of terms are offered by different scholars. However, this concept has been similarly viewed as an inner state of person that causes positive and negative feeling. This feelings are shown as mirror

type, high negative feeling means low positive one, and vice versa. Bradburn (1969) viewed psychological well-being as the affective balance or the extent to which the level of individual's positive affect is greater than negative. He proposed that psychological well-being was divided into positive and negative affect. Persons with higher in psychological well-being indicate positive affect than the negative and lower in psychological well-being as a negative affect predominates over positive. Bradburn concept has been used widely with some modification. Similarly, Campbell (1981) proposed that psychological well-being consisted of an affective component and an evaluation of one's life. He viewed affect as unidimensional, with positive affect the polar opposite of negative affect.

Lawton (1983) defined psychological well-being as "a subjective sense of overall satisfaction and positive mental health that is commonly thought to be the best indicator of unobservable constructs such as self-esteem or ego strength". Moreover, psychological well-being reflects the quality of one's inner state and has both cognitive and affective components. There are four components of psychological well-being, consisting of 1) negative affect or neuroticism, which includes anxiety, depression, agitation, worry, pessimism, and distressing psychological symptoms and represents the underlying trait of neuroticism; 2) positive affect, which is an emotional state or active pleasure versus a cognitive judgment; 3) congruence between desired and attained goals, which is referred to as life satisfaction; 4) happiness, which is a cognitive judgment of negative affect less than positive affect.

Similarly, Veit and Ware (1983) viewed psychological well-being as a positive stage of mental health. They mentioned that mental health has both positive and negative states. Psychological well-being, a positive mental state, includes feelings of cheerfulness, happiness, interest in and enjoyment of life, while psychological distress is a negative mental health state, including anxiety, depression, irritability, and loss of behavioral and emotional control.

Dupuy (1984) viewed psychological well-being as multidimensional. He explained psychological well-being as a positive and negative feelings of persons on life situation or facing situation. He proposed six dimensions of psychological well-being, including 1) anxiety can also be a state of nervousness, anxiety, worry, upsetness, strain, stress, or pressure; 2) depression is a feeling of severe despondency and dejection, hopelessness,

discouragement, or sadness; 3) general health, which presents that an illness results from a relation between mentality and physiology; 4) positive well-being is happiness and satisfaction in life, such as life achievement, and good family support; 5) self-control is the ability of individuals to control their thoughts, emotions, and behaviors; 6) vitality is a feeling of power, state of being strong and active, freshness, and being indefatigable.

Similar to other researchers, Watson, Clark, and Tellegen (1988) also defined psychological well-being as inner personal state of both positive and negative affects. Positive affect includes feelings of alertness, enthusiasm, activeness, and energy, whereas negative affect is characterized by negative emotions such as nervousness, fear, anger, and worry.

Ryff (1989) viewed psychological well-being as engagement in existential challenges of life and positive psychological functioning. His idea on psychological well-being was developed based on various perspectives, including Jung's construction of individuation, Maslow's idea of self-actualization, Rogers's conception of the fully functioning individual, Allport's conception of maturity, Erickson's psychosocial stage model, and Jahoda's conception of positive criteria of mental health. There are six dimensions of psychological well-being, including 1) self-acceptance, which is a characteristic of self-actualization, optimal functioning, and maturity resulting from acceptance of self and past life; 2) positive relations with others, which include the importance of warm, trusting interpersonal relations, having strong feeling of empathy and affection for all human beings, and understanding of others' feelings; 3) autonomy, which is a sense of self-determination, independence, and the regulation of behavior from within; 4) environmental mastery, which is the individual's ability to select or build environments suitable to his or her mental conditions; 5) purpose in life, which refers to persons' goals in life, a sense of directedness, and purposeful and meaningful in life, and ability to manage the problem; 6) personal growth, which is a sense of continued growth and development as a person.

Ferrell (1996) viewed psychological well-being as a dimension of quality of life (QOL) and defined psychological well-being as seeking a sense of control in the face of life-threatening illness characterized by emotional distress, altered life priorities, and fears of the unknown, as well as positive life changes.

Karademas (2007) further described characteristics of positive and negative psychological well-being. Positive psychological well-being is the cognitive and affective reactions to the perception of adequate personal characteristics and achievements, efficient interaction with the world and social integration, and positive progress in time. Positive psychological well-being includes life satisfaction, positive mood and energy. On the other hand, negative psychological well-being is the cognitive and affective response to perceived deficits in the mentioned areas. Negative psychological well-being includes distress and negative mood, symptoms and hyper-arousal.

Lately psychological well-being was viewed as the combination of positive affects (such as happiness) and fully functioning in one's life (Deci & Ryan, 2008) and the combination of feeling good and functional effectively (Huppert, 2009). The concept of feeling good includes not only the positive emotions of happiness and contentment, but also such emotions as interest, engagement, confidence, and affect. The concept of functioning effectively involves the development of one's potential, having some control over one's life, having a sense of purpose, and experiencing positive relationships. Psychological well-being was about life going well and does not require individuals to feel good all the time. Persons with high psychological well-being can manage and encounter painful or negative emotions, and they can function in their daily life.

From literature review, various definition were provided for the term psychological well-being to fit with the study population who were mostly adult. Not many studies explored the level of parents' psychological well-being in parents. Particularly, parents with critically ill children in PICU. The only one study in the sample of Thai parents showed three quarters of parents with a critically ill child (75.00%) had low psychological well-being (Vrolan, 1992). In Indian parents of child with chronic problem, Parameswari and Eljo (n.d.) found that more than half (56.80%) of those whose child had intellectual and developmental disabilities reported low psychological well-being. Similarly, the finding of Nikmat, Ahmad, Oon, and Razali (2008) revealed that 53.80% of Malaysian parents of children with autism spectrum disorder had poor psychological well-being. In Thailand, the study of Kongpan (1990) revealed that most of mothers of hospitalized child at Ramathibodi Hospital (68.57%) reported having low psychological well-being.

Instruments for Measuring Psychological Well-being

From the literature review, there have been several instruments available for measuring psychological well-being as follows:

1. The Affect Balance Scale (ABS). The ABS was developed by Bradburn in 1965 (as cited in McDowell, 2006; 2010). The conceptual framework of this instrument emerged from a pilot study that attempted to develop operational measures for problems in living. This framework took as its fundamental dependent variable asserted happiness or the feeling of psychological well-being. The person's position on the component of psychological well-being evaluated a resultant of the individual's feeling on two independent components: positive affect and negative affect. The ABS was used to measure psychological well-being in general populations and the manifested ability of persons to cope with the stressful situation in everyday life. The ABS scale was composed of two components: the positive affect and the negative affect. The original scale of ABS consisted of 12 items, with 7 measuring positive feelings and 5 measuring negative feelings. Subsequently, the ABS was revised in 1969 by removing 4 items and adding 2 items to the scale. Finally, the ABS, widely used in general populations, consisted of 10 items to measure psychological well-being, and each component consisted of 5 items. This scale asked respondents about their feelings and emotional experiences in the past few weeks. The scale was self-reported, and respondents might use a dichotomous "yes/no" to each item. Five items measured positive affect, including items 1, 3, 4, 7, and 9, whereas five items measured negative affect, including items 2, 5, 6, 8, and 10. An affect balance score was calculated by the difference between the positive scores subtracts the negative scores, and zero referred to a balance affect. Persons with high ABS scores represented an overall positive affect, whereas lower ABS scores represented an overall negative affect.

Regarding the reliability of the ABS, internal consistency resulting from several samples showed the Cronbach's alpha coefficients for the positive affect scale of .50 - .73 and .61 - .73 for the negative-affect scale in household samples (Cherlin & Reeder, 1975), adult samples (Kim & Mueller, 2001), and elderly samples (Kempen, 1992). In addition, an eight-week test-retest reliability reported the coefficients of .66 for the positive affect scale, and .67 for the negative affect scale (Kempen, 1992). The internal consistency reliability of

this instrument showed the Cronbach's alpha coefficients of .68 for the positive affect scale and .64 for the negative affect scale in 174 unemployment persons in New Zealand aged 50 to 65 years (Brown, Paul, Ng, & Guo, 2002).

For the validity of the ABS, Bradburn presented that positive affect correlated with single-item indicator of happiness from .34 to .38 and with corresponding values for negative affect at -.33 to -.38 (Brandburn, 1969). Headey, Kelley, and Wearing (1993) reported that the PAS was moderately correlated with the scale measuring life satisfaction (r = .35), and the correlation with the NAS was -.40. Moreover, factor analysis in Cherlin and Reeder's study (1975) reported that a clear two-factor structure could be inferred from the rotated factor loading. Each item loaded highly on one of the two factors. Similarly, a study of Brown, Paul, Ng, and Guo (2002) tested the psychometric properties of the ABS among a sample of 174 individuals in New Zealand aged between 50 to 65 years who had experienced unemployment. The validity of this instrument was tested using a confirmatory factor analysis (CFA), and the finding showed that there were two-factor structures, including positive and negative affect.

2. The Positive and Negative Affect Scale (PANAS). The PANAS was developed by Watson, Clark, and Tellegen in 1988. The PANAS assessed both positive and negative affect, and it was developed partly out of criticisms of the Affect Balance scale (ABS). It had been used in studies of mood states, especially depression and anxiety. It consisted of 20 items, including 10 measuring positive feelings and 10 measuring negative feelings. The positive affect items included feeling enthusiastic, active, alert, and proud whereas the negative items included feeling upset, guilty, fear, and distress. The PANAS was self-administered, and used a five-point Likert scale. Respondents were asked to express the experience occurring in a particular time period. The scale consisted of adjective words that presented different feelings and emotions ranging from 1 (very slightly or not at all) to 5 (extremely). For scoring interpretations, positive affect score ranged from 10 to 50 and higher scores indicated higher levels of positive affect whereas negative affect score ranged from 10 to 50 and higher scores indicated higher levels of negative affect.

Regarding the validity and reliability of the PANAS, Crawford and Henry (2004) tested the psychometric properties of the PANAS among 1,003 members of the general adult population in United Kingdom (UK). This study examined the two factor structure of

PANAS using CFA and found discrimination between the factors (the positive affect and the negative affect). Similarly, the construct validity of the Korean version of the PANAS by Lim, Yu, Kim, and Kim (2010) showed that there were two-factor models, including positive and negative affects. For concurrent validity, the negative affect had a significant relationship with both depression scales (r = .66, using Korean version of the Beck Depression Inventory: K-BDI) and anxiety (r = .62, using Korean version of the Beck Anxiety Inventory: K-BAI). The Cronbach's alpha coefficients were .87 for the positive affect scale and .91 for the negative affect scale in a sample of 215 psychiatric patients. The test-retest reliability for the positive affect scale was .79 and the negative affect scale was .89 over one week.

3. The General Well-Being Schedule (GWB). The GWB developed by Dupuy in 1977 (as cited in McDowell, 2006; 2010). This tool was developed for assessing the individuals feeling about inner personal state or psychological well-being and distress. The scale assessed both positive and negative feelings. The GWB consisted of 18 items, and these items covered 6 dimensions measuring well-being or mental health, including anxiety (4 items), depression (3 items), positive well-being (3 items), self-control (3 items), vitality (3 items), and general health (2 items). Respondents were asked about their feelings in general during the past month. Fourteen items in the first part used six-point response scales (0-5 scores) representing frequency of feelings. The total scores for this part were between 0-70. The second part was the remaining 4 items with two positive and negative questions that used 0 to 10 rating scales anchored by adjectives. The possible scores were between 0-40. To calculate the score, negative questions were reverse-scored (items 1, 3, 6, 7, 9, 11, 15, and 16), and then the overall scores were calculated. The total score was between 0-110. Proposed cutoffs represented three categories, including severe distress (0-60), moderate distress (61-72), and psychological well-being (73-110).

The validity and reliability of the GWB were tested by Nakayama, Toyoda, Ohno, Yoshiike, and Futagami (2000) in a sample of 1,224 middle-aged people in Japan. The construct validity tested using CFA with varimax rotation found that 3-factor models were developed after the elimination of item 11 (i.e., depression, health concerns, and life satisfaction and emotion stability). The concurrent validity of Japanese version showed that the GWB had a moderate correlation with the General Health Questionnaire, State-Trait

Anxiety Inventory, Center for Epidemiologic Studies Depression Scale, and Self-Rating Depression Scale and Profile of Mood State (r = -.53 to -.75). The internal consistency reliability of this instrument was tested using the Cronbach's alpha coefficient from which the value obtained was .90. The stability of reliability of this scale tested using test-retest method showed Pearson's correlation coefficient of .81. The GWB was translated into Thai by Hanucharurnkul and colleagues (1989). The reliability of Thai version was tested among a sample of 30 nurses of the Nursing Department of Ramathibodi Hospital (the Cronbach's alpha coefficient of .92), and among a sample of 230 nursing instructors (the Cronbach's alpha coefficient of .91). Additionally, the GWB in Thai version was widely used in several populations. Two studies in caregivers or parents of children showed the Cronbach's alpha coefficient of .92 among a sample of 80 parents whose children were admitted in intensive care unit at Ramathibodi Hospital (Vrolarn, 1992) and .80-.83 among a sample of 64 caregivers of delayed development children at Northern Child Development Center (Kasemsuk, 2002). Two studies in caregivers of adult patients showed that the Cronbach's alpha coefficients were .81 among a sample of 30 caregivers of stroke patients (Daonophakao, 2004) and .90 among a sample of 28 family caregivers of patients with advanced breast cancer (Kaspad, Monkong, & Sirapo-nagm, 2013).

Dupuy modified and revised the original version (the GWB) to the Psychological General Well-being Index (PGWBI) in 1984 (Dupuy, 1984). The scale consisted of 22 items and 6 dimensions measuring well-being, including anxiety (5 items), depression (3 items), positive well-being (4 items), self-control (3 items), vitality (4 items), and general health (3 items). This scale was a 6-point Likert scales (0-5) asking the frequency of feelings during the last month. To calculate the score, the negative items were reversed-scored, and then calculation was done to get overall scores. The possible score was between 0-110. Proposed cutoffs represented three categories as above mentioned.

The psychometric properties of the Spanish version PGWBI were tested by Badia, Gutierrez, Wiklund, and Alonso (1996) among a sample of 104 adult patients. The concurrent validity of Spanish version showed that the PGWBI was moderately to highly correlated with the General Health Questionnaire (GHQ-12) (r = -.71) and with the Sickness Impact Profile (SIP-PD) (r = -.69). The reliability of the Spanish version showed that the Cronbach's alpha coefficient was .94, and two-week test-retest reliability was .76.

Moreover, in a Turkish study, construct validity was assured by the finding that the PGWBI score was correlated with the subscale of the Nottingham Health Profile (NHP) in healthy individuals (r = -.38 to -.70), except for pain subscale (r = -.16). The PGWBI score was correlated with the subscale of the NHP in patients (r = -.29 to -.64). For reliability of this instrument, the Cronbach's alpha coefficients were .93 in healthy samples and .92 in patient samples. Two-week test-retest reliability showed the total scores of PGWBI were .95 in healthy samples and .98 in patient samples (Ay et al., 2010). In Thailand, Mahitthanupap (2012) modified the PGWBI to use with the Thai elderly sample and tested the reliability from which the Cronbach's alpha coefficient of .89 was obtained in a sample of 370 elderly people aged 60-79 years.

4. The Mental Health Inventory (MHI). The MHI was developed by Ware in 1983. The scale was based substantially on the GBW developed by Dupuy. The MHI was developed as part of the National Health Insurance Study (Veit & Ware, 1983). This tool was used to measure mental health in terms of psychological distress and well-being, especially affective states, in general population. The MHI was a self-report questionnaire and had two dimensions, including psychological well-being and psychological distress. The psychological well-being dimension contained 2 subscales consisting of general positive affect (11 items), and emotional tie (3 items), whereas the psychological distress dimension contained 3 subscales consisting of anxiety (10 items), depression (5 items), and loss of behavioral/ emotional control (9 items). The total item of MHI was 46 items, including 38 items for psychological status and 8 items for socially desirable response set. Additionally, the 36 MHI items were scored on a 6-point Likert scale (ranging 1- 6), but Items 9 and 28 were scored on a 5-point Likert scale (ranging 1- 5) according to the frequency of feelings over the past month. Regarding scores, eight items for socially desirable response set were not calculated. The negative items were reverse-scored, and then the overall score or two global scales were calculated. The total score was between 38 and 226. Higher average score was identified as good mental health, whereas lower average score was identified as poor mental health. Moreover, two global scales included psychological distress (score ranging 24-142) and psychological well-being (score ranging 14-84). Thus, higher score of psychological distress showed negative states of mental health, whereas higher score of psychological well-being showed positive states of mental health.

Regarding the psychometric properties of the MHI, Veit and Ware (1983) tested validity and reliability in general population (N = 5,089). From factor analysis, the finding showed that psychological distress had three factors and psychological well-being had two factors. The Cronbach's alpha coefficients were .94 for psychological well-being and .92 for psychological distress. Test-retest reliability of the overall scores was .56 to .64 in a one-year interval (Veit & Ware, 1983). The study of Khan, Hanif, and Tariq (2015) reported that the factor structure testing by exploratory factor analysis (EFA) was the same as the original MHI, including psychological well-being and distress. The Cronbach's alpha coefficients were .95 for psychological well-being and .96 for psychological distress among 600 people who were 21-50 years old in Pakistan. In addition, Brunier and colleagues (2002) studied to the psychological well-being of renal peer support volunteers. This study reported the Cronbach's alpha coefficients of .92 -.93 for psychological well-being and .93-.95 for psychological distress. In Thailand, Veit and Ware's MHI (1983) was translated into Thai by Khueanman and Tungpunkom in 2002. The Thai version of MHI showed its content validity index (CVI) of .87 (Khueanman, 2002). Two Thai studies showed that the Cronbach's alpha coefficients of MHI were .96 in a sample of 72 mothers of autistic children (Khueanman, 2002), and .84 in a sample of 152 special children groups (Phothiyod, 2005).

5. The Ryff's Scale of Psychological Well-being (Ryff's PWB). The Ryff's PWB was developed by Ryff in 1989 based on Maslow's conception of self-actualization, Jung's formulation of individuation, Rogers's view of the fully functioning person, Allport's conception of maturity, Erickson's psychosocial stage model, and Jahoda's positive criteria of mental health. The scale consisted of six dimensions of psychological well-being including self-acceptance, positive relations with other, autonomy, environmental mastery, purpose in life, and personal growth. The original version of Ryff's scale consisted of six dimensions of 20 items each (Ryff, 1989). The revised version by Ryff and Keyes (1995) included 18-item with 3 positively or negatively phrased items per scale. Many version of the Ryff's PWB were used in a variety of samples and settings (Abbott, Ploubidis, Huppert, Kuh, & Croudace, 2010). Ryff's PWB was a self-report questionnaire to evaluate individual's well-being at the moment. The response format for all PWB items were 6-points Likert scale, ranging from 1 (totally disagree) to 6 (totally agree).

Regarding psychometric properties, the validity and reliability of Ryff's PWB was confirmed in many studies. Akin (2008) tested the validity and reliability of the Turkish version of the Ryff's PWB among 1,214 university students. The results reported that EFA showed the items loaded on 6-factor structure. The total variance accounted was 68.00 % and factor loadings ranged from .30 to .94. Concurrent validity with the Self-compassion Scale and the Depression Anxiety Stress Scale (DASS) showed that the Turkish version had positive correlation with the Self-compassion Scale (ranged from .39 to .55) and negative correlation with DASS (ranging from -.12 to -.51). The Cronbach's alpha coefficient ranged from .87 to .96. Test-retest reliability of this instrument ranged from .78 to .97. Moreover, the reliability was examined in various version of Ryff's PWB. Van Dierendonck (2004) reported internal consistency of the six dimensions in psychology students and professionals from a diverse occupational background. The scale with 14 items had good reliability, with the Cronbach alpha's coefficient ranging from .77 to .90 and that for the 9-item version ranged from .65 to .83, whereas the 3-item version had low reliability, with the Cronbach alpha's coefficient ranging from .17 to .68. For the use of this instrument in research, Sagone and Caroli (2014) studied the relationships between psychological well-being and resilience among 224 middle and late adolescents. The Cronbach's alpha coefficient of the 18-item version by Ryff and Keyes (1995) was .60. In Thailand, Subprawong (2012) reported that the Cronbach's alpha coefficient of overall score was .93 and for each dimension was .63-.86.

In summary, many measures had been available to measure psychological well-being. All showed good psychometric properties. However, comparing to other instruments, the Psychological General Well-being Index (PGWBI) has been used more in a variety of samples, therefore it was used in the present study.

Factors Relating to Psychological Well-being Among Parents of a Critically Ill Child in the PICU

From literature review, there was little existing knowledge regarding factors predicting psychological well-being of parents of a critically ill child. There was only one study in this sample explored the bivariate relationship between a few selected factors including parents' education, uncertainty in illness emotional focused coping, and well-

being (r = .32, -.55, -.46, respectively, p < .01) (Vrolarn, 1992). The researcher also reported that the three variables were the predictors that accounted for 38.81% of the variances in well-being of parents with children admitted in intensive care unit.

Due to the limited information about the predicting factors of psychological well-being of parents whose child was in PICU, the present study was planned to identify the factors that can predict the psychological well-being in this sample. Pearlin and colleagues' SPM (1990) was used to guide the present study. Factors derived from the model concepts were tested for their association with psychological well-being and their ability in predicting it.

The original SPM model was developed based on Stress and Coping theory of Lazarus and Folkman by Pearlin, Lienerman, Menaghan, and Mullan in 1981 to explain coping of caregivers of patient with Alzheimer later on, the model was tested in various group of caregivers of chronically ill patients (Papastavrou, Charalambous, & Tsangari, 2009) consisted of three major conceptual domains, including the sources of stress, the mediators of stress, and the manifestations of stress. In 1990, the SPM was revised by Pearlin, Mullan, Semple, and Skaff. There were four core components (Figure 2.1), including the background and context of stress process, the stressors, the mediators of stress and the outcomes of stress. The background and context of stress process that included demographic and socioeconomic status of the caregiver (e.g., age, gender, religious, race, education level, and socioeconomic status). The stressors were the conditions, experiences, and activities that were problematic for caregivers, including primary stressors (e.g., cognitive status, problematic behavior, illness, and relational deprivation), and secondary stressors (e.g., role strains and intrapsychic strains). The mediators of stress, including coping and social support. Subsequently, Pearlin (1999) changed the wording from the mediators of stress to the moderating resources. He suggested that the moderating resources were regarded as having the capacity to hinder, prevent, or cushion the development of the stress process and outcomes. From his studies, Pearlin (1999) founded coping, social support, and self-concepts were the moderating resources. Wheaton (2010) proposed that the moderating resources could be classified into social and personal resources. Personal resources were important intrapersonal resources that helped a person handle current situations. It consisted of mastery, self-esteem, trust, flexibility, sense of coherence,

hardiness, and forms of control. She suggested that sense of coherence was one of personal resources or self-concepts. Lastly, the outcomes of stress related to the impact of the stressors on the well-being of the caregiver included depression, anxiety, irascibility, cognitive disruptions, physical health, and the yielding of caregiver activities.

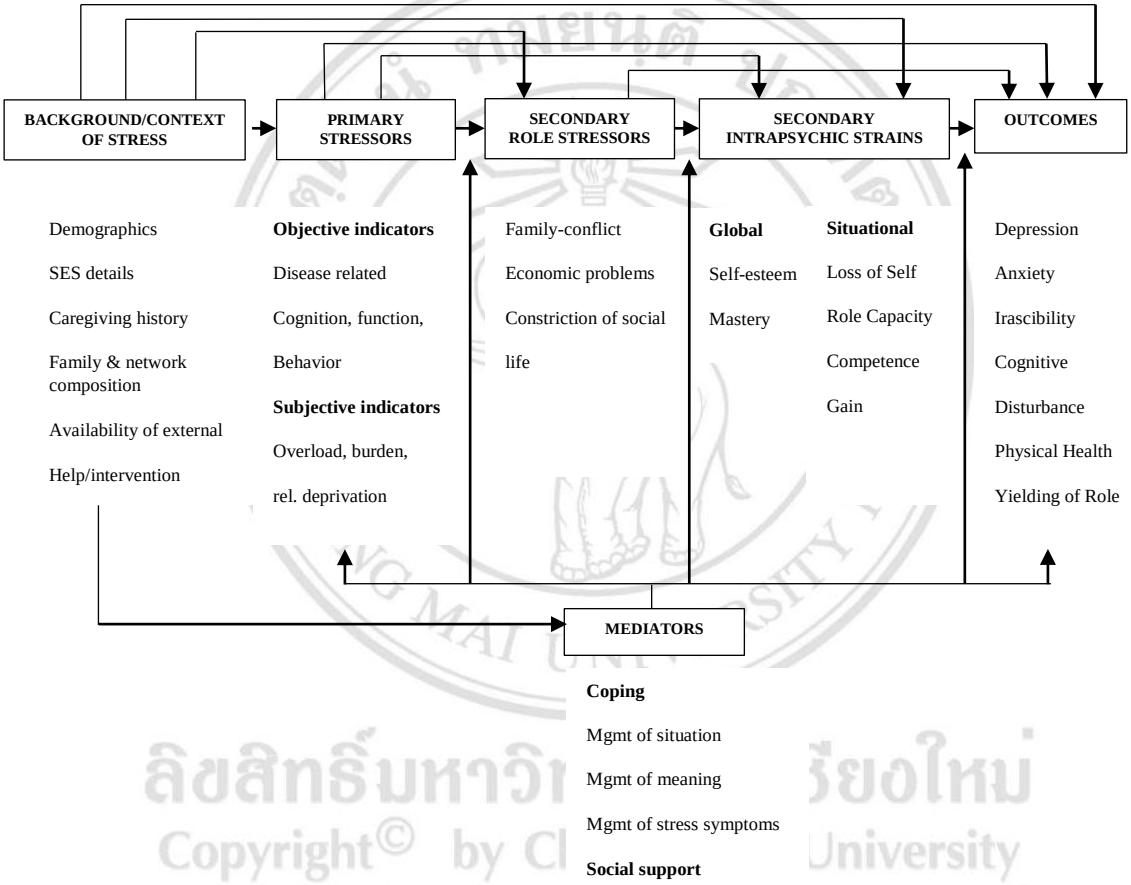

Figure 2.1 The Stress Process Model

Note. From "Caregiving and the stress process: An overview of concepts and their measures" by L. I. Pearlin, J. T. Mullan, S. J. Semple, and M. M. Skaff, 1990, The Gerontologist, 30(5), p. 586.

Based on SPM psychological well-being is an outcome of stress process. Therefore, psychological well-being is associated with all model factors. However, the association between the variables in different situation may be varied. In the PICU situation, the

researcher in the present study aimed to identify the predicting factors of the parents' psychological well-being from various factors derived from the SPM's components. The modifiable factors were selected since the researcher can further manipulate them. Also the factors that had been found to have a relationship with psychological well-being from previous studies were included in the present study. Thus, the selected factors in the present study consisted of the child's behavioral and emotional responses, sense of coherence, coping, religious belief, and social support. Descriptions of the five factors and their relationships with psychological well-being were shown in the following paragraphs.

The Child's Behavioral and Emotional Responses

According to Pearlin and colleagues (1990), the child's behavioral and emotional responses are one of the stressors for parents with a critically ill child. Their behaviors demonstrate the child's discomforts and pain, therefore causing stress to the parents. The frequent behaviors of critically ill infant and children in critical setting are crying, frightening, anger, sad, restlessness, confusion, rebellion, whining, demanding behavior, uncooperative behavior, and inability to talk (Miles & Carter, 1982). Similarly, two previous studies (Jones, 2015; Seideman et al., 1997) identified that parents who had a hospitalized child in the ICU were most stressful from seeing their child in discomfort, pain, or fright, not being able to be with their crying child, and not understanding how to help their child. Parents might be scared by some of their child's behaviors. Thus, the child's behavioral and emotional responses can affect the parents' feeling or psychological state, especially behaviors showing their unhealthy state (Nizam & Norzila, 2001). In Thailand, a previous study conducted by Chaisom (1993) revealed that the child's behavioral and emotional responses, particularly confusion and unresponsiveness, led to severe maternal stress ($\bar{X}$ = 3.66, SD = 1.15) in the PICU. Likewise, the study of Gallegos (2010) explored stress and coping in parents who had a seriously ill child. The finding indicated that the child's behavioral and emotional responses were positively correlated with stress of parents ($r = .52$, $p < .01$). When children manifested more uncomfortable behavior, their parents expressed more negative feeling.

Instruments for Measuring the Child's Behavioral and Emotional Responses

From literature review, the only instrument for measuring stressors of parents in PICU with include the child's behavioral and emotional responses was the Parental Stressor Scale: PICU (PSS: PICU).

This instrument was developed by Carter and Miles (1989) based on the transactional model for understanding parental stress in the PICU (Miles & Carter, 1982). It contained 37 items with seven subscales measuring parents' perception of stressors associated with having the child admitted in PICU, namely child's appearance (3 items), sights and sounds (3 items), procedures (6 items), behaviors of profession staff (4 items), parental role (6 items), communication of professional staff (5 items), and child's behavioral and emotional responses (10 items). This instrument used a 6-point Likert scale from 0 (not stressful) to 5 (extremely stressful). A total score was summated. This instrument was used in many studies (Board, 2004; Board & Ryan-Wenger, 2002; Melnynk, Alpert-Gillis, Hensel, Cable-Beiling, & Rubenstein, 1997). In the present study, the Child's Behavioral and Emotional Responses Subscale of the Parental Stressor Scale: PICU (PSS: PICU) was used to assess the child's physical and emotional responses as perceived by parents while the child was hospitalized in PICU.

Regarding psychometric properties, the validity and reliability of the Chinese version of the PSS: PICU were tested by Yam, Lopez, and Thompson (2004) in a sample of 81 parents of a critically ill child in PICU. The convergent validity was tested with the Chinese version of Spielberger State Anxiety Inventory (C-SAI). The results showed that there was a positive relationship between anxiety and child's behaviors and emotions ($r = .23$, $p < .05$). The internal consistency showed the Cronbach's alpha coefficient of .95 for child's behaviors and emotions subscale. In Thailand, Chaisom (1993) modified the Parental Stressor Scale of Carter and Miles (1989) to be used with Thai sample. The Thai version contained two parts. Part 1 consisted of 40 items measuring six perceived stressors associated with the child in PICU, namely child's behavior (11 items), parental role (5 items), communication and behavior of professional staff (10 items), procedure (7 items), sights and sounds (3 items), and child's appearance (4 items). This instrument used 6-point Likert scale from 0 (not stressful) to 5 (extremely stressful). The average the score for each dimension was calculated and divided into five categories: 1.00-1.49 (not stressful), 1.50-

2.49 (mild stressful), 2.50-3.49 (moderate stressful), 3.50-4.49 (very stressful), and 4.50-5.00 (extremely stressful).

So far, the PSS: PICU, Behavioral and Emotional Response Subscale is the only instrument for rating the child's behavioral and emotional responses by the parents with a critically ill child. This subscale has good psychometric properties. Thus, it was used in the present study.

Sense of Coherence (SOC)

Sense of coherence (SOC) is another factor reported to show a relationship with psychological well-being of parents. SOC is "global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that 1) the stimuli, deriving from one's internal and external environments in the course of living, are structured, predictable and explicable (comprehensibility); 2) the resources are available to one to meet the demands posed by these stimuli (manageability); 3) these demands are challenges, worthy of investment and engagement (meaningfulness)". Three components of SOC are comprehensibility, manageability, and meaningfulness (Antonovsky, 1987). Comprehensibility means individual's feeling that they can understand the situations in their lives and these situations are predictable or can be expected. The persons who have a high level of comprehensibility are able to understand and explain what has occurred and reasonably predict what is going to happen next. Manageability refers to individual's feeling that they can cope with stressful situations. The persons who have a high level of manageability can handle and manage the problems. Meaningfulness refers to individual's feeling that life is valuable and that problems or highly stressful situations in life are interesting and challenging. The persons who have a high level of meaningfulness will feel that the events in their lives are challenging, meaningful, and worthwhile, and it deserves to be well managed. Interestingly, Wheaton (2010) suggested that SOC was an internal resource in persons. The persons with strong SOC are more likely to judge a stressful situation as controllable. SOC could help persons in choosing the available resources and behaviors to cope with many stressors (Antonovsky, 1987). Additionally, SOC is a

mediating factor to reduced stress and depression across settings and populations. Unfortunately, the relationship between SOC and parental stress or depression is not found in critical illness.

From the literature review, a study of Olsson and Hwang (2002) found that SOC had a negative correlation with depression among fathers and mothers of children with intellectual disabilities ($r = -.65$, and $-.72$ respectively; $p < .01$). Moreover, a study of Mak and colleagues (2007) found a negative relationship between SOC and stress in a sample of 157 mothers of children with autism ($r = -.61$, $p < .001$). Forsberg-Warleby and colleagues (2002) also explored the relationship between SOC and psychological well-being in a sample of 83 spouses of stroke victims. The findings showed a positive relationship between the two varibles ($r = .31$, $p < .005$) in the spouse of stroke victims.

Instruments for Measuring Sense of Coherence

The Sense of Coherence Scale developed by Antonovsky (1987; 1993) was used in the present study to measure the parents' SOC. The original of the Sense of Coherence Scale (SOC-29) contained 29 items and covered three components of SOC, including comprehensibility (11 items), manageability (10 items) and meaningfulness (8 items). Each item was a 7-point semantic differential type with two anchoring phrases respondents were asked to rate on each item. Completion of the original scale took 15-20 minutes. To calculate the score, 13 of the items required reverse scoring (item 1, 4, 5, 6, 7, 13, 14, 16, 20, 23, 25, and 27). The possible score was between 29 and 203. Higher score indicated high levels of sense of coherence. Later on Antonovsky also refined The SOC-29 to be the Sense of Coherence Scale-Short Form (SOC-13) containing 13 items. Both versions were developed to measure the SOC construct as a global orientation. The SOC-13 version scale still contained three components of SOC, including comprehensibility (5 items), manageability (4 items) and meaningfulness (4 items) and still were the semantic differential scale. Completion of the SOC-13 version scale was 5 minute long. Some items required reverse scoring before calculation. The total score was summed and ranged from 13 to 91. Higher score indicated a high level of sense of coherence.

Regarding psychometric properties, the study of Antonovsky (1993) conducted in many countries supported the acceptability reliability, validity, and feasibility of both versions. The internal consistency of the SOC-29 tested in 26 studies showed that the Cronbach's alpha coefficient ranged from .82 to .95. Whereas, that for the SOC-13 tested in 16 studies showed that the Cronbach's alpha coefficient of .74 to .91. The criterion validity was showed by the significant correlations of the SOC score with four measures: 1) a global orientation to oneself and one's environment; 2) stressors; 3) health, illness, and well-being; 4) attitudes and behavior. Regarding construct validity, from factor analysis, was unclear, some studies pointed to one dominant factor. A systematic review of Eriksson and Lindstrom (2005) summarized the SOC research in 1992-2003. This scale was used in at least 33 languages in 32 countries with at least 15 different versions of the instrument. This review showed that the Cronbach's alpha coefficient of SOC-13 ranged from .70 to .95 in 124 studies, and .70 to .92 for the SOC-13 in 127 studies. The coefficient of .35 to .91 was founded in 60 studies using the modified SOC scale. Test-retest reliability was ranged from .42 to .78 (1 year to 10 years). The factor structure of the SOC was still not entirely clear and seemed to be multidimensional rather than unidimensional.

The Sense of Coherence Scale (SOC-29) was translated into Thai by Hanucharurnkul and colleagues in 1989. Factor analysis using EFA presented the three-factor model as proposed by the theory (Hanucharurnkul et al., 1989). The scores ranged from 29-203. To interpret the score, there were three levels of sense of coherence, including scores 29-86 (low), 87-144 (moderate), and 145-203 (high). The reliability of Thai version of SOC-29 was tested among 30 nurses of the Nursing Department of Ramathibodi Hospital (the Cronbach's alpha coefficient of .85), and among a sample of 230 nursing instructors (the Cronbach's alpha coefficient of .90) (Hanucharurnkul et al., 1989). The reliability of of SOC-29, Thai version was tested in many samples and showed high reliability coefficients: .91 in a sample of 486 nursing students at Ramathibodi School of Nursing (Nintachan, 1995) and .92 in a sample of 566 caregivers the schizophrenic patients (Pipatananond et al., 2002). For the SOC-13, Thai Version, the Cronbach's alpha coefficient was tested showed the value of .87 in a sample of stroke caregivers (Daonophakao, 2004). Udompattenagorn (1995) modified the rating points from 7 to 5 of the Thai version of SOC-13 to make it easy to use. The Cronbach's alpha coefficient of this version was .89 among a sample of 60 obstructive pulmonary disease patients.

Anusasananun, Pothiban, Kasemkitwatana, Soivong, and Trakultivakorn (2013) showed the Cronbach's alpha coefficients of .75-.83 in the samples of breast cancer survivors.

In conclusion, the SOC scale both original and short version showed good psychometric properties, however the SOC-13 is more likely to be appropriate for measuring SOC of parents who have a critically ill child. Therefore, the SOC-13, Thai version was used in the present study.

Coping

Lazarus and Folkman (1984) defined coping as "a constantly changing cognitive and behavioral effort to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person". The coping process may serve two functions: problem solving and regulating the emotions. Problem solving aims at changing the situation for the better, by focusing either on the self or on something in the environment, and the strategies of problem-focused coping consist of altering environmental pressure, planning, seeking information, and seeking social support. Regulating the emotions aims to manage the somatic and cognitive component of the stressful transaction. The strategies of emotion-focused coping are avoidance, distancing, selective attention, positive comparison, and wresting positive value from negative events. Pearlin and colleagues (1990) defines coping in the SPM as "behaviors and practices of individuals as they act on their own behalf in response to life problems. The three possible functions of coping are management of the situation giving rise to stress; management of the meaning of the situation so that its threat is reduced and management of the stress symptoms that result from the situation". The authors proposed that coping and social support have a buffering effect to stressors through direct or indirect paths. Therefore, coping can affect psychological stage of person. When the parents faced with the stressful situation such as having a child in the PICU, They use several coping strategies to deal with this situation to maintain their well-being stage. Those who cope better are likely to demonstrate higher psychological well-being. Thus, coping can affect psychological state of parents.

From the literature review, Kumari, Gupta, Piplani, Bhatia, and Upadhayay (2011) examined the parental stress and coping techniques among 60 parents of children with

bronchial asthma. The findings indicated that these parents had high stress, and coping techniques appears to be an important moderator to stress. Positive reappraisal had a negative relationship with stress of parents ($r = -.35$, $p < .01$) and accounted for 12.00% of total variance in parental stress. A study of Hayat and Zafar (2015) explored the relationship between coping strategies and psychological well-being among 120 parents with Down syndrome children. The results revealed a significant correlation between indicators of psychological well-being and coping strategies. A lower level of depression, anxiety and stress indicated a higher level of psychological well-being. Problem-focused coping, and positive coping were negatively associated with the three indicators of psychological well-being, including depression ($r = -.31, -.31$; $p < .01$), anxiety ($r = -.24, -.22$; $p < .01, < .05$), and stress ($r = -.24, -.23$; $p < .01$). In contrary, active avoidance coping was positively associated with the three indicators of psychological well-being, including depression ($r = .55$, $p < .01$), anxiety ($r = .67$, $p < .01$), and stress ($r = .59$, $p < .01$).

LaMontagne and Pawlak (1990) explored stress and coping of 30 parents of a child in the PICU with interview and questionnaire. The finding revealed that all parents used both problem- and emotion-focused forms of coping (49.00% and 51.00% respectively). Seeking social support (21.00%) and positive reappraisal (19.00%) were the two strategies used among all parents. A study of Wonginchan (2003) explored the relationship between coping and well-being of 80 parents with newborn infants in the NICU. The finding revealed that the common coping strategies of parents were mobilizing family to acquire and accept help, seeking spiritual support, reframing, acquiring social support, and passive appraisal respectively. The parental well-being level was low, and there was a negative relationship between well-being and mobilizing family to acquire and accept help ($r = -.27$, $p < .05$), acquiring social support ($r = -.22$, $p < .05$), and total score of coping ($r = -.26$, $p < .05$). The results indicated that parents of newborn infants who had lower well-being frequently used more coping strategies.

Instruments for Measuring Coping

Based on the literature review, there were three instruments for measuring coping, including the Jalowiec Coping Scale (JCS), the Ways of Coping Questionnaire (WCQ), and the COPE Inventory Scale.

1. The Jalowiec Coping Scale (JCS). This instrument was originally developed by Jalowiec (1977) based on Lazarus's stress, appraisal and coping theoretical framework. The original version of JCS consisted of 40 items on a five-point Likert scale, including problem- and emotion-focused coping. This instrument comprised three subscales consisting of confrontive coping, emotive coping, and palliative coping. In 1987, this instrument was expanded to a 60-item version in order to more fully capture a person's coping and behavioral coping strategies. The 60-item of JCS items were classified into eight subscales, including confrontive, evasive, optimistic, fatalistic, emotive, palliative, supportant, and self-reliant. From Jalowiec's recommendations (1988), four items concerning crying, drinking, taking drugs, and meditating were not comprised in the three-factor structure. The revised version of JCS were modified and used widely across Thai populations. It had 36 items and comprised three subscales consisting of confrontive coping (13 items), emotive coping (9 items), and palliative coping (14 items). Confrontive coping subscale measured individual's constructive problem-solving, and confronting the stressful situation or problem. Emotive coping subscale measured individual's releasing and expressing emotions. In addition, palliative coping measured individual's method in alleviating stress or tension, making themselves feel better, keeping under control without directly taking care of the problems. Respondents were asked to respond to each item using a 5-point Likert scale ranging from 1 (never use) to 5 (almost always). The possible scores ranged from 36 to 180.

The psychometric properties of the 40-item of JCS were tested by Jalowiec (1988) among 790 patients with chronic illness, 133 family members of patients, 353 nurses, and 124 students. The CFA showed a three-factor structure, including confrontive coping, emotive coping, and palliative coping. Four items, including item about cry, drinking, taking drugs, and meditating, were deleted. The Cronbach's alpha coefficients of JCS were .85 for confrontive coping, .75 for emotive coping, .75 for palliative coping, and .95 for total score. In Thailand, Suthayakorn (1988) translated the JCS (1977) into Thai. This instrument was tested in a sample of 30 caregivers of stroke patients from which the Cronbach's alpha coefficient for the total score of .88 was obtained. Moreover, the Thai version of JCS was modified by Priengdach (1990), by removing the four items following the results of Jalowiec's study (1988). The Thai version of JCS was tested in a sample of 60 patients with hypertension and found that the Cronbach's alpha coefficient was .84. For

parents, the Cronbach's alpha coefficient was .72 in a sample of 80 parents with seriously ill children (Vrolan, 1992). Another testing showed the Cronbach's alpha coefficients of .82 for confrontive coping, .71 for emotive coping, .70 for palliative coping, and .86 for total score in a sample of 50 elderly stroke patients (Mingkwan, 1999). A study of Pomrod, Monkong, and Sirapo-ngam (2011) that explored needs, stress, and coping of patients' relatives before transferring from intensive care units revealed the Cronbach's alpha coefficient for total score of .81 in a sample of 105 relatives of patients. For cancer caregivers, the Cronbach's alpha coefficient was .88 in a sample of 275 family caregivers (Meecharoen, Sirapo-ngam, Monkong, Oratai, & Northouse, 2013).

2. The Ways of Coping Questionnaire (WCQ). This tool was developed by Lazarus and Folkman (1985). This instrument was translated into Thai by Sithimongkol, Pongthavornkamol, and Gasemgitvattana in 2004 (Lambert et al., 2004) to identify the thoughts and actions that individuals used to cope with stress. The first version of WCQ consisted of 68 items assessing two coping components (problem- and emotion-focused coping). Due to unclear and redundant items in the first version of WCQ, the WCQ was revised by Lazarus and Folkman in 1985. The revision of WOC contained 66 items measuring eight coping behaviors: planful problem solving (6 items), confrontive coping (6 items), self-controlling (7 items), distancing (6 items), seeking social support (6 items), accepting responsibility (4 items), positive reappraisal (7 items), and escape-avoidance (8 items). Respondents were asked to use coping strategies when they were confronted with the stressful situation. The WCQ was rated on a 4-point Likert scale ranging from 0 (does not apply and/or not used) to 3 (used a great deal). The range of possible scores was 0-198, with higher scores reflecting more frequently used strategies.

Regarding the psychometric properties, the validity of the WCQ was examined by CFA in clinical and nonclinical groups. The results showed that there was eight-factor model of the WCQ. The Cronbach's alpha coefficient of total score was .86 (Lundqvist & Ahlström, 2006). In Thailand, the Thai version of WCQ was widely used in several populations. The Cronbach's alpha coefficient of the whole score was .86 (Lambert et al., 2004). Other study in caregivers of person with major depressive disorder showed the Cronbach's alpha coefficients of .79 for the whole scale, .69 for problem-focused coping,

and .74 for emotion-focused coping (Pianchob, Sangon, Sittimongkol, William, & Orathai, 2014).

3. The COPE Inventory Scale. This tool was originally developed by Carver, Scheier, and Weintraub (1989) based on a part of the Carver and Scheier model of behavioral self-regulation, the Lazarus and Folkman (1984) model of coping, and the literature of coping. This instrument comprised 60 items that assessed a variety of coping strategies. Fifteen subscales included positive reinterpretation and growth (4 items), mental disengagement (4 items), focus on and venting of emotions (4 items), religious coping (4 items), active coping (4 items), denial (4 items), use of instrumental social support (4 items), use of emotional social support (4 items), humor (4 items), acceptance (4 items), behavioral disengagement (4 items), restraint (4 items), suppression of competing activities (4 items), substance use (4 items), and planning (4 items). Respondents were asked how frequently they used each coping strategy on a 4-point scale anchored by 1 (usually do not do this at all) and 4 (usually do this a lot). The range of possible scores was 1 to 240, with higher scores meaning more frequently used strategies.

Later, Carver (1997) found that the original COPE had too many items for the patients to complete and partly some items were redundant. Therefore, he shortened the scale. The Brief COPE had 14 subscales of two items in each dimension, representing a broad range of coping strategies: self-distraction, denial, substance use, active coping, religious coping, use of instrumental support, use of emotional support, behavioral disengagement, venting, positive reframing, humor, acceptance, self-blame, and planning. For each item, respondents were asked to rate how frequently they used that coping response on a 4-point Likert scale, from 1 (I haven't been doing this at all) to 4 (I have been doing this a lot).

The reliability and validity of the original COPE were tested by Carver and colleagues (1989). The Cronbach's alpha reliability coefficients of the brief COPE ranged from .45-.92. Test-retest reliability showed .46-.86 among a sample of 89 students with an interval of 8 weeks, and .42-.89 among a sample of 116 students with an interval of 6 weeks. The factor analysis revealed 11-factor model. The concurrent validity found that there was the relationship between COPE and other instruments (i.e., optimism, self-esteem, hardiness, and trait anxiety). Additionally, the brief COPE was tested by Carver (1997)

among a sample of 168 adults participants recruited from the community with recovery after hurricane. The Cronbach's alpha reliability coefficients of the brief COPE ranged from .50-.82. An exploratory factor analysis (EFA) showed only nine factors with eigenvalues greater than 1.00. Other studies presented the internal consistency measured by the Cronbach's alpha coefficients ranging from .25 to 1.00 in breast cancer with adjuvant chemotherapy in Malaysia. The discriminant validity showed that this instrument could differentiate the coping strategies used between women with lumpectomy and women with mastectomy in domains like planning ($p < .01$), acceptance ($p < .05$), and active coping ($p < .01$) (Yusoff, Low, & Yip, 2010). Besides, the Brief COPE was tested in Thai sample and showed the Cronbach's alpha reliability coefficients of .82 in 168 primary family caregivers of a child with autism (Orapiriyakul, Benjakul, & Kwunkaew, 2014), and .72 in 77 surgical intensive care caregivers (Boongnam, Thosingha, Chanruangvanit, & Itthimethin, 2015).

The Jalowiec Coping Scale, Thai Version, was used in the present study because, from the literature review, this instrument showed better reliability and validity compared to other instruments.

Religious Belief

Religious belief refers to attitudes towards mythological, supernatural, or spiritual aspects of a religion. Religious belief is distinct from religious practice or religious behaviors with some believers not practicing religion and some practitioners not believing in religion. Religious beliefs, being derived from ideas that are exclusive to religion, often relate to the existence, characteristics and worship of a deity or deities, divine intervention in the universe and human life, or the deontological explanations for the values and practices centered on the teachings of a spiritual leader or group. In contrast to other belief systems, religious beliefs are usually systematized. (Wittgenstein, 2007 as cited in Wikipedia, n.d.). Similarly, the dictionary by Farlex defines religious belief as a strong belief in a supernatural power or powers that control human destiny (Religious belief, n.d.). Additionally, religious belief is defined as an internal coping resource that individuals may use to diminish stress and improve adjustment (Pargament et al., 1990). Joshi and Kumari (2011) stated that religious beliefs are the basic level of religion and a set of ideological commitments, acceptance and trust to any religion. Each religion may differ in the core of

religious beliefs. For Christian belief, people believe that the Bible is the inspired, teaching of God is the final authority in all matters of faith and practice, and they believe in one God that exists in three persons—the Father, the Son (Jesus Christ), and the Holy Spirit. For Islamic belief, there are six major beliefs consisting of belief in the Oneness of God, the angels of God, the book of God, the prophets or messengers of God, the Day of Judgment, and the divine decree (Hattstein, 2005).

In Thailand, about 94.60% of Thai population is Buddhist while 4.60% and .70% are Islam and Christians respectively (National Statistical Office, 2012). Therefore, Buddhist belief is dominant in Thai population. Buddhism emphasizes teaching proposing to drive away the suffering (or dukkha in Pali) from individual's life. Its teaching points to the use of person's wisdom to attain the objective truth of nature and completely eliminate the source of mental distress so that the mind can be liberated once and for all from suffering. The heart of the Buddhist teaching is the Four Noble Truths (Payutto, 2003). The core of Buddhist teaching suggest acceptance and understanding that life is suffering, ignoring of the causes of suffering, and following the middle way to enlightenment or Nirvana (Batchelor, 1997 as cited in Elliott, 2014). Besides, Buddhist beliefs consist of belief in the Triple Gems of Buddhist, belief in the rule of karma, heaven, hell, and the cycle of birth and death, belief of merit and sin, belief in an after-life, and belief in nirvana (Assanangkornchai et al., 2002; Bhanthumnavin et al., 1997). Considering Buddhist beliefs, there are various principles that all Buddhists show trust and belief. Concerning the PICU situation, the parents encountered and understood that the following principles might help them when faced with stress. The researcher proposed the four components of saddhā and the three characteristics of existence.

1. The four Components of Saddhā

In Theravada Buddhism, saddhā (Pali: saddhā, Sanskrit: śraddhā) is translated as belief, faith, trust, confidence, and assurance. Saddhā refers to the belief that has the intellect which screens in making a decision. There are four components of saddhā that are significant to Buddhists, namely: kamm-saddhā *(กัมมสัทธา)*, vipāka-saddhā *(วิปากสัทธา)*, kammassakatā-saddhā *(กัมมัสสกตาสัทธา)*, and tathāgatabodhi-saddhā *(ตถาคตโพธิสัทธา)* (Payutto, 2002; Wichian, 2016).

1.1 Kamma-saddhā *(กัมมสัทธา)*. This belief refers to kamma or accordance with the law of action. Kamma indicates "work" or "action" which is practiced through the action of the body, the speech and the mind. In the Buddhism's teachings, when a person takes action (or kamma), there is sudden result.

1.2 Vipāka-saddhā *(วิปากสัทธา)*. It refers to belief in the consequences of kamma or actions. It emphasizes understanding and reminding oneself of the results of the kamma. When kamma is done, the results or effects of kamma will occur. The effect of kamma is called vipāka. Vipāka is "effect, result of one's action, including good actions (kusala) and bad actions (akusala). However, that is to say "Good actions bring good results, bad actions bring bad results".

1.3 Kammassakatā-saddhā *(กัมมัสสกตาสัทธา)*. It refers to belief in the individual ownership of kamma or action. It states that the human beings all over the world are in different situations because of their past kamma. It is the belief which causes the human being to attain the Dharma.

1.4 Tathāgatabodhi-saddhā *(ตถาคตโพธิสัทธา)*. It is refers to belief in the reality of the enlightenment of the Buddha. It completely acknowledges and follows the Buddha's idea as the supreme knowledge, compassion and purity in all actions.

2. The Three Characteristics of Existence

The three characteristics of existence refer to facts about the nature of things that are always connected with existence and that are always found in existence. It is defined as three main characteristics of existence, which include suffering (dukkha), impermanence (aniccā), and impersonal or non-self (anattā) (Payutto, 2002).

2.1 Suffering (dukkha) includes sufferings from both the physical and mental pain that causes each reincarnation, aging, sickness, and death; discontentment or dissatisfaction from not obtaining the requirement.

2.2 Impermanence (aniccā) is the crucial characteristic of all conditioned phenomena. It indicates the fact that everything (saṅkhāra) is in a constant state of change

and movement. Human being organizes this change in the aging process, the cycle of rebirth and death (samsara), and everything degenerates.

2.3 Non-self or impersonal (anattā) is a key to enlightenment. There is no "self" in the sense of a permanent, integral, autonomous being within an individual existence.

From the extensive review of literature, Colón-Bacó (2010) proposed that religious beliefs were the key component of religious life. She reported that stronger religious beliefs were positively correlated with subjective well-being (SWB). Likewise, a study of Kaliampos and Roussi (2015) suggested that there were trends indicating that religious beliefs negatively predicted psychological distress in subgroups of Greek cancer patients such as stage IV cancer patients and patients who did not undergo surgery. For Buddhist caregivers, Buddhist beliefs may alleviate anxiety (Ellison, 1991), and promote well-being in Buddhists (Disayavanish & Disayavanish, 2007). Elliott (2014) suggested that one's beliefs in Buddhism were positively correlated with happiness in 314 Thai Northern Buddhists. From parent's perspective on having a critically ill child, they dealt with suffering as hard as possible and their coping was restricted by the trouble and crisis situation. Parents stated that religious beliefs, such as believing that God was a higher being with power to resolve all trouble, influenced the moment of their child's conditions and a life-threatening disease situation. Religious belief offered understanding of a life-threatening disease situation (Bousso, Serafim Tde, & Misko, 2010). This belief could mitigate the psychological distress including fear, anguish, and uncertainty. Specifically, religious belief may be the predictor of psychological well-being in parents whose child was hospitalized in PICU. However, religious belief has not been tested the association with psychological well-being. Therefore, the relationship between religious belief and psychological well-being was examined in the present study.

Instruments for Measuring Religious Belief

Five instruments used to assess religious belief consisted of the Religious Belief Index (RBI), the 10-item Beliefs and Practices Subscale of the Systems of Belief Inventory (SBI-15R), the 10-item Subscale of the Religious Beliefs and Practices of Buddhism Questionnaire, the Religious Beliefs of Buddhism questionnaire, and the Buddhist Belief and Original Belief Questionnaire.

1. The Religious Belief Index (RBI). This instrument was developed by Yates, Chalmer, St James, Follansbee, and McKegney (1981) based on religious faith and used to measure religious beliefs. The RBI had ten items, including meaning, thoughts about life, afterlife, power, God as personal being, God as taught by church, God exists, heaven, hell, and prayer. It was rated on a 3-point scale anchored by 0 = "disagree", 1 = "not sure", and 2 = "agree completely". The score for the whole scale ranged from 0 to 20, with higher scores indicating higher levels of religious beliefs.

Regarding the quality of the instruments, a study of Yates and colleagues (1981) revealed that the concurrent validity tested in a sample of 71 patients with advanced cancer showed positive correlation between religious belief and satisfaction with life ($r=.41$, $p<.01$). The test-retest reliability of the RBI was .96. For the internal consistency of the RBI, a study of Howsepian and Merluzzi (2009) showed that the Cronbach's alpha coefficient was .92 among a sample of 164 treatment cancer patients.

2. The 10-item Beliefs and Practices Subscale of the Systems of Belief Inventory (SBI-15R). This instrument was developed by Holland and colleagues (1998) to assess religious and spiritual beliefs and practice, and the level of social support derived from a community of individuals sharing similar beliefs. The first version of SBI (SBI-54) had 54 items. After that, a short version of the Systems of Belief Inventory (SBI-15) was developed to alleviate burden of patients from answering. The SBI-15 had 15 items, including beliefs and practices subscale (10 items), and social support subscale (5 items). It was rated on a 4-point Likert scale ranging from 0 (strongly disagree) to 3 (strongly agree). Lately, one of the items was rephrased so that the instrument could be used more broadly in patients with chronic illness and life-threatening conditions. Item 2 was revised from "Prayer or mediation has helped me cope with my diagnosis" to "Prayer or meditation has helped me cope during times of serious illness." The revised form was called the SBI-15R. The score for this instrument was summed. The score ranged from 0 to 30 for the belief subscale, whereas the social subscale ranged from 0 to 15. Higher scores indicated higher levels of religiousness.

Regarding the quality of the instruments, Holland and colleagues (1998) tested the psychometric properties of the SBI-15 in physically healthy and physically ill individuals. The results of SBI-15 showed that the Cronbach's alpha efficient were .93 for

the whole scale, .92 for beliefs subscale, and .89 for social support subscale. The factor analysis using principal component analysis (PCA) revealed that there were two-factor models, including beliefs and practices subscale and social support subscale. The convergent validity was tested and found that there were significant correlations between the SBI-15 and other religious instruments, including the intrinsic scale of the Religious Orientation Inventory (ROI) (r = .84) and the Index of Care Spiritual Experiences (INSPIRIT) (r = .82). Additionally, the divergent validity of this scale revealed that there was no significant relationship between the SBI-15 and the Brief Symptom Inventory (BSI) (r = -.004) and the short form of Medical Outcomes Study (MOS) (r = -.03). The discriminant validity of this scale showed a significant difference between the religious and lay groups. According to the psychometric properties of the Italian version of SBI-15R, Ripamonti and colleagues (2010) tested the reliability and validity of this scale in a sample of 257 Italian cancer patients. The Cronbach's alpha coefficients were .90 and .95 for the beliefs and social support subscale respectively. The test-retest reliability of both the beliefs and social support subscale was .89 and .97 respectively. The concurrent validity was tested with the ad hoc item for spirituality and showed Pearson correlation coefficient of the beliefs and practices subscale (r = .48) and social support subscale (r = .48). A study of Howsepian and Merluzzi (2009) explored the correlation of religious beliefs and perceived social support in a sample of 164 cancer patients. The 10-item belief subscale of the SBI-15R was used to measure religious belief, and the internal consistency of this scale was .96.

3. The 10-item Subscale of the Religious Beliefs and Practices of Buddhism Questionnaire. This instrument was developed by Bhanthumnavin and colleagues in 1990 (Bhanthumnavin et al., 1997) based on the literature review of Buddhism. It consisted of 30 items and divided into 3 subscales, including belief in the Buddhist doctrines (10 items), the Buddhist practice (10 items), and the Buddhist lifestyle (10 items). In this scale, the belief in the Buddhist doctrines assessed an individual's belief in the three basic teachings of Buddhism, including 1) belief in the three sources of religion, including the Buddha, the Buddhist doctrines, and the Buddhist monk; 2) belief in the cause and effect, the cycle of birth and death, and heaven and hell; and 3) belief in nirvana. The Buddhist practice subscale assessed an individual's action in Buddhism, namely 1) the act of giving, including forgiving, donations, and delivering the Buddha's teachings to others, 2) the five precepts, and 3) praying and meditating. Lastly, the Buddhist lifestyle subscales assessed an

individual's activities in everyday life with Buddhism. This scale was rated on a 6-point Likert scale ranging from 1 (absolutely untrue) to 6 (absolutely untrue). The range of possible scores was 30 to 180, with higher scores indicating more religiousness. In the Buddhist teachings subscale, the score of this subscale was 10 to 60, with higher scores indicating more belief in the Buddhist teachings.

The psychometric properties of this instrument were tested by Bhanthumnavin and colleagues (1997). The construct validity of this scale was examined by the known group technique. Two samples used for testing comprised 156 undergraduate students, and 117 monk students. The findings demonstrated that there was a difference in religious belief score in both groups, including score of belief in Buddhist teachings subscale ($t = 13.29$, $p < .01$; Discrimination t-ratio = 5.25 to 11.08), Buddhist practice subscale ($t = 6.02$, $p < .001$; Discriminationt-ratio = 3.48 to 10.48), and Buddhist lifestyle subscale (Discrimination t-ratio = 6.41 to 10.87). For reliability, the Cronbach's alpha coefficients were .77 to .83 for belief in Buddhist teachings, .72 to .78 for Buddhist practice, and .85 for Buddhist lifestyle among high school students, and undergraduate students.

4. The Religious Beliefs of Buddhism Questionnaire. This questionnaire was modified by Tedsiri (1994) from three Existing Religious Belief Questionnaire, including 1) the Religious Beliefs and the Buddhist Practices by Bhanthumnavin and colleagues (1990), 2) the Attitudes in Buddhist beliefs Questionnaire by Meekang (1980), and 3) the Religious Beliefs and Practices by Limsajcar (1985). It consisted of 20 items measuring belief in the Four Noble Truths (4 items), the Triple Gems of Buddhist (4 items), the three characteristics of existence (3 items), belief in merit and sin, the cycle of birth and death, heaven and hell, and nirvana (9 items). This scale was rated on a 6-point Likert scale ranging from 1 (absolutely untrue) to 6 (absolutely true). The range of possible scores ranged from 20 to 120, with higher scores indicating more religious belief in Buddhism. the Cronbach's alpha coefficient was .83 among a sample of 200 parents of Thalassemic children (Tedsiri, 1994).

5. The Attitude in Buddhist Beliefs and Traditional Beliefs Questionnaire. This instrument was developed by Pra Phumet Sumedho (Punsuwun) based on the literature review of Buddhism (Sumedho, 2010). It is used to measure beliefs in Buddhism and the original belief of Lanna. This scale consisted of 49 items and was divided into 8 subscales,

including faith in the Buddha's Enlightenment (9 items), faith in the law of kammas (4 items), faith in the low that all being have their own kammas (4 items), faith in the results of kammas (4 items), Buddha sculptures (called udesika-cetiya) (4 items), recollection of the Buddha or Buddhanussati (10 items), believed in spiritualism, god, and ghosts (5 items), and the miracle of the Buddha or supernatural power behind (9 items). It was a 5-point Likert scale from 1 (low of level of religious belief) to 5 (high of level of religious belief). The scores of the scale were classified into five levels based on the mean scores, including 1.00-1.79 (very low level), 1.80-2.59 (low level), 2.60-3.39 (moderate level), 3.40-4.19 (high level), and 4.20-5.00 (very high level). The content validity tested by three experts in Buddhism and the index of item objective congruence (IOC) was .87 (Sumedho, 2010).

From the review of existing research, there are various principles of Buddhist belief. Concerning the PICU situation, the parents who believe the four components of saddhā and the three characteristics of existence may be less likely to appraise the situation as highly stressful and use proper strategy for coping. Therefore, religious belief focus on only the belief in two principle. However, since there was not any instrument variable, the researcher developed The Buddhist Belief Questionnaire for measuring religious belief in the present study.

Social Support

The social support has been categorized as the mediators of the SPM (Pearlin et al., 1990). From literature, social support has been defined variously. Cobb (1976, p. 300) defined social support as "the information leading the subject to believe that he or she is loved, esteemed, and belongs to a network of mutual obligation". Similarly, Brandt and Weinert (1981) proposed that social support was a composite concept consisting of reassurance of worth, intimacy/attachment, social integration, opportunity for nurturance, and availability of assistance (Brandt & Weinert, 1981 as cited in Weinert & Tilden, 1990). Schaefer, Coyne, and Lazarus (1981) viewed social support as available assistance from families, friends, and healthcare providers. Types of social support as mentioned by Schaefer and colleagues (1981) included 1) emotional support that consisted of attachment, reassurance, and being able to rely on and confide in a person, 2) informational support that included providing advice, information, and feedback, and 3) tangible support that involved

direct help, including loans or gifts, services or taking care of someone. Besides, House (1981) proposed that there were four types of social support consisting of 1) emotional support that referred to affection, trust, concern, listening, and compliments; 2) instrumental support which included money, aids, labor, service, time, and environmental modification; 3) informational support which included information, advice, and suggestions for understanding and adjustment of the changes; 4) appraisal support which included feedback information and behavior affirmation; to compare with other people in the their society. Similarly, Thoist (1982) defined social support as the condition that one received the emotional and social assistance or things or information that enabled him to be able to face the illness or the stress more quickly. Social support is a useful resource of caregivers. The caregivers or parents who receive adequate and available support will perceive fewer problems or less stress because social support helps them cope and manage with stressful situations and their problems. Social support is, therefore, a buffer factor or a mediator of family stresses (McCubbin, McCubbin, & Thompson, 1996).

Chappell and Reid (2002) examined the influencing factors of well-being among a sample of 243 caregivers of Alzheimer's disease, dementia, or other patients with serious memory loss problem. This finding revealed that perceived social support was positively correlated with well-being ($r = .34$, $p < .01$). In Thailand, Daonophakao (2004) examined the influencing factors of well-being among a sample of 100 caregivers of stroke patients. This study used Brandt and Weinert's social support concept (1981) and Dupuy's well-being. The findings showed a positive relationship between social support and well-being ($r=.43$, $p<.05$). Social support directly affected well-being of the caregivers ($\beta = .19$, $p < .05$). Also, stepwise multiple regressions showed social support together with SOC contributed to 54.00% of well-being ($R^2 = .54$, $p < .05$). In chronic illness, Boonyawat and Sunsern (2005) studied factors influencing well-being of Thalassemic children's caregivers in the Eastern region. The resulted revealed a positive relationship between social support and well-being of the caregivers ($r = .48$, $p < .05$). Social support was found to directly affect well-being of the caregivers ($\beta = .48$, $p < .05$) and predict the well-being of caregivers ($R^2 = .23$, $p < .05$). Moreover, social support together with severity of disease were the predictors of the caregivers' well-being ($R^2 = .26$, $p < .05$).

In PICU, the correlational study of social support and psychological well-being of parents was limited. Most previous studies showed the effectiveness of some types of social support, particularly information support effect on psychological state of parents who had a severely ill child in PICU (Aksornsri et al., 2012; Beheshtipour et al., 2014; Vongpanich & Tangsatitporn, 2005). Therefore, social support is expected to be positively related to and may be the predictor of psychological well-being of parents whose child hospitalized in PICU.

Instruments for Measuring Social Support

Three instruments for measuring social support included the Personal Resource Questionnaire (PRQ-85 Part II), the Modified Version of Social Support Questionnaire, Thai Version, and the Multidimensional Scale of Perceived Social Support (MSPSS).

1. The Personal Resource Questionnaire (PRQ-85 Part II). The PRQ was developed by Weinert and Brant (1981) based on Weiss's concept (1974). The PRQ was revised to be the PRQ-82, PRQ-85, and PRQ-2000, and was used to assess perceived of social support (Weinert, 2003). The PRQ-85 is a two-part measure. Part I of PRQ-85 consisted of life situations in which a person might be expected to need some assistance. Ten life situations consisted of 1) immediate help, 2) extended help with an ill family member, 3) relationship problems with spouse/partner or intimate others, 4) problem with a family member or friend, 5) financial problems, 6) loneliness, 7) help if sick, 8) job problems, 9) frustration with conditions of life, and 10) person concerns. Part I was not scored in the standard sense but was rather evaluated from several perspectives to provide an indication of the respondent's network. Part II of PRQ-85 consisted of 25 items and covered five components of social support, including 1) attachment, 2) opportunity for nurturance, 3) social integration, 4) reassurance of worth, and 5) availability of assistance. The respondents were asked to evaluate the level of support received. It had a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The possible scores ranged from 25 to 175 and higher scores, indicating higher level of perceived social support (Weinert, 2003).

The psychometric properties of this scale were examined by Weinert and Tilden (1990). The convergent validity testing showed that the PRQ-85 was correlated with the

Cost and Reciprocity Index (CRI) ($r = .53$, $p < .05$). This correlation showed that both scales measured the same construct. The discriminant validity was tested by the correlation between the PRQ-85 and the Profile of Mood States (POMS) ($r = -.31$). This correlation reflected the different constructs. In addition, a systemic review of the PRQ by Tawalbeh and Ahmad (2013) reviewed nine complete studies that used this instrument in diverse samples. Five studies used the PRQ-85, whereas four studies used the PRQ-2000. The internal consistency showed the Cronbach's alpha coefficient of .80 to .94 for the PRQ-85, and .87 to .93 for the PRQ-2000. Construct validity with factor analysis presented that the PRQ-85 had five factors. The five factors in the PRQ-85; however, were rearranged in the PRQ-2000 into three factors.

The PRQ-85 (Part II) was translated into six languages consisting of Thai, Chinese, Japanese, Korean, Spanish, and Dutch (Tawalbeh & Ahmad, 2013). In Thailand, the PRQ-85 (Part II) was translated into Thai by Sinsuksai in 1998. The Thai version of PRQ-85 (Part II) used in a sample of 76 Thai mothers of preterm-infants showed the Cronbach's alpha coefficient of .81 (Prasopkittikun, 2001). Chaisom, Yenbut, Chontawan, Soivong, and Patumanond (2010) showed the internal consistency of the PRQ-85 (Part II) tested in a sample of 10 mothers of children aged 1- 3 years diagnosed with congenital heart disease of .96.

2. The Modified Version of Social Support Questionnaire, Thai Version. This instrument was modified by Hanucharurnkul (1988) from the Social Support Questionnaire (SSQ) part II developed by Schaefer, Coyne, and Lazarus (1981, as cited in Hanucharurnkul, 1988) and from the Norbeck Social Support Questionnaire (NSSQ) (Norbeck, Lindsy, & Carrieri, 1981, as cited in Hanucharurnkul, 1988). It was used to assess perceived social support from three social networks, namely family members, friends and relatives, and health care providers. It consisted of 21 items which were classified into three sections, according to the sources of support: informational support (3 items), emotional support (12 items) and tangible support (6 items). The respondents were asked to assess the level of support received. It had a 5-point rating scale ranging from 0 (never received support) to 4 (almost always received support). The total score was ranged from 0 to 84. The high score reflected higher perceived social support. The researcher divided

perceived social support into three levels, including low (a range of 0 to 28), moderate (a range of 29 to 56), and high (a range of 57 to 84).

The psychometric properties were tested by Santawaja (2002) among a sample of 300 post radiotherapy cervical women. The Modified of Social Support Questionnaire was examined for its content validity using five experts (CVI = .86). The finding of factor analysis showed that one factor was extracted, and accounted for 70.87% of the total variance. Moreover, test-retest reliability was examined with a period of 3 days in a sample of 10 cancer patients and had the Pearson's correlation of .94. The Modified of Social Support Questionnaire, Thai Version, has been used in diverse Thai populations and an acceptable coefficient alpha has been presented. The Cronbach's alpha coefficient for the total score was .88 in a sample of 300 women with cervical cancer (Santawaja, 2002), .92 in a sample of 285 patients with coronary artery disease (Khuwatsamrit et al., 2006), and .87 in a sample of 430 older Thai women with knee osteoarthritis (Pattayakorn et al., 2010).

3. The Multidimensional Scale of Perceived Social Support (MSPSS). This instrument was created by Zimet, Dahlem, Zimet, and Farley (1988) to assess an individual's perception of social support. The MSPSS had 12 items and was divided into three subscales: family (4 items), friends (4 items), and significant others (4 items). It was rated on a 7-point Likert-type scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). The total score ranged from 1 to 84. The scale reported each of the subscale scores and total score, with higher scores implying high levels of perceived social support.

According to a study of Clara and colleagues (2003), the MSPSS had proven to be psychometrically sound in a sample of 549 college students and 156 psychiatric patients. The construct validity using CFA showed a three-factor construct in both samples. The internal consistency for three subscales revealed the Cronbach's alpha coefficients for friends (.93, and .94), family (.92, and .92), and significant others (.93, and .94) in college students and psychiatric outpatients respectively. In Thailand, the MSPSS was translated into Thai version by Boonyamalik (2005) and Wongpakaran, Wongpakaran, and Ruktrakul (2011). The Thai version of the MSPSS showed that the Cronbach's alpha coefficient was .89 and the factor analysis was demonstrated, confirming the three-subscale structure of the MSPSS. Two studies with the Thai version of the MSPSS by Boonyamalik (2005) showed that the internal consistency of this scale was good, with the Cronbach's alpha coefficients

of .93 in a sample of 85 asthmatic patients (Sangsawang, Wattanakitkrileart, Pongthavornkamol, & Chuchottaworn, 2010) and .89 in a sample of 30 patients with chronic obstructive disease (Toontong, Wattanakitkrileart, Pongthavornkamol, & Chuchottaworn, 2012). Additionally, the psychometric properties of the Thai version of the MSPSS were tested by Wongpakaran and colleagues (2011) among a sample of 152 psychiatric patients and 310 medical students from Chiang Mai University. The internal consistency of the whole scale was good in both groups, with the Cronbach's alpha coefficients of .87 in the clinical group and .91 in the student group. Test-retest reliability with the intra-class correlation coefficient (ICC) was .84 among a sample of 72 students over four-week periods. The factor analysis using EFA showed three-factor constructs in both groups. The concurrent validity of this scale revealed that the Thai version of the MSPSS was negatively correlated with the state trait anxiety inventory ($r = .20$, $p < .01$) and the Thai depression inventory (TDI) ($r = -.02$, $p < .01$), but it had a positive relationship with the Rosenberg self-esteem scale ($r = .33$, $p < .001$).

For social support instrument, the literature review showed that all instruments had proved to be psychometrically sound. Since the modified Version of Social Support Questionnaire, Thai Version, has been widely used to measure social support in Thai sample and in order to compare the findings with other previous studies the researcher used this questionnaire for measuring perceived social support of parents in the present study.

Conceptual Framework

The conceptual framework for the present study was based on the Stress Process Model (SPM) in caregivers developed by Pearlin and colleagues (1990) and an extensive review of concepts including psychological well-being of caregivers, the child's behavioral and emotional responses, religious belief, sense of coherence, social support, and coping. The SPM had demonstrated its potential in explaining the relationship among factors related to the care situations and life-threatening situations of children and to examine the psychological well-being of parents who had a critically ill child.

According to the SPM, psychological well-being was the outcome of stress process. Psychological well-being was defined by Dupuy (1984) as a state of individuals' positive

and negative feeling towards their current life situations. Psychological well-being were related to the background and context of caregiver, stressors and the moderating resources.

The background and context of stress include the characteristics of caregivers such as age, gender, ethnicity, educational, and economic characteristics, and the caregiving history such as the relationship of the caregivers to their patients, the range of physical health problems of the patients, and the duration of caregiving experience. Additionally, use of resources (family and network) and program availability are included in this component. The stressors, the heart of the stress process, are defined as the conditions, experiences, and activities that are problematic for people such as thwart their effort, threaten them, and defeat their dreams. Stressors can be primary and secondary. Primary stressors stem directly from the needs of the patients and the nature and magnitude of the care demanded by these needs, whereas, secondary stressors include role strains and intrapsychic strains. The mediators or moderating resources include coping, social support, and self-concepts. Finally, the outcomes of stress refer to the effect of caregivers stress on their health, well-being, and their ability to maintain themselves in their social roles. In the present study, the study variables were derived from the theoretical concepts of the SPM (Figure 2.2).

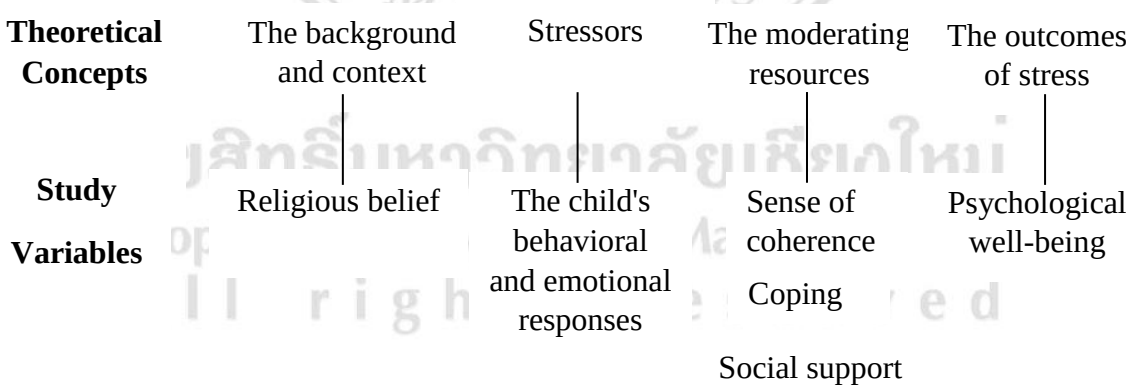

Figure 2.2 The theoretical model concepts diagram

Based on the SPM, having a child hospitalized in PICU and the child's negative behavior and emotional response to illness are the situation that the parents appraise as causing harm/loss or threat to the parents. The characteristic, particularly religious belief, which is attitudes towards mythological, supernatural, or spiritual aspects of a religion

(Wittgenstein, 2007 as cited in Wikipedia, n.d.) may help the parents view the critical illness of their child as explicable and meaningful with which they are confident that they are able to deal appropriately. Due to an understanding of the situation, they can cope effectively. Also, the Buddhist parents who believe the four components may be less likely to appraise the situation as highly stressful and use proper strategy for coping. Therefore, religious belief was expected to relate positively to psychological well-being of parents.

SOC (Antonovsky, 1987) was proposed as a moderating resource of stress in the present study. SOC was global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that 1) the stimuli, deriving from one's internal and external environments in the course of living, are structured, predictable and explicable (comprehensibility); 2) the resources are available to one to meet the demands posed by these stimuli (manageability); 3) these demands are challenges, worthy of investment and engagement (meaningfulness)". SOC was considered as intrapersonal resources that helped a person handle the current situation (Wheaton, 2010). Therefore, SOC was expected to relate positively to psychological well-being of parents.

Social support was also proposed as moderating resource of stress in the present study. According to Schaefer and colleagues (1981), social support is the available assistance from families, friends, and healthcare providers that include emotional support, informational, and tangible. Social support is also relatively efficacious in reducing stress and dealing with the stressful situations. The parents' perceived social support helps them appraised the stressful situations as manageable, thereby reducing stress and enhancing psychological well-being.

Coping was another moderating resource of stress. Lazarus and Folkman (1984) defined coping as a constantly changing cognitive and behavioral effort to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person. When the parents face with the stressful situation such as having a child in the PICU, the parents can use several coping strategies to deal with this situation. Thus, coping can positively affect psychological state of parents.

All the aforementioned factors were expected to have pooled effects leading to change of psychological well-being of parents. The conceptual framework for the present study was illustrated in Figure 2.3.

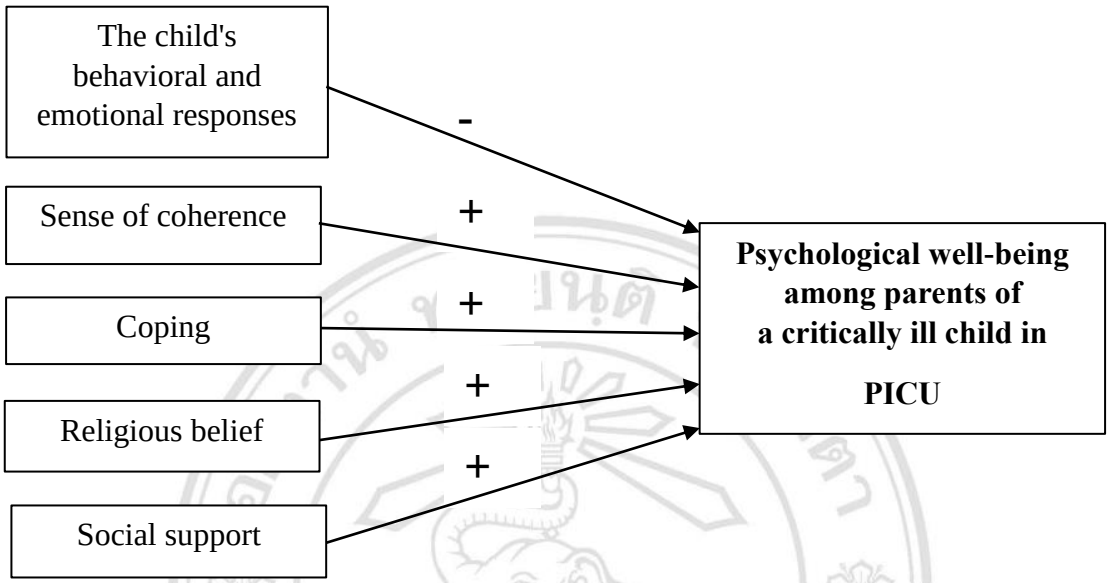

Figure 2.3 The conceptual framework of the psychological well-being among parents of a critically ill child in PICU