



FACTORS RELATED TO ANXIETY IN FAMILY MEMBERS AMONG  
INTENSIVE CARE UNIT PATIENTS

LI QIANQIAN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR MASTER DEGREE OF NURSING SCIENCE  
(INTERNATIONAL PROGRAM)  
IN ADULT NURSING PATHWAY  
FACULTY OF NURSING  
BURAPHA UNIVERSITY

2025

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63910131: MAJOR: ADULT NURSING PATHWAY; M.N.S. (ADULT NURSING PATHWAY)  
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This cross-sectional study aimed to characterize anxiety levels and their relationships with the severity of disease, resilience, and social support among family members of ICU patients in Wenzhou, China. A descriptive correlational study was conducted. The study involved 101 family members of ICU patients aged 20 to 70, all the family members of patients cure in the ICUs of the Second Affiliated Hospital of Wenzhou Medical University. Data collection was conducted using validated instruments from September 2023 to October 2023 Data were analyzed using descriptive statistics and Pearson's product-moment correlation coefficient. The results revealed that 49.5% of participants had a SAS score indicating no anxiety ( $M = 38.6$ ,  $SD = 5.789$ ). The relationship of anxiety among family members of ICU patients and severity of disease ( $r = .402$ ,  $p < .001$ ), social support ( $r = -0.618$ ,  $p < .001$ ), resilience ( $r = -0.704$ ,  $p < .001$ ). The results providing insights into the emotional strain experienced by ICU families and the factors that influence their anxiety. These findings underscore the need for healthcare interventions that enhance resilience and social support to mitigate anxiety and improve the emotional well-being of ICU family members.

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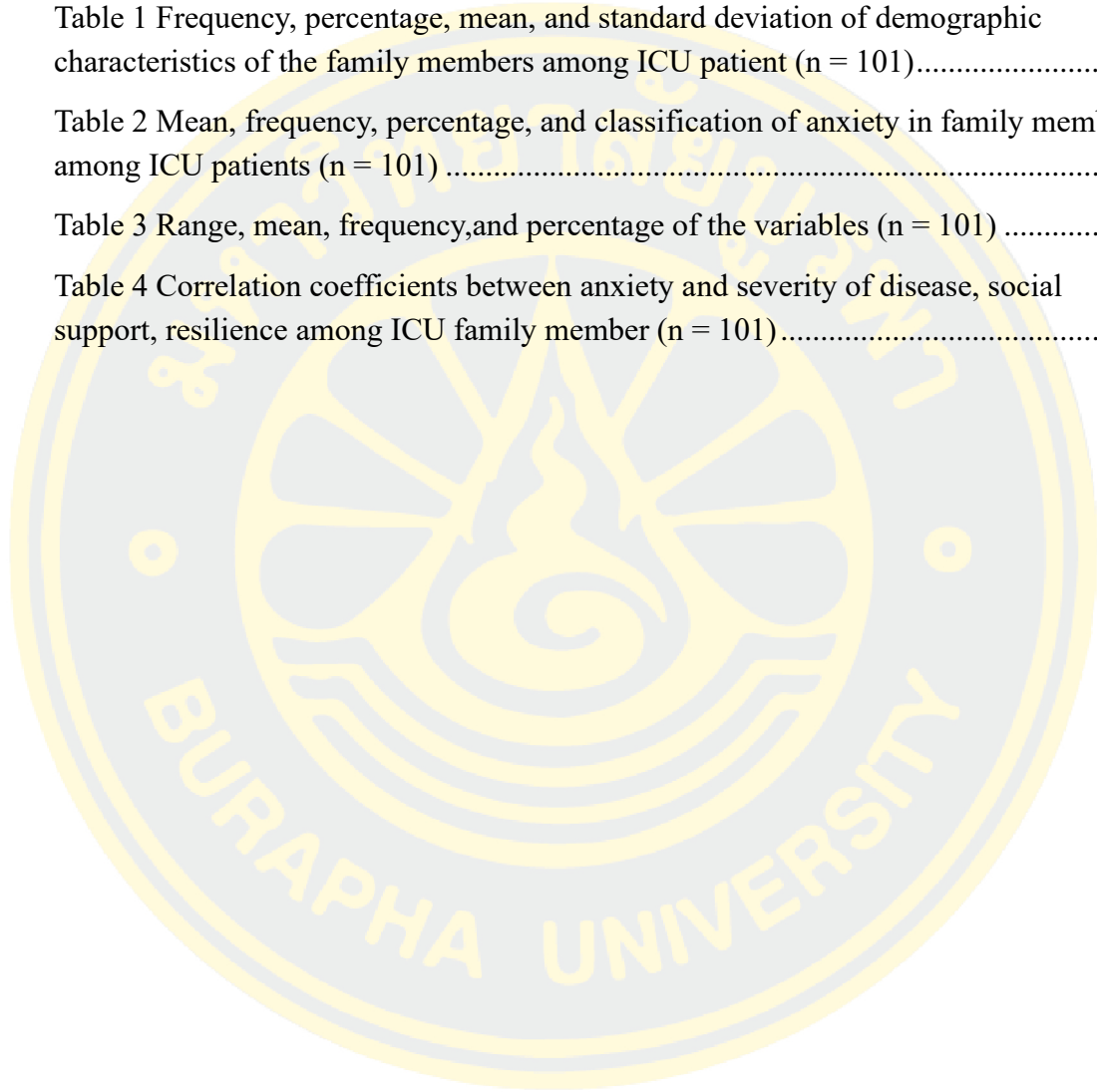
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# CHAPTER 1

## INTRODUCTION

### **Background and significance of the problems**

In intensive care units (ICUs), the dominant focus on survival and delivery of advanced medical treatment (Gurbuz & Demir, 2023; Haugdahl et al., 2018; Kang, 2023). With the development of medical technology, more and more patients are surviving ICU, almost 85% leave the hospital alive (Brinkman et al., 2013), The unexpected admission of a relative to an intensive care unit (ICU) in a life-threatening condition (Davidson et al., 2017), families are predisposed to tremendous burdens, Patients' relatives have to deal with the unfamiliarity of the ICU environment and the treatment procedures, uncertainty unknown outcomes, and potential death (Bolosi et al., 2018a), they all associated with intense emotions and may cause overwhelming fear, stress and anxiety for families. This burden has various effects on the patient's family, which is affected by the trajectories of the patient's recovery (Kang, 2023). This crisis can disrupt their normal life and functions(Alfheim et al., 2018). A previous review reported that a high proportion of family members present with symptoms of anxiety and depression (70% and 35%, respectively) (Schmidt & Azoulay, 2012). In a study in Brazil on 471 participants, the rate of anxiety among family members was 34% (R. Fumis et al., 2015). Even higher rates of anxiety (52%) were revealed in the study of Bandari et al. (Bandari et al., 2014) on 720 relatives of ICU patients. In Turkish, Kose (Kose et al., 2015) found that (35.9%) cases with anxiety and 56 (71.8%) cases with depression. American hospitals show that 10% to 42% of ICU patients' family members have anxiety symptom, and 16% to 35% have suffering depression symptom. In China, family member had the anxiety symptom by screening, accounting for 69.1% among them (Shunqiao & Jie, 2018). Anxiety will persist for several months after the patients' hospitalization (Bolosi et al., 2018b). Guidelines on family-centered care in ICUs emphasize that home caregiver support can improve the prognosis of patients and shorten the time spent in intensive care (Davidson et al., 2017). Positive coping methods should be adopted to relieve the anxiety of ICU family members and increase their mental health.

There are many factors affecting family anxiety, many studies found that the severity of anxiety and the severity of disease evaluated with APACHE II scoring are correlated. The patient having a worse clinical condition, the patient's relative will have more anxiety. Also Alex Day showed that the patient's current severity of disease is a critical factor in anxiety levels (Day et al., 2013). Specifically need for prolonged mechanical ventilation and presence of metastasis or progressive disease recognized as indicative of a poor prognosis (Fumis & Deheinzelin, 2009). Moreover, the anxiety of family members is not constant, as the patient's condition affects, the level of anxiety symptoms will change (Bolosi et al., 2018b). But in another studies, showed that it has no correlation between severity of disease and anxiety. Yilmaz et al., (Yilmaz et al., 2016) to determine depression, anxiety, posttraumatic stress, and related factors among relatives of patients admitted to ICU: no statistically significant correlation was found between APACHE II scores, patients and patient relatives and anxiety scores ( $p > .05$ ).

In recent years, more and more attention has been paid to the study of family resilience of ICU patients. Resilience is a psychological trait that describes one's ability to adapt and overcome challenges when faced with adversity (Maley et al., 2018). Bonnano (Bonanno, 2004) defined it as the ability to maintain a normal equilibrium state in extreme adverse conditions. Sottile et al (Sottile et al., 2016) reported that a score higher than 82 identifies individuals as being resilient, and that a significant relationship was apparent between resilience and fewer symptoms of anxiety. In a prospective study, emphasize the protective role of resilience in the trajectory of anxiety among caregivers (Lester et al., 2020). Nandig (Nadig et al., 2016) explored the association between coping and acute psychological distress among family members of survivors of mechanical ventilation, find that resilience can decrease psychological distress (include anxiety). Also, the study found an association between resilience and a lower rate of symptoms of anxiety in family members of critically ill patients (Kelly et al., 2016).

Family members that experienced a considerable amount of anxiety, were unable to cope with anxiety efficiently and therefore needed more support. Social support, as well as resilience, Karin Aparecida Casarini (Casarini et al., 2009) proved social support contributing to both the reevaluation of the situation and the

maintenance of emotional equilibrium. Social support is defined as “A social network’s provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (House et al., 1988). Social support offered by family members facilitates the families ability to regain control, improve patient- and family centered care in the ICU (Wong et al., 2019a). (Nawakul, 2016) Through quasi - experimental research with one group pretest-posttest design was to study the effects of social support activities on anxiety levels of ICU patients’ family members in Choaprayayomaraj Hospital, it proves social support intervention program could significantly reduce the anxiety levels of patient’s family members. In another A descriptive-correlational study concluded that anxiety levels of relatives of the families were high, their social support and satisfaction with the intensive care unit were at a moderate level (Avc & Ayaz-Alkaya, 2021). Unlike in Western culture, which has a heavy focus on individualism, traditional Chinese ethics has shaped the Chinese way of life, and it focuses on family (Lin & Bian, 2015). In Chinese kinship-based (blood relative) culture, care relationships, which means nature of the care relationship (family member as child/ spouse/ sibling and other), can influence family expectations and so have an impact on family anxiety.

Through reviewing and analyzing the articles, it is found that there is a close relationship between severity of disease, the resilience of the family members of ICU patients, social support and anxiety. Anxiety is the most common psychological distress symptom. In China, the investigation is limited on anxiety in family members of ICU patient. Social support result is consistency, but in Wenzhou, whether it becomes a burden on the family and increases the level of anxiety. Severity of disease some study positive correlation but some no significant correlation. The study of resilience in family members of critically ill patient is limited to Wenzhou, China. Domestic and foreign researcher on social support have been relatively long, and there are few studies on the psychological resilience of family members, especially the relationship between these three variables and anxiety. This study investigated the anxiety level of the family members of ICU patients, the patient's condition, family resilience, and social support among anxiety-related factors, and further explored the relationship between the three on anxiety.

## **Gap of study**

Anxiety is the most common psychological distress symptom. Severity of disease some study positive correlation but some no significant correlation. Social support result are consistency. In China, the investigation is limited on anxiety in family members of ICU patient. The study of resilience in family members of critically ill patient is limited to Wenzhou, China.

## **Research objectives**

1. To assess the anxiety level in family members among ICU patients in Wenzhou, China.
2. To determine the relationship between severity of disease, resilience, social support and anxiety in family members among ICU patients in Wenzhou, China.

## **Research hypotheses**

1. There is correlation between severity of disease and anxiety in family members among ICU patients in Wenzhou, China.
2. There is correlation between resilience and anxiety in family members among ICU patients in Wenzhou, China.
3. There is correlation between social support and anxiety in family members among ICU patients in Wenzhou, China.

## **Scope of the study**

The aims of this study was to study the level of anxiety and to determine the relationship between the independent variables including severity of disease, social support, resilience and anxiety among ICU patients' family members. Data was collected in ICU department of the Second Affiliated Hospital of Wenzhou Medical University.

## **Conceptual framework**

The conceptual framework of this study is synthesized from the literature review and relevant concept pertinent to anxiety, severity of disease, resilience and social support.

Anxiety is a normal response in a scary, dangerous or unknown situation (Healey, 2014). There are many reasons for the anxiety of the family members of ICU patients, including internal and external factors. Internal factors examined in this study encompassed of severity of disease and resilience. Severity of disease is the objective existence, from the time of admission to the hospital. From many studies we can infer that the patient's current severity of disease is a critical factor in anxiety levels. Resilience is the ability to effectively and healthily cope with the negative feelings that arise from negative experiences. Those who have better resilience to stress can better face reality and better manage their physical health.

Regarding external factors, social support is one of significant factors associated with anxiety. Evidence showed that receiving social support from other family members, care providers and their social networks would help reduce anxiety. Severity of disease and anxiety may have a positive correlation. There have negative correlation between resilience, social support and anxiety. Research conceptual framework for this study is shown in figure 1.

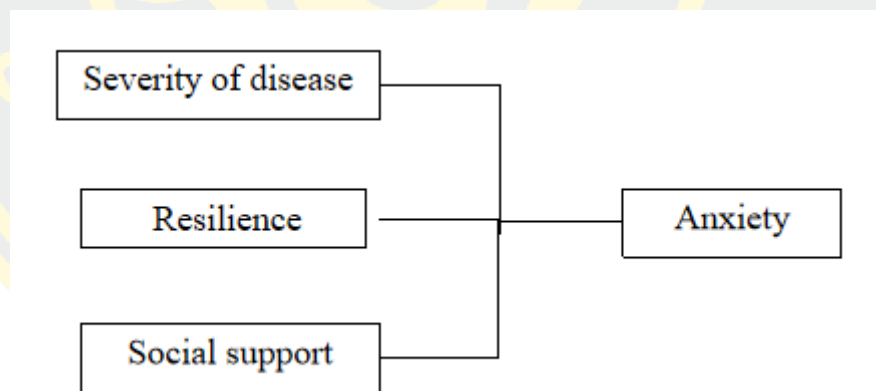


Figure 1 Conceptual framework

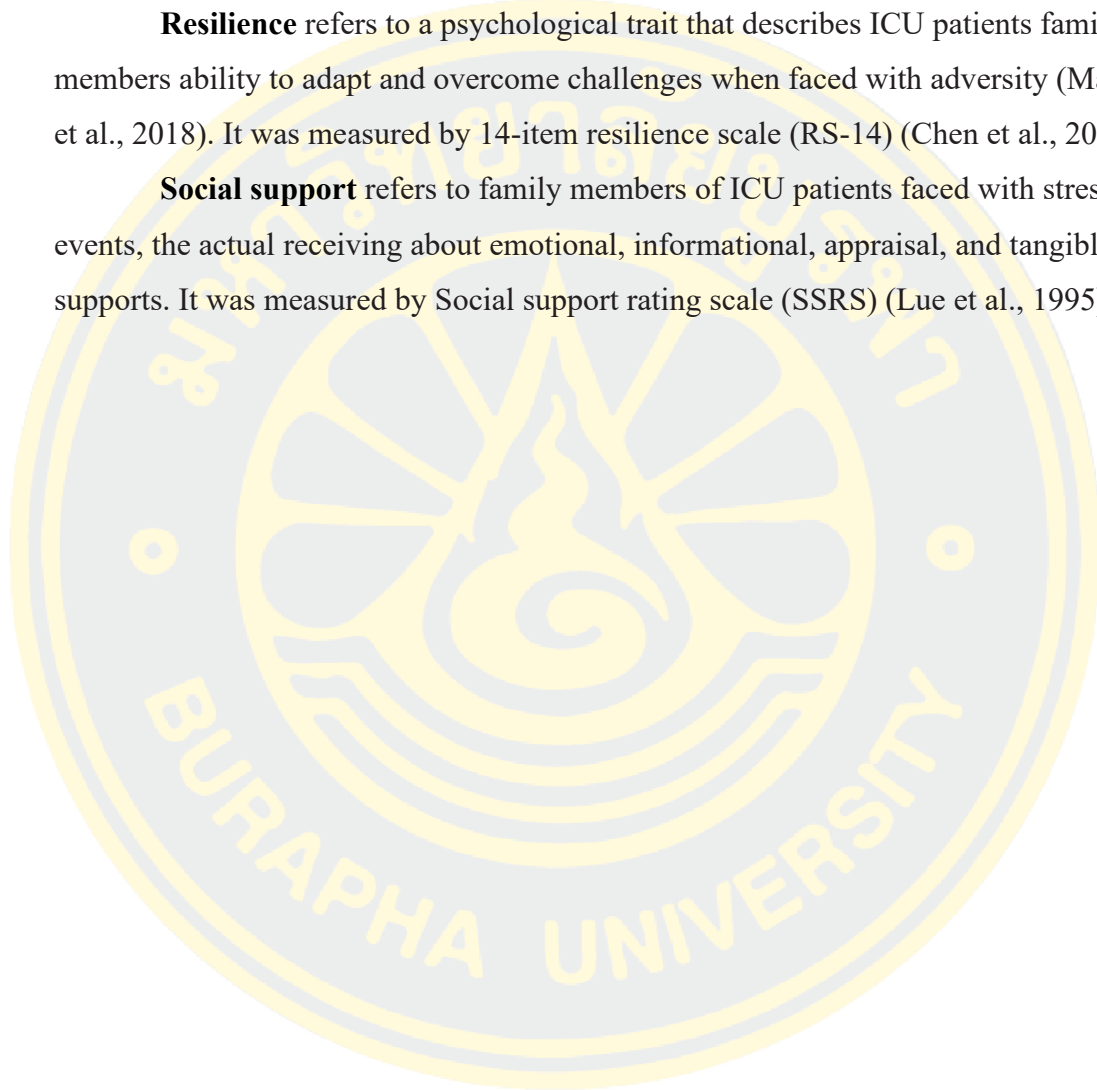
### Definition of terms

**Anxiety** refers to ICU patients' family member's feeling of fear, dread, and uneasiness. It might cause sweat, feel restless and tense, and have a rapid heartbeat. It was measured by the Self-rating Anxiety Scale (SAS) compiled by Hamilton and modified by Zung Mihu (Leske, 1991). The higher the score, the higher the degree of anxiety.

**Severity of disease** refers to the degree of organ system derangement, provides a global index of the likely prognosis of the patient and potential response to therapy (Vincent & de Carvalho, 2010). It was measured by Acute physiologic and chronic health status score (APACHE II) (Knaus et al., 1985).

**Resilience** refers to a psychological trait that describes ICU patients family members ability to adapt and overcome challenges when faced with adversity (Maley et al., 2018). It was measured by 14-item resilience scale (RS-14) (Chen et al., 2020).

**Social support** refers to family members of ICU patients faced with stressful events, the actual receiving about emotional, informational, appraisal, and tangible supports. It was measured by Social support rating scale (SSRS) (Lue et al., 1995).



## **CHAPTER 2**

### **LITERATURE REVIEWS**

This chapter presents the literature reviews including overview of Intensive care unit patients, effect of ICU patients with family member, anxiety among ICU patient's family, and factors related to anxiety among ICU patient's family.

#### **Intensive Care Unit patients**

##### **Characteristic**

Intensive care unit is a clinical area staffed by a team of highly skilled health care professionals trained to provide total care to patients with severe, life-threatening illnesses or injuries through continuous monitoring of vital signs, supportive care, and intensive medical treatments and therapies (Inc, 2014). Seriously ill patients, that is, patients with either a terminal or critical illness with a very high risk of mortality, and with an even more severe situation than patients with serious illness. That means, admission to the ICU can be stressful and frightening for patients, they faced to rapid onset and severity of illness, unplanned ED visits, and poor prognosis. A further specificity of intensive care is that most of the time, patients are not capable of expressing themselves, often due to coma (artificial or otherwise), and this precludes any communication and/or consent for care that might reflect their wishes and opinions regarding the initiation of complex intensive care therapies (Quenot et al., 2017)

##### **Acute physiologic and chronic health status score (APACHE II)**

Scoring systems are standard tools used in intensive care unit. Clinically, they are used to objectively quantify condition severity and to perform risk stratification of patients for clinical prognostication (Chatterji & Raj, 2011).

First developed in 1981 from a sample of 582 ICU patients in the United States, APACHE was constructed on the hypothesis that illness severity can be measured by quantifying the degree of abnormality of different physiological variables (Chatterji & Raj, 2011). Employing variables subjectively selected by an expert panel, APACHE used a combination of preadmission health indicators and 34 weighted physiological variables, gathered within the first 24 hours of ICU admission, to

develop a score that has been shown to correlate with subsequent risk of in-hospital death (Knaus et al., 1981). APACHE II, developed in 1985 from 5815 intensive care admissions, reduced the illness severity in number of subjectively selected variables to 12 and required specification of a principal ICU admission diagnosis. (Knaus et al., 1985) The point score (0–71) is based on the variables' most deranged values collected within the first 24 hours of the ICU stay. The APACHE II score and ICU diagnosis are used in an equation to predict in-hospital mortality risk. APACHE II has shown good calibration and discrimination across a range of disease and diagnostic groups, is easy for clinicians to use, is the most commonly used severity scoring system worldwide (Vincent & Moreno, 2010).

The study use APACHAE II score evaluate patient's condition, the APACHE II score at the time of questionnaire completion correlated significantly with anxiety, that means the patient's current severity of illness is a critical factor in sleep, fatigue and anxiety levels in our respondent population (Day et al., 2013). Similarly, family members of patients who experience death or near death during the ICU stay are at increased risk of developing both acute stress and post-traumatic stress symptoms, compared with family members of ICU survivors with less severe critical illness (McAdam, 2008). In Greece, during the 1st week of ICU admission, while anxiety symptoms fluctuate and they are affected by the severity of the patients' condition, as measured with the APACHE II score (Bolosı et al., 2018b). In other study, a statistically significant correlation was found between the severity of signs for Post-traumatic Stress Disorder (PTSD) and the severity of disease evaluated with APACHE II scoring. This result may be interpreted as the patient having a worse clinical condition or the patient's relative perceiving the threat of losing the beloved much more (Yılmaz et al., 2016).

## **Effect of ICU patients with family member**

### **ICU patient's family members**

Patients in the ICU are often intubated, sedated, or neurologically compromised, which precludes them from actively participating in the decision making process (McNicoll et al., 2003). Most of ICU patients rely on a substitute decision-maker, need to participate in communication and decision-making with the

health care providers at some point during their ICU illness (Prendergast et al., 1998). Family members of very seriously ill patients can be defined in many ways, and the spectrum of concepts is wide, plays primary care responsibilities and decision-maker. Family members, relatives, friends or partners of patients are often referred to as caregivers, informal caregivers or family caregivers, especially when they are taking care of their loved ones and participating in care (Candy et al., 2011). Families have a vital role to play in ICU patients' recovery and outcomes (Vandall-Walker & Clark, 2011). Family caregivers—individuals who support the patient—play a central role in critical care survivorship, helping with health management and service use (Friedman et al., 2019).

Critical illness increases the risk for poor mental health outcomes among both patients and families (Davidson et al., 2016). Additionally, limited visits and information times, not being involved in the follow-up and treatment process in ICU as it was when at home or in the ward, and being in a decision-making position in some cases, further aggravate this emotional stress on family members (Gurbuz & Demir, 2023).

### **Mental health**

A complex and prolonged ICU course, the risk of loss of a loved one, and the difficulty of making end-of-life decisions may add to the anxiety and stress of family members (Hickman Jr et al., 2010).

Psychological health or mental health is defined as the state of well-being of an individual in realization of their availability to cope with stress in daily life (Abdul Halain et al., 2021). According to World Health Organization (Organization, 2004), mental health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, psychological health has gained substantial attention over the past few years, especially in the ICU department as it presents the most stressful environment in a hospital. With increases in the number of patient admissions to ICU come increases in poorer patient outcomes, for example, 20% of patients die prior to the hospital discharge or undergo a prolonged period of recovery (Cuthbertson et al., 2013).

The ICU can be a challenging place for patients' family members, especially if their loved one is at an increased risk for dying (Mcadam et al., 2012). Family

members will face their lives can be affected, including changes in family roles and responsibilities, financial concern, disruption of routines (Johansson, 2014). As patients are unexpectedly hospitalized in the ICU, family members do not have enough time to deal with it. Admission to ICU, whether planned or unplanned, however means that family members may suddenly be faced with decision-making and uncertainty about their relatives' acute condition and prognosis (Paul & Rattray, 2008). Research suggests they are frequently overwhelmed by feelings of anxiety and worry due to fear of losing their loved one, deterioration of the family structure, concerns about the future, coupled with the stressful technological ICU environment (Bijttebier et al., 2001). The most common psychological distress symptoms experienced by the ICU patient's family are depression, anxiety and stress (Frivold et al., 2015). A survey of the psychological status of the family members of 867 ICU patients showed that, families have a variety of mental health issues, with anxiety being one of the most prominent (Pochard, 2000). Such symptoms may affect their ability to perform as caregivers and also hinder their functioning.

### **Anxiety among ICU patient's family members**

#### **Definition of anxiety**

Anxiety stems from "anxiety". Kierkegaard in 1944 explained the concept of anxiety disorder as the inevitable inner experience of human beings in the face of free choice. Freud summarized anxiety into three categories according to the different causes of anxiety: realistic, neurological, moral anxiety, also proposed that neurotic anxiety has extreme fear, does not match the actual threat situation, unconsciousness and object, difficult to predicted prognostic and symptomatic trends. According to diagnostic and statistical manual of mental disorders fifth edition (US, 2013), anxiety is defined a group of persistent or episodic Neural manifestations in which anxiety and nervousness are the main clinical symptoms. Anxiety can be classified as normal and abnormal or pathological (existing in a disease state). Normal anxiety is useful because it provides an alerting signal and improves physical and mental performance. Excessive anxiety results in a deterioration in performance and in emotional and physical discomfort.

### **Measurement of anxiety**

There are many instruments to measure the anxiety among in ICU patient's family members and there is no widely accepted definition or gold standard for measurement of each study. Although Zung's Self-rating Anxiety Scale (SAS) developed in 1971, the SAS continues to be extensively used in research, particularly in medical discipline (Dunstan & Ned, 2018). The study (Dunstan & Scott, 2020) provided that demonstrates the value of the SAS as a screener for anxiety disorders though examining sensitivity and specificity figures against diagnoses made on the basis of the Patient Health Questionnaire (PHQ) in clinical and community samples. The SAS is a 20-item self-rated instrument designed to record and evaluate the presence of anxiety symptoms. Items reflect five affective and 15 somatic symptom categories. Item statements are derived from patient interviews and examples judged to be most representative of the particular symptom.

SAS is comprised of 20 first person statements, such as: "I feel more nervous and anxious than usual" and "I can feel my heart beating fast." Respondents use a four-point Likert-type scale to indicate the amount of time, ranging from "none or a little of the time" to "most or all of the time," they experienced the symptom in the past week.

The fifteen negatively phrased responses are assigned ratings of: 1="None or A Little of the Time"; 2="Some of the time"; 3="Good Part of the Time"; and 4="Most or All of the Time." The five positively phrased items are reverse-scored (items 5, 9, 13, 17 and 19). Item responses are totaled to obtain a total raw score. To obtain an index score, raw scores are divided by the maximum possible score of 80 and multiplied by 100. That means raw scores multiplied by 1.25, can get the index score. The Index scores of 50 - 59 points indicate mild anxiety, 60 - 69 points indicate moderate anxiety, and more than 70 points indicate severe anxiety.

There were many studies used the SAS to investigate the anxiety. Debra (Dunstan et al., 2017) through compare SAS and Depression Anxiety Stress Scale (DASS), prove that the Zung scales are superior in terms of sensitivity.

### **Effect of anxiety among ICU patient's family members**

The family members who have been anxious for a long time will decrease appetite, insomnia (Vercelles et al., 2014), sleep disturbances (Opus et al., 2015),

fatigue (Day et al., 2013), and formal psychiatric illness (Cameron et al., 2016). The families of ICU patients suffer more than the patients, especially when the loved one died, over time, symptoms of anxiety stress persist in family members (R. R. L. Fumis et al., 2015). The level of anxiety experienced influences the manner in which an individual functions. A family member's anxiety affects their ability to operate within and outside the hospital environment. Spielberger (Spielberger, 1983) contends that one facet of anxiety—state anxiety, relates to an individual's reaction to a particular situation, which alters as the situation and their methods of managing it alters (Chavez & Faber, 1987). Raised levels of anxiety inhibit families' capacity to influence patient recovery and add to patient care (Lynn-McHale & Smith, 1991). It is shown that high anxiety levels result in many behaviors such as repeated questioning of staff (Broome, 1985), hyper-vigilance (Leske, 1991) and the inability to understand the significance of events (Schlenker, 1999). These compound to impair decision-making by family members. Whilst symptoms may reduce over time, Paul and Rattray, (Paul & Rattray, 2008) in a recent review of the literature highlighted that moderate to high levels of anxiety are present for up to 2 years after hospital discharge in relatives providing care after ICU.

From the literature review there were only a few studies about anxiety in ICU family in China were published worldwide. Shun (Shunqiao & Jie, 2018) through survey 191 family members of ICU patients, find one hundred and twenty-one cases of family member had the anxiety symptom by screening, accounting for 69.1%. From the literature review there were only a few studies about quality of life in older adults in China were published worldwide.

#### **The level of anxiety among ICU patient's family members**

Many studies showed that anxiety levels of relatives of the families were high. A descriptive study (Olabisi et al., 2020) was conducted among 107 family members of patients admitted to ICU in Lagos State University Teaching Hospital, the mean scores and standard deviation of the family members' anxiety is 8.5 (SD = 3.9), 41% were anxious, and Mild was 5(4.7), Moderate was 34(31.8), Normal was 63(58.9), severe was 5(4.7). In another study (Konwar et al., 2016), 100 majority of family members, 54% had high levels of anxiety, followed by 31% who had moderate level of anxiety, and 15% had low level of anxiety among study subjects, the findings

suggested that majority of family members of ICU patients experienced high to moderate level of anxiety. In China, Shunqiao (2018) aimed to determine the influence factors of anxiety occurrence in family members of ICU patients, sample size was 191 family members of ICU patients, accounting for 69.1% of them had the anxiety symptom, among them, 68 cases (35.60%) were mild, 40 cases (20.94%) were moderate and 13 cases (6.80%) were severe. Due to different cultural, different articles showed that the anxiety level of the patient's family members is also different, and most of them are basically moderate.

### **Factors related to anxiety among ICU patient's family members**

There are many studies to examine the relationship among related factors and anxiety among ICU patient's family members. Based on the literature review, anxiety in ICU patient's family members can be affected by many factors. Broadly, these can be categorized as patient-specific, family member-specific, and relational (Maley et al., 2018). Such as demographic characteristics, severity of disease, social support, and resilience. In this study, the independent variables of interest are severity of disease, social support, and resilience.

#### **Severity of disease**

Illness severity scoring systems can be further subdivided into systems that predict risk of in-hospital mortality based on degree of physiological derangement at the time of ICU admission such as the Acute Physiology and Chronic Health Evaluation (APACHE) system, the Simplified Acute Physiology Score (SAPS), and the Mortality Probability Models (MPMs) (Miranda et al., 2012). Family members of severity disease patients, facing risk of poor prognosis, or relative died in the ICU were associated with anxiety (Tramm et al., 2015). Blok et al. found that caregivers with anxiety described that related to the unexpected critical illness and care, including recovery, waiting for information or recovery, the patient's condition, and unanticipated use of the ventilator (Blok et al., 2023).

Bolosi et al., (2018) to determine depressive and Anxiety Symptoms in Relatives of Intensive Care Unit Patients and the Perceived Need for Support: anxiety and APACHE II score were the statistically significant factors ( $p: 0.004 < 0.05$ ). In

another study of Day, A., (2013), a questionnaire was designed to evaluate sleep, fatigue and anxiety during the intensive care unit (ICU) admission, found that APACHE II and anxiety had a positive correlation (Pearson Correlation: 0.026,  $p: 0.402 < 0.05$ ). That means, the patient's current severity of illness is a critical factor in sleep, fatigue and anxiety levels in our respondent population.

However, Yilmaz et al., (2016) aimed to determine depression, anxiety, posttraumatic stress, and related factors among relatives of patients admitted to the intensive care unit, sample size was 67 patient relatives, no statistically significant correlation was found between APACHE II scores, patients and patient relatives and anxiety scores ( $p > .05$ ). Also, the study (Kourti et al., 2015) investigated symptoms of anxiety and depression in relatives of patients admitted in the Intensive Care Unit and determined whether these symptoms were associated to the seriousness of the patients' condition. Surveyed 102 patients' relatives, founded that no statistically a significant difference was observed to symptoms of anxiety between relatives whose patient was more likely to live—lower APACHE II score—and to those whose patient was in a more critical condition ( $p > 0,05$ ). In cases of anxiety changes, age, education, closeness of relationship, and APACHE II score were the factors been associated (Bolosi et al., 2018a).

### **Resilience**

Resilience is a complex construct describing a person's ability to positively adapt to a stressful or traumatic situation. Involves both behavioral and psychological aspects of positive adaptation to adversity and results in a process of adaptation, which is substantially better than expected given the experience of adversity and associated risk factors (Luthar et al., 2000). (Windle & Noyes, 2011)The presence of resilience varies widely in the general population, ranging from 25–80% depending on the context of the study and the measurement instruments. Resilience has been consistently linked to a variety of positive health outcomes (Bonanno et al., 2007). Mindfulness and coping strategies are two modifiable resilience factors. Individuals with stronger resilience have higher ability to adjust when faced with stress, feel less psychological distress, and have a higher level of mental health in the face of adversity (Rosenberg et al., 2014). Currently, the factors affecting resilience include demographic characteristics, psychology, and social support. In demographic, there

are no unified conclusions, which can be related to the size of the sample size and the characteristics of the disease.

Resilience has been inversely associated with anxiety symptoms in a cross-sectional dyadic study of neurocritical care patients and their family caregivers during hospitalization (Shaffer et al., 2016). In a cross-sectional study, examined the association between resilience and anxiety in one-hundred and seventy family members of critically ill patients, it proved that resilient family members had significantly fewer symptoms of anxiety than their non-resilient counterparts (Sottile et al., 2016). In a prospective, longitudinal study, patients' caregivers baseline mindfulness, coping, and anxiety symptoms were associated with lower anxiety symptoms at all time points ( $p < 0.001$ ), mindfulness-based practices had a protectively interdependent effect on the development of anxiety at 3 months (Meyers et al., 2020). In another study (Sottile et al., 2014), survey 75 family members, find 49% of family members were resilient and 51% had low resilience, 49% of family members were resilient and 51% had low resilience. When caring for the critically ill, resilient family members have fewer symptoms of depression and anxiety. A cohort study, clinically significant levels of burden ( $Zarit \geq 21$ ) were observed in 55 (72.4%) family members, resilient family members had significantly lower anxiety ( $9.0 \pm 3.8$  vs.  $11.3 \pm 5.3$ ;  $p = 0.011$ ), resilient family members of critically ill patients have fewer symptoms of anxiety (Boniatti, 2021). In a cross-sectional study was conducted on a random sample of 104 family members of patients, resilience is significantly correlated with the spirituality ( $p = 0.019$ ), on the contrary, the more their daily spirituality, the greater their resilience (Papathanasiou et al., 2022).

### **Social support**

Social support, empathetic interpersonal interactions that meet one's emotional and functional needs (Southwick et al., 2005). Refers to meaningful groups such as family members, friends, colleagues, relatives, and neighbors, around the individual when they are in a difficult situation, providing practical assistance, emotional support, and information assistance (Pössel et al., 2018). It has been found that social support assists in decreasing ambiguity related to mixed messages concerning the state of the illness, by providing the opportunity to compare with each other, ideas and information concerns. Social support provides a network where the

family can draw on other's thoughts to confirm beliefs in a preferred interpretation of the uncertainty event, and so adjust to the situation (Mishel & Braden, 1987). ICU staff, family, friends and employers were identified as sources of support. The main types of social support described in the literature are emotional, informational, and instrumental (Arora et al., 2010).

The study showed that the level of social support experienced by families where a negative correlation ( $R = -0.243$ ;  $P = 0.002$ ) was recorded, that is, as social support increased, anxiety scores decreased significantly (Mitchell & Courtney, 2004). Avcı & Ayaz proved that there was a significant relationship between the state anxiety level (Adjusted  $R^2 = 0.080$ ,  $F = 8.247$ ,  $p < 0.001$ ), trait anxiety level (Adjusted  $R^2 = 0.185$ ,  $F = 19.821$ ,  $p < 0.001$ ), and the perceived social support (Adjusted  $R^2 = 0.094$ ,  $F = 9.640$ ,  $p < 0.001$ ), there was a correlation between anxiety levels and the perceived social support of families (Avcı & Ayaz-Alkaya, 2021). Another study examined feasibility in investigating the psychobiological impact of intensive care experience on relatives through using mixed methods, negative associations between social network and evening cortisol confirm physiological benefit in larger support networks in this context (Turner-Cobb et al., 2016). It was observed that family members that experienced a considerable amount of anxiety, were unable to cope with anxiety efficiently and therefore needed more help and support (Acaroglu et al., 2008). In a pre-experimental study, the research results show a significant difference of anxiety level of patient's family in ICU (Intensive Care Unit) before and after received spiritual support by nurses of the ICU of dr. Dradjat Prawiranegara Hospital in Serang, Banten Province, it is shown by 0.000 p value, 14.840 mean score, and 5.437 standard deviation (Lukmanulhakim & Syukrowardi, 2018). Marion L. Mitchell used the pre-test, post-test design purposively allocated family members to a control ( $n = 80$ ) and intervention group ( $n = 82$ ), find anxiety increased significantly with reduced social support ( $P = 0.002$ ), those with fewer social supports represent potential 'at risk' groups whose adaptation to transfer may limit their coping ability (Mitchell & Courtney, 2004). The benefit of supportive families was also reported in qualitative study (Chen & Yueh-chih, 1990) that described family members' need to discuss their concerns with others as a means of coping with the situation. Therefore, these studies

and the current study suggest that those family members with limited social support systems are a potential ‘at risk’ group for higher anxiety levels.

## **Summary**

In summary, the mental health of family members of ICU patients’ needs continuous attention from medical staff. Anxiety is a common psychological emotion phenomenon in ICU family members and will affect the family members' inner beliefs. In addition, the literature reviews indicated that there may have a positive correlation among severity of illness and anxiety, and have a negative correlation between resilience, social support, and anxiety. At present, most domestic research on the relationship between the three are mainly based on the analysis of two. Although anxiety among ICU family members have been investigated widely in over the world. However, there is still limited study that explores the related factors of anxiety among ICU family members, especially in Wenzhou, China. This study provided some directions for future research in this population, including the importance of longitudinal analyses, and the consideration of nursing intervention research. To provide a theoretical basis for the development of effective intervention measures for the families of ICU patients, in order to improve the mental health level of the family members of the patients.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

This chapter presented research methodology including, research design, research setting, population and sample, research instruments, quality of instruments, protection of human subjects, data collection procedures, and data analyses.

#### **Research design**

A descriptive correlational study design was used to explore anxiety and its relationships with severity of disease, resilience, and social support among ICU family members.

#### **Research setting**

The study was conducted at the three wards (each ward has 26 beds) of ICU in the second affiliated hospital of Wenzhou Medical University (WMU), located in Wenzhou, China. Each ward receives an average of about 2-3 patients in each day. In total, about 200 patients are admitted each month. Access to medical records to screen eligible patient. Self-report 5 people every day, 5 days a week, through questionnaires, personal.

#### **Population and sample**

##### **Population**

**The population of this research was family members of Intensive Care Unit patient in Wenzhou, China.**

##### **Sample**

In this study, the sample was selected based on the inclusion criteria:

1. Patient stay to ICU at least 24 hours.
2. Age more than 18 years old.
3. Play primary care responsibilities in the process of patient treatment.
4. No physiology and psychology disease as diagnosed.
5. Able to read, write, and understand mandarin language.

## 6. Willing to participate in the study.

### **Sample size**

The sample sizes in this study were calculated by using the G\*Power 3.1.9.2 program for correlational design. The researcher tested the relationship between anxiety and each independent variable. Therefore, the correlation- bivariate normal model were chose as type of statistical test in G\*Power program with a significance level of .05, statistical power of .80, and an estimated moderate effect size (0.3) (Faul et al., 2007). Based on this formula, 84 subjects will be needed. In this study, 20 % of participants are added to be 101 participants in total for data collection.

### **Sampling technique**

Participants in this study were recruited using simple random sampling technique. They were randomly selected from the family members of patients living in the comprehensive ICU of the Second Affiliated Hospital of Wenzhou Medical University. The researcher selected all of the patients' family members who meet eligible criteria from the name list of registration. The researcher asked permission from family members to participate in the study and to sign on consent form.

## **Research instruments**

The instrument in this study was classified into five parts regarding demographic information, Acute physiologic and chronic health status score (APACHE II), Self-rating Anxiety Scale (SAS), Chinese version of the Resilience Scale (RS-14), and social support rating scale (SSRS). Participants were asked to answer the questions using self-report questionnaires. The instruments were described in detail as follows:

### **Demographic questionnaire**

This part was developed by the researcher. It consisted of questionnaires to assess demographic characteristics of the participants including their ages, gender, patient's relationship, education background, occupation, marital status, living status and ICU length of stay.

### **Acute physiologic and chronic health status score (APACHE II)**

APACHE II was determined according to the evaluation of the patients of their admission to intensive care unit. This score was came from hospital records. The

doctor evaluated the patient's condition and update it if there is a change. The score in the data was the most recent score collected from the patient. APACHE II values were obtained by the sum of acute physiology score, age score, and chronic disease score. Acute physiology score was obtained by scoring the levels of body temperature, mean arterial pressure, pulse, alveoloarterial oxygen gradient (A-a PO<sub>2</sub>) (if FIO<sub>2</sub> is higher than 50%) or partial arterial oxygen pressure (PaO<sub>2</sub>) (if FIO<sub>2</sub> is lower than 50%), arterial pH, serum Na<sup>+</sup> and K<sup>+</sup> levels, serum creatinine level, hematocrit and blood leucocyte level, and Glasgow Coma Score (GCS).

### **Self-rating Anxiety Scale (SAS)**

SAS developed in 1971, designed to record and evaluate the presence of anxiety symptoms. Items reflect five affective and 15 somatic symptom categories. Item statements are derived from patient interviews and examples judged to be most representative of the particular symptom. The SAS is comprised of 20 first person statements, such as: "I feel more nervous and anxious than usual" and "I can feel my heart beating fast." Respondents use a four-point Likert-type scale to indicate the amount of time, ranging from "none or a little of the time" to "most or all of the time," they experienced the symptom in the past week.

The fifteen negatively phrased responses are assigned ratings of: 1="None or A Little of the Time"; 2="Some of the time"; 3="Good Part of the Time"; and 4="Most or All of the Time." 15 of the items are: "I feel more nervous and anxious than usual", "I feel scared for no reason", "I get upset or scared easily", "I think I might go crazy", "My hands and feet are shaking", "I suffer from headaches, neck pain, back pain", "I feel weak and tired easily", "I feel my heart beat fast", "I suffer from bouts of dizziness", "I have fainting attacks or feel like I'm going to faint", "My hands and feet are numb and tingling", "I suffer from stomachache and indigestion", "I often have to urinate", "I blush and get hot", and "I have nightmares". The five positively phrased items are reverse scored (items 5, 9, 13, 17 and 19) use the same scale but are scored inversely. Item responses are totaled to obtain a total raw score. To obtain an index score, raw scores are divided by the maximum possible score of 80 and multiplied by 100. That means raw scores multiplied by 1.25, can get the index score. The Index scores of 50 - 59 points indicate mild anxiety, 60 - 69 points indicate moderate anxiety, and more than 70 points indicate severe anxiety.

This scale had already been used to measure anxiety (Dunstan & Scott, 2020) and yielded its Cronbach's alpha of .83.

#### **14-item resilience scale (RS-14)**

Wagnild developed the RS-14, was used to assess the degree of resilience, which is a 14-item form of the RS, It is derived from the original 25-item RS. The RS-14 was a 14-item and single factor structure instrument, comprising a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Examples of the items were, "I feel that I can handle many things at a time" and, "I keep interested in things". The Chinese translation of the RS-14 was developed with a back translation procedure to ensure accuracy. The RS-14 was developed by retaining items from the original RS with the highest inter item correlations and those that also measured five characteristics of resilience, termed the Resilience Core, specifically meaning and purposeful life (Items 2, 9, and 13), perseverance (Items 6 and 8), equanimity (Items 3 and 10), self-reliance (Items 1, 5, 7, 12, and 14), and existential aloneness (Items 4 and 11). With regard to how these terms are defined, an individual's life is meaningful or purposeful when he or she has clear goals and values. Perseverance refers to motivation to persist in the face of difficulty.

This scale had already been used to measure resilience among undergraduates (Chen et al., 2020) and yielded its Cronbach's alpha of .736.

#### **Social support rating scale (SSRS)**

The SSRS was developed by Ganster in 1988. We measured social support level using the Chinese Social Support Rating Scale (SSRS), which is compiled by Xiao Shuiyuan in 1986 (Du et al., 2017). The SSRS had demonstrated a good validity and reliability in China and had been widely used (Lu et al., 2011). The SSRS has 10 items in total, which are divided into three dimensions: objective support (three items about living conditions in the past year, problem-solving channels in emergency situations, and sources of psychological comfort in the event of stress or resistance); subjective support (four items about relationship with colleagues, relationship with neighbors, number of friends who can offer assistance, and level of support from family members); and support utilization (three items about the way one talks when in trouble, the way one asks for help when in trouble, and participation in group activities). Items are scored as follows. The respondent selects only one option for

each item in items 1~5 and 8~9, scoring 1, 2, 3, and 4 points for item A, B, C, and D respectively. For items 6 and 7, the answer “no source” scores 0 points; otherwise, each source listed scores 1 point. Item 10 is divided into five subitems, and the total score is recorded. For each subitem, the response “none” scores 1 point, “rare” 2 points, “general” 3 points, and “full support” 4 points.

The total score is the sum of the scores of all ten items. The higher the score, the higher the social support level. A total score that is at most 22 is classified as a low level of social support, a score between 23 and 44 is classified as a medium level, and a score between 45 and 66 is classified as a high level.

This scale had already been used to measure social support and its Cronbach's alpha of .729 (Zhang et al., 2021).

### **Reliability of the instruments**

For validity, since all the scales used in this study have already been validated and used in previous studies. The researcher used all of these scales without modification.

In terms of reliability, all of questionnaires were tested for the internal consistency reliability with 30 persons who had similar characteristics with the sample. The Cronbach's alpha was used to determine the reliability for Self-rating Anxiety Scale (SAS), Social Support Rating Scale (SSRS), and Chinese version of the Resilience Scale (RS-14). The results of Cronbach's alpha test for Self-rating Anxiety Scale was 0.841, Social Support Rating Scale was 0.797, and Chinese version of the Resilience Scale (RS-14) was 0.894.

### **Protection of human subjects**

The thesis proposal was submitted to the Burapha University Ethics Committee on Human Research (BUU EC) and Institution Review Board (IRB) of the second affiliated hospital of WMU. The researcher described the nature of the study and also emphasized the patients' rights to participate or to refuse to participate in the study before inform consent. The data in this study only collected from those family relatives who were willing participate in and sign the consent form. Confidentiality

maintained and no names or other identify information were disclosed in this study report. All data on the paper documents stored in a secure place and only utilized for the purpose of the research.

### **Data collection procedures**

The data collection procedures in this study conduct by the researcher as follows:

1. Get approval from BUU EC, and the IRB committee of the second affiliated hospital of WMU, Wenzhou, China.
2. Then, the researcher got the unit nursing staffs and doctors of the ICU department cooperation.
3. The researcher searched the registration records to find the clients who meet the study inclusion criteria using the convenience sampling technique to recruit participants.
4. The researcher met and informed participants about the purposes of study, ethical issues, and human protection, request for their permission to participate in the study by giving consent forms for signature verification.
5. Self-report was performed when the participants are waiting for the doctors. At that time is more conveniences for the participants. The researcher Self-reported each participant by using the demographic questionnaires, SAS, RS-14, SSRS.
6. It took about 20-30 minutes to complete each interview. The data were collected every weekday (Monday to Friday) in the morning from 9.00 am to 11.00 am, and in the afternoon from 3.00 pm to 5.00 pm. About 4-5 participants are interviewed for one day.
7. This process was repeated until meet the sample size.

### **Data analysis**

Data was analyzed by using descriptive statistics of software programs. The significance level was set at .05, data analysis included:

1. Import data into SPSS statistical software and analyzed the data.

2. The descriptive statistics used to describe frequencies, percentages, means, and standard deviations of the participants' demographic data and anxiety, severity of disease, resilience, social support.

3. The Pearson's product moment correlation was used to examine relationship between anxiety and severity of disease, resilience, social support among ICU family members.



## **CHAPTER 4**

### **RESULTS**

This chapter presents the results of the study about anxiety and factors related to anxiety in family members among ICU patient in Wenzhou, China. The results are divided into three parts.

1. The description of demographic characteristics and health information of the participants including their ages, gender, patient's relationship, education background, occupation, marital status, living status, ICU length of stay.

2. The description of the the participants' anxiety, APACHE II, social support, resilience.

3. The relationships between anxiety and severity of disease, resilience, social support among ICU family members.

#### **Part 1 The description of demographic characteristics and health information of the participants**

##### **Description of demographic characteristics**

The description of the demographic characteristics of the participants was illustrated in Table 1.

Table 1 Frequency, percentage, mean, and standard deviation of demographic characteristics of the family members among ICU patient (n = 101)

Characteristics	Number (n)	Percentage (%)
<b>Gender</b>		
Male	49	48.5
Female	52	51.5
<b>Age (years)</b>		
Young ( $\leq 45$ )	55	54.4
Middle-aged (46~60)	33	32.7
Elderly ( $> 60$ )	13	12.9
(M = 44.37, SD = 12.301, Min = 20, Max = 70)		
<b>Education level</b>		
Illiteracy	2	2.0
Primary School	14	13.8
Junior high school	32	31.7
senior high school	24	23.8
Bachelor's Degree	29	28.7
<b>Departure</b>		
On the job	74	73.7
Departure	27	26.7
<b>Marital status</b>		
Unmarried	14	13.9
Married	80	79.2
Divorced	4	3.9
Widowed	3	3.0
<b>Number of family members</b>		
1	2	2.0
2	7	6.9
3	18	17.8
4	35	34.7
$\geq 5$	39	38.6
<b>Patient's relationship</b>		
Spouse	22	21.8
Child	55	54.5
Parents	17	16.8
Relatives	7	6.9
<b>Living place</b>		
Urban	58	57.4
Rural	43	42.6
<b>ICU length of stay</b>		
1	12	11.9
2	39	38.6
3	20	19.8
4	19	18.8
5	11	10.9
(M = 2.78, SD = 1.205, Min = 1, Max = 5)		

According to Table 1, 51.5% of the participants were female (n=52), while 48.5% were male (n=49). The age of the participants ranged from 20 to 70 years old with an average age of 44.37 years (SD=12.301). According to the World Health Organization (WHO) Human age The classification criteria were divided into young ( $\leq 45$  years old), middle-aged (46-60 years old) and elderly ( $> 60$  years old). Among all age brackets, the largest number of people were young ( $\leq 45$  years old), accounting for 54.4%, followed by those Middle-aged (32.7%), others were elderly. Among these participants, 31.7% had Junior high school education, followed by bachelor's Degree education (28.7%). Most of the participants were married (79.2%). 73.7% of the participants had work, while 26.7% of the participants did not. 38.6% of them had more than 5 family members, just 2% had only 1 member. In terms of the patient's relationship, is defined by the patients, that means the participants were patients' spouse, child, parent or relative. The majority of the participants were child (54.5%), than were spouse (21.8%). 57.4% of the participants were living in urban, while 42.6% were living in rural. 38.6% of patients were stay in ICU for 2 days, the largest length was 5 days, and an average length of stay ICU was 2.78 (SD=1.205).

## **Part 2 The description of study variables**

### **Description of anxiety**

In this study, the SAS scale was used to measure participants' anxiety levels. According to the Chinese normal results, the boundary value of SAS standard score is 50 points, of which 50-59 is classified as mild anxiety, 60-69 is classified as moderate anxiety, and more than 69 is severe anxiety. Table 2 illustrated the classification of SAS.

Table 2 Mean, frequency, percentage, and classification of anxiety in family members among ICU patients (n = 101)

SAS	Range		Number (n)	Percentage (%)	Mean	SD	Level
	Possible range	Actual range					
< 50	25-50	26-48	50	49.5	8.60	5.789	
	50-59	50-57	37	36.6	52.46	2.599	Low
≥ 50	60-69	60-66	12	11.9	63.08	2.234	Moderate
	70-100	70-72	2	2.0	71	1.414	High

In this study, 49.5% of the participants got a standard score of 26-48, which were no anxiety (M=38.60, SD=38.60). 50.5% of the participants at a state of anxiety. Among of this participants, 36.6% were at the low level of anxiety (M=52.46, SD=2.599). 11.9% of the participants showed a moderate level (M=63.08, SD=2.234). Only 2.0% were at the high level (M=71, SD=1.414).

#### Description of selected factors

Factors related to anxiety include severity of disease, social support, resilience, as shown in table 3.

Table 3 Range, mean, frequency, and percentage of the variables (n = 101)

Variables	Range score		Mean	SD
	Possible score	Actual score		
APACHE II	0-71	13-41	23.52	7.59
SSRS	10-40	17-37	26.74	4.65
RS-14	14-98	31-93	71.21	11.90

As Table 3 illustrated, the APACHE II score of 101 participants in this study ranged from 13-41, with a mean of 23.52 (SD=7.59). The social support scores ranged from 17 to 37, with an average of 26.74±4.65. Overall, the social support of the

participants were at a moderate level. The resilience score ranged from 31 to 93, with the mean score of 71.21 ( SD=11.9).

### **Part 3 The relationship between severity of disease, social support, resilience, and anxiety in family members among ICU patient**

The normal distribution of the variables was tested through a PP plot. All variables conform to a normal distribution. Pearson's product-moment correlation was used to examine the relationship between anxiety and severity of disease, resilience, social support among ICU family member. The results were presented in Table 4.

Table 4 Correlation coefficients between anxiety and severity of disease, social support, resilience among ICU family member (n = 101)

<b>Variables</b>	<b>Pearson correlation coefficient</b>	<b>p value</b>
<b>Severity of disease</b>	0.402**	< .001
<b>Social support</b>	-0.618**	< .001
<b>Resilience</b>	- 0.704**	< .001

Note: \*\* $p < .001$

Table 4 indicated that social support had a negative significant and moderate correlation with anxiety among ICU family member ( $r = -0.618, p < .001$ ). Resilience also had a negative significant, and moderate relationship with anxiety ( $r = - 0.704, p < .001$ ). Severity of disease had a positive significant correlation and moderate relationship with anxiety ( $r = .402, p < .001$ ).

## CHAPTER 5

### CONCLUSION AND DISCUSSION

In this chapter, conclusion and discussion of the study results according to the research objectives and hypotheses will be presented. Additionally, the implications of the study findings, limitations, and recommendations for future research will be discussed.

#### **Summary of the study**

At first, this study described the level of anxiety and showed the relationship between the independent variables including the severity of disease, resilience, social support and anxiety among ICU patients' family members. This study is synthesized from the literature reviews and relevant concepts pertinent to anxiety, severity of disease, resilience and social support. Sampling by defining a collecting data period was applied to recruit 101 individuals from the Second Affiliated Hospital of Wenzhou Medical University. Research instruments included the demographic questionnaire, the APACHE II, the SAS, SSRS, and the RS-14. The reliability of the scales was assessed by Cronbach's alpha in the pilot study. The Cronbach's alpha values of SAS, SSRS, and RS-14 with 30 participants was 0.841, 0.797, and 0.894. Data were analyzed by descriptive statistics and Pearson correlation.

According to the study with 101 participants, the age ranged from 20 to 70 years old with an average age of 44.37 years. Divided into young group, middle aged group and elderly group. The largest number of people were young, accounting for 54.4%, followed by those Middle aged (32.7%). Almost all of the participants had received education (98%). Most of the participants were on the job. The majority of the participants were married (79.2%) and 54.5% were patients children. 57.4% of the participants were living in urban. Almost all of the participants had more than two family members (98%). For Patients the ICU length of stay was from 2 to 5 days, and the average length of stay ICU was 2.78.

In this study, 50.5% of the participants at a state of anxiety. Among these participants, 36.6% had a low level of anxiety. 11.9% of the participants showed a

moderate level. Only 2.0% were at the high level.

The factors related to anxiety in family members among ICU patients were the APACHE II score with a mean of 23.52, the social support scores with an average of 26.74, at the moderate level, and the resilience score with a mean score of 71.21.

The results showed that both social support and resilience had a moderate correlation with anxiety among ICU family members, while severity of disease had a positive correlation and moderate relationship with anxiety (Table 4).

## **Discussion**

According to the research objectives and hypothesis, the results of this study were discussed. The first objective was to assess the anxiety level in family members among ICU patients. The second objective was to determine the relationship between severity of disease, resilience, social support and anxiety.

### **Anxiety in family members among ICU patients**

Hospitalization of patients in the ICU negatively affects the mental health of the family members, they might come up with psychological disorders like anxiety and depression (Plinke et al., 2022). Uncertainty associated with the patient's prognosis, treatment, and goals of care are considered the main factors lead to bad outcomes for family members (Anderson et al., 2008). Family members of ICU patients are the main decision makers and caregivers (White et al., 2018). In this single-center study, more than half of the family members (50.5%) at a state of anxiety, higher than TANG's study on anxiety status and influencing factors of family members of patients in ICU in 2019 (Tang et al., 2019), the incidence of anxiety in ICU patients' families was 46.32%. In another study from China (zhou, 2014) showed that 43.1% of participants had anxiety, with the increase of the age of patients, the family anxiety score gradually decreased, indicating that the younger the age of patients, the more serious the degree of family anxiety. Similarly, a study from Köse showed that anxiety experiences happened more frequently among family members of young patients (Kose et al., 2015). In the current study, most of the anxiety was at a low level (36.6%), and 11.9% of the participants showed a moderate level, only 2.0% were at a high level. Most of the participants are young and play the role of offspring. They undertake complex interweaving of various roles in the family and in society so that its psychological pressure is greater, the

occurrence of psychological problems. Therefore, compared with other studies in China, higher anxiety in this study might be due to the age were selected. Notably, our study found that female family members were more likely to experience anxiety than males. This gender difference is consistent with other research that indicates women tend to experience higher levels of anxiety than men, particularly in caregiving roles (Gil-Juliá et al., 2021).

### **The relationship between severity of disease, social support, resilience and anxiety**

In this study, severity of disease had a positive significant correlation and moderate relationship with anxiety, social support had a negative significant and moderate correlation with anxiety among ICU family member. Resilience also had a negative significant, and moderate relationship with anxiety. This was consistent with the hypothesis of this study.

#### **Severity of disease**

APACHE II score was used to measure the severity of the disease that patients who were admitted in the first 24 hours (R et al., 1986). However, our data showed that the severity of the disease had a positive significant correlation and moderate relationship with anxiety. Gurbuz and his colleague showed that the patients' APACHE-II scores and estimated mortality rates were significantly higher in the family members with anxiety and depression (Gurbuz & Demir). However a study published in 2001 found that no statistically significant difference was observed in symptoms of anxiety between relatives whose patients were more likely to live with lower APACHE II scores and those whose patients were in a more critical condition (Pochard et al., 2001). There is evidence suggesting that the severity of a patient's condition is not necessarily related to family anxiety or depression (Choi et al., 2012). It is worth noting that the local environment and culture have an impact on the mental state of the patient's family members. Meanwhile, we note that, in our data, approximate 29%(29/101) of the participants in our study had a high school education. All of them performed mild anxiety. Gil-Juliá reported that the relation between educational level and anxiety scores presented a significant negative correlation, the lower level of education, the more symptoms of anxiety and depression appeared along with greater subjective

perception of depressed mood were revealed among relatives (Gil-Juliá et al., 2018). Low education level is a factor that challenges effective information exchange.

### **Social support**

Evidence from a clinical trial showed that strengthening social support in the family members will not increase psychological stress (Curtis et al., 2016). A research enrolled 250 family members in ICUs in a city of Turkey showed a negative correlation between family satisfaction of the ICU and state anxiety ( $r = -0.349$ ,  $p < 0.001$ ), their social support and satisfaction with the ICU were at a moderate level (Avc & Ayaz-Alkaya, 2022). In the current study, social support had a negative significant and moderate correlation with anxiety among ICU family members. That is similar to the study Fang had reported. They found anxiety, depression and fatigue were negatively correlated with perceived social support ( $r = -0.353$ ,  $-0.276$  and  $-0.416$ , respectively, all  $P < 0.01$ ) (T et al., 2022). The study was found by an observation from 87 family caregivers showed social support does not alleviate stress. They found the participator payed more attention to the updated severity of the disease, although varying degrees of social support are needed (Pei-Yu et al., 2018). A comment from Heejung explained that the Asian adults, in order to protect group harmony and avoid criticism of social support resources, use less social support. Therefore, social support may not necessarily reduce psychological distress (Kim et al., 2008). In this study, the negative correlation between social support and anxiety could be influenced by cultural expectations in China, where family members may feel compelled to protect others from the emotional burden, limiting their willingness to seek or provide support. This dynamic process underscores the need for culturally sensitive interventions that encourage open communication and mutual support among ICU families.

### **Resilience**

Resilient family members are less likely to experience symptoms of depression, anxiety, and acute stress when taking care of critically ill patients. Families with strong recovery abilities are usually more satisfied with the care provided. Resilient family members had fewer symptoms of anxiety (14.2% vs 43.6%;  $p < 0.001$ ) (Sottile et al., 2016). A study involving 303 participants showed that 82.5% of participants experienced post-traumatic stress disorder, with 13.5% experiencing relief in post-traumatic stress disorder (Sottile et al., 2016). Resilience in families that

experience critical illness can be promoted by understanding the impact family members have on each other. The relationships developed between families in the ICU may be a source of social support; However, not all families welcome interaction with other ICU families, which may cause further emotional distress. Further research is needed to determine whether patient family members may experience secondary stress reactions due to accidental interactions with other patient family members in the ICU. In addition, when family members work together and provide social support to each other, they are better able to regain control. This process helps to establish an ICU family resilience framework(Wong et al., 2019b). Our data showed that resilience demonstrated a negative significant, and moderate relationship with anxiety. This was consistent with the hypothesis of this study. Resilience in family members may be fostered by factors such as positive coping strategies, strong family support networks, and the ability to find meaning in caregiving experiences. The negative relationship between resilience and anxiety suggests that interventions aimed at enhancing resilience could be effective in reducing anxiety among ICU family members.

## **Conclusion**

In conclusion, this study contributed to the growing body of research on the psychological distress experienced by family members of ICU patients. The findings suggest that anxiety is a prevalent issue among ICU family members and is influenced by factors, such as disease severity, social support, and resilience. Healthcare providers should be aware of the emotional burden faced by family members and implement strategies to support their psychological well-being. By enhancing resilience and social support, healthcare providers can help reduce anxiety and improve the overall experience of family members during their loved one's ICU stay. Future research should further explore the role of resilience, coping strategies, and cultural factors in shaping the emotional experiences of ICU families.

## **Implication for nursing practice**

The findings of the current study might be useful in the following areas:

### **Nursing practice**

The findings of the study provided a reference for nurses to assess anxiety in family members among ICU patient, clarify the psychological needs of families, formulate nursing countermeasures and intervention measures for family members among ICU patient. This information can be useful in developing appropriate nursing interventions to reduce anxiety among family members in ICU patient, help family members and physician to establish a good relationship, improve the quality of life, provide good social support for patients, promote health of patients.

### **Nursing education**

For nursing educators, this study provide a reference for nurses to carry out psychological education and intervention measures for the group of ICU patients' family. It is useful to strengthen nursing students' knowledge of the related factors of anxiety among family members. Should be educated to provide nursing not just for patients but family, from knowledge, psychology, family support, and other aspects, improve the mental health, so as to achieve improve the quality of life of patients and their families.

### **Recommendations for future research**

This study focuses on describing the anxiety level among family members in Wenzhou, China, and examines the predictive relationship of severity of disease, social support, resilience, and anxiety. There aren't many such studies in the mainland of China, Most of the previous studies focused on describe demographic characteristics and the level of anxiety. This study is the first in Wenzhou.

While this study provides valuable insights into the anxiety experienced by family members of ICU patients, it is not without limitations. This study was a cross-sectional study. In the future, research could in-depth longitudinal studies, such as the impact of changes in patients' disease, social support and resilience on the anxiety level of family members.

While this study examined the relationships between anxiety and several key factors, it's a descriptive study, other variables such as coping strategies, personality traits, and family dynamics may also play a role in family members' anxiety. Future research could explore these additional factors to gain a deeper understanding of the complex dynamics at play. Also researcher could make corresponding measures according to the results of this study, such as improving social support, improving

psychological resilience, and making intervention studies to reduce the anxiety of family members of ICU patients.



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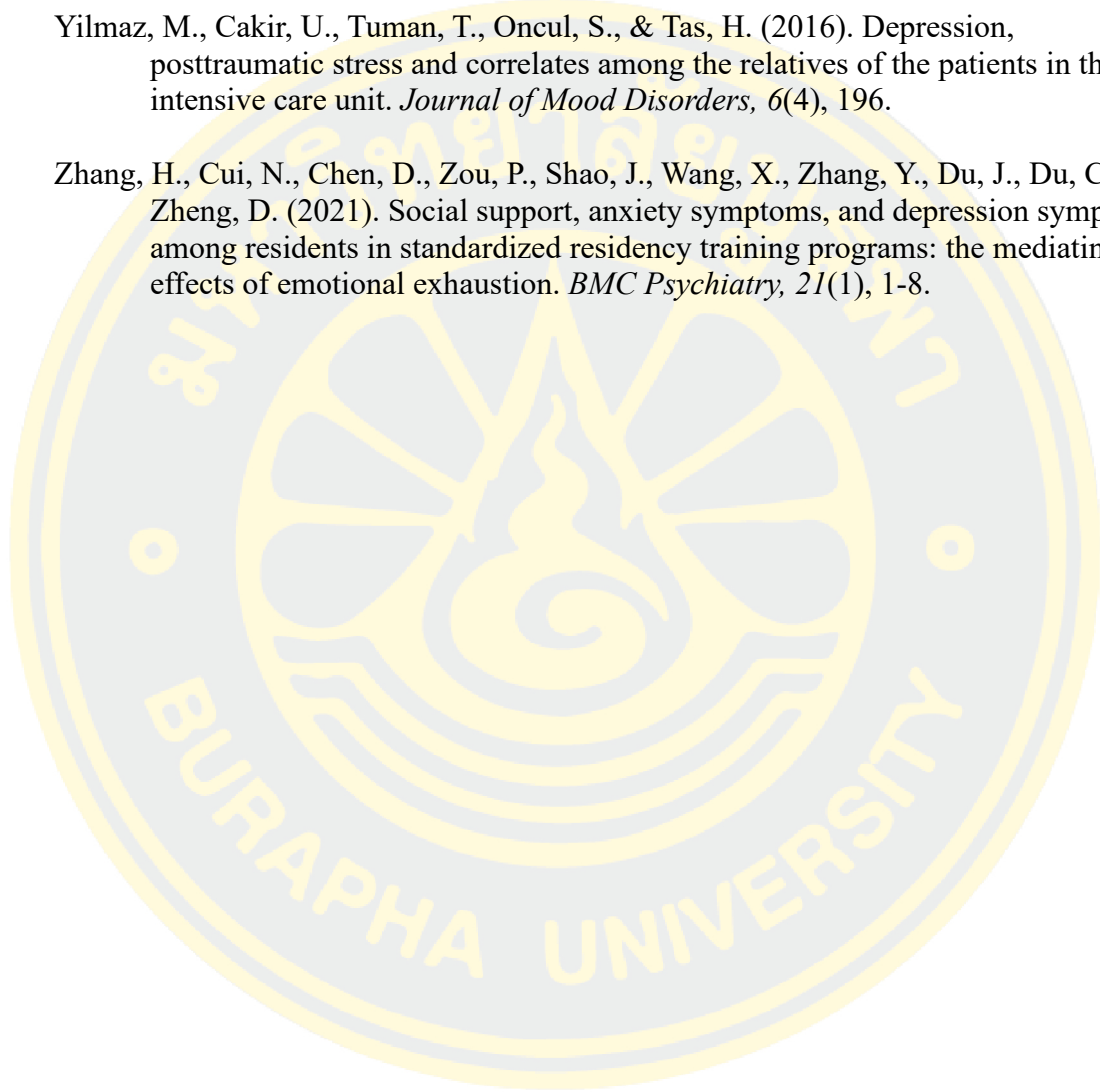
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**APPENDIX**



**APPENDIX A**

Questionnaire

Dear participants

I am Qianqian Li, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand. My study is “Factors related to anxiety in family members among intensive care unit patient”. The objectives are to assess the anxiety level in family members among ICU patients and to determine the relationship between severity of disease, resilience, social support and anxiety in family members among ICU patients in Wenzhou, China.

This study will be a survey study. Participating in this study is voluntary. If you agree to participate in this study, you will answer the following questionnaires, which will take approximately 30-minutes. During the data collection period, the researcher will clarify any questions posed by the participants for clarity regarding the language or content. You will not get any direct benefits by participating in this study. However, the results of this study will help nurses and other health care providers better understand family members among ICU patients' patient in Wenzhou, China. The information gained in this study will further determine the relationship between the relevant factors that influence anxiety in family members among intensive care unit. This study can help nurses and other primary care providers to help ICU patients' family members understand the factors that contribute or hinder anxiety. It will help ICU patients' family members reduce anxiety, so as to improve the quality of life. It will also provide a reference for nurses to carry out psychological education and intervention measures for the group of ICU patients' family.

During the study, you have the right not to answer questions, and you also have the right to change your minds and refuse to participate in the project at any time, and the refusal would not affect the medical services you received. Any information collected from this study, including your identity, will be kept confidential. A coding number will be assigned to you and your name will not be used. Findings from the study will be presented as a group of participants and no specific information from any

individual participant will be disclosed. All data will be accessible only to the researcher which will be destroyed one year after publishing the findings. You will receive a further explanation of the nature of the study upon its completion, if you wish.

The research will be conducted by Qianqian Li under the supervision of my major-advisor, Assistant Professor Pornchai Jullamate. If you have any questions, please contact me at mobile number: + 8615825646748 or by email 284238045@qq.com and/or my advisor's e-mail address pornchai@buu.ac.th. Or you may contact Burapha University Institutional Review Board (BUU-IRB) telephone number +6638 102 620. Your cooperation is greatly appreciated. You will be given a copy of this consent form to keep.

Thank you for your cooperation

Qianqian Li

Master's degree student

Adult Nursing Pathway

Faculty of Nursing, Burapha University, Thailand in collaboration with School of Nursing, Wenzhou Medical University, China

### The Demographic Questionnaire (English Version)

NO. \_\_\_\_\_ Name:

Please tell me about your personal information. The questions are below.

<b>I. General information</b>																			
Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female																		
Age	_____ Years old																		
Education level	<input type="checkbox"/> Primary School <input type="checkbox"/> Junior high school <input type="checkbox"/> Some High School <input type="checkbox"/> High School <input type="checkbox"/> Bachelor's Degree <input type="checkbox"/> Master's Degree <input type="checkbox"/> Ph.D. or higher <input type="checkbox"/> Trade School																		
Marital status	<input type="checkbox"/> Unmarried <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widowed																		
Occupation	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"><input type="checkbox"/> Employed</td> <td style="padding: 5px;"><input type="checkbox"/> Healthcare personnel</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Public officer of the state</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Commercial staff</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Labor</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Builder</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Factory worker</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Sanitation worker</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"><input type="checkbox"/> Farmer</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> Unemployed</td> <td style="padding: 5px;"><input type="checkbox"/> No occupation    <input type="checkbox"/> Retired</td> </tr> </table>	<input type="checkbox"/> Employed	<input type="checkbox"/> Healthcare personnel		<input type="checkbox"/> Public officer of the state		<input type="checkbox"/> Commercial staff		<input type="checkbox"/> Labor		<input type="checkbox"/> Builder		<input type="checkbox"/> Factory worker		<input type="checkbox"/> Sanitation worker		<input type="checkbox"/> Farmer	<input type="checkbox"/> Unemployed	<input type="checkbox"/> No occupation <input type="checkbox"/> Retired
<input type="checkbox"/> Employed	<input type="checkbox"/> Healthcare personnel																		
	<input type="checkbox"/> Public officer of the state																		
	<input type="checkbox"/> Commercial staff																		
	<input type="checkbox"/> Labor																		
	<input type="checkbox"/> Builder																		
	<input type="checkbox"/> Factory worker																		
	<input type="checkbox"/> Sanitation worker																		
	<input type="checkbox"/> Farmer																		
<input type="checkbox"/> Unemployed	<input type="checkbox"/> No occupation <input type="checkbox"/> Retired																		
Family member																			
Relationship of patient																			
ICU length of stay																			
Living place	<input type="checkbox"/> Urban <input type="checkbox"/> Rural																		
<b>II. Health information (To be collected by the researcher from the medical record)</b>																			
APACHE II	_____points																		

This part is developed by the researcher. Part I consisted of questionnaires to assess demographic characteristics of the participants including their ages, gender, patient's relationship, education background, occupation, marital status, living status and ICU length of stay. Part II is APACHE II (To be collected by the researcher from the medical record).

**ZUNG SELF-RATED ANXIETY SCALE (SAS)**  
**(English Version)**

Listed below are 20 statements. Please read each one carefully and decide how much of the statement describes how you have been feeling during the past week Circle the appropriate number for each statement.

<b>STATEMENT</b>				
	<b>None or a little of the time</b>	<b>Some of the time</b>	<b>A good part of the time</b>	<b>Most or all of the time</b>
1. I feel more nervous and anxious than usual.				
2. I feel afraid for no reason at all.	1	2	3	4
3. I get upset easily or feel panicky.	1	2	3	4
4. I feel like I'm falling apart and going to pieces.	1	2	3	4
5. I feel that everything is all right and nothing bad will	1	2	3	4
6. My arms and legs shake and tremble.	1	2	3	4
7. I am bothered by headaches, neck and back pains.	1	2	3	4
8. I feel weak and get tired easily.	1	2	3	4
9. I feel calm and can sit still easily.	1	2	3	4
10. I can feel my heart beating fast.	1	2	3	4
11. I am bothered by dizzy spells.	1	2	3	4
12. I have fainting spells or feel like it.	1	2	3	4
13. I can breathe In and out easily.	1	2	3	4
14. I get feelings of numbness and tingling in my fingers, toes	1	2	3	4
15. I am bothered by stomach aches or indigestion.	1	2	3	4
16. I have to empty my bladder often.	1	2	3	4
17. My hands are usually warm and dry.	1	2	3	4
18. My face gets hot and blushes.	1	2	3	4
19. I fall asleep easily and get a good night's rest.	1	2	3	4
20. I have nightmares.	1	2	3	4
	1	2	3	4

SAS developed in 1971, designed to record and evaluate the presence of anxiety symptoms. Items reflect five affective and 15 somatic symptom categories.

Item statements are derived from patient interviews and examples judged to be most representative of the particular symptom. The SAS is comprised of 20 first person statements, such as: "I feel more nervous and anxious than usual" and "I can feel my heart beating fast." Respondents use a four-point Likert-type scale to indicate the amount of time, ranging from "none or a little of the time" to "most or all of the time," they experienced the symptom in the past week.

The fifteen negatively phrased responses are assigned ratings of: 1="None or A Little of the Time"; 2="Some of the time"; 3="Good Part of the Time"; and 4="Most or All of the Time." 15 of the items are: "I feel more nervous and anxious than usual", "I feel scared for no reason", "I get upset or scared easily", "I think I might go crazy", "My hands and feet are shaking", "I suffer from headaches, neck pain, back pain", "I feel weak and tired easily", "I feel my heart beat fast", "I suffer from bouts of dizziness", "I have fainting attacks or feel like I'm going to faint", "My hands and feet are numb and tingling", "I suffer from stomachache and indigestion", "I often have to urinate", "I blush and get hot", and "I have nightmares". The five positively phrased items are reverse scored (items 5, 9, 13, 17 and 19) use the same scale but are scored inversely. Item responses are totaled to obtain a total raw score. To obtain an index score, raw scores are divided by the maximum possible score of 80 and multiplied by 100. Index scores of 45 or greater are indicative of minimal to moderate anxiety. Index scores of 60 or greater are indicative of moderate or greater anxiety.

## Social Support Rating Scale (English Version)

Reference: Xiao, S. The theoretical basis and applications of Social Support Rating Scale (SSRS).  
J Clinical Psychiatry 1994; (02): 98-100 (in Chinese).

### Social Support Rating Scale

**Instructions:** The following questions are designed to measure your support received in society. Depending on the fact, please finish the rating scale in accordance with the specific requirements of each issue. Thank you for your cooperation.

1. How many intimate friends do you have, from whom you can receive support and help?  
(Exclusive Choice)
  - (1) None
  - (2) 1~2
  - (3) 3~5
  - (4) no less than 6
2. Over the past year, you \_\_\_\_\_ (Exclusive Choice)
  - (1) stay away from family, and live alone
  - (2) often move the residence, and most of time live together with strangers
  - (3) live together with students, colleagues or friends
  - (4) live together with family
3. With your neighbors, you \_\_\_\_\_ (Exclusive Choice)
  - (1) have a speaking acquaintance and never care about each other
  - (2) maybe have a little concern when meeting trouble
  - (3) are deeply concerned by some of them
  - (4) are deeply concerned by most of them
4. With your colleagues, you \_\_\_\_\_ (Exclusive Choice)
  - (1) have a speaking acquaintance and never care about each other
  - (2) maybe have a little concern when meeting trouble
  - (3) are deeply concerned by some of them

(4) are deeply concerned by most of them

5. Obtain support and help from family members (Draw “√” in the suitable box)

	none	rarely	normally	full support
A. couple				
B. parents				
C. children				
D. siblings				
E. others (for example, sister-in-law)				

6. In the past, when you encounter difficulties, what is the source that you ever received either economic support or practical problem-solving help?

(1) no source

(2) the following source (more than one answer is permitted)

- A. spouse
- B. other family members
- C. friends
- D. relatives
- E. colleagues
- F. companies
- G. official or semi-official organizations, such as, parties, leagues and trade union
- H. unofficial organizations, such as, religion, social group and etc.
- I. others \_\_\_\_\_ (please list)

7. In the past, when you encounter difficulties, what is the source that you ever received comfort and caring?

(1) no source

(2) the following source (more than one answer is permitted)

- A. spouse
- B. other family members
- C. friends
- D. relatives

- E. colleagues
- F. companies
- G. official or semi-official organizations, such as, parties, leagues and trade union
- H. unofficial organizations, such as, religion, social group and etc.
- I. others \_\_\_\_\_ (please list)
8. What is the way of talking when you are in trouble? (Exclusive Choice)
- (1) never complain to anyone
  - (2) only complain to 1 or 2 persons who have a close relationship with
  - (3) will talk to the friend who takes the initiative to inquiry
  - (4) take the initiative to talk their own troubles in order to get support and understanding
9. What is the way of seeking help when you are in trouble? (Exclusive Choice)
- (1) just rely on myself, and do not accept the help of others
  - (2) rarely ask someone for help
  - (3) sometimes ask someone for help
  - (4) ask family, friends or organizations for help when facing troubles
10. Organized activities for groups (such as, party and youth league organizations, religious organization, trade union, student union and etc.), you \_\_\_\_\_. (Exclusive Choice)
- (1) never attend
  - (2) occasionally attend
  - (3) often attend
  - (4) take the initiative to attend and are active with

Chinese Social Support Rating Scale (SSRS), which is compiled by Xiao Shuiyuan in 1986. The SSRS has 10 items in total, which are divided into three dimensions: objective support (three items about living conditions in the past year, problem-solving channels in emergency situations, and sources of psychological comfort in the event of stress or resistance); subjective support (four items about relationship with colleagues, relationship with neighbors, number of friends who can

offer assistance, and level of support from family members); and support utilization (three items about the way one talks when in trouble, the way one asks for help when in trouble, and participation in group activities). Items are scored as follows. The respondent selects only one option for each item in items 1~5 and 8~9, scoring 1, 2, 3, and 4 points for item A, B, C, and D respectively. For items 6 and 7, the answer “no source” scores 0 points; otherwise, each source listed scores 1 point. Item 10 is divided into five subitems, and the total score is recorded. For each subitem, the response “none” scores 1 point, “rare” 2 points, “general” 3 points, and “full support” 4 points.

The total score is the sum of the scores of all ten items. The higher the score, the higher the social support level. A total score that is at most 22 is classified as a low level of social support, a score between 23 and 44 is classified as a medium level, and a score between 45 and 66 is classified as a high level.

## 14-ITEM Resilience Scale (RS-14)

### (English Version)

Date

Please read each statement and circle the number to the right of each statement that best indicates your feelings about the statement. Respond to all statements.

Circle the number in the appropriate column	Strongly Disagree				Strongly Agree		
	1	2	3	4	5	6	7
1. I usually manage one way or another.	1	2	3	4	5	6	7
2. I feel proud that I have accomplished things in my life.	1	2	3	4	5	6	7
3. I usually take things in stride.	1	2	3	4	5	6	7
4. I am friends with myself.	1	2	3	4	5	6	7
5. I feel that I can handle many things at a time.	1	2	3	4	5	6	7
6. I am determined.	1	2	3	4	5	6	7
7. I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
8. I have self-discipline.	1	2	3	4	5	6	7
9. I keep interested in things.	1	2	3	4	5	6	7
10. I can usually find something to laugh about.	1	2	3	4	5	6	7
11. My belief in myself gets me through hard times.	1	2	3	4	5	6	7
12. In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
13. My life has meaning.	1	2	3	4	5	6	7
14. When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7

Wagnild developed the RS-14, was used to assess the degree of resilience, which is a 14-item form of the RS, It is derived from the original 25-item RS. The RS-

14 was a 14-item and single factor structure instrument, comprising a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Examples of the items were, “I feel that I can handle many things at a time” and, “I keep interested in things”.



## 接受试验须知

研究项目代码：G-HS071/2565

(布拉法大学人类伦理评审办公室发布了研究项目代码)

研究项目：ICU患者家属焦虑的相关因素研究

尊敬的代表：

我是泰国布拉法大学护理学院护理科学(国际项目)硕士研究生李茜茜女士。我的研究是“ICU患者家属焦虑的相关因素研究”。目的了解温州市ICU患者家属焦虑的状况。并对ICU患者家属焦虑的预测因素，包括疾病的严重程度、心理弹性、社会支持等进行了研究。

本研究将是一项预测相关调查。参与这项研究是自愿的。如果您同意参加本次研究，您将回答以下问卷，大约需要30-60分钟。在数据收集过程中，研究人员将澄清参与者提出的关于语言或内容的任何问题。参与这项研究不会给您带来任何直接的好处，也不会让您面临任何生理和心理风险。然而，本研究的结果将有助于护士和其他卫生保健提供者更好地了解中国温州影响ICU患者家属焦虑的相关因素。有助于ICU患者家属减少焦虑，从而提高生活质量。为护理人员开展心理教育，制定ICU患者家属群体的护理对策和干预措施提供参考要提供证据。

在研究期间，您有权不回答问题，也有权随时改变主意，拒绝参与该项目，拒绝不影响您所获得的医疗服务。从本次研究中收集的任何信息，包括您的身份，都将被保密。我们会给你一个编码，你的名字不会被使用。研究结果将以一组参与者的形式呈现，不披露任何个人的具体信息。所有数据将只对研究人员开放，并将在发表研究结果一年后销毁。如果您愿意，您将在研究完成后收到关于研究性质的进一步说明。

本次研究将由李茜茜女士在专业指导老师 Pornchai Jullamate 博士的指导下进行。如果您有任何问题，请通过手机:+ 8615825646748 或电子邮件

284238045@qq.com 和/或我导师的电子邮件地址 pornchai@buu.ac.th 或致电 +6638 102 620 联系布拉法大学 IRB 机构。非常感谢您的合作。我们会给你一份同意书的复印件。

李茜茜

研究生  
成人护理专业  
泰国东方大学联合温州医科大学



## 一般调查问卷（Chinese Version）

编号.

请您告诉我您的个人信息。问题如下。

I. 一般信息	
性别	<input type="checkbox"/> 男 <input type="checkbox"/> 女
年龄	_____ 岁
教育程度	<input type="checkbox"/> 小学 <input type="checkbox"/> 初中 <input type="checkbox"/> 职高 <input type="checkbox"/> 普高 <input type="checkbox"/> 本科 <input type="checkbox"/> 硕士 <input type="checkbox"/> 博士
婚姻状况	<input type="checkbox"/> 未婚 <input type="checkbox"/> 已婚 <input type="checkbox"/> 离异 <input type="checkbox"/> 丧偶
职业	<input type="checkbox"/> 在职
	<input type="checkbox"/> 卫生保健从业人员
	<input type="checkbox"/> 公职人员
	<input type="checkbox"/> 企业员工
	<input type="checkbox"/> 劳动工
	<input type="checkbox"/> 建筑工人
	<input type="checkbox"/> 工厂工人
	<input type="checkbox"/> 环卫工人
	<input type="checkbox"/> 农民
	<input type="checkbox"/> 非在职
	<input type="checkbox"/> 无职业 <input type="checkbox"/> 退休
家庭成员	
与患者关系	
居住地	<input type="checkbox"/> 城市 <input type="checkbox"/> 农村
II. 健康信息（由研究人员从病历中收集）	
APACHE II	现在：_____ 分

## 焦虑自评量表（Chinese Version）

测评指导：下面有20条题目，请仔细阅读每一条，把意思弄明白，然后根据您最近一周的实际感觉，选择最适合您的答案。（评定时间为过去一周内或现在）

测试题目	没有或很少时间	小部分时间	相当多时间	绝大部分时间或全部时间
1. 我觉得比平常容易紧张和着急.	1	2	3	4
2. 我无缘无故地感到害怕	1	2	3	4
3. 我容易心里烦乱或觉得惊恐	1	2	3	4
4. 我觉得我可能将要发疯	1	2	3	4
5. 我觉得一切都好，也不会发生什么不幸	1	2	3	4
6. 我手脚发抖打颤	1	2	3	4
7. 我因为头痛、颈痛和背痛而苦恼	1	2	3	4
8. 我感觉容易衰弱和疲乏	1	2	3	4
9. 我觉得心平气和，并且容易安静坐着	1	2	3	4
10. 我觉得心跳得很快	1	2	3	4
11. 我因为一阵阵头晕而苦恼	1	2	3	4
12. 我有晕倒发作，或觉得要晕倒似的	1	2	3	4
13. 我吸气呼气都感到很容易	1	2	3	4
14. 我的手脚麻木和刺痛	1	2	3	4
15. 我因为胃痛和消化不良而苦恼	1	2	3	4
16. 我常常要小便	1	2	3	4
17. 我的手脚常常是干燥温暖的	1	2	3	4
18. 我脸红发热	1	2	3	4
19. 我容易入睡并且一夜睡得很好	1	2	3	4
20. 我做恶梦	1	2	3	4

## 社会支持评定量表 (SSRS) (Chinese Version)

指导语：下面的问题用于反映您在社会中所获得的支持，请按各个问题的具体要求，根据您的实际情况来回答。谢谢您的合作。

1. 您有多少关系密切，可以得到支持和帮助的朋友？(只选一项)
- (1) 一个也没有 (2) 1—2 个  
(3) 3—5 个 (4) 6 个或 6 个以上
2. 近一年来您：(只选一项)
- (1) 远离家人，且独居一室。  
(2) 住处经常变动，多数时间和陌生人住在一起。  
(3) 和同学、同事或朋友住在一起。  
(4) 和家人住在一起。
3. 您与邻居：(只选一项)
- (1) 相互之间从不关心，只是点头之交。  
(2) 遇到困难可能稍微关心。  
(3) 有些邻居都很关心您。  
(4) 大多数邻居都很关心您。
4. 您与同事：(只选一项)
- (1) 相互之间从不关心，只是点头之交。  
(2) 遇到困难可能稍微关心。  
(3) 有些同事很关心您。  
(4) 大多数同事都很关心您。

5. 从家庭成员得到的支持和照顾(在合适的框内划“√”)

	无	极少	一般	全力支持
A	.	夫	妻	(恋人)
B	.	.	父	母
C	.	.	儿	女
D	.	.	兄	弟
E	.	.	妹	子
	.	其	他	成
	.	.	员	(如
	.	.	.	嫂
	.	.	.	子)

6. 过去, 在您遇到急难情况时, 曾经得到的经济支持和解决实际问题的帮助的来源有:
- (1) 无任何来源。
- (2) 下列来源: (可选多项)
- A. 配偶; B. 其他家人; C. 朋友 D. 亲戚; E. 同事; F. 工作单位;  
G. 党团工会等官方或半官方组织; H. 宗教、社会团体等非官方组织; I. 其它 (请列出)
7. 过去, 在您遇到急难情况时, 曾经得到的安慰和关心的来源有:
- (1) 无任何来源。
- (2) 下列来源 (可选多项)
- A. 配偶; B. 其他家人; C. 朋友 D. 亲戚; E. 同事 F. 工作单位;  
G. 党团工会等官方或半官方组织 H. 宗教、社会团体等非官方组织;  
I. 其它 (请列出)
8. 您遇到烦恼时的倾诉方式: (只选一项)
- (1) 从不向任何人诉说。
- (2) 只向关系极为密切的 1—2 个人诉说。
- (3) 如果朋友主动询问您会说出来。
- (4) 主动诉述自己的烦恼, 以获得支持和理解。
9. 您遇到烦恼时的求助方式: (只选一项)
- (1) 只靠自己, 不接受别人帮助。
- (2) 很少请求别人帮助。
- (3) 有时请求别人帮助。
- (4) 有困难时经常向家人、亲友、组织求援。
10. 对于团体(如党团组织、宗教组织、工会、学生会等)组织活动, 您: (只选一项)
- (1) 从不参加
- (2) 偶尔参加
- (3) 经常参加
- (4) 主动参加并积极活动

## 中文版 RS-14 (Chinese Version)

指导语：请阅读下面的 14 个语句，并在右边的 7 个数字中选择一个数字。数字 1~7 表示你对这个语句的说的同意程度。例如，如果你完全不同意某个语句的说法，选择“1”；如果你完全同意这个语句的说法，选择“7”；如果你对这个说法保持中性，选择“4”，等等。

	完全不是			~			完全是
我通常有多种处理事情的方法	1	2	3	4	5	6	7
我为我目前取得的成就感到骄傲	1	2	3	4	5	6	7
我对事物都看得很淡	1	2	3	4	5	6	7
我是我自己的朋友	1	2	3	4	5	6	7
我觉得我对许多事情都能运筹帷幄	1	2	3	4	5	6	7
我有坚定的意志	1	2	3	4	5	6	7
我过去的经历使我能够挺过任何的困境	1	2	3	4	5	6	7
我能自我约束	1	2	3	4	5	6	7
我对事物保持兴趣	1	2	3	4	5	6	7
我常常能发现令我开心的事	1	2	3	4	5	6	7
我相信我一定能战胜困难	1	2	3	4	5	6	7
在紧急情况下，我是一个别人能够依靠的人	1	2	3	4	5	6	7
我的生活很有意义	1	2	3	4	5	6	7
当我遇到困难时，我通常能够找到摆脱困难的方法	1	2	3	4	5	6	7

摘自倪倩钰, & 田俊. (2013). 心理弹性量表信度和效度评价及应用. 中国公共卫生, 29(10),



**APPENDIX B**

**IRB Approval**

สำเนา

ที่ RB3-098/2565



เอกสารรับรองผลการพิจารณาจริยธรรมการวิจัยในมนุษย์  
มหาวิทยาลัยบูรพา

คณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยบูรพา ได้พิจารณาโครงการวิจัย

รหัสโครงการวิจัย : GHS071/2565

โครงการวิจัยเรื่อง : Factors related to anxiety in family members among intensive care unit patient

หัวหน้าโครงการวิจัย : MRS.LI QIANQIAN

หน่วยงานที่สังกัด : คณะพยาบาลศาสตร์

BUU Ethics Committee for Human Research has considered the following research protocol according to the ethical principles of human research in which the researchers respect human's right and honor, do not violate right and safety, and do no harms to the research participants.

Therefore, the research protocol is approved (See attached)

1. Form of Human Research Protocol Submission Version 2 : 22 August 2022
2. Research Protocol Version 1 : 16 August 2022
3. Participant Information Sheet Version 2 : 22 August 2022
4. Informed Consent Form Version 1 : 16 August 2022
5. Research Instruments Version 1 : 16 August 2022
6. Others (if any) Version - :-

วันที่รับรอง : วันที่ 10 เดือน ตุลาคม พ.ศ. 2565

วันที่หมดอายุ : วันที่ 10 เดือน ตุลาคม พ.ศ. 2566

ลงนาม *Assistant. Professor Ramorn Yampratoom*

(*Assistant. Professor Ramorn Yampratoom*)

Chair of The Burapha University Institutional Review Board

Panel 3 (Clinic / Health Science / Science and Technology)



温州医科大学附属第二医院 温州医科大学附属育英儿童医院医学伦理委员会 AF/SW-01-3.0

## 涉及人的生物医学研究伦理审查批件

### Ethics Committee Approval Letter of Biomedical Research Involving Humans

批件号 Approval NO.: 伦审 (2022-K-181-02)

项目名称 Study Title	影响 ICU 患者家属焦虑的相关因素分析		
项目来源 Source	自选课题		
受理号 Acceptance Number	2022-K-181-02		
主要研究者 Principal Investigator	李茜茜	承担科室 Responsible Department	综合 ICU
审查类别 Category of Review	复审	审查方式 Type of Review	快速审查
审查日期 Date of Review	2022 年 12 月 4 日	审查地点 Location of Review	/
审查文件清单 Items Reviewed	1. 复审申请表 2. 试验方案 (版本号: V1.1; 版本日期: 202211.24)		
评审意见 Evaluation	批准		
审查决定 Decision	委员会对该项目的审查决定为: <input checked="" type="checkbox"/> 批准 (Approval)		
主任委员签字 Chair Signature			
签发日期 Date of issue	2022 年 12 月 4 日		
医学伦理委员会 Stamp of EC			
批件有效期 Period of Validity	自本医学伦理委员会初始审查批准之日起一年内, 本临床研究应在本院启动。逾期未启动的, 本批件自行废止。		
年度/定期跟踪审查 Continue Review	审查频率为该研究批准之日起每 12 月一次, 首次请于 2023 年 12 月 3 日前 1 个月递交研究进展报告。 医学伦理委员会有根据实际进展情况改变跟踪审查频率的权利。		
声明 Statement	本医学伦理委员会的职责、人员组成、操作程序及记录遵循《涉及人的生物医学研究伦理审查办法》、《涉及人的健康相关研究国际伦理准则》、《赫尔辛基宣言》、GCP 和 ICH-GCP 等国际伦理指南和国内相关法律法规。		

地址: 浙江省温州市龙湾区温州大道东段 1111 号 电话: 0577-85676879 邮编: 325000



**注意事项：**

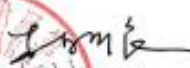

1. 请遵循我国相关法律、法规和规章中的伦理原则。
2. 请遵循经本医学伦理委员会批准的临床研究方案、知情同意书、招募材料等开展本研究，保护受试者的健康与权利。对研究方案、知情同意书和招募材料等的任何修改，均须得到本医学伦理委员会审查同意后方可实施。
3. 在本院发生的 SAE/SUSAR 以及研发期间安全性更新报告须按照 NMPA/GCP 最新要求及时递交本医学伦理委员会，国内外其它中心发生的 SAE/SUSAR 需定期汇总、评估后递交本医学伦理委员会。
4. 根据报告情况，本医学伦理委员会有权对其评估做出新的决定。
5. 自今日起，无论研究开始与否，请在跟踪审查日期前 1 个月提交研究进展报告。
6. 申办方应当向组长单位医学伦理委员会提交中心研究进展报告汇总；当出现任何可能显著影响研究进行或增加受试者危险的情况时，请申请人及时向本医学伦理委员会提交书面报告。
7. 研究纳入了不符合纳入标准或符合排除标准的受试者，符合中止研究规定而未让受试者退出研究，给予错误治疗或剂量，给予方案禁止的合并用药等没有遵从方案开展研究的情况；或可能对受试者的权益或健康以及研究的科学性造成不良影响等违背 GCP 原则的情况，请申办方、监查员或研究者提交违背方案报告。
8. 申请人暂停或提前终止临床研究，请及时提交暂停或终止研究报告。
9. 完成临床研究，请申请人提交结题报告。
10. 凡涉及中国人类遗传资源采集标本、收集数据等研究项目，必须获得中国人类遗传资源管理办公室批准后方可在本中心开展研究。
11. 凡经本医学伦理委员会批准的研究项目在实施前，申请人应按相关规定在国家卫健委、药审中心等临床研究登记备案信息系统平台登记研究项目相关信息。



温州医科大学附属第二医院 温州医科大学附属育英儿童医院医学伦理委员会 AF/SW-02-3.0

### 涉及人的生物医学研究伦理审查意见通知函

意见号：伦审（2022-K-181-01）

项目名称	影响ICU患者家属焦虑的相关因素分析		
项目来源	自选课题		
承担科室	综合ICU	主要研究者	李茜茜
受理号	2022-K-181-01		
审查类别	<input checked="" type="checkbox"/> 初始审查	<input type="checkbox"/> 跟踪审查	<input type="checkbox"/> 复审
审查方式	<input type="checkbox"/> 会议审查	<input checked="" type="checkbox"/> 快速审查	<input type="checkbox"/> 紧急会议审查
审查日期	2022年11月18日	审查地点	/
审查文件 (主要)	1. 初始审查申请 2. 研究者简历 3. 试验方案（版本号：V1.0；版本日期：2022.08.29） 4. 知情同意书（版本号：V1.1；版本日期：2022.09.05） 5. 病例报告表（版本号：V1.0；版本日期：2022.08.29）		
审查决定	经我院医学伦理委员会的审查，审查结果为：修改后批准 具体意见见伦理审查意见通知单（YJ-2022-K-181-01） 主任委员签字：  签发日期：2022年11月18日 医学伦理委员会（盖章） 		
注意：	1. “同意继续进行”的研究应按照医学伦理委员会已批准的方案执行，应符合NMPA/GCP和《赫尔辛基宣言》的原则。 2. “作必要的修改后同意/修改后批准”和“修改后再审”：研究在提交复审申请前，应按评审意见进行逐条修改，并将带有修改标记的资料和修改后的资料一并递交医学伦理委员会申请复审。请在1年内提交复审申请，逾期将按照新项目受理。 3. “不同意/不批准”和“终止或暂停已同意的研究”，申办方和研究者可就医学伦理委员会的意见和建议中提及的问题做书面申诉，并陈述理由（收到伦理意见1年之内），医学伦理委员会可就申诉作重新审查。若医学伦理委员会意见仍为“不同意/不批准”或“终止或暂停已同意的研究”，研究不得进行，已经开展的项目应递交暂停/终止研究报告等。		

地址：浙江省温州市龙湾区温州大道东段1111号 电话：0577-85676879 邮编：325000

## APPENDIX C

### Permission for using instruments

« 返回 | 回复 | 回复全部 | 转发 | 删除 | 彻底删除 | 举报 | 拒收 | 标记为... ▾ | 移动到... ▾ | 上一封 下一封

**答复: RS-14量表** ☆

发件人: [tianjunfjmu](mailto:tianjunfjmu@126.com) <tianjunfjmu@126.com> 国

时 间: 2022年5月4日 (星期三) 上午7:56

收件人: [qianqian li](mailto:qianqian.li@284238045@qq.com) <284238045@qq.com>

附 件: 2 个 (  RS-14.pdf... ) 纯文本 |    ▾

茜茜同学:

你好!

很高兴中文版RS-14能够应用于你的课题。附件中是量表及相关的论文。如果你的课题有发表相关论文, 希望在论文中标注中文版RS-14的引用。

祝工作顺利!

田俊  
福建医科大学  
流行病学与卫生统计系

发件人: [qianqian li](mailto:qianqian.li@284238045@qq.com) [mailto:284238045@qq.com]  
发送时间: 2022年5月3日 20:38  
收件人: [tianjunfjmu](mailto:tianjunfjmu@126.com) <tianjunfjmu@126.com>  
主题: RS-14量表

田教授:

您好, 我是一名研究生, 在我的毕业论文中想用您的中文版心理弹性量表RS-14, 希望得到您的允许, 谢谢!



« 返回   回复   回复全部   转发   删除   彻底删除   举报   拒收   标记为... ▾   移动到... ▾   上一封 下一封

**Re: 是否可以使用社会支持评定量表** ☆

发件人: [xiaosy](mailto:xiaosy@live.com) <xiaosy@live.com> 国  
时 间: 2022年4月27日 (星期三) 下午8:02  
收件人: [qianqian li](mailto:qianqian.li@qq.com) <284238045@qq.com>   纯文本 | 打印 | 打印 | 打印 ▾

 邮件可翻译为中文 [立即翻译](#) X

没有问题

**From:** [qianqian li](mailto:qianqian.li)  
**To:** [xiaosy](mailto:xiaosy)  
**CC:**  
**Date:** 2022-4-26 11:00  
**Subject:** 是否可以使用社会支持评定量表

肖教授:

您好, 我在研究生毕业论文中想用您的社会支持评定量表, 是否可以? 谢谢

快捷回复给: [xiaosy](mailto:xiaosy)

## **BIOGRAPHY**

**NAME** Qianqian Li

**DATE OF BIRTH** 30 June 1988

**PLACE OF BIRTH** Wenzhou Zhejiang China

**PRESENT ADDRESS** 1101 Room, Building 25, Group I, XinTianYuan,  
Wenzhou, Zhejiang, China

**EDUCATION** Bachelor Degree

