PARENTING STRESS AND ITS FACTORS AMONG MOTHERS OF INFANTS WITH PNEUMONIA

XIAOHUI JIA

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR MASTER DEGREE OF NURSING SCIENCE
(INTERNATIONAL PROGRAM)
IN MATERNITY NURSING AND MIDWIFERY PATHWAY
FACULTY OF NURSING
BURAPHA UNIVERSITY
2024

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XIAOHUI JIA

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรพยาบาลศาสตรมหาบัณฑิต (หลักสูตรนานาชาติ)

คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา

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The Thesis of Xiaohui Jia has been approved by the examining committee to be partial fulfillment of the requirements for the Master Degree of Nursing Science (International Program) in Maternity Nursing and Midwifery Pathway of Burapha University

Advisory Committee

Principal advisor

.....

(Professor Dr. Chintana Wacharasin)

Examining Committee

..... Principal examiner

(Assistant Professor Dr. Pregamol Rutchanagul)

..... Member

(Professor Dr. Chintana Wacharasin)

..... Member

(Assistant Professor Dr. Jinjutha Chaisena Dallas)

..... Dean of the Faculty of Nursing

(Associate Professor Dr. Pornchai Jullamate)

.....

This Thesis has been approved by Graduate School Burapha University to be partial fulfillment of the requirements for the Master Degree of Nursing Science (International Program) in Maternity Nursing and Midwifery Pathway of Burapha University

..... Dean of Graduate School

(Associate Professor Dr. Witawat Jangiam)

.....

62910092: MAJOR: MATERNITY NURSING AND MIDWIFERY PATHWAY; M.N.S. (MATERNITY NURSING AND MIDWIFERY PATHWAY)
KEYWORDS: PARENTING STRESS/ PNEUMONIA/ MOTHER

XIAOHUI JIA : PARENTING STRESS AND ITS FACTORS AMONG MOTHERS OF INFANTS WITH PNEUMONIA . ADVISORY COMMITTEE: CHINTANA WACHARASIN, Ph.D. 2024.

In China, pneumonia has always been in the first place in the prevalence and mortality of children. During hospitalization, the mother was mainly accompanied, It may cause psychological problems for the mother, such as guilt, self-blame. This study aimed to describe parenting stress among mothers of infant with pneumonia and to examine the predictive relationship between health literacy, self-efficacy, social support, anxiety, severity of illness and parenting stress among mothers of infants with pneumonia.

Simple random sampling technique was applied to recruit 200 participants who take care of children with pneumonia, hospitalized at the first time from the pediatric department of the Second Affiliated Hospital of Wenzhou Medical University in Wenzhou, China. Research instruments included demographic record form, Chinese Parental Health Literacy Questionnaire, Tool of Parenting Self-efficacy, social support revalued scale, Self-rating Anxiety Scale, The Parenting Stress Index-Short-15 Form. Data was analyzed by descriptive statistics and Pearson correlation and multiple regression analysis.

The results of this study showed that the mean score of parenting stress was 34.94 (SD = 8.81). Anxiety ($\beta = .284$, $p < .001$), parental health literacy ($\beta = -.192$, $p < .05$), and social support ($\beta = -.175$, $p < .05$). together significantly explained 18.8% of variance in parenting stress ($F_{(5,194)} = 10.207$, $p < .05$). The findings can provide a theoretical basis for reducing parenting stress among mothers having infants with pneumonia.

ACKNOWLEDGEMENTS

I would like to give my heartfelt thanks to my major advisor Associate Professor Dr. Chintana Wacharasin, without her guidance and encouragement this study would not have been possible.

I would like to thank to the Burapha University of Thailand, for launching this international Master of Nursing program, which gave me this learning opportunity to systematically learn advanced nursing knowledge and concepts and open up new ideas for work. I would like to thank the teachers of the School of Nursing, Burapha University of Thailand. Their rigorous learning attitude has benefited me a lot. Also, many thanks to Ms. Rungnapa, her conscientiousness and responsibility contributed greatly to the successful completion of her study.

Thanks to School of Nursing of Wenzhou Medical University for introducing this project and providing a good platform for our study and scientific research. At the same time, we would like to thank the clinical teachers of the Second Affiliated Hospital of Wenzhou Medical University, Huang Zhaoxia and Wang Xiaolei, who have been guiding our scientific research work.

I would like to thank the leaders of the hospital and the director of the nursing department for agreeing to our participation in this project. I would also like to thank colleagues in the department for their great support in work, which enabled me to have time to complete the scientific research task.

I would like to thank my classmates for their help in the learning process. Without their support, I think I could not persist in completing the whole learning process.

Xiaohui Jia

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1
INTRODUCTION

Statement of the research problem

Respiratory diseases are common diseases in children. Respiratory infections account for more than 60%, most of which are pneumonia in hospitalized children. Global Burden of Disease Study 2019 shows six infectious diseases were among the top ten causes of DALYs in children younger than 10 years in 2019. Among them, lower respiratory tract infections ranked second (GBD 2019 Diseases and Injuries Collaborators, 2020). The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) Child Health Epidemiology Expert Group (CHERG) released "Global Child Causes of Death" shows that the death rate of pneumonia is 14.1% in children younger than 5 years, and is tied with premature birth as the number one cause of child death (Liu et al., 2012). Between 7 and 13 percent of them require hospitalization. In China, pneumonia has always been in the first place in the prevalence and mortality of children (Jiang, 2010; Zhou et al., 2016). The annual percent increase of hospitalisations for RSV bronchiolitis increased was 5.87% in 2018 (Tannous et al., 2022).

After pathogen invasion into the lungs, bronchial lumen stenosis and alveolar lumen are filled with inflammatory secretions (Cui & Yang, 2017). It is easy for the development of severe pneumonia, which can lead to children with dyspnea, shortness of breath, irritability, weak respiratory muscle, and respiratory failure. Due to the small age of children, the disease changes quickly, coupled with the special environment of the hospital, medical staff and medical equipment, the families of children especially mothers during the hospital are easy to have a sense of fear. If the child did not receive treatment in time, the condition will further deteriorate, or even death (Uematsu et al., 2016). Especially in infants under the age of 1, immunity is poor, and pneumonia is easy to spread, fuse and extend to both lungs. The younger the age, the higher the incidence and fatality of pneumonia (Jiang et al., 2015). Such as respiratory syncytial virus pneumonia is one of the most common viral pneumonia. The burden associated with respiratory syncytial virus hospitalization (RSVH) shows with 84.3% of

admissions occurring by 1 year (Thwaites et al., 2020). Children with RSV-positive were 87% at age < 2 years old and 50% at age < 6 months old. RSV-associated hospitalization rates were 14.7 per 1000 children at age < 6 months old. The highest age-specific rate was observed in 1-month-old infants (25.1 per 1000) (Rha et al., 2020).

The prevalence of pneumonia and the social burden related to the management of pneumonia in infants have persistently increased. Pneumonia infants are usually accompanied by their mothers during hospitalization, accounted for 78% (Tom et al., 2017). Research shows that when the mother of the child is informed of the sudden illness of the child, often because of the lack of disease-related knowledge and care experience, the uncertainty of the child before and after, cannot well assume the responsibility of care for the child (Chang et al., 2019; Wang et al., 2020). It might cause physical, psychological, and family problem for the mothers, especially for the first time of the mothers to care their children in the hospital (Chen & Liu, 2017; Li et al., 2018). The psychological pressures on the mothers include guilt and self-blame, empathy, fear of prolonged illness or complications due to insufficient caring ability, and the need for more family support (Fu & Tang, 2020).

The process of raising children can bring parents a great sense of satisfaction and achievement. Providing care for the child with acute illness needs physical force and mental effort, which cause anxiety, tension and distress. Therefore, it is very important to analyse the psychological stress and influencing factors of mothers of children with pneumonia who were hospitalized for the first time for follow-up targeted intervention, especially the infants under 1-year old.

Parenting stress is a psychological reaction that parents may have as they engage in the parenting role that is often experienced as a negative or aversive response total obligations, particularly when the parenting demands are inconsistent with parent expectations and/or when parents have insufficient resources to meet the demands (Deater-Deckard & Kirby, 1998). The most prominent theories of parenting stress highlight the bidirectional relationship between parenting stress (including everyday agitations) and child adjustment issues. Parenting children with emotional or behavioral challenges increases parenting stress, and parents who experience greater parenting-related stress may be more likely to parent in ways that maintain or exacerbate child problems (Abidin & Richard, 1992).

Parenting stress refers to the process and subsequent reactions of trying to deal with the challenges and burdens of parenthood (Deater-Deckard, 2008). The study found that in about 13% of families, at least one parent reported high stress in parenting (Raphael,et al., 2010). Parenting stress may interfere with the management of a child's illness (Celano et al., 2011). High levels of parenting stress not only affect their own health, but also adversely affect their parenting behavior. In addition, when a child is diagnosed with a certain disease, the parenting self-efficacy of the child's parents will be questioned, and the parenting belief will decrease (Craig et al., 2016). Given the negative effects of parenting stress on a large number of parental and child outcomes and the fact that having a child with a chronic condition tends to increase levels of parenting stress. It is important to identify the levels of parenting stress in families with a child with a chronic condition and to identify factors that may increase or decrease these stress levels (Golfenshtein et al., 2015). Parents of children with acute physical condition may also experience elevated levels of parenting stress.

Parenting stress in the child's earliest years also predicts internalizing and externalizing problems in young children (Bagner et al., 2009). An infant's development is closely linked to the relationship they have with their parents, as positive emotional bonds are fundamental for an infant's health. First, in addition to age-typical caregiver tasks, these parents face further caregiver tasks related to illness management, such as stressful communications with health care providers or counteracting the child's non-adherent behavior. Second, uncertainty and lack of predictability of the course of the child's condition, as well as concerns about a child's negative prognosis, have been identified as sources of parental stress (Bagner et al., 2009; Lee et al., 2018). Third, illness or disability related dilution of familial resources (e.g., financial burden) and conflicts between caregiving tasks and other commitments (e.g., the work role) may impair perceptions of competence in the parenting role and the quality of the parent–child relationship (Golfenshtein et al.,2015). Fifth, in the case of hereditary conditions or conditions that result from behaviors of parents or children (e.g., traumatic brain injury), parental feelings of guilt may cause parenting stress (Hodgkinson & Lester, 2002).

Abidin and Richard (1995) proposed that impaired parental mental health would increase levels of parenting stress because of difficulties with meeting the needs

of the child and the high levels of parenting stress could impair the mental health of the caregiver. Parental attitudes play an important role in the quality of the child-rearing environment. Mothers' perceived childhood experiences, current attitudes about life, and developmental expectations were related to their interpretations of their own child's behavior (Daggettv et al., 2000). Abidin and Richard (1995) suggested six predictor variables, namely, child characteristics, such as his or her demandingness; parental role restrictions; parental health; parental attachment; the relationship with the spouse; and available social support.

There are some research supports for the association between child age and parenting stress (Williford et al., 2007). Specifically, previous work has shown that parenting stress may decrease over time as the child becomes older (Neece,et al., 2012). However, other work has found that parenting stress is not associated with child age (McStay et al., 2014). Gender has been linked to parenting stress and associated factors. Specifically, previous work has shown that mothers of boys report higher levels of parenting stress than mothers of girls (Vierhaus et al., 2013). Maternal level of parenting stress was related to high rates of maternal use of medical services, illness-related behaviours , and maternal perceptions of health status (Richard et al., 1985). Psychological stress in mothers may play a role in parenting style. Previous studies have suggested that psychological stress in mothers may play a role in parenting style (Cohen & Janicki-Deverts, 2012). The important role of maternal stress is even more relevant in light of estimates showing that women experience greater levels of chronic stress and daily stressors than men. Further, elevated stress and the experience of stressful life events are independent risk factors for the development of depression (Cohen & Janicki-Deverts, 2012). A significant association between perceived infant temperament and parenting stress was also found (Moe et al., 2018). The existence of a relationship of parenting stress though this association is mostly mediated by other variables, including depression and other stressors (Hugill et al., 2017). When facing challenges, caregivers relied on social support and faith as well as their own parenting confidence. Caregivers' perceptions of their parenting abilities were influenced by how they felt others perceived them, their satisfaction in the parenting role, their perseverance despite challenges, and the extent to which they had a vision for their family (Augustinavicius et al., 2019).

Previous research found that having good health literacy helps people make better medical choices and promote and maintain good physical and mental health (Huang et al., 2018). Low health literacy is associated with poorer health outcomes and use of health services (Berkman et al., 2011). For parents, low health literacy means difficulty in accessing, understanding, judging, and applying child-related health information. When parents' health literacy is low, it will not only affect their own health outcomes, but also lead to worse health outcomes of their children, especially young children (DeWalt & Hink, 2009). Systematic reviews of literature related to parental health literacy and emergency department use have found that the median parent at the emergency room was 30% with low health literacy (Morrison et al., 2013). When video education combined with feedback method was applied in the continuous health education for parents of premature infants, it was found that the scores of professional ability, humanistic literacy and overall evaluation factor were all improved compared with the previous ones, which significantly alleviated the parental pressure of mothers (Zhang et al., 2018).

Parenting self-efficacy is an extension of self-efficacy theory (Bandura, 1977) in the area of parenting including knowledge about parenting behaviours and confidence in a person's ability to perform these tasks (Coleman & Karraker, P. K. Coleman & Karraker). It believes that individuals' confidence in their ability to complete a certain behaviour and achieve the desired result is an important factor that determines whether people can generate behavioural motivation and produce behaviour. In the children with recurrent respiratory tract infections, parenting self-efficacy has a significant impact on the lifestyle, health behaviour and physical and mental health of children (Bie et al., 2017).

Parental self-efficacy (PSE) refers to a person's evaluation of their own abilities in the role of a parent (Kendall & Bloomfield, 2010) . Greater parenting ability was associated with assessing less problematic situations and confidence that difficulties could be solved (Coleman et al., 2000). Parental self-efficacy has been shown to be an important way to relieve parental stress (Raikes & Thompson, 2010). Task-specific PSE is the degree of parental trust in a discrete set of parenting tasks (Bandura, 1977), Studies of mothers have shown that maternal depression and parental stress are negatively associated with PSE (Holloway et al., 2005). A high PSE is

associated with less depression, anxiety, stress and fewer behavioral problems in parents, and less stress in parenting (Albanese et al., 2019).

During the 2019 coronavirus disease (COVID-19) epidemic, social support negatively predicted parents' state anxiety, whereas parenting stress and parental mental and behavioural problems positively predicted parents' state anxiety (Ren et al., 2020). Researchers in China had found a significant negative correlation between social support and parenting stress in primary caregivers of infants with pneumonia (Friedman, 2011).The primary caregivers of infants have less experience and opportunities to participate in social activities in the process of child-rearing, and the psychological support that the primary caregivers can get is significantly reduced. On the other hand, in the current medical model, medical staff, other family members and parents' friends pay more attention to the treatment and recovery of the sick child, and ignore the care and emotional support for the mother, for which the mother bears a huge burden of parenting and mental stress. When social support was absent, primary caregivers of infants with bronchopneumonia tend to feel isolated, and over time, the cumulative burden of parenting will undermine positive beliefs and reduce ability to deal with problems. Conversely, when there was a high level of social support, meaning there are relatives, friends or other social support, mothers were less likely to experience loneliness, fear, depression, anxiety and other negative emotions. Therefore, mothers of infants with bronchopneumonia tend to take an active and proactive approach to deal with complex problems in the treatment process of infants, so as to help infants establish confidence to overcome the disease (Du et al., 2020).

In the families of children with severe pneumonia, 67.74% of the family members have anxiety. The younger the child is, the more serious the anxiety of the family members is (Chen & Jing, 2017). Anxiety is one of the common negative emotions. Studies have found that maternal anxiety originated from prenatal includes personality anxiety and pregnancy-specific anxiety, which directly affects postpartum child-rearing pressure (Misri et al., 2010). While some parental stress is normal and expected, persistent and high levels of parental stress are associated with a variety of negative outcomes, such as an increased risk of maternal depression and anxiety (Laura et al., 2016; Leigh, 2008; Nam et al., 2013). Anxiety can predict various aspects of postpartum maternal parenting stress (Huizink et al., 2017). Compared with prenatal

depression, anxiety has a greater impact on postpartum parenting stress, with a higher level of parenting stress (Misri et al., 2010). Anxiety and parenting stress interacted to improve the anxiety symptoms of mothers of children with anxiety disorders in Taiwan, and were found to also improve mothers' perceived parental stress in some children (Yen et al., 2014).

Parenting stress is significantly higher in those with generally unhealthy family functions and children with clinically elevated borderline or intrinsic symptoms. Infant health problems after hospitalization (i.e., medical diagnoses and more medical specialists) are associated with greater stress, poorer marital functioning and greater family burdens. Less parental time is associated with increased stress and poorer couples' functioning (Grunberg et al., 2020). The results of a comprehensive literature study showed that severity of acute illness was associated with parenting stress.

For children with chronic diseases and disabilities, parenting stress has been studied extensively. In a review of chronic parenting stress, it was found that the average parent's greater stress was associated with greater parental responsibility for treatment management, regardless of the duration and severity of the disease population. High parental stress was associated with poor psychological adjustment among caregivers and children with chronic illnesses (Cousino & Hazen, 2013).

The results of a comprehensive literature study showed that severity of acute illness was associated with parenting stress (V. A. Grunberg et al., 2020). Parenting stress is significantly higher in those with generally unhealthy family functions and children with clinically elevated borderline or intrinsic symptoms. Infant health problems after hospitalization (i.e., medical diagnoses and more medical specialists) are associated with greater stress, poorer marital functioning and greater family burdens. Less parental time is associated with increased stress and poorer couples' functioning.

Studies have shown that severe pneumonia is the most common respiratory critical disease in pediatrics and the main cause of death in children aged ≤ 5 years (Jun-juan et al., 2016). There are many studies investigating the association between the chronic diseases of children and the stress of their parents. The relationship between parenting stress and the incidence of pneumonia among children requires further investigation. This study aims to describe parenting stress among mothers having children with pneumonia and to examine the factors predicting parenting stress among

mothers having children with pneumonia.

Research objectives

1. To describe parenting stress among mothers of infant with pneumonia.

2. To examine the predictive relationship between health literacy, self-efficacy, social support, anxiety, Severity of illness and parenting stress among mothers of children with pneumonia.

Research hypothesis

Health literacy, self-efficacy, social support, anxiety, Severity of illness could predict parenting stress among mothers of children with pneumonia.

Scope of Study

The purpose of this study was to investigate the predictive relationship between health literacy, self-efficacy, social support, anxiety, Severity of illness and parenting stress among mothers having children with pneumonia. This study investigated the mothers having infants with pneumonia in the 2nd Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University. Data was collected from July 2021 to November 2021.

Conceptual framework

The framework of this study based on Parenting Stress Model (Abidin & Richard, 1990) and literature review. Abidin and Richard (1990) initially proposed that parenting stress is caused by various child (e.g., demandingness, mood) and parent (e.g., social isolation, health) characteristics, which determine the overall level of pressure a parent might feel in the parenting role. Factors influencing parenting stress include context, child development and characteristics, parenting ability, and parent psychological structure. Low family health literacy leads to an increased risk of moderate to severe persistent asthma in children (DeWalt et al. 2007). Increased rates of hospitalization and emergency department visits among children (Morrison et al.

2014). This will further increase the pressure on parents.

When a child is sick, family members are likely to develop anxiety due to fear of worsening the condition (Chen & Liu, 2017; Zhang, 2015). A lot of studies had proved social support could reduce parenting stress (Nieman et al., 2004). The parents who are enrolled in the childcare program, parents who are feeling less efficacious experience higher levels of stress, whereas greater parenting self-efficacy is related to less stress (Bloomfield & Kendall, 2012).

The determinants of parenting process model (Belsky, 1984) presumes that parenting is directly influenced by forces emanating from within the individual parent (personality), within the individual child (child characteristics of individuality), and from the broader social context in which the parent-child relationship is embedded-specifically, marital relations, social networks, and occupational experiences of parents. The higher the self-efficacy of the mother, the less parenting stress. Also, social supports from family, peers or health care providers can decrease parenting stress. Parenting health literacy, parenting self-efficacy and social support are negatively associated with parenting stress while anxiety and severity of illness are positively associated with parenting stress. These factors combined have predictive relationship with parenting stress.

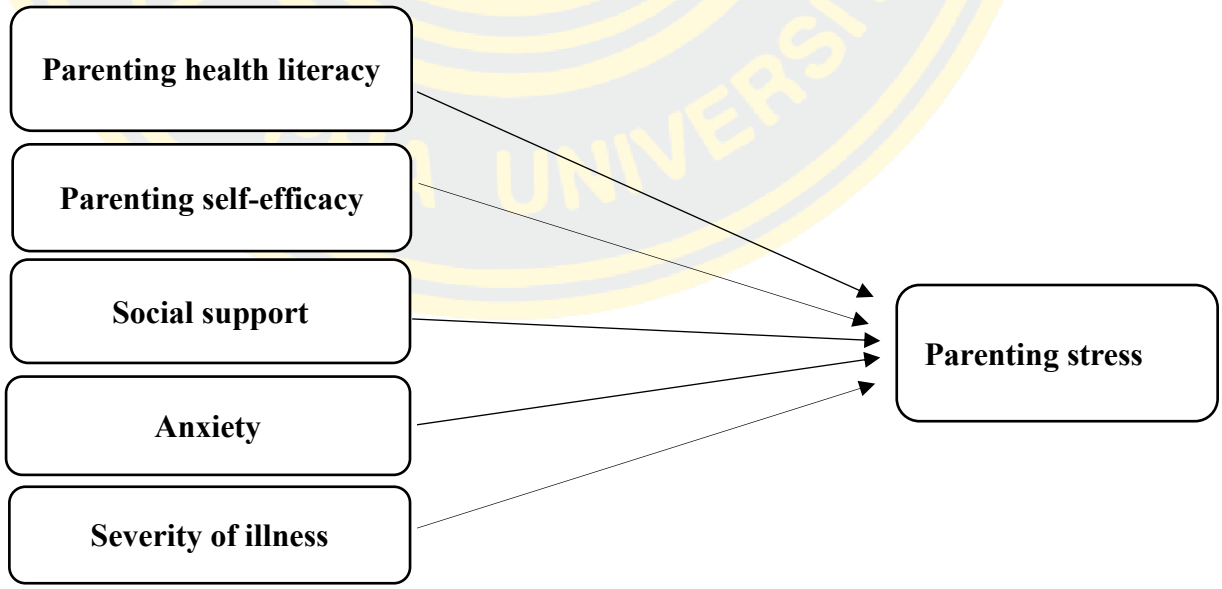

Figure 1 Conceptual Framework

Definition of terms

Health literacy referred to mother's ability to acquire, understand, convey information in order to promote and maintain good physical and mental health. Chinese Parental Health Literacy Questionnaire (CPHLQ) will be used to measure health literacy for parents (Zhang et al., 2019).

Parenting Self-efficacy referred to beliefs in mother's ability to successfully perform a specified behavior or set of related behaviors. Encompass both knowledge about child-rearing behaviors and confidence in one's ability to perform these tasks. Tool of Parenting Self-efficacy (TOPSE) (The British Council Project., 2013) will be used measure parenting self-efficacy.

Social support referred to perception of mothers that receive support from significant others such as family members, friends, colleagues, relatives and neighbours. Social support revalued scale (SSRS) was used to measure social support (Xiao, 1994).

Anxiety was the feeling of worry that occurs when mother faced with threatening or stressful situations. Self-Rating Anxiety Scale (SAS) was used to evaluate the subjective feelings of patients with Anxiety (William & Zung, 1971).

Severity of illness was defined as the extent to the loss of function in respiratory and cardiovascular system. Pediatric Early Warning Score (PEWS) will be used to evaluate the Severity of illness(Mandell et al., 2015).

Parenting stress was a negative or aversive response to mother's obligations, particularly when the mother demands were inconsistent with mother expectations and/or when mothers had insufficient resources to meet the demands. The Parenting Stress Index-Short Form (PSI-SF-15) was used to measure parenting stress (Jieluo et al., 2021).

CHAPTER 2
LITERATURE REVIEW

The literature review described briefly on situation of pneumonia in children in China, Concept of parenting stress, theory related to parenting stress, and factors influencing parenting stress.

Situation of pneumonia in children in China

Pneumonia is a major cause of childhood morbidity and mortality worldwide and a major public health threat to children in China (Lozano et al., 2012; Zhou et al., 2016). The incidence of pneumonia in children under 5 years old in China ranges from 0.06 to 0.27‰ per year (Guan et al., 2010). The mortality of children under 5 years of age was 153.2 per 100,000 live births according to the China Mortality Surveillance System (He et al., 2015). Pneumonia can be caused by a number of different microorganisms, most prominently viruses and bacteria (Harris et al., 2011). A Chinese study found that for every 10 μg/m3 increase in the concentration of PM 2.5, PM10, NO2, and SO2 in the air, there was a slight increase of 1.3, 1.0, 2.9 and 5.0% in the number of children visiting doctors for pneumonia. And depending on the age, the under-fives have higher levels of air pollution. The number of hospital visits for pneumonia and air pollutants decreased slightly with age (Li et al., 2018). Pediatric pneumonia accounts for the number of hospitalizations in China 24.5%～56 % (Li, 2011).

Given the negative effects of parenting stress on a large number of parental and child outcomes and the fact that having a child with a chronic condition tends to increase levels of parenting stress. It is important to identify the levels of parenting stress in families with a child with a chronic condition and to identify factors that may increase or decrease these stress levels (Golfenshtein et al., 2015). Due to the small age of children, the disease changes quickly, coupled with the special environment of the hospital, medical staff and medical equipment, the families of children especially mothers during the hospital is easy to have a sense of fear. If the child did not receive treatment in time, the condition will further deteriorate, or even death (Uematsu et al., 2016).

Concept of parenting stress

Definition of parenting stress

Parenting stress is a kind of family stress, which refers to the pressure felt by parents when they play the role of parent in the parent-child system under the influence of parents' personal characteristics, parent-child interaction, children's characteristics and family situation factors (Abidin & Richard, 1990). Parenting stress is the stress that you experience while playing the role of parent, and it doesn't include the stress that comes from other roles and practices. That is often experienced as a negative or aversive response to parental obligations, particularly when the parenting demands are inconsistent with parent expectations and/or when parents have insufficient resources to meet the demands (Deater-Deckard & Kirby, 1998). Parenting stress is the perception of a particular strain in the family network that can upset the balance of the family (Mouton & Tuma, 1988). Since stress is a feeling, parental stress is the perceived feeling of a mother when she feels that the resources available to her are insufficient to deal with changes and demands related to the mother's role (Mulsow et al., 2010).

Parenting style as a constellation of attitudes toward the child that are communicated to the child and that, taken together, create an emotional climate in which the parent's behaviours are expressed (Darling & Steinberg, 1993). Parenting stress can be defined as the psychological distress caused by the demands of being a parent, which is qualitatively distinct from other forms of distress and is experienced in various degrees by all parents (Deater-Deckard & Kirby, 1998). Parenting pressure is a unique kind of pressure, which is affected by the factors such as personal personality traits, family situation in the process of parents' performance of their role. Parenting stress refers to the stress experienced in the role of a parent and does not include the stress caused by other factors and events. For instance, mothers who report high levels of parenting stress and low levels of social support provided significantly less social stimulation to their children than mothers who had low levels of stress and high levels of social support (Adamakos et al., 1986).

Bornstein (2002) pointed out that the degree of parental pressure felt by the mother is the most important external factor affecting children's happiness. Parenting stress can be said to be an important factor that undermines the family system and has a direct impact on children's development. Based on the theories of all scholars, it is

believed that parental pressure is the pressure that parents feel in the process of raising children, which is affected by many factors.

Theory related to parenting stress

Abidin (1983) initially proposed that parenting stress is caused by various characteristics of children (e.g., demands, emotions) and parents (e.g., social isolation, health), which determine the overall level of stress that parents are likely to feel in their parenting role (Richard et al., 1985). It covers the stimulus and stress factors related to the characteristics of children, situational stress factors related to the performance of parental role, parents' subjective feelings, and parents' evaluation of children's behavior or activity level in parent-child interaction. In 1978, Burke and Abidin constructed the parental stress model (Figure 2), and developed the parental stress index (PSI) (Abidin et al., 1997). The PSI is most frequently used as a preliminary screening device for the early identification of parent-child systems which are under stress and therefore at risk for the development of dysfunctional parenting behaviorsor behavior problems in the child involved, Especially children under the age of 3 (Loyd & Abidin, 1985).

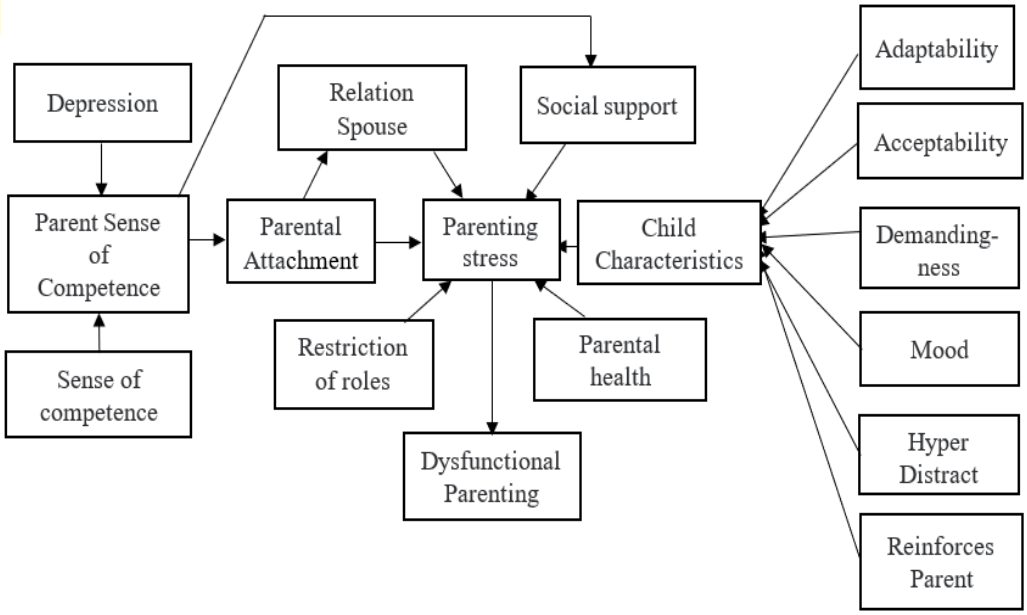

Figure 2 Parenting Stress Model
(Abidin, 1983)

PSI is divided into Parenting Stress Index/Long Form (PSI/LF), Parenting Stress Index/Short Form (PSI/ SF) and Parenting Stress Index/Short Form -15 (PSI/ SF-15).

1. PSI/LF (Abidin, 1983) consists of 120 items, which are designed to evaluate the degree of parental Stress on their children from 1 month to 12 years old. It is the first scale to measure parenting stress and the most widely used, with translations in at least 28 languages. It has two domains: child domain and parent domain:

(1) Child domain: There are six subscales.

1) Adaptability: it refers to how children deal with and change, such as being stubborn, unable to give up on what they are doing, or passively not dealing with parents' demands, mostly evasive behavior.

2) Hyperactivity/ Distractibility: children are too active, attention is not focused, so that parents need to constantly maintain a high state of tension, parents feel exhausted.

3) Demandingness: it refers to the direct pressure that children put on their parents. When parents face this pressure, their children often directly ask for their parents' attention or services. When their children have too many demands and are difficult to take care of, parents tend to feel tired.

4) Mood: the child is often emotional instability, crying or depressed, easy to make the parents do not know how to deal with, anxious and angry.

5) Acceptability: whether the children conform to the expectations or ideals of their parents, and whether they have the desired characteristics of society in general. Parents will feel great pressure if they feel that their children's ability and learning condition differ greatly from their expectations.

6) Child Reinforces the Parent: it means that parents will be more willing to serve their children if their children give them more positive emotions or pleasant responses. On the contrary, they feel greater pressure.

(2) Parent domain: There are seven subscales.

1) Depression: assess parents' tolerance of their children's emotions. If parents often feel sad and unhappy, it will affect the interaction between parents and their children.

2) Parental Sense of Competence: it was used to measure parents' perceptions

of their ability to play the role of parent. If the lack of competent happy feeling, do not have confidence in themselves, easy to feel greater pressure.

3) Parental Attachment: to assess the degree of parental motivation to achieve parental roles. If the intrinsic motivation to act as a parent is low and the emotional connection to the child is weak, the parent will feel more pressure.

4) Restrictions of Roles: to assess the limitations and effects of parental roles on the individual freedom and other roles of parents. Parents often feel lost when they sacrifice their freedom and other important life roles in order to act as parents.

5) Social Isolation/ Support: it mainly assesses whether the parent is isolated in the parental role. Parents who spend less time with their friends in order to take care of their children may feel disconnected from society.

6) Relationship with Spouse: it is used to evaluate the degree of mutual support in parent-child behavior between couples. If the spouse provides little emotional and physical support and assistance, or the spouse is in conflict, he or she will be under greater stress.

7) Parents health: to assess the impact of parents' current health status on their role as parents. If the parents are in poor health, the physical load is also greater.

2. PSI/SF: Parenting stress index (Short Form). consists of 36 items. It has three domains: parental distress (PD), parent-child dysfunctional interactions (PCDI) and difficult children (DC). The number of simplified tables is small, and it is found to have good reliability and validity(Abidin & Richard, 1995).

1. Parental distress

Parental distress is comparable to the category of parents in PSI/LF. Parental distress is caused by parental stress due to their own personal factors, including the feeling of competence, role limitation caused by lifestyle change, conflict with spouse, lack of social support, depression, etc.

2. Parent-child dysfunctional interaction

It is equivalent to the realm of parents and children in PSI/LF, which is the interactive realm. In the process of parent-child interaction, if parents feel that their children are far from their expectations, and seldom feel the truth feedback and enhancement of children, parents will feel disappointed, and there will be a sense of distance between parents and children, and the relationship between the two is prone to

disorder.

3. Difficult child

It corresponds to the children's domain of the PSI/LF. There are certain traits that children are born with that cause parents to worry. These are specifically similar to temperament, but also include learned behaviors such as adaptability, mood, need, activity orientation, and problem behavior.

3. PSI/SF-15 (Jieluo et al., 2021) consists of 15 items. It also has three domains: parental distress (PD), parent-child dysfunctional interactions (PCDI) and difficult children (DC). It has showed strict measurement invariance across sex of parent and satisfactory internal consistency, it suitable for parents in mainland China. In this study, the simplified tables are used to measure maternal parental pressure.

Factors influencing parenting stress

The degree of parenting stress has been associated with several influential factors. The sources of maternal parental stress are multifaceted. Sometimes for children some behaviour or character, or the mothers themselves. Character even trifles or major events such as family life are likely to influence their parents to the child effective response. Effective response pressure caused by his parents and one of them. The parent’s affective and cognitive resources and symptoms of anxiety and depression in the child is one of the factors.

Parenting stress experienced by mothers was significantly related to peer relationship problems and emotional symptoms (Tokunaga et al., 2019). Studies of parenting stress in mothers, who generally experience higher stress levels than fathers. Maternal stress includes household chaos, role overload, parenting hassles, child misbehavior, negative life events, and lack of social support (McQuillan et al., 2019). Parenting stress index score was significantly higher among the mothers of children treated for allergic rhinitis compared with the parents of children without treatment history for allergic rhinitis. A treatment history of allergic rhinitis was significantly associated with parenting stress (Kim et al., 2017). Parenting stress and behavioural outcome exists for high-risk children were unaffected by cocaine exposure suggesting the relationship between regardless of drug exposure history. Relationship between parenting stress and child behaviours to a sample of high-risk children and emphasize

the importance of identifying and treating parenting stress (Bagner et al., 2009). Parenting stress is expected to decrease over infancy and toddlerhood in the general healthy population. Studies examining stress changes in non-healthy pediatric populations. Stress decrease in these studies was rationalized by the parental adjustment to the situation and/or by the reduction of treatments with time (Rivard et al., 2014).

Demographic characteristics

Studies had found that gender is related to parenting stress and related factors. Specifically, previous studies had shown that mothers of boys experience more parenting stress than mothers of girls (Vierhaus et al., 2013). The rise in the ratio of boys to girls may reflect parents' perception that girls are more likely to become parents and perhaps have better relationships with them. On the other hand, boys may trigger more parental stress due to their high levels of hyperactivity and differences in how they interact with their mothers (Barroso et al., 2018).

Rates of parental stress were higher among parents from minority and racial backgrounds (Franco et al., 2010). For example, one study found that South Korean mothers reported higher levels of parenting stress than American mothers (Chung et al., 2013).Some studies on low-income samples have found no significant differences in parenting stress among mothers from different racial and ethnic minority backgrounds (Anderson, 2008). Specifically, it may be that families from racial and ethnic minority backgrounds have so many other stressors, including financial difficulties that reduce their tolerance for inappropriate behavior by their children and ultimately increase their average stress level (Barroso et al., 2018).

Current theory and evidence suggested that parenting stress may be greater for parents of low and high socioeconomic status than for parents of medium socioeconomic status due to the material difficulties and employment needs of parents of high socioeconomic status (Parkes et al., 2015).Models that emphasize the critical role of economic resources in a child's development suggest that material difficulties can lead to strained family relationships, including parenting stress (Conger & Donnellan, 2007). A U.S. National Population Study (Raphael et al., 2010) found that low-income and less-educated parent groups face greater parenting pressure. In contrast, models of job demands and pressures associated with higher status indicate the cost of higher socioeconomic positions in terms of greater intrusion of employment on family

life (Scott et al., 2009). College-educated parents may also find it harder to adjust to new parenting roles after investing more money in their careers (Nomaguchi & Brown, 2011). Therefore, employment-related stress may produce higher child-rearing stress in high SEP populations. Parkes et al. (2015) found that, compared with mothers with secondary education, mothers with higher and lower education levels have more pressure to raise their babies. Dependence on formal childcare is a particular source of stress for highly educated mothers, who are more likely to be in full-time employment than less educated groups. Barriers to occupational support are most pronounced for mothers with low levels of education.

Health literacy

Health literacy was first proposed by Simonds (1974). Health literacy as the degree to which people have ability to acquire, understand, distinguish and convey information under the requirements of the interaction of different health environments in order to promote and maintain good physical and mental health during their life cycle (Nutbeam, 1986). Low health literacy affects parental acquisition of knowledge, attitudes and behaviors, as well as child health outcomes in the areas of disease prevention, acute care and chronic care (Tang & Wang, 2014; Yang, Zou, Xia, & Pan, 2019).

In the adult population, parents are a crucial subgroup because they are responsible not only for their own health, but also for the health of their children (Buhr & Tannen, 2020). Studies have shown that when parents have low health literacy, it is more difficult for parents to give their children prescribed medication (Sleath et al., 2006; Yin et al., 2007).

The resent findings indicated that increased shared book reading in infancy was associated with reductions in parenting stress and increases in early relational health ($\beta =. 33$, $p <.05$) (Alonso, 2020). Higher parent health literacy reduces parenting stress, but lower parental health literacy increases parenting stress ($\beta = -.12$, $p < .05$) Parents and caregivers may not be able to provide or seek preventive health care for their children because of lack of knowledge and skills to do so effectively ($\beta = -.32$, $p = .05$) (Fleary et al., 2014). As a result, their parenting stress increases. This causes children are at increased risk of developing moderate to severe persistent asthma (DeWalt et al., 2007). Childhood hospitalization rates and emergency department visits

increased (Morrison et al., 2014). This will further increase parental stress. Therefore, health literacy is considered essential for the management of the multiple expectations placed on parents regarding child health (Brandstetter et al., 2020; Heerman et al., 2018). Interventions to improve maternal self-efficacy in interactions with health care providers among low literacy Latino mothers may have a positive impact on pediatric health outcomes (Fry-Bowers et al., 2014). Literature studies indicate that parents of children with chronic diseases exhibit small to moderate increases in parental stress in general and stress specifically related to parent-child relationships, and moderate to large increases in parental stress related to health (Pinquart, 2018). Therefore, it is necessary to improve parents' health literacy and maintain children's healthy behavior and mental state to relieve the pressure of parenting. Health literacy is an important component that influences parenting stress in children.

Parenting self-efficacy

Parents' sense of competence is the Parenting Stress Model (Abidin & Richard, 1990) one of the influencing factors in the parental domain. Parenting self-efficacy referred to parents' self-evaluation of their ability to raise children, which can predict their role adaptation and simply and effectively identify existing problems.

There are many differences and overlaps in the concepts of parents' sense of competence, self-efficacy and parenting self-esteem. The definitions of parental self-efficacy and parents' sense of competence are also very similar (Ashlee J Vance & Brandon, 2017). In this study, parenting self-efficacy was used to evaluate parents' sense of competence.

Parenting self-efficacy has been identified as an important factor that influences an infant's physical and mental health development and also as a key to enhancing parenting behaviour and to support parents in their role of parenting (Coleman & Karraker, 1998). Improving self-efficacy should have a direct impact on improvements in infant health and, equal in importance, safety. Providing mothers with the necessary skills to obtain, understand, and act upon parenting-related information has the potential to increase their ability to cope with the demands of their infants and ultimately lead to improved infant health outcomes (Lee et al., 2018). Parenting self-efficacy is a strong predictor of parenting stress. In a study on parents of children with malignant sold tumors. There was a significant negative correlation between parents'

self-efficacy and parenting stress (r = - .72, p < .05) (Li et al., 2019). In a study on parenting stress of children with diabetes, it was found that low-level self-efficacy in management of children would lead to increased parenting stress. Another study (Li et al., 2019; Laura et al.,2018) also came up with similar findings, indicating that self-efficacy is effective in reducing parenting stress. It follows that parenting difficulties are the main source of parental, parenting self-efficacy has been proved to be an important buffer against parental stress. The parents who are enrolled in the childcare program, parents who are feeling less efficacious experience higher levels of stress, whereas greater parenting self-efficacy is related to less stress (Bloomfield & Kendall, 2012). Improving parents' sense of self-efficacy can reduce the pressure of parenting. Self-efficacy mediated parenting stress ($r = -.17$, $p < .05$) (Zhou et al., 2017). The higher the self-efficacy, the more confident the parents are to take care of their own children, then lower the parenting pressure. It could summarize that parenting self-efficacy has a direct negative effect on their parenting stress.

Social support

Social support in caring for the infant may be protective factors for depressive and anxiety symptoms in the puerperium period (Feligreras-Alcalá et al., 2020). Social support is associated with positive parenting behaviours and attitudes and less parenting stress, especially during the early months of parenting. Social support may help parents manage general life challenges, but also be specific to the tasks of caring for a child. Social support is absent or at a low level, mothers tend to feel isolated and helpless, and gradually weakening positive beliefs will increase parenting stress over time (Hu, 2020).

Multiple studies had shown associations between social support and quality of parenting for young mothers (Erfina et al., 2019). A study showed that having a stable economic income was beneficial to reducing the financial burden of caregivers, while the financial burden of caregivers is negatively correlated with their social support level (Zhang et al., 2019). It was found that mothers with high stress were less positive in attitude and behavior, while mothers with high support were more positive. Intimate support had the most universally positive effect. In addition, social support mitigated the adverse effects of stress on mothers' life satisfaction and some behavioral variables (Crnic et al., 1983). Research had provided parenting support in a range of group-based

programmes that use a variety of methods to support parents to become more effective and confident and to reduce parenting stress (Nieman et al., 2004). A large body of literature highlighted the negative effects of poor neighborhood relationships on parental stress and depression, especially for low-income parents (Cassells & Evans, 2017)， And as the social cohesion of the community increases, the stress of parenthood decreases (Mccloskey & Pei, 2019). Social support is likewise an aspect that influences parenting stress. In the Parenting Stress Model Theory, social support can directly influence parenting stress, while also serving as an intermediate link between parental competency and parenting stress.

Anxiety

Anxiety is a kind of inner nervousness, anticipation of some adverse situation will happen and difficult to cope with the unpleasant emotion (Piao & Li, 2007). According to Parenting Stress Model (Abidin, 1983), items such as mood, adaptability, demandingness, hyperactivity/distractibility in the dimension of children, restrictions of roles in the dimension of parents, and parents health will affect mothers' parenting stress. The above items will be changed due to hospitalization and pneumonia, leading to mothers' anxiety. In pediatric patients hospitalized for pneumonia, 3.5% involved a patient with a comorbid mood or anxiety disorder (Doupnik et al., 2016). Sleep disturbance can occur in hospitalized children, caused psychological distress to the family members. It’s risk factors include Children 4-6 year old (Sampath et al., 2022). When a sick child was ill, family members likely to have anxiety due to the fear of deterioration of the condition, which may lead to misunderstandings or conflicts with medical staff, and even lead to the deterioration of doctor-patient relationship (Chen & Liu, 2017; Zhang, 2015)

Pneumonia often leads to cough, persistent high fever and lung rales and other symptoms in infants, serious can involve a number of organs, threatening the health and life safety of infants, affect the mother's normal emotional level, leading to anxiety and other negative emotions, they do not know how to take care of infants , and increase parenting stress（$r = .547$, $p < .01$）(Hu, 2020).

Parents of 90 healthy 3-month-old infants filled out questionnaires about parental stress and separation anxiety. Mothers reported significantly higher levels of negative emotions than fathers (Scher & Sharabany, 2005). Mother's anxiety may also

affect the parenting stress, similar to the factor of depression in the theory, anxiety also can affect the psychological of mothers. A number of studies have shown that maternal anxiety is related to parenting stress ($r = -.638$, $p<.01$) (Crugnola et al., 2016; Elena at al., 2018). Early prevention and intervention to reduce maternal anxiety in pregnancy could hold the key for a more advantageous trajectory of early postnatal parenting (Huizink et al., 2017). Parental stress mediated the relationship between maternal trait anxiety and children's external and internal problems. Children's self-regulation further mitigates this mediation. In children with low self-regulation ability, maternal trait anxiety caused by parental stress has a greater indirect effect on children's external problems (Tsotsi et al., 2019).

One finding showed that measures such as reducing parental stress and strengthening child self-regulation may be important for lowering the transgenerational influence of mother trait anxiety ($r = .15$, $p <.05$) (Lee & Kim, 2022). The reasons for the anxiety affecting the children's families are as follows: in a critical condition and the lack of certain medical knowledge, complicated underlying disease (Zhao, 2015), age < 3 years old (Yu et al., 2010), self-paying (Deng, 2012) and economic condition. It can summarize that anxiety among mother of infants with pneumonia has positive effect on parenting stress.

Severity of illness

Childhood characteristics is an important component of the Parenting Stress Model Theory. It has been found that the severity of the child's illness affected the child's mood. The child's negative mood can contribute to parenting stress, and the child's severe disease state can contribute to the child's worse mood. The severity of the child's illness may be an important aspect that influenced parenting stress. The more serious the pneumonia of the infant, it may change the mental state of the child, they will not be so lively, appetite will be weakened, and even weight loss, for the mothers are difficult to accept, and worry about the growth and development for their infants, leading to the mother's parenting pressure is greater.

With the increase of disease severity in children with inflammatory disease, parents' stress also increases (Gray et al., 2015). In the child and parent domain at 3 months of age, parents of infants with complex coronary heart disease had higher parental stress than parents of healthy infants (Golfenshtein et al., 2017). The stress on

the need scale remains high in infancy. Parents of infants with coronary heart disease also showed higher stress scores on the life stress subscale at 12 months of age (Golfenshtein et al., 2017). In summary, it can be seen that the severity of illness can predict the mother's parenting stress.

Summary

A review of the above literatures on factors influencing parenting stress, combined with the parenting stress model theory, revealed that the main factors influencing parenting stress include maternal factors and infants own factors. Specifically, improving the mother's health literacy and self-efficacy, reducing the mother's anxiety level. However, few studies had examined parenting stress among parents of children with acute illnesses, and current research was mainly limited to parenting stress among children with chronic illnesses. According to the severity of the disease, infants may have emotional changes, and even affect their appetite because of pneumonia. These are indicators for clinical observation of infants' illness development which are also the most concerned aspects for mothers. These changes will make mothers at a loss, leading to the increase of parenting stress. Social support is an important part of reducing parenting stress, and only adequate social support can bring mothers out of isolate.

Therefore, this study aimed to investigate the current situation of parenting stress and its influencing factors among mothers of children with pneumonia, and to provide constructive suggestions for interventions to reduce parenting stress among parents of children with pneumonia, which was important for reducing parenting stress among parents of children with pneumonia.

CHAPTER 3
RESEARCH METHODOLOGY

Research Design

This study was a cross sectional, correlation predicative study on the parenting stress and related factors among mothers of infants with pneumonia.

Setting of study

This study was conducted in the Second Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University (WMU). This was a large general hospital at the provincial level in China. The pediatric respiratory department of the hospital is a national key discipline of China. The patients treated in the Wenzhou area are residents from southern Zhejiang Province and northern Fujian Province. The main diseases of the children are pneumonia, and there are other respiratory diseases.

The Children's Inpatient Department, also known as the Children's Hospital, received about 30-40 children with pneumonia every day, among which infants accounted for 50-60%.

Populations and participants

Population included mothers with pneumonia hospitalized for the first time attending the Second Affiliated Hospital of Wenzhou Medical University (over 50 per week).

Participants were mothers who took care of children with pneumonia hospitalized at the first time at the 2nd Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University.

Inclusion criteria of the mothers include:

1) mothers' age > 18 years old,

2) having ≤1 years old infant

3) their babies hospitalized for pneumonia in the first time

4) two to three days after their baby was hospitalized

5) ability to communicate, read and write in Chinese.

Exclusion criteria of the mothers include:

1) their babies with other chronic diseases

Sample size estimation:

The sample size for this study was estimated from numbers of independent variables (Tabachnick & Fidell, 2007). Sample size was 40 per 1 independent variable. This study consisted of 5 independent variables. Therefore, total participants were 200 mothers. The researcher asked permission from mothers to participate in the study and to sign on consent form.

Sampling method:

Participants in this study were mothers of infants who were first hospitalized in the pediatric respiratory unit between July 2021 and November 2021. A simple random sampling method was used in this study. Approximately 8-10 infants were admitted for pneumonia each day, numbered according to the order of admission, and 5 were selected from them by lottery, and researchers completed the drawing of the list of eligible participants by 12 a.m. each day. In the afternoon, mothers filled out questionnaires. Mothers agreed to participate in the study and signed a consent form. This process was repeated until 200 individuals were collected.

Measurements

1. Demographic characteristics record form was developed by the researchers. Demographic data included.

1.1 general information of infants included age, gender, weight, embryonic age, ranking of siblings, past history, type of disease, length of hospital stay, severity of illness, payment method of medical expenses.

1.2 General information of the mother included age, occupation, education, current employment status, marital status, average mothers' income monthly, average family income monthly, main sources of family income, types of family, family human relationships, number of brothers and sisters, number of children, daily time to take care of the children (except sleep time), family history of psychiatric pathology.

2. Chinese Parental Health Literacy Questionnaire (CPHLQ) was used to measure health literacy for parents. It was an effective evaluation instrument to assess

parental health literacy. The CPHLQ was organized into three subscales: 12-question for health care health literacy (HC-HL): common disease about pneumonia and diarrhea, antibiotic use (section 6, 9 questions); health examination (section 5 , 3 questions); 6-question for disease prevention health literacy (DP-HL): vaccination(section 5 , 3 questions); obesity and malnutrition, vitamin D and iron deficiency(section 3 , 7 questions); oral and visual health care (section 4 , 6 questions);11-question from health promotion health literacy (HP-HL): infant and child feeding ,scientific parental care (section 1, 7 questions); unintentional injury prevention (section 2, 4 questions).

Meanwhile, questions relevant to information processing of "understanding" were mainly in the form of true/false questions or multiple choices with four options, designed to test the knowledge level among caregivers. For true/false questions, the correct answer would score 4 points. For multiple choice questions there were 4 options in a question, each option was a true/false question, and one correct choice would score 1 point. Each question also had an option of "Don't know" which would get a 'zero' score. Therefore, each question had a score ranging from 0 to 4. The range of the CPHLQ score is between 0 and 100, a higher score indicates higher parental health literacy level. The 39-question Chinese Parental Health Literacy Questionnaire was demonstrated high internal consistency (Cronbach's α = 0.89), spilt-half reliability (Spearman-Brown coefficient = 0.92) and test-retest reliability (Pearson correlation coefficient = .82). For the three subscales, all reliability coefficients were over 0.6 which was considered as acceptable reliability for subscales (Zhang et al., 2019).

3. Tool of Parenting Self-efficacy (TOPSE) (The British Council Project., 2013) was specifically used to evaluate the effectiveness of PSE interventions. The assessment tool was a self-rating scale with 48 items, which were divided into 8 dimensions: emotion, play, empathy, control, self-discipline/rule-making, stress, self-acceptance, and learning self-efficacy. Foreign scholars measured that the Cronbach's α of each dimension of TOPSE was 0.80~0.89, the Cronbach's α of the total table was 0.94, and the retest reliability was .58~.88.The Chinese version of TOPSE's Cronbach's α of each dimension was 0.59~0.87, the Cronbach's α of the total table was 0.91, and the retest reliability was .51~ .71 (Zhou et al., 2017). Likert 11-level scoring method is adopted in this scale, where 0 represents complete disagreement and 10 represents complete agreement. The higher the score and total score of each dimension, the higher

the self-efficacy and overall efficacy of the parent in this dimension.

4. Social support revalued scale (SSRS) was used to measure social support. The SSRS adopts the questionnaire developed by scholar Xiao Shuiyuan (Xiao, 1994). It had 10 questions and contains three dimensions, namely, subjective support (4 items), objective support (3 items), and utilization of support (3 items). The overall score consistency reliability of this scale is 0.92, which had been proved to be of good reliability and validity in domestic tests. Scale scoring method: item 1-4, item 8-10: only one item was selected for each item, and item 1, 2, 3 and 4 are counted as 1, 2, 3 and 4 points respectively; item 5 were given a total score, and 1-4 points were given for each item from none to full support; item 6 and 7 if the answer was “without any source”, the score was 0, and if the answer was "following sources", 1 pointed for each source. Analysis method: total score: the sum of 14 items; objective support score: the sum of 2, 6 and 7 items; Subjective support score: the sum of 1, 3, 4 and 5 scores; utilization of support: the sum of points 8, 9 and 10. Total scores ranged from 12 to 66, with higher scores indicating higher levels of social support.

5. **Self-Rating Anxiety Scale (SAS)** was mainly used to evaluate the subjective feelings of patients with Anxiety (William, & Zung, 1971), It was composed of 20 items, and each item was rated with a 4-point Likert Type scale (1= No or little time, 2=A small portion of time, 3= Quite a lot of time , 4=Most or all of the time), based on the experience of the last week. The Cronbach’s α of the questionnaire was .931. Accumulate each item into SAS gross score, total coarse score ×1.25 was SAS standard score. Scale scoring method: forward scoring item Score 1, 2, 3, 4; reverse scoring item include 5.9.13.17.19, Score 4, 3, 2, 1. Total scores ranged from 25 to 100, with higher scores indicating higher levels of social anxiety.

6. **Pediatric Early Warning Score (PEWS)** was used to assess the severity of illness (Mandell et al., 2015). The PEWS was developed by Monaghan et al in 2015 based on early warning scores. PEWS is composed of three significant sign and symptom that include consciousness (1 item), cardiovascular (1 item), and respiratory evaluation initiatives (1 item). Observation indices contain 11 distinct indications (irritability, hypnosis, lethargy, coma, skin color, capillary refill time, heart rate, breathing, aspirating depression, groan, and the fraction of inspiration O2). Evaluation of each item rated on a three-point scale ranging from “0” to “3”. The total score ranges

from 0 to 9, with higher scores indicate the more severe illness. PEWS, which is used regularly in the pediatric respiratory department in China. Inter-rather reliability was used to test the reliability of PEWS. It is used to compare two experts in the respiratory field who rate the scores of each case. We got a consistent score.

7. **The Parenting Stress Index-Short Form-15(PSI-SF-15)** was used to measure parenting stress (Jieluo et al., 2021). It was the short Chinese version of the Parenting Stress Index (PSI-SF), that consisted of the proposed three-factor structure include: parental distress (PD), difficult children (DC), and parent-child dysfunctional interaction (PCDI). It composed of 15 items, with five items in each factor, and each item was rated with a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). The Cronbach's α of the questionnaire is higher than .70. Total scores range from 15 to 75, with higher scores indicating higher parenting stress.

Psychometric properties

Validity

All the research instruments used in this research have Chinese version, was not tested for their validities since all the instruments are extensively used instruments and their validities had been established.

Reliability

Reliability testing was conducted by a pilot study with 30 mothers who had pneumonia infant with same characteristics of the study sample at the 2nd Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University. The pilot study was conducted on two days where the researcher randomly selected 2 mothers each from pediatric respiratory department the 2nd Affiliated Hospital and Yuying Children's Hospital of WMU, total up to 30 mothers. These mothers would not participate in the main study. The reliability of instrument used Cronbach's alpha coefficients to determine the reliability of each questionnaire. and Cronbach alpha of the SAS was.714, the CPHLQ was. 822, the TOPSE was.896, the SSRS was.727, the SAS was .714, the PSIP was .849.

Ethical Considerations

This study was approved by the IRB Buarapha university and the Research

Ethics Committee of the 2nd Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University. This study carried out in accordance with state legislation and the principles established in the Helsinki Declaration of 1964. Informed Consent was requested as a guarantee of respect for bioethical principle of autonomy. The confidentiality and privacy of data obtained was guaranteed. Participants were given the opportunity, both verbally and in writing, to refuse to participate or leave the study at any time.

Data collection

1) After the researcher got approved from the Faculty of nursing in BUU, the researcher submitted recommendations for ethical review to IRB of BUU and IRB of the 2nd Affiliated Hospital of Wenzhou Medical University in China.

2) The researcher asked the Faculty of nursing of BUU and the 2nd Affiliated Hospital of Wenzhou Medical University in China for permission to collect data on the goals and procedures of the research information.

3) From July 2021 to November 2021, the data collection procedure in this study was conducted by the researcher as follows:

4) The mothers of the children were recruited at the inpatient ward of the Children's Hospital of the Second Affiliated Hospital of Wenzhou Medical University.

5) The researchers were explained the purpose of the study to mothers of infants with pneumonia and invited them to participate in the study.

6) Considered the situation about the coronavirus in 2019 (COVID-19), the researchers and participants wore masks all the time and reminded patients to wear masks all the time. Mothers were required to go through temperature screening and showed a health QR code (an official way to declare residents' health status) everyday. Patients who displayed a green code and temperature below 37.3℃ was allowed entry into the inpatient department.

7) All the mothers were to participate in the study and guarantee the truthfulness of the information. They all needed to read and sign the informed consent model and the corresponding questionnaire.

8) The mothers were in the ward with their children, and researchers would ask them to fill out the questionnaires in the afternoon, when the children were mostly

asleep, with less treatment.

9) The researcher introduced the method of filling the questionnaire and the matters needing attention of the respondents to avoid survey bias. The questionnaires were filled out by the mothers themselves. If the infants cried while their mothers filling out the questionnaires, researchers took care of the infants. Some mothers asked a lot of questions about their illness, the questions were answered after completed the questionnaires. Other mothers cried when they told us about their children, and researchers comforted them and informed them about the progress of the disease

10）After completing the questionnaire, participants were reminded to take any belongings away. Public goods including pens were disinfected by alcohol cotton after using.

11） The researcher checked if the questionnaires have been filled completed after the participants submitted them.

12） This process was repeated until the required sample size was reached.

13）Total 210 mothers participated the study, and 10 mothers dropped out of the questionnaire because there were too many questions and it took too long, so they refused to fill in the questionnaire.

Data analysis

SPSS software was used for statistical data. Data analysis was conducted after double checks of data entry. Firstly, the data were described, tested for normal distribution, and then the prediction relationship between independent variables and dependent variables was analyzed by multiple regression. Use ANOVA to test whether the whole regression model makes sense. Assuming F=0, see if the resulting p value is less than.05. If the p value was less than.05, it meant that F≠0, which meant that the regression model was meaningful, and the independent variables collected were related to each other. The T test was used to verify and analyze which independent variables were truly related to the dependent variable (the p value was less than .05) when each independent variable acted together.

P-P plots and scatter plots were used to demonstrate that the data are normally distributed. they were all around 1.500 without severe multicollinearity, no outliers, and homoscedasticity test yields was significant (p = .00). The Durbin–Watson statistic was

1.890, which in acceptable range. The Std. Residual max was 3.546 which meaning residuals were uncorrelated.

CHAPTER 4
RESULTS

This chapter presents the results of the data analysis which are described under three sections: demographic characteristics and health information of the infants and mothers, description of health-related parenting stress and factors related to parenting stress among mothers having infants with pneumonia in Wenzhou, China.

Demographic characteristics of infants

Table 1 showed that most of the infants were 1-6 months old (65%). More than half of infants were male 57%. Most of infants were the second child in the family (48%). Majority of the infants (67%) had severe of illness and the weight/height of most of infants were2-50 th percentile (56.5%).

Table 1 Demographic characteristics of infants (n = 200)

Infants Characteristics	**Number (n)**	**Percentage (%)**
Age (*M* = 5.44, *SD* = 3.03, *Range* = 1- 12)		
1-6 months	130	65.00
7-12 months	70	35.00
Gender		
Male	114	57.00
Female	86	43.00
Ranking of siblings		
1st	86	43.00
2nd	96	48.00
3rd	18	9.00
Weight/ height (*M* = 49.97, *SD* = 31.34, *Min* = 2, *Max* = 108)		

Table 1 (Continued)

Infants Characteristics	Number (n)	Percentage (%)
2-50 th percentile	113	56.5
50-97 th percentile	80	40
97-110 th percentile	7	3.5
Severity of illness (*M* = 1.41, *SD* = 1.257, *Min*=0, *Max* = 5)		
0-1	78	39.00
2-5	122	61.00

Demographic characteristics of mothers

Table 2 showed that most of the mothers were 30-39 years old (51%), Majority of the mothers were married (99.5%) and completed education of college and higher (51.5%). Most of participants were unemployment (54%) and earned monthly personal income less than 3,000 RMB and 3,000-5,000 RMB (26.5%). The main source of household income was from their husband and their wages (50%). Majority of mothers had medical insurance for their infants (68%). Most of mothers took care of their infants more than 6 hours (75%). Almost of mothers was not family history of psychiatric pathology (99.5%).

Table 2 Demographic characteristics of mothers (n = 200)

Mother Characteristics	Number (n)	Percentage (%)
Age (*M* = 30.03, *SD* = 4.29, *Min* = 21, *Max* = 45)		
20-29 years	94	47.00
30-39 years	102	51.00
40-45 years	4	2.00
Marital status		
Single	1	0.50
Married	199	99.50

Table 2 (Continued)

Mother Characteristics	Number (n)	Percentage (%)
Education		
Primary school	5	2.50
Secondary	46	23.00
High school	46	23.00
College and higher	103	51.50
Current employment situation		
Unemployment	108	54.00
Part-time employment	11	5.50
Full-time employment	81	40.50
Monthly personal income		
Less than 3,000RMB	59	29.50
3,000-5,000 RMB	53	26.50
5,000-8,000 RMB	45	22.50
8,000-10,000 RMB	18	9.00
More than 10000 RMB	22	11.00
Main source of household income		
Husband	96	48.00
Mother	4	2.00
Family wages	100	50.00
Payment for medical expenses		
Medical insurance	137	68.00
Self-payment	63	32.00
Family human relation		
Good	82	91.00
Moderate	17	8.50
Poor	1	0.50

Table 2 (Continued)

Mother Characteristics	Number (n)	Percentage (%)
The time of take care the infant per day		
< 3 hours	9	4.50
3-6 hours	41	20.50
> 6 hours	150	75.00
Family history of psychiatric pathology		
Yes	1	0.50
No	199	99.50

Description of parenting stress

As presented in table 3, the overall score of Parenting Stress Index ranged from 15 to 60 and the mean score was 34.94 (*SD* = 8.81). Parental Distress had the highest mean score of 13.48 (*SD* = 3.73), followed by difficult child 12.11 (*SD* = 4.30). Parent-child dysfunctional interaction had the lowest mean score of 9.35 (*SD* = 3.34).

Table 3 Range, means and standard division of parenting stress among the mothers (n = 200)

PSI-SF-15	Range of scores		*M*	*SD*
	Possible scores	Actual scores		
Parenting stress	15-75	15-60	34.94	8.81
-Parental distress	5-25	5-24	13.48	3.73
-Parent-child dysfunctional interaction	5-25	5-20	9.35	3.34
-Difficult child	5-25	5-25	12.11	4.30

Description of factors including parenting self-efficacy, parental health literacy, anxiety, social support and severity of illness.

Table 4 illustrates that score of severity of illness ranged was 0-5 with mean of 1.41 (*SD* = 1.257). Parenting self-efficacy ranged from 57 to 468, with mean of 336.97 (*SD* = 59.78). Parental health literacy ranged from 25 to 75, with mean score of 58.89 (*SD* = 8.60). The scores of social support ranged from 26 to 55, with mean score of 39.79 (*SD* = 4.97), which indicated high social support, the scores of anxiety ranged from 28.5 to 80, with mean score of 46.66 (*SD* = 9.68).

Table 4 Range, mean and standard division of severity of illness, parenting self-efficacy, parental health literacy, social support, and anxiety among the mothers (n = 200).

Factors	Range of scores		*M*	*SD*
	Possible scores	Actual scores		
Parenting self-efficacy	0-480	57-468	336.97	9.78
Parental health literacy	0-100	25-72	58.89	8.60
Social Support	12-66	26-55	39.79	4.97
Anxiety	25-100	28.5-80	46.66	9.68
Severity of illness	0-9	0-5	1.41	1.257

Relationship between factors and parenting stress

The Pearson's correlation test was performed to test the relationship between severity of illness, parenting self-efficacy (PSE), health literacy (PHL), social support, anxiety and parenting Stress.

Table 5 The relationship between factors and parenting stress (n = 200)

Correlations

	Health literacy	Parenting self-efficacy	Social support	Anxiety	Severity of illness	Parenting stress
Health literacy	1	.227**	.099	-.132	-.050	-.263**
Parenting self-efficacy		1	.362**	-.092	-.000	-.199**
Social support			1	-.164*	-.0.25	-.264**
Anxiety				1	.002	.344**
Severity of illness					1	.029
Parenting stress						1

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

Factors influencing parenting stress among mothers having infants with pneumonia

The study introduced multivariate regression approach to examine the effects of parenting self-efficacy, social support, parental health literacy, anxiety and severity of illness on parenting stress among mothers having infants with pneumonia. Regression residuals, P-P plots and scatter plots were used to demonstrate that the data are normally distributed. The variance inflation factors of severity of illness (VIF = 1.005), anxiety (VIF = 1.042), social support (VIF = 1.174), parenting self-efficacy (VIF = 1.202) and parental health literacy (VIF = 1.071) were all around 1.100 without severe multicollinearity, no outliers, and homoscedasticity test yields was significant (p =.00). The Durbin-Watson statistic is 1.890, which in acceptable range. The Std. Residual max was 3.546 which meaning residuals were uncorrelated.

As presented in Table 6, results showed that anxiety, parental health literacy, and social support together explained 18.8% of variance in parenting stress ($F_{(5,194)}$ = 10.207, p <.05). Anxiety had significantly positive influence on parenting stress (β = .284, p < .001). Parental health literacy and social support had a significantly negative influence on parenting stress (β = -.175, p < .05); β = -.174, p < .05, respectively).

Parenting self-efficacy and Severity of illness had no significant influence on parenting stress (β = -.064, p > .05; β = .024, p >.05, respectively).

Table 6 Factors influencing parenting stress (n = 200)

Predicting variables	**B**	**SE**	***β***	**t**	***p*-value**
Parental health literacy	-.197	.068	-.192	-2.905	.004
Parenting self-efficacy	-.010	.010	-.066	-.937	.350
Social support	-.311	.123	-.175	-2.532	.012
Anxiety	.259	.059	.284	4.354	.000
Severity of illness	.171	.449	.024	.380	.704

Constant = 49.865, p = <.05, R^2 = .208, adj R^2 = .188 $F_{(5, 194)}$ = 10.207

CHAPTER 5
CONCLUSION AND DISCUSSION

The study aimed to describe the parenting stress among mother of infants with pneumonia, and examined the effect on health literacy, social support, self-efficacy, anxiety and severity of illness on parenting stress among mother of infants with pneumonia. This chapter delineates a summary and discussion of the study results, conclusion, and implications for nursing practice and recommendations for future research.

Summary of the study

The purpose of this study was based on Parenting Stress Model (Abidin & Richard, 1990) to evaluate the level of parenting stress among mothers of infants with pneumonia and to identify the relationship between health literacy, self-efficacy, social support, anxiety, the Severity of illness, and parenting stress among mothers of children with pneumonia. simple random sampling technique was applied to recruit 200 participants who take care of children with pneumonia, hospitalized at the first time from the pediatric department of the Second Affiliated Hospital of Wenzhou Medical University in Wenzhou, China. Data was collected using self-reported questionnaires which include the Demographic Record Form, Chinese Parental Health Literacy Questionnaire (CPHLQ) (Zhang et al., 2019), Tool of Parenting Self-efficacy (TOPSE), Self-Rating Anxiety Scale(SAS) (William, & Zung, 1971), The Parenting Stress Index-Short Form (PSI-SF-15) (Jieluo et al., 2021) ,and The Social Support Rating Scale (SSRS) (Xiao, 1994). Cronbach's alpha for the CPHLQ, TOPSE, the SAS, the PSE, PSI-SF-15 and SSRS were .950, .950, .833, .904 and .725 respectively.

The findings revealed that the age group of the infants was in the range of 1-12 months with a mean age of 5.44 months. Most of the infants were around 1-6 months old (65%). The majority of infants were male comprising (57%). Most of the infants were the second child (48%) and the first child (43%). Almost all of the infants (61%) had severe illness.

The age range of the mothers was 20-45 years, with a mean age of 30.03 years;

more than half of mothers were 30-39 years old (51%). The majority of the mothers were married (99.5%). Mothers had college degrees and higher (51%). The greatest proportion of participants earned monthly personal income less than 3000 RMB (29.5%). Most of them were job less (54%). Most of mothers had no family history of psychiatric pathology (99.5%).

The mean score of Parenting Stress Index among the mothers was 34.94 (SD = 8.81). The mean score for Parental distress was 13.48 (SD = 3.73), followed by Difficult child at 12.11 (SD = 4.30). Parent-child dysfunctional Interaction had the lowest mean score of 44.70 (SD =7.15). The results indicated that mothers of infants with pneumonia had self-efficacy with the mean score of 336.97 (SD = 9.78). The mean score of Parental health literacy (CPHLQ) was 58.89 (SD = 8.60). The mean score of Self-rating anxiety (SAS) was 46.66 (SD = 9.68). In addition, participants reported high social support (M = 39.79, SD = 4.97).

Results revealed that self-rating anxiety, parental health literacy, and social support together explained 18.8% of the variance in parenting stress ($F(5,194) = 10.207$, $p < .05$). Self-rating anxiety ($\beta = .284$, $p < .01$) had significantly positive influence on parenting stress. Parental health literacy ($\beta = -.192$, $p < .05$) and social support ($\beta = -.175$, $p < .05$) had a significantly negative influence on parenting stress. Parenting self-efficacy ($\beta = .066$, $p > .05$) and Severity of illness ($\beta = .024$, $p > .05$) had no significant influence on parenting stress.

Discussions

The discussions of the findings were presented based on objectives and hypothesis of the study. The objective of the study was to describe parenting stress among mothers of children with pneumonia and to examine the predictive relationship between health literacy, self-efficacy, social support, anxiety, Severity of illness and parenting stress among mothers of children with pneumonia.

Evaluate the level of parenting stress among mothers of infants with pneumonia

The results showed that the average stress score of mothers of infants with pneumonia was 34.94 (SD = 9.78), indicating that the parenting stress of mothers of infants with pneumonia in Wenzhou was relatively low. All the children with

pneumonia included in this study were hospitalized for the first time and had no underlying diseases, with mild disease accounting for 39%, and most of the children with severe pneumonia only showed respiratory symptoms without involving other systems. The treatment effect of these children was obvious. Therefore, when the investigation was conducted on the second to third day after admission, Mothers of children with pneumonia have understood the related treatment and effect, prognosis, nursing measures, preventive measures, so the pressure of raising children is low. Most of the family relationships in this study were harmony. Good marital relationships will help mother to cope with the heightened parenting stress (Taubman-Ben-Ari et al., 2021).

Parenting stress among mother of infants with pneumonia is lower than in the mothers of infants with other chronic diseases such as allergic rhinitis (Xiao, 1994), congenital heart disease (Min et al., Nadya Golfenshtein, Hanlon, Deatrick, & Medoff-Cooper, 2021; 2017), Cerebral palsy (Yang et al., 2019) children with cancer (Tang & Wang, 2014) developmental disorders (Yeh et al., 2010) The results also showed that although the stress of mothers with pneumonia was lower than that of mothers with chronic diseases, it was still higher than that of mothers of healthy children (Hou, 2016). It suggested that whether the disease is acute or chronic, the existence of the disease to a certain extent increases the mother's parenting pressure.

Among the three dimensions, parental distress (PD) was the highest, followed by difficult children (DC), and parent-child dysfunctional interaction (PCDI) was the lowest. The results of this study were consistent with many other studies, such as congenital heart disease, children with cerebral palsy, and parenting stress in healthy children. Parental distress (PD) is the biggest stressor, and is related to the limitation of maternal activity, whether the child is ill or not, because maternal status tends to have a negative effect on motherhood. For the dimension of difficult children (DC), the mother also feels great pressure, because the state of the disease leads to various maladaptations of the children. Compared with the healthy state, they tend to cry and do not cooperate with the treatment, etc. In all of the studies, parent-child dysfunctional interaction (PCDI) has the lowest score. It may be in the stage of disease where recovery is the mother's most urgent need and the demands on the child are relatively low.

Health literacy

The results indicated that health literacy had a significantly negative correlation with and predicted parenting stress among mothers of infants with pneumonia. In this study, health literacy was a negative variable ($r = -.263$, $p < .01$) and effect ($\beta = .004$, $p < .05$) on parenting stress among mothers of infants with pneumonia. When parents' health literacy was low, children's health was prone to problems. Parenting Stress Model (Abidin & Richard, 1990) pointed out that the factors affecting parenting stress include environment, children's development and characteristics, parenting ability and parental psychological structure. Among them, parents' behavior is an important determinant of children's health, happiness and development. Parents' behavior can predict children's behavior (Leach et al., 2021). Low health literacy affects parental acquisition of knowledge, attitudes and behaviors, as well as child health outcomes in the areas of disease prevention, acute care and chronic care (Tang & Wang, 2014; Yang et al., 2019). Parents and caregivers may not be able to provide or seek preventive health care for their children because of lack of knowledge and skills to do so effectively ($\beta = -.32$, $p = .05$) (Fleary et al., 2014). As a result, their parenting stress increases. The resent findings indicate that increased shared book reading in infancy was associated with reductions in parenting stress and increases in early relational health ($\beta = .33$, $p < .05$) (Alonso, 2020). Higher parent health literacy was positively associated with stress ($\beta = -.12$, $p < .05$) (Heerman et al., 2018). The level of household income affects the level of health literacy, low-income families need improved health literacy.

Parenting self-efficacy

The results indicated that parenting self-efficacy had a significant negative correlation with and no predicted parenting stress among mothers of infants with pneumonia. In this study, self-efficacy was a negative variable ($r = -.199$, $p < .05$) and no effect ($\beta = .350$, $p > .05$) on parenting stress among mothers of infants with pneumonia.

A study on parents of children with malignant solid tumors also showed a significant negative correlation between self-efficacy and parenting stress ($r = -.72$, $p < .05$) (Li et al., 2019). Another study on parenting stress, self-efficacy, and COVID-

19 health risks as predictors of general stress among nurses also showed that self-efficacy was significantly negatively correlated with general stress (r = -.265, p < .05)., and that self-efficacy played an important role in reducing stress (Li et al., 2019; Laura et al., 2018).

It is found that parenting self-efficacy is related to their parents' knowledge and skills (r = −.24, p < .05) (Jandri & Kurtovi, 2021). When parents are faced with children with health problems, higher self-efficacy is required, and when it is difficult to meet the needs of children, it increases their stress and undermines their confidence as parents (Cooklin et al., 2012; Giallo et al., 2013). Streisand found that difficulty of parenting stress is negatively related to child age (β = -.18, p =.06) (Streisand et al., 2005). In this study, all children with pneumonia were younger than 1 year old, with obvious care needs, high demand for knowledge and skills needed for parenting, significantly increased parenting difficulty and decreased parenting self-efficacy, leading to increased parenting stress.

Stress frequency and difficulty are associated with parents' lower self-efficacy. (Pediatric parenting stress among parents of children with type 1 diabetes: the role of self-efficacy, responsibility, and fear.). Experiences and more opportunities for specific behaviors of parents may improve as they age and have more children, consistent with Bandura's theory that mastering experience contributes to overall self-efficacy (Vance et al., 2019). In this study, the proportion of the second and third children is 57%, and these mothers have more knowledge and skills to take care of children, and due to China's national conditions, mothers feel less pressure in the process of raising the second and third children. 98% of mothers under the age of 40, 75% of those with high school education or above, and young mothers with high education level have new views on parenting, so the parenting efficiency is above the average level.

The parenting self-efficacy of the mothers partially mediated the effect of parenting stress and lower quality of life (Laura et al., 2018). In this study, the multiple regression analysis showed that the parenting self-efficacy had no significant influence on parenting stress. According to the correlation analysis between parenting self-efficacy, health literacy and social support were positively correlated, that was means people with high Parenting self-efficacy often also had high Health literacy and good Social support. When both of them were included in the multivariate regression analysis

model, the decreasing effect of parenting self-efficacy on stress did not show statistical significance, which indicates that the decreasing effect of parenting self-efficacy on stress may actually be caused by the better social support and higher health literacy of individuals.

Anxiety

The results indicated that anxiety has a significant positive correlation with

and predicted parenting stress among mothers of infants with pneumonia. In this study, anxiety was a positive variable ($r = .344$, $p < .01$) and positive effect ($\beta = .284$, $p < .01$) on parenting stress among mothers of infants with pneumonia. This study found that the anxiety was more from the illness of the infants. Mothers were anxious because they didn't know how to take care of their infants with illness and diminished appetite, so their parenting stress was increased.

Many studies confirm that maternal anxiety is related to parenting stress ($r = -.638$, $p<.01$) (Crugnola et al., 2016; Elena et al., 2018). The findings were similar to those of children with attention deficit hyperactivity disorder (ADHD) that symptoms and maternal anxiety symptom severity, whereby more severe ADHD symptoms were associated with more severe maternal anxiety symptoms ($r = .304$, $p <.05$) (Lee & Kim, 2022).

A study on parenting stress among hospitalized mothers of children with pneumonia found that primary caregivers with high parenting stress were prone to negative emotions such as anxiety and depression. Because children with pneumonia in the process of illness, there will be fever, loss of appetite, poor spirit and other conditions. Coupled with the unfamiliar hospital environment, the mother may be overwhelmed and unable to care for and feed her child as usual, which adds to the stress of parenting. ($r=.547$, $p<.01$) (Hu, 2020).

The results showed that anxiety can predict maternal parenting stress, and there was a positive correlation. Because of the increase of anxiety, mothers lost their usual parenting state. While taking into account the disease of children, they didn't know how to cooperate with medical staff to take care of them, which increased their parenting stress.

Social support

The results indicated that social support has a significant negative with and predicted parenting stress among mothers of infants with pneumonia. In this study, social support was a negative variable ($r = -.264$, $p < .01$) and negative effect ($\beta = -.175$, $p < .01$) on parenting stress among mothers of infants with pneumonia.

The results conformed to the Parenting Stress Model (Rezendes & Scarpa, 2011), consistent with a number of studies(Abidin & Richard, 1990; Tang & Wang, 2014; Xie & Tang, 2017). Multiple studies also found that the more social support a mother felt, the less stress she felt in her role as a mother. When they received the more social support, the more information the mothers were supported by, including the knowledge about some diseases, the treatment process and the prognosis. In terms of support from family and friends, higher support can relieve the mother's personal pressure, which could share by other family members. In terms of financial support, in China, many mothers who were in the first year after childbirth with no economic sources, the families in the economic support for them were also very important, especially in hospital needed bigger expenses, financial support could relieve stress for hospitalization expenses.

The score of social support of mothers with pneumonia was 39.79 (SD = 4.97), at a medium level, but higher than the norm 34.56 (SD=3.73). Social support was divided into three parts: objective support, subjective support and social utilization, among which subjective support was closely related to individual subjective feelings. In this study, 99.5% of households were married, and 91% have harmonious family relationship, married people were likely to get better social support from spouses and children. Their household income was more than 3000 yuan accounted for 70.5%, more than 5,000 yuan accounted for 45%; In addition, only 2% of families rely on their mothers for income, 68% have medical insurance, research showed that having stable economic income was beneficial to reducing the financial burden of caregivers, while the financial burden of caregivers is negatively correlated with their social support level (Zhang et al., 2019). Therefore, objective support from mothers is relatively stable, and there is no need to worry about financial and other material things. In this study, mothers with pneumonia scored the highest in subjective support, so they had a higher sense of social support. A study of parenting stress, social support, and parental self-efficacy

showed that the experience and opportunity to participate in social activities during child care decreased, and the primary caregiver's social support decreased significantly （r=-.638,P＜.01)(Hu, 2020).

The data from this study were lower than those from another study of pneumonia caregivers, which was lower than that of 41.57 (SD = 5.69) from the primary caregivers of pneumonia. The main reason is that all the research objects in this study were mothers of children with pneumonia, but the primary caregivers included mothers and fathers, so the research objects were slightly different (r = -.638, p <.01).

The results of this study suggest that higher levels of social support are associated with less parenting stress for parents of children with asthma, which is consistent with the findings of Huang et al(2014). Previous studies have shown that good social support can provide cushioning and protection for individuals on the one hand, and help individuals maintain a good emotional state on the other. In contrast, parents of children with pneumonia need to face the additional stress caused by pneumonia and, therefore, need more social support(Li et al., 2021). Parents of children with pneumonia who have a higher level of social support face a relatively lower level of cognition during the parenting stress contingency and are better able to maintain a good mood, thus exhibiting less parenting stress(Huang et al., 2019). Therefore, health care professionals should pay attention to the social support of parents of children with pneumonia, provide them with effective information support through active health education and continuity of care, help them deal with problems encountered in the management of their children's diseases, provide timely psychological guidance to parents of children with negative emotions, and encourage parents of children with the word to actively seek and use social support, so as to improve the level of social support and reduce their parenting stress.

Severity of illness

The results showed no correlation with (r = .029, p ＞ .05) and cannot predicted parenting stress (β = .704, p ＞.05). Parenting Stress Model (Abidin & Richard, 1990) shows children's emotions, demands and adaptability will affect parenting stress. When the infant had severe pneumonia, they need oxygen, aerosol inhalation, sputum aspiration and other treatment, will affect the mood of children, for

the mother is a great challenge. Among parents of children with severe pneumonia, the primary cause of anxiety is the severity of the disease (Chen & Liu, 2017). Increased face-to-face time and communication with medical providers during hospitalization helped reduce stress by promoting ongoing support ($r = .021$, $p > .05$)(Victoria et al., 2020). In this study, 61% of the children with severe pneumonia were surveyed on the 2nd or 3rd day after admission. After oxygen inhalation and sputum aspiration, the condition of the children was significantly improved, indicating that the treatment was effective, and the family members had more confidence in curing the disease. Trust in health care workers, especially caregivers, during hospitalization reduced parental stress levels (Mause et al., 2021). As the need for emotional improvement of children after disease improvement is reduced, the knowledge and skills of family members to take care of children with pneumonia are increased, and the need for additional care caused by the severity of pneumonia is reduced, so the parenting stress is relatively small.

After oxygen inhalation and sputum aspiration, the condition of the children was significantly improved, indicating that the treatment was effective, and the family members had more confidence in curing the disease. As the need for emotional improvement of children after disease improvement is reduced, the knowledge and skills of family members to take care of children with pneumonia are increased, and the need for additional care caused by the severity of illness is reduced, so the stress parenting is relatively small.

Strengths and Limitations

Strengths

This study focused on describe parenting stress among mothers of infant with pneumonia and to examine the predictive relationship between health literacy, self-efficacy, social support, anxiety, severity of illness and parenting stress, which is highly recognized among mothers. Especially during the COVID-19 pandemic, sometimes mothers, as the sole caregivers, feel more parenting stress, so mothers have a high degree of participation. As a special children's hospital in Wenzhou area, the hospitalized children with pneumonia are mainly severe. The collected data can be used

as the baseline of parenting stress of mothers of infants with pneumonia in Wenzhou area, providing basic data for follow-up research on parenting stress.

Limitations

1) A lot of questionnaires were used in this study, and some mothers took a long time to fill in the questionnaires, so they would be impatient and want to complete the answers quickly, which may lead to bias in the results of the study.

2) When their mother is the primary caregiver, whether there are other caregivers, such as grandmother or grandmother in law, whose parental stress is different, should be distinguished.

Implications for nursing

Nursing practice

The results of this study provide evidence for how nurses can reduce the parenting stress of mothers of children with pneumonia. In clinical work, nurses can improve the knowledge and skills of the mothers in disease care by carrying out different forms of health education and answering their questions in time, so as to improve their health literacy. Use WeChat, video phone and other communication facilities to strengthen communication and contact with the outside world, help solve economic difficulties, help take care of children, and strengthen the social support of mothers of children. Nurses should improve health literacy, strengthen social support, reduce anxiety, and the parenting stress for mothers with pneumonia should be reduced.

Nursing research

1. The study enrolled participants from only a hospital in Wenzhou. In the future, multi-center studies can be conducted to explore countermeasures to reduce parental stress of mothers of children with pneumonia based on the results of the study.

2. This study showed that anxiety, health literacy and social support had predictive effects on parenting stress. Further intervention studies are needed to improve social support, health literacy, reducing the anxiety of the mothers of infants with pneumonia.

Conclusion

This study is the first to investigate the influencing factors of parental stress among mothers of infants with pneumonia in Wenzhou. The results showed that the parental stress of mothers in this study was lower than the median, it was higher than that of mothers of healthy children and lower than that of mothers of children with chronic diseases. The parental pressure mainly comes in the two areas of distress and difficulty child. Parental health literacy and social support are important factors for reducing parenting stress, while anxiety is a risk factor for increasing parenting stress. Clinical medical staff can help mothers of children with pneumonia reduce parental stress by intervening these factors.

REFERENCES

Abidin, & Richard, R. (1990). Introduction to the Special issue: The Stresses of Parenting. *Journal of Clinical Child Psychology, 19*(4), 298-301.

Abidin, & Richard, R. (1992). The determinants of parenting behavior. *Journal of Clinical Child Psychology, 21*(4), 407-412.

Abidin, & Richard, R. (1995). Parenting Stress Index. Lutz, Florida:. *Psychological Assessment Resources, Inc*.

Abidin, R. R. (1983). Parenting Stress Index: Manual, Administration Booklet, [and] Research Update. *Pediatric Psychology Press, 2915 Idlewood Drive, Charlottesville, VA 22901 ($18.50).*

Abidin, R. R., Zalaquett, C. P., & Wood, R. J. (1997). Parenting Stress Index: A measure of the parent child system.

Adamakos, H., Ryan, K., Ullman, D. G., Pascoe, J., Diaz, R., & Chessare, J. (1986). Maternal social support as a predictor of mother-child stress and stimulation. *Child Abuse Negl, 10*(4), 463-470. doi:10.1016/0145-2134(86)90050-5

Albanese, A. M., Russo, G. R., & Geller, P. A. (2019). The role of parental self‐efficacy in parent and child well‐being: A systematic review of associated outcomes. *Child: Care, Health and Development, 45*.

Alonso, A. (2020). Beyond Language: Impacts of Shared Reading on Parenting Stress and Early Parent-Child Relational Health. *Developmental Psychology, 56*.

Anderson, L. S. (2008). Predictors of Parenting Stress in a Diverse Sample of Parents of Early Adolescents in High-Risk Communities. *Nursing Research, 57*(5), 340-350.

Augustinavicius, J. L., Familiar-Lopez, I., Winch, P. J., Murray, S. M., Ojuka, C., Boivin, M. J., & Bass, J. K. (2019). Parenting self-efficacy in the context of poverty and HIV in Eastern Uganda: A qualitative study. *Infant Ment Health J, 40*(3), 422-438. doi:10.1002/imhj.21774

Bagner, D. M., Sheinkopf, S. J., Miller-Loncar, C., LaGasse, L. L., Lester, B. M., Liu, J., . . . Das, A. (2009). The effect of parenting stress on child behavior problems in high-risk children with prenatal drug exposure. *Child Psychiatry Hum Dev, 40*(1), 73-84. doi:10.1007/s10578-008-0109-6

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Advances in Behaviour Research & Therapy, 1*(4), 139-161.

Barroso, N. E., Mendez, L., Graziano, P. A., & Bagner, D. M. (2018). Parenting Stress through the Lens of Different Clinical Groups: a Systematic Review & Meta-Analysis. *other, 46*(3).

Belsky, J. (1984). The determinants of parenting: a process model. *Child Dev, 55*(1), 83-96. doi:10.1111/j.1467-8624.1984.tb00275.x

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: an updated systematic review. *Ann Intern Med, 155*(2), 97-107. doi:10.7326/0003-4819-155-2-201107190-00005

Bie, W., Qin, Y., Wang, Y., Qin, Q., & Yang, M. (2017). Research progress on the self-efficacy of maternal parenting. *Chinese General Practice Nursing, 15*(8), 3473-3476.

Bloomfield, L., & Kendall, S. (2012). Parenting self-efficacy, parenting stress and child behaviour before and after a parenting programme. *Prim Health Care Res Dev, 13*(4), 364-372. doi:10.1017/s1463423612000060

Bornstein, M. H. (2002). *Handbook of Parenting: Practical Issues in Parenting Volume 5*: Lawrence Erlbaum Associates, Inc., 10 Industrial Avenue, Mahwah, NJ 07430-2262 ($160). Tel: 800-926-6579 (Toll Free); Tel: 201-236-9500; Fax: 201-760-3735; e-mail: orders@erlbaum.com; Web site: http://www.erlbaum.com.

Brandstetter, S., Atzendorf, J., Seelbach-Göbel, B., Melter, M., Kabesch, M., & Apfelbacher, C. (2020). Sociodemographic factors associated with health literacy in a large sample of mothers of newborn children: cross-sectional findings from the KUNO-Kids birth cohort study. *Eur J Pediatr, 179*(1), 165-169. doi:10.1007/s00431-019-03483-9

Buhr, E. d., & Tannen, A. (2020). Parental health literacy and health knowledge, behaviours and outcomes in children: a cross-sectional survey. *BMC Public Health, 20*(1), 1096. doi:10.1186/s12889-020-08881-5

Cassells, R. C., & Evans, G. W. (2017). *Ethnic Variation in Poverty and Parenting Stress*: Parental Stress and Early Child Development.

Celano, M., Klinnert, M. D., Holsey, C. N., & McQuaid, E. L. (2011). Validity of the Family Asthma Management System Scale with an urban African-American sample. *J Pediatr Psychol, 36*(5), 576-585. doi:10.1093/jpepsy/jsp083

Chang, M., Kong, Y., Shang, W., zhao, X., Wei, Z., & Guiling, Y. (2019). Construction of competency evaluation index system for primary caregivers of preterm infants in neonatal intensive care unit. *Chinese Journal of Practical Nursing, 035*(007), 519-524.

Chen, L., & Jing, L. (2017). Investigation of Anxiety of Family Members of Children with Severe Pneumonia and Logistic Regression Analysis of Influencing Factors. *Journal of Preventive Medicine of Chinese People's Liberation Army, 35*(07), 799-801.

Chen, L., & Liu, J. (2017). Investigation of anxiety status of family members of children with severe pneumonia and logistic regression analysis of its influencing factors. *Journal of preventive medicine of PLA, 35*(007), 799-801.

Chung, K. M., Ebesutani, C., Bang, H. M., Kim, J., & Byun, H. (2013). Parenting Stress and Child Behavior Problems Among Clinic-Referred Youth: Cross-Cultural Differences Across the US and Korea. *Child Psychiatry Hum Dev, 44*(3).

Cohen, S., & Janicki-Deverts, D. (2012). Who's Stressed? Distributions of Psychological Stress in the United States in Probability Samples from 1983, 2006, and 2009. *Journal of Applied Social Psychology, 42*(6), 1320-1334.

Coleman, Priscilla, K., Karraker, & Katherine. (2000). Parenting Self-Efficacy Among Mothers of School-Age Children: Conceptualization, Measurement, and Correlates. (cover story). *Family Relations*.

Coleman, P. K., & Karraker, K. H. (1998). Self-Efficacy and Parenting Quality: Findings and Future Applications. *Developmental Review, 18*(1), 47-85.

Conger, R. D., & Donnellan, M. B. (2007). An Interactionist Perspective on the Socioeconomic Context of Human Development. *Social Science Electronic Publishing, 58*(1), 175-199.

Cooklin, A. R., Giallo, R., & Rose, N. (2012). Parental fatigue and parenting practices during early childhood: an Australian community survey. *Child Care Health & Development, 38*(5), 654-664.

Cousino, M. K., & Hazen, R. A. (2013). Parenting Stress Among Caregivers of Children With Chronic Illness: A Systematic Review. *J Pediatr Psychol, 38*(8), 809-828.

Craig, F., Operto, F. F., Giacomo, A. D., Margari, L., Frolli, A., Conson, M., . . . Margari, F. (2016). Parenting stress among parents of children with Neurodevelopmental Disorders. *Psychiatry Research, 242*, 121-129.

Crnic, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. B. (1983). Effects of stress and social support on mothers and premature and full-term infants. *Child Dev, 54*(1), 209-217.

Crugnola, C. R., Ierardi, E., Ferro, V., Gallucci, M., Parodi, C., & Astengo, M. (2016). Mother-Infant Emotion Regulation at Three Months: The Role of Maternal Anxiety, Depression and Parenting Stress. *Psychopathology, 49*(4), 285.

Cui, Y., & Yang, S. (2017). *Pediatric nursing* (Version 6 ed.). Beijing: People's Medical Publishing House.

Daggett, J., O'Brien, M., Zanolli, K., & Peyton, V. (2000). Parents' attitudes about children: associations with parental life histories and child-rearing quality. *J Fam Psychol, 14*(2), 187-199. doi:10.1037//0893-3200.14.2.187

Darling, N., & Steinberg, L. (1993). Parenting Style as Context: An Integrative Model. *Psychological Bulletin, 113*(3), 487-496. doi:10.1037/0033-2909.113.3.487

Deater-Deckard, & Kirby. (1998). Parenting Stress and Child Adjustment: Some Old Hypotheses and New Questions. *Clinical Psychology: Science and Practice, 2*, 314-332.

Deater-Deckard, K. (2008). Parenting Stress. *Yale University Press*.

Deng, Y. (2012). The relationship between platelet count monitoring and prognosis in children with severe pneumonia. *Practical Preventive Medicine*(01), 79-80.

DeWalt, D. A., Dilling, M. H., Rosenthal, M. S., & Pignone, M. P. (2007). Low parental literacy is associated with worse asthma care measures in children. *Ambul Pediatr, 7*(1), 25-31. doi:10.1016/j.ambp.2006.10.001

DeWalt, D. A., & Hink, A. (2009). Health literacy and child health outcomes: a systematic review of the literature. *Pediatrics, 124 Suppl 3*, S265-274. doi:10.1542/peds.2009-1162B

Du, Z. W., Han, M. H., Huang, Y. Y., & Zhang, l. X. (2020). Correlation analysis of primary caregivers' social support and care burden in infants with bronchopneumonia. *Journal of Qilu Nursing, v.26;No.471*(03), 48-50.

Elena, S., Hanna, S., O'Reilly, M. A., Salt, A. T., & Dale, N. J. (2018). Parenting stress, anxiety, and depression in mothers with visually impaired infants: a cross - sectional and longitudinal cohort analysis. *Developmental Medicine and Child Neurology*.

Erfina, E., Widyawati, W., McKenna, L., Reisenhofer, S., & Ismail, D. (2019). Adolescent mothers' experiences of the transition to motherhood: An integrative review. *Int J Nurs Sci, 6*(2), 221-228. doi:10.1016/j.ijnss.2019.03.013

Feligreras-Alcalá, D., Frías-Osuna, A., & Del-Pino-Casado, R. (2020). Personal and Family Resources Related to Depressive and Anxiety Symptoms in Women during Puerperium. *Int J Environ Res Public Health, 17*(14). doi:10.3390/ijerph17145230

Fleary, S., Heffer, R. W., Mckyer, E. L., & Taylor, A. (2014). A Parent-Focused Pilot Intervention to Increase Parent Health Literacy and Healthy Lifestyle Choices for Young Children and Families. *Isrn Family Medicine, 2013*(6), 619389.

Franco, L. M., Pottick, K. J., & Huang, C. C. (2010). Early parenthood in a community context: neighborhood conditions, race–ethnicity, and parenting stress. *Journal of Community Psychology, 38*(5).

Friedman, H. S. (2011). *The Oxford handbook of health psychology*. Oxford: Oxford University Press.

Fry-Bowers, E. K., Maliski, S., Lewis, M. A., Macabasco-O'Connell, A., & DiMatteo, R. (2014). The association of health literacy, social support, self-efficacy and interpersonal interactions with health care providers in low-income Latina mothers. *J Pediatr Nurs, 29*(4), 309-320. doi:10.1016/j.pedn.2014.01.006

Fu, C., & Tang, L. (2020). A qualitative study on maternal care experience and needs of infants with whooping cough syndrome. *Tianjin Journal of Nursing, 28*(05), 51-53.

Garcia, A. S., Carotta, C. L., Brown, R., Rosa, P. D., Pravecek, B., & Carson, P. (2021). Parenting stress, self-efficacy and COVID-19 health risks as predictors of general stress among nurses. *International Journal of Nursing Practice*.

GBD 2019 Diseases and Injuries Collaborators. (2020). Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet, 396*(10258), 1204-1222. doi:10.1016/s0140-6736(20)30925-9

Giallo, R., Treyvaud, K., Cooklin, A., & Wade, C. (2013). MothersБ─≥ and fathersБ─≥ involvement in home activities with their children: psychosocial factors and the role of parental self-efficacy. *Early Child Development and Care*.

Golfenshtein, N., Hanlon, A. L., Deatrick, J. A., & Medoff-Cooper, B. (2017). Parenting Stress in Parents of Infants With Congenital Heart Disease and Parents of Healthy Infants: The First Year of Life. *Compr Child Adolesc Nurs, 40*(4), 294-314. doi:10.1080/24694193.2017.1372532

Golfenshtein, N., Hanlon, A. L., Deatrick, J. A., & Medoff-Cooper, B. (2021). Maternal parenting stress changes over the first year of life in infants with complex cardiac defects and in healthy infants. *Cardiology in the Young*, 1-7.

Golfenshtein, N., Srulovici, E., & Medoff-Cooper, B. (2015). Investigating Parenting Stress across Pediatric Health Conditions - A Systematic Review. *Issues Compr Pediatr Nurs*, 1-49. doi:10.3109/01460862.2015.1078423

Gray, W. N., Boyle, S. L., Graef, D. M., Janicke, D. M., Jolley, C. D., Denson, L. A., . . . Hommel, K. A. (2015). Health-related quality of life in youth with Crohn disease: role of disease activity and parenting stress. *J Pediatr Gastroenterol Nutr, 60*(6), 749-753. doi:10.1097/mpg.0000000000000696

Grunberg, V. A., Geller, P. A., & Patterson, C. A. (2020). Infant illness severity and family adjustment in the aftermath of NICU hospitalization. *Infant Ment Health J, 41*(3), 340-355.

Grunberg, V. A., Geller, P. A., & Patterson, C. A. (2020). Infant illness severity and family adjustment in the aftermath of NICU hospitalization. *Infant Ment Health J, 41*(3), 340-355. doi:10.1002/imhj.21848

Guan, X., Silk, B. J., Li, W., Fleischauer, A. T., Xing, X., Jiang, X., . . . Cohen, A. L. (2010). Pneumonia incidence and mortality in Mainland China: systematic review of Chinese and English literature, 1985-2008. *PLoS One, 5*(7), e11721. doi:10.1371/journal.pone.0011721

Harris, M., Clark, J., Coote, N., Fletcher, P., Harnden, A., McKean, M., & Thomson, A. (2011). British Thoracic Society guidelines for the management of community acquired pneumonia in children: update 2011. *Thorax, 66 Suppl 2*, ii1-23. doi:10.1136/thoraxjnl-2011-200598

He, C., Kang, L., Miao, L., Li, Q., Liang, J., Li, X., . . . Zhu, J. (2015). Pneumonia Mortality among Children under 5 in China from 1996 to 2013: An Analysis from National Surveillance System. *PLoS One, 10*(7), e0133620. doi:10.1371/journal.pone.0133620

Heerman, W. J., Lounds-Taylor, J., Mitchell, S., & Barkin, S. L. (2018). Validity of the toddler feeding questionnaire for measuring parent authoritative and indulgent feeding practices which are associated with stress and health literacy among Latino parents of preschool children. *Nutrition Research, 49*, 107-112.

Hodgkinson, R., & Lester, H. (2002). Stresses and coping strategies of mothers living with a child with cystic fibrosis: implications for nursing professionals. *J Adv Nurs, 39*(4), 377-383. doi:10.1046/j.1365-2648.2002.02299.x

Holloway, Susan, D., Suzuki, Sawako, Yamamoto, . . . Kazukoy. (2005). Parenting Self-Efficacy Among Japanese Mothers. *Journal of Comparative Family Studies, 36*(1), 61-76.

Hou, X. (2016). Investigation on parental education pressure and influencing factors of children with developmental mental disorders. *Chinese Journal of Modern Nursing*(13), 3.

Hu, J. (2020). Mediating effect of social support on the relationship between care burden and self-efficacy of primary caregivers of children with bronchopneumonia. *International Journal of Nursing Practice, 39*(13), 5.

Huang, B. H., Zhang, S. J., Zou, L. J., & Hou, S. C. (2018). Health Literacy Tool Shed Database-based analysis of health literacy assessment scales. *Chinese Journal of Medical Library and Information Science, 27*(8), 38-42.

Hugill, M., Berry, K., & Fletcher, I. (2017). The association between historical childhood sexual abuse and later parenting stress: a systematic review. *Arch Womens Ment Health, 20*(2), 257-271. doi:10.1007/s00737-016-0708-3

Huizink, A. C., Menting, B., De Moor, M. H. M., Verhage, M. L., Kunseler, F. C., Schuengel, C., & Oosterman, M. (2017). From prenatal anxiety to parenting stress: a longitudinal study. *Arch Womens Ment Health, 20*(5), 663-672. doi:10.1007/s00737-017-0746-5

Jandri, S., & Kurtovi, A. (2021). Parenting Sense of Competence in Parents of Children with and without Intellectual Disability. *Europe's Journal of Psychology, 17*(2), 75-91.

Jiang, Z. (2010). *Practical Pediatric Respiratory Medicine*: People's Medical Publishing House.

Jiang, Z., Shen, K., & Shen, Y. (2015). *Futang Zhu practical pediatrics* (8 ed.).

Jieluo, Wang, M., Gao, Y., Zeng, H., & ShisanQi. (2021). Refining the Parenting Stress Index Short Form (PSI-SF) in Chinese Parents. *Assessment, 28*(2), 551-566. doi: 510.1177/1073191119847757. Epub 1073191119842019 May 1073191119847759. PMID: 1073191131072108.

Jun-juan, Z., Li-juan, X., Yu-zhen, L., Ling-juan, M., Sheng-qian, Y., & Jun-jing, Z. (2016). Analysis on Correlation of Red Blood Cell Volume Distribution Width with Recent Prognosis of Children with Severe Pneumonia. *Advances in modern biomedicine, 16*(22), 4314-4317.

Kendall, S., & Bloomfield, L. (2010). Developing and validating a tool to measure parenting self-efficacy. *J Adv Nurs, 51*(2), 174-181.

Kim, M. B., Kim, J. H., Lee, K. H., Hong, S. C., Lee, H. S., & Kang, J. W. (2017). The association between the parenting stress of the mother and the incidence of allergic rhinitis in their children. *Int J Pediatr Otorhinolaryngol, 101*, 37-40. doi:10.1016/j.ijporl.2017.07.023

Laura, P., Clarissa, F., & Alberto, G. (2018). Psychometric Properties of the Italian Perceived Maternal Parenting Self-Efficacy (PMP S-E). *Journal of Clinical Psychology in Medical Settings, 26*, 173-182.

Laura, V., Luca, R., Francesca, A., Cristina, S., Valentina, F., Sara, M., . . . Annamaria, T. (2016). Perinatal Parenting Stress, Anxiety, and Depression Outcomes in First-Time Mothers and Fathers: A 3- to 6-Months Postpartum Follow-Up Study. *Front Psychol*.

Leach, M. J., Nichols, S., Trenholm, S., & Jones, M. (2021). Health Literacy of Parents and Carers in a Regional Community: A Cross-Sectional Study. *Int Q Community Health Educ*, 272684X211022572. doi:10.1177/0272684X211022572

Lee, J. Y., Murry, N., Ko, J., & Kim, M. T. (2018). Exploring the Relationship between Maternal Health Literacy, Parenting Self-Efficacy, and Early Parenting Practices among Low-Income Mothers with Infants. *Journal of Health Care for the Poor and Underserved, 29*(4), 1455-1471.

Leigh, B. (2008). Risk factors for antenatal depression, postnatal depression and parenting stress. *Bmc Psychiatry, 8*.

Li, D., Wang, J. B., Zhang, Z. Y., Shen, P., Zheng, P. W., Jin, M. J., . . . Chen, K. (2018). Effects of air pollution on hospital visits for pneumonia in children: a two-year analysis from China. *Environ Sci Pollut Res Int, 25*(10), 10049-10057. doi:10.1007/s11356-018-1192-2

Li, L., Su, L., Qiang, W., & Zheng, X. (2019). The effect of parental general self-efficacy on parental stress in children with malignant solid tumor. *Chinese Journal of Practical Nursing, 35*(19), 5.

Li, X. (2011). Nursing intervention of pediatric pneumonia complicated with heart failure. *Journal of Nurse Development, 26*(016), 1530-1531.

Liu, L., Johnson, H. L., Cousens, S., Perin, J., Scott, S., Lawn, J. E., . . . Black, R. E. (2012). Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet, 379*(9832), 2151-2161. doi:10.1016/s0140-6736(12)60560-1

Loyd, B. H., & Abidin, R. R. (1985). Revision of the Parenting Stress Index. *J Pediatr Psychol, 10*(2), 169-177.

Lozano, R., Naghavi, M., Foreman, K., Lim, S., Shibuya, K., Aboyans, V., . . . Memish, Z. A. (2012). Global and regional mortality from 235 causes of death for 20 age

groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet, 380*(9859), 2095-2128. doi:10.1016/s0140-6736(12)61728-0

Mandell, I. M., Bynum, F., Marshall, L., Bart, R., Gold, J. I., & Rubin, S. (2015). Pediatric Early Warning Score and unplanned readmission to the pediatric intensive care unit. *Journal of Critical Care*, 1090-1095.

Mause, L., Hoffmann, J., Reimer, A., Dresbach, T., Horenkamp-Sonntag, D., Klein, M., & Scholten, N. (2021). Trust in medical professionals and its influence on the stress experience of parents of premature infants. *Acta Paediatrica*.

Mccloskey, R. J., & Pei, F. (2019). The role of parenting stress in mediating the relationship between neighborhood social cohesion and depression and anxiety among mothers of young children in fragile families. *Journal of Community Psychology*.

McQuillan, M. E., Bates, J. E., Staples, A. D., & Deater-Deckard, K. (2019). Maternal stress, sleep, and parenting. *J Fam Psychol, 33*(3), 349-359. doi:10.1037/fam0000516

McStay, R. L., Dissanayake, C., Scheeren, A., Koot, H. M., & Begeer, S. (2014). Parenting stress and autism: the role of age, autism severity, quality of life and problem behaviour of children and adolescents with autism. *Autism, 18*(5), 502-510. doi:10.1177/1362361313485163

Min, B. K., Kim, J. H., Lee, K. H., Hong, S. C., & Kang, J. W. (2017). The association between the parenting stress of the mother and the incidence of allergic rhinitis in their children. *Int J Pediatr Otorhinolaryngol, 101*.

Misri, S., Kendrick, K., Oberlander, T. F., Norris, S., Tomfohr, L., Zhang, H., & Grunau, R. E. (2010). Antenatal depression and anxiety affect postpartum parenting stress: a longitudinal, prospective study. *Can J Psychiatry, 55*(4), 222-228. doi:10.1177/070674371005500405

Moe, V., von Soest, T., Fredriksen, E., Olafsen, K. S., & Smith, L. (2018). The Multiple Determinants of Maternal Parenting Stress 12 Months After Birth: The Contribution of Antenatal Attachment Style, Adverse Childhood Experiences, and Infant Temperament. *Front Psychol, 9*, 1987. doi:10.3389/fpsyg.2018.01987

Morrison, A. K., Myrvik, M. P., Brousseau, D. C., Hoffmann, R. G., & Stanley, R. M. (2013). The relationship between parent health literacy and pediatric emergency department utilization: a systematic review. *Acad Pediatr, 13*(5), 421-429. doi:10.1016/j.acap.2013.03.001

Morrison, A. K., Schapira, M. M., Gorelick, M. H., & Hoffmann, R. G. (2014). Low Caregiver Health Literacy Is Associated With Higher Pediatric Emergency Department Use and Nonurgent Visits. *Acad Pediatr, 14*(3), 309-314.

Mouton, P. Y., & Tuma, J. M. (1988). Stress, Locus of Control, and Role Satisfaction in Clinic and Control Mothers. *Journal of Clinical Child Psychology, 17*(3), 217-224.

Mulsow, M., Caldera, Y. M., Pursley, M., & Huston, R. A. C. (2010). Multilevel Factors Influencing Maternal Stress During the First Three Years. *Journal of Marriage and Family, 64*(4), 944-956.

Nam, Y., Wikoff, N., & Sherraden, M. (2013). Racial and Ethnic Differences in Parenting Stress: Evidence from a Statewide Sample of New Mothers. *Journal of Child & Family Studies, 24*(2), 1-11.

Neece, C. L., Green, S. A., & Baker, B. L. (2012). Parenting stress and child behavior problems: a transactional relationship across time. *Am J Intellect Dev Disabil, 117*(1), 48-66. doi:10.1352/1944-7558-117.1.48

Nieman, P., Shea, S., Society, C. P., & Committee, C. P. (2004). Effective discipline for children. *Paediatrics & Child Health*(1), 1.

Nomaguchi, K. M., & Brown, S. L. (2011). Parental Strains and Rewards among Mothers: The Role of Education. *Journal of Marriage and Family, 73*.

Nutbeam, D. (1986). Health promotion glossary. *Health Promot, 1*(1), 113-127. doi:10.1093/heapro/1.1.113

Parkes, A., Sweeting, H., & Wight, D. (2015). Parenting Stress and Parent Support Among Mothers With High and Low Education. *Journal of Family Psychology, 29*(6), 907-918.

Pinquart, M. (2018). Parenting stress in caregivers of children with chronic physical condition-A meta-analysis. *Stress Health, 34*(2), 197-207. doi:10.1002/smi.2780

Qian Li, Qiong Han, & Zhao, F.-y. (2018). Relationship among fatigue status, perceived stress and perceived social support in mothers of hospitalized children with pneumonia. *34*(2), 229-232.

Raikes, H. A., & Thompson, R. A. (2010). Efficacy and social support as predictors of parenting stress among families in poverty. *Infant Ment Health J, 26*(3), 177.

Raphael, J. L., Zhang, Y., Liu, H., & Giardino, A. P. (2010). Parenting stress in US families: implications for paediatric healthcare utilization. *Child Care Health Dev, 36*(2), 216-224.

Ren, J., Li, X., Chen, S., Chen, S., & Nie, Y. (2020). The Influence of Factors Such as Parenting Stress and Social Support on the State Anxiety in Parents of Special Needs Children During the COVID-19 Epidemic. *Front Psychol, 11*, 565393. doi:10.3389/fpsyg.2020.565393

Rha, B., Curns, A. T., Lively, J. Y., Campbell, A. P., Englund, J. A., Boom, J. A., . . . Gerber, S. I. (2020). Respiratory Syncytial Virus-Associated Hospitalizations Among Young Children: 2015-2016. *Pediatrics, 146*(1). doi:10.1542/peds.2019-3611

Richard, R., Abidin, & Wilfong, E. M. (1985). Parenting Stress: Maternal & Child Health Correlates. *Reports*.

Rivard, M., Terroux, A., Parent-Boursier, C., & Mercier, C. (2014). Determinants of stress in parents of children with autism spectrum disorders. *J Autism Dev Disord, 44*(7), 1609-1620. doi:10.1007/s10803-013-2028-z

Scher, A., & Sharabany, R. (2005). Parenting anxiety and stress: does gender play a part at 3 months of age? *J Genet Psychol, 166*(2), 203-213. doi:10.3200/gntp.166.2.203-214

Scott Schieman, P. G., Melissa A Milkie. (2009). When Work Interferes with Life: Work-Nonwork Interference and the Influence of Work-Related Demands and Resources. *American Sociological Review, 74*(6), p.966-988.

Simonds, S. K. (1974). Health Education as Social Policy. *Health Education & Behavior, 2*(1), 1-10.

Sleath, B. L., Jackson, E., Thomas, K. C., Galloway, J., Dumain, L., Thorpe, J., . . . Morrissey, J. (2006). Literacy and perceived barriers to medication taking

among homeless mothers and their children. *Am J Health Syst Pharm, 63*(4), 346-351. doi:10.2146/ajhp050070

Streisand, R., Swift, E., Wickmark, T., Chen, R., & Holmes, C. S. (2005). Pediatric parenting stress among parents of children with type 1 diabetes: the role of self-efficacy, responsibility, and fear. *J Pediatr Psychol, 30*(6), 513-521. doi:10.1093/jpepsy/jsi076

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics (5th ed.)*: Pearson/Allyn & Bacon.

Tang, Y., & Wang, X. (2014). Investigation of parental stress and its influencing factors in children with cerebral palsy. *Chinese Journal of Modern Nursing*(13), 4.

Tannous, S., Kassem, E., Obolski, U., Jbali, A., Na'Amnih, W., Kagan, V., . . . Muhsen, K. (2022). Incidence and risk factors of hospitalisations for respiratory syncytial virus among children aged less than 2 years. *Epidemiology and Infection, 150*, e45-.

Taubman-Ben-Ari, O., Ben-Yaakov, O., & Chasson, M. (2021). Parenting Stress among New Parents Before and During the COVID-19 Pandemic. *Child Abuse Negl*.

The British Council Project. (2013). The Tool to Measure Parental Self-efficacy. Retrieved from http://www.topse.org.uk

Thwaites, R., Buchan, S., Fullarton, J., Morris, C., Grubb, E., Rodgers-Gray, B., & Coutts, J. (2020). Clinical burden of severe respiratory syncytial virus infection during the first 2 years of life in children born between 2000 and 2011 in Scotland. *Eur J Pediatr, 179*(5), 791-799. doi:10.1007/s00431-019-03564-9

Tokunaga, A., Iwanaga, R., Yamanishi, Y., Higashionna, T., Tanaka, K., Nakane, H., & Tanaka, G. (2019). Relationship between parenting stress and children's behavioral characteristics in Japan. *Pediatr Int, 61*(7), 652-657. doi:10.1111/ped.13876

Tom, D. M., Aquino, C., Arredondo, A. R., & Foster, B. A. (2017). Parent Preferences for Shared Decision-making in Acute Versus Chronic Illness. *Hosp Pediatr, 7*(10), 602-609. doi:10.1542/hpeds.2017-0049

Tsotsi, S., Broekman, B. F. P., Sim, L. W., Shek, L. P., & Rifkin-Graboi, A. (2019). Maternal Anxiety, Parenting Stress, and Preschoolers Behavior Problems. *Journal of Developmental & Behavioral Pediatrics, 40*(9), 696-705.

Tsotsi, S., Broekman, B. F. P., Sim, L. W., Shek, L. P., Tan, K. H., Chong, Y. S., . . . Rifkin-Graboi, A. (2019). Maternal Anxiety, Parenting Stress, and Preschoolers' Behavior Problems: The Role of Child Self-Regulation. *J Dev Behav Pediatr, 40*(9), 696-705. doi:10.1097/dbp.0000000000000737

Uematsu, H., Kunisawa, S., Yamashita, K., Fushimi, K., & Imanaka, Y. (2016). Impact of weekend admission on in-hospital mortality in severe community-acquired pneumonia patients in Japan. *Respirology, 21*(5), 905-910. doi:10.1111/resp.12788

Vance, A. J., & Brandon, D. H. (2017). Delineating Among Parenting Confidence, Parenting Self-Efficacy, and Competence. *ANS. Advances in nursing science*, 1.

Vance, A. J., Pan, W., Malcolm, W. H., & Brandon, D. H. (2019). Development of parenting self-efficacy in mothers of high-risk infants. *Early human development, 141*, 104946.

Vierhaus, M., Lohaus, A., Schmitz, A.-K., & Schoppmeier, M. (2013). Relationships between Maternal Parenting Stress and Reports on Children's Internalizing and Externalizing Problems: A Cross-Lagged Structural Equation Model. *Journal of Educational and Developmental Psychology, 3*.

Wang, Y., Huang, Z., & Kong, F. (2020). Parenting stress and life satisfaction in mothers of children with cerebral palsy: The mediating effect of social support. *J Health Psychol, 25*(3), 416-425. doi:10.1177/1359105317739100

William, W. K., & Zung, M. D. (1971). A rating instrument for anxiety disorders. *Psychosom, 12*(6), 371-379.

Williford, A. P., Calkins, S. D., & Keane, S. P. (2007). Predicting change in parenting stress across early childhood: child and maternal factors. *J Abnorm Child Psychol, 35*(2), 251-263. doi:10.1007/s10802-006-9082-3

Xiao, S. Y. (1994). The theoretical basis and research application of《Social Support Rating Scale》. *Journal of Clinical Psychological Medicine, 004*(002), 98-100.

Yang, S., Zou, X., Xia, A., & Pan, G. (2019). A study on the correlation between parental stress and mothers' perceived vulnerability in children with congenital heart disease. *Chinese Journal of Modern Nursing, 25*(26), 4.

Yeh, Chen, M. L., Chuang, H. L., & C-H. (2010). The Chinese version of the Parenting Stress Index: a psychometric study. *Acta Pdiatrica, 90*(12), 1470-1477.

Yen, C. F., Chen, Y. M., Cheng, J. W., Liu, T. L., Huang, T. Y., Wang, P. W., . . . Chou, W. J. (2014). Effects of Cognitive-Behavioral Therapy on Improving Anxiety Symptoms, Behavioral Problems and Parenting Stress in Taiwanese Children with Anxiety Disorders and Their Mothers. *Child Psychiatry Hum Dev, 45*(3), 338-347.

Yin, H. S., Dreyer, B. P., Foltin, G., van Schaick, L., & Mendelsohn, A. L. (2007). Association of low caregiver health literacy with reported use of nonstandardized dosing instruments and lack of knowledge of weight-based dosing. *Ambul Pediatr, 7*(4), 292-298. doi:10.1016/j.ambp.2007.04.004

Yu, W. F., Wang, Y. M., Chen, L. P., & Zhao, R. B. (2010). Investigation of psychological status of family members of children with PICU and nursing intervention. *Journal of Qilu Nursing, 16*(030), 41-42.

Zhang. (2015). *Anxiety and depression in parents of children in neonatal intensive care unit and its influencing factors.*

Zhang, M., Liu, G., Liu, G., Ge, P., Xu, Y., Lin, Y., . . . Huang, Y. (2018). Application of video education combined with feedback method in continuing health education for parents of premature infants. *Strait Journal of Preventive Medicine, 24*(3), 79-81.

Zhang, Y., Li, M., Jiang, H., Shi, H., & Qian, X. (2019). Development and Validation of a Chinese Parental Health Literacy Questionnaire for Caregivers of Children 0 to 3 Years Old. *BMC Pediatr, 19*(1), 293.

Zhao. (2015). The effect of communication skills on the improvement of negative emotions of parents of children with pneumonia. *shenzhen journal of integrated traditional chinese and western medicine, 25*(6), 187-188.

Zhou, M., Wang, H., Zhu, J., Chen, W., Wang, L., Liu, S., . . . Liang, X. (2016). Cause-specific mortality for 240 causes in China during 1990-2013: a systematic

subnational analysis for the Global Burden of Disease Study 2013. *Lancet, 387*(10015), 251-272. doi:10.1016/s0140-6736(15)00551-6

Zhou, Y., Yin, H., Wang, M., Wang, J., & Cheng, Q. (2017). Correlation between Family Function and Parenting Self-Efficacy in Caregivers of Children with Autism Spec-trum Disorder. *Chinese Journal of Rehabilitation Theory and Practice, 23*(4), 465-469.

APPENDIX

APPENDIX A

Instruments (English version)

General Information for Infants

Gender: □male □ female

Weight: kg

Embryonic age: week

Ranking of siblings: □ boss □ second □ old

Admitted to hospital for the first time: □Yes □ No

Past medical history: □ No □ Yes

Type of disease:

Severity of illness:

Medical expenses payment: □ farmers health insurance (health) □ new medical insurance (agricultural insurance) □ □ other at his own expense

General information about the mother

Age:

Professional:

Education degree: □ university □ primary school □ junior high school

□ high school above

Current employment situation: □ not □ part-time □ full-time employment

Marital status: married □ □ married separation □ divorce □ widowed

Average mothers income monthly: □ less than RMB 2000 □ 2000 yuan - 4000 yuan □ 4000 yuan - 6000 yuan □ 6000 yuan - 8000 yuan □ 8000 yuan - 10000 yuan, □ 10000 yuan of above

Average family income monthly: □ less than RMB 2000 □ 2000 yuan - 4000 yuan □ 4000 yuan - 6000 yuan □ 6000 yuan - 8000 yuan □ 8000 yuan - 10000 yuan, □ 10000 yuan of above

Main source of household income: □ husband paid □ own □ □ other husband and their wages

Types of family: □ couples live with children (family) □ husband and wife, children and live with my grandparents (three generations of the family) □ husband and wife, children, grandparents and other relatives live together (family) □ living with themselves and their children (single parent family)

Family human relationships: □ harmony □ generally □ not harmonious

Number of brothers and sisters: □ No □ one □ two □three or more

Number of children: □ No □ one □ two □three or more

You take care of the children every day time (except bedtime) : □ less than 3 hours

□ 3 to 6 hours □ greater than 6 hours

Family history of psychiatric pathology:

Chinese Parental Health Literacy Questionnaire (CPHLQ)

Section 1: Scientific Feeding

1. Do you know that "exclusive breastfeeding" is best continued until the child is old? (Exclusive breastfeeding: the absence of any liquid or solid food other than breast milk; or to give a baby vitamins , water, fruit juice in addition to breast milk, but not more than one or two times a day, no more than 1 or 2 bites at a time)

□ Know months :

□ Don't know

2. How long would your baby be "exclusively breastfed" (fed only breast milk without any other drinks or food) in an ideal situation?

□ Never breastfed

□ Less than a week

□ Weeks:

□ Months:

□ Don't know

3. Which of the following methods can improve or reduce the baby's allergic symptoms (such as the occurrence of eczema? (Multiple options)

□ Exclusive breastfeeding until at least 4-6 months after birth

□ When breastfeeding is not possible, choose formula that is partially or deeply hydrolyzed under the guidance of your doctor

□ After the addition of complementary food, a small amount of food was introduced, observed for a few days without allergy, and then another kind was added

□ 4 months before adding side dish as soon as possible

□ Don't know

4. If the baby often allergies (such as eczema), as a parent, what do you think should be done? (Multiple options)

□ Go to the pharmacy to buy medicine or ointment to treat allergies, and give your baby to eat or smear

□ Go to the hospital in time for treatment

□ Under the guidance of, and to adjust the feeding method of the baby

□ Doesn't matter, do not take measures

□ Don't know

5. How easy do you think it is to obtain professional information related to infant and young child feeding?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

6. In order to raise your baby scientifically, will you choose to use information obtained from medical institutions or doctors as guidance?

□ Always

□ Often

□ Sometimes

□ Almost never

□ Don't know

7. Do you think about the reliability of child rearing information from different sources (such as the Internet, TV, medical institutions, etc.)? (For example, whether the information source is authoritative and whether the conclusions are based on sufficient evidence)

□ Always

□ Often

□ Sometimes

□ Almost never

□ Don't know

Section 2 - Accidental injuries

1. Do you know the preventive measures of accidental injury to children? ① I know very much about it. ④ I don't know much about it.

Items	1	2	3	4
The traffic accident				
Tumble				
Burns				
Injury (bruise, blunt instrument cut, etc.)				
Foreign body in eyes, ears and nose				

2. Do you know the coping methods or first aid measures of accidental injury to children? ① I don't know much about it. ④ I don't know much about it.

Items	1	2	3	4
The traffic accident				
Tumble				
Bburns				
Injury (bruise, blunt instrument cut, etc.)				
Foreign body in eyes, ears and nose				

3. How easy is it for you to obtain information related to "Child Accidental Injury Prevention and Emergency Management"?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

4. In the past year, have the following situations occurred in your family and children?

Items	always	often	Some-times	Almost never	Don't know
Adults test the water temperature before bathing the child					
When drinking water (or brewing milk powder), make sure the temperature is appropriate before letting the child eat					
When eating, keep hot food out of reach of children					
Keep hot kettles, lighters, etc. out of reach of children					

Section 3 - Common nutritional problems in children

1. What are the common manifestations of iron deficiency in children? (Multiple options)

□ Complexion pale (lips, eyelids, nails, the most obvious)

□ Appetite

□ Irritable

□ Fatigue

□ Unclear

2. What are the common symptoms of vitamin D deficiency in children? (Multiple options)

□ Easy to wake up at night, sweating

□ Pillow bald

□ Muscle relaxation

□ Serious, after a type O or X leg

□ Unclear

3. If the child is overweight or obese, will it affect his physical and mental health now and in the future? (Multiple options)

□ Have no effect, the child is fat a little healthier

□ Have some effect, the problem is not big

□ The body is affected by bad effects, such as hypertension, hyperlipidemia and elevated blood sugar

□ Affect a child's mental health, such as low self-esteem, low self assessment

don't know

4. How easy is it for you to get information about "common health problems of children (such as iron deficiency, vitamin deficiency, obesity, malnutrition, etc.)"?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

5. Which of the following behaviors may cause childhood obesity? (Multiple options)

□ Eat more vegetables

□ Often eat sweet food

□ Often drink sweetened drinks

□ Often sit and watch TV (or computer) more than two hours

□ Unclear

6. As a parent, what measures can you take to prevent your baby from being malnourished or obese? (Multiple options)

□ Let the baby to eat as much as possible

□ Give your baby a balanced diet every day

□ As little as possible to give the baby to eat Fried food, candy, and sugary drinks

□ Accompany the baby often participate in physical exercise

□ Unclear

7. In order not to let your baby suffer from vitamin and mineral deficiency, as a parent, what preventive measures can you take? (Multiple options)

□ Regular physical examination, early detection

□ Give adequate dietary

□ Accompany the baby often participate in physical exercise

□ When necessary, under the guidance of, and vitamin mineral preparation

□ Unclear

Section 4 : Visual acuity and oral health of children

1. Can early detection and intervention of children's vision problems (such as strabismus, amblyopia, myopia) improve their vision in the future?

□ Yes

□ Maybe, not sure

□ No

2. If a child's deciduous teeth have cavities, they do not need treatment, because the permanent teeth (i.e. the "second set of teeth") will be better. Is this sentence correct?

□ Right

□ Maybe, not sure

□ Wrong

3. Which of the following factors may cause children's vision problems (myopia, strabismus, amblyopia, etc.)? (Multiple options)

□ Sunshine

□ Parents' vision

□ Picky eaters

□ Play mobile phone, computer long time

□ Unclear

4. Which of the following behaviors may cause dental caries in children? (Multiple options)

□ Rinse your mouth after meals

□ Always eat sweets, cakes, etc

□ Brush your teeth every day

□ Contain the pacifier or drink milk before sleep

□ Unclear

5. As a parent, what measures do you think can be taken to protect your baby's eyesight? (Multiple options)

□ Make sure your child gets enough sleep

□ Check your baby's eyesight regularly

□ Limit baby time to watch TV, mobile phone

□ Unclear

6. As a parent, what measures will you take to protect your baby's teeth? (Multiple options)

□ Do not contain milk bottle before sleeping, don't eat sweet food

□ 2 years old start brushing your teeth in the morning and evening

□ Rinse your mouth after meals

□ Started once a year at the age of 3 regular inspection

□ Unclear

Section V - Children's vaccination and regular health checks

1. The place that hits precautionary needle produces the symptom such as red and swollen, ache, sclerosis, reaction is slight, recover by oneself inside 1~2 days, these reactions belong to?

□ Normal reactions in general

□ Abnormal reaction

□ Uncertain

2. How easy is it for you to obtain information (such as age and significance of inoculation, etc.) about children's "inoculation"?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

3. After the baby is born, can you always help the baby complete all the "vaccinations" on time in accordance with the prescribed procedures or under the advice of the doctor?

□ Always

□ Often

□ Sometimes

□ Almost never

□ Don't know

4. What do you think is the significance of children's regular physical examination :(multiple options)

□ Timely find problems appeared in the process of children's physical development

□ Timely find problems appeared in the process of children's psychological development

□ It is simply measured height and weight

□ Does not make sense

□ Unclear

5. How easy is it for you to obtain the relevant information (such as time, place, meaning, etc.) of "Children's Health Check-up"?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

6. After the birth of the baby, as a parent, can you ensure that you will take the baby to the corresponding hospital for health examination every time according to the regulations?

□ Always

□ Often

□ Sometimes

□ Almost never

□ Don't know

Section 6 – Common Diseases in Children (Diarrhoea and Pneumonia)

1. What are the common symptoms when children have diarrhea? (Multiple options)

□ The stool is sparse, watery in severe cases

□ More frequently, often more than 3 times

□ May be accompanied by fever, vomiting, etc

□ Dehydration, such as there are less urine, eye socket, dry lips

□ Unclear

2. What are the typical symptoms of pneumonia in child0ren? (Multiple options)

□ High fever, body temperature above 38C

□ Shortness of breath or difficulty

□ Serious cough

□ Abdominal pain

□ Unclear

3. What do you think is the rational use of antibiotics? (Multiple options)

□ No or little use of antibiotics

□ Don't use or yourself to stop in time

□ Use under the guidance of a doctor

□ Buy it at the pharmacy and take it

□ Unclear

4. usually, you can pay attention to the child's physical conditions (such as mental state, temperature, faecal, etc.), to find some common disease symptoms in time?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

5. How easy is it for you to get information about "common diseases such as pneumonia and diarrhea in children"?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

6. one day, a parent found his baby stool number increased, gradually showed water, and color green, sour smell. At this point, what do you think should be done? (Multiple options)

□ Parents to give children eat antidiarrheal

□ Continue to repeated small breastfeeding baby (within 6 months of age), or Feeding food and water (more than 6 months baby)

□ Oral rehydration salts solution to darling

□ Take children go to a doctor as soon as possible

□ Unclear

7. After the baby went to the hospital for treatment due to diarrhea, the doctor suggested that parents should first give him oral rehydration salt solution when the baby has diarrhea in the future. Can you use oral rehydration salts correctly in your daily life?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

8. Can you count the number of breaths a baby takes and think that he may have early pneumonia? (Count the number of breaths: in the quiet state of the baby, by observing the number of breaths in the movement of the baby's chest or abdomen, up and down as one breath, count for 1 minute)

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

9. A baby has a fever due to cold. After the blood test, the report showed an increase in white blood cells and the doctor prescribed antibiotics according to the situation. So, if you are the parent of the baby: can you give the baby antibiotics as prescribed by the doctor?

□ Always

□ Often

□ Sometimes

□ Almost never

□ Don't know

Section 2 - Accidental injuries

1. Do you know the preventive measures of accidental injury to children? ① I know very much about it. ④ I don't know much about it.

Items	1	2	3	4
The traffic accident				
Tumble				
Burns				
Injury (bruise, blunt instrument cut, etc.)				
Foreign body in eyes, ears and nose				

2. Do you know the coping methods or first aid measures of accidental injury to children? ① I don't know much about it. ④ I don't know much about it.

Items	1	2	3	4
The traffic accident				
Tumble				
Bburns				
Injury (bruise, blunt instrument cut, etc.)				
Foreign body in eyes, ears and nose				

3. How easy is it for you to obtain information related to "Child Accidental Injury Prevention and Emergency Management"?

□ Very difficult

□ Difficult

□ Easier

□ Very easy

□ Don't know

4. In the past year, have the following situations occurred in your family and children?

Items	always	often	Some-times	Almost never	Don't know
Adults test the water temperature before bathing the child					
When drinking water (or brewing milk powder), make sure the temperature is appropriate before letting the child eat					
When eating, keep hot food out of reach of children					
Keep hot kettles, lighters, etc. out of reach of children					

Parenting Stress Index-Short Form of 15 items（PSI-SF-15）

This scale is designed to understand the situation of stress you feel, please read each question in detail, think about whether the situation described in the question is consistent with you or your child, all the questions in this questionnaire have no certain right or wrong, please follow your first reaction after seeing the question, tick the nearest answer.

item	Strongly agree	Agreed	Uncertain	Disagree	Strongly disagree
1. I have been unable to do new and different things					
…….					
…….					
…….					
…….					
…….					
…….					
…….					
15. Count the number of things which your child does that bother you					

Self-Rating Anxiety Scale(SAS)

Please read each statement and select the response which best describes how much the statement applied to you over the past week. Please try to answer every question. There are no right or wrong answers.

1— No or little time

2 — A small portion of time

3 — Quite a lot of time

4 — Most or all of the time

1. I feel nervous or anxious more easily than usual	1	2	3	4
……	1	2	3	4
……	1	2	3	4
……	1	2	3	4
……	1	2	3	4
……	1	2	3	4
……	1	2	3	4
……	1	2	3	4
……	1	2	3	4
20. I have nightmares	1	2	3	4

Severity assessment table of community-acquired pneumonia in children

evaluation item	mild	severe
general condition	good	bad
disturbance of consciousness	not have	have
hyoxemia	not have	Cyanosis Rapid respiration, RR≥70 times /min(infant), RR≥50 times /min(> 1 year old), assisted respiration (moaning, nasal fan, three depression sign) intermittent apnea, oxygen saturation < 92%
fever	Not up to the heavy standard	Ultra high fever, continuous high fever > 5 d
Symptoms of dehydration/refusal to eat	not have	have
Chest radiograph or chest CT	Not up to the heavy standard	≥2/3 unilateral lung infiltration, lobular lung infiltration, pleural effusion, pneumothorax, atelectasis, pulmonary necrosis, pulmonary abscess
Extrapulmonary complications	not have	have
standard	All of the above exist	Any of the above

Note: Inflammatory markers can be used as a reference for assessing severity

Social support revalued scale (SSRS)

1. How many close friends do you have who can be supported and helped?

□ none

□ 1-2

□ 3-5

□ six or more than six

2. In the past year,

□ away from his family, and live alone one room.

□ residence change often, most of the time living with a stranger.

□ living with classmates, colleagues or friends.

□ live together with my family.

3. You and your neighbors:

□ never care about each other, just a nodding acquaintance.

□ difficulties may be a little concerned about.

□ some neighbors are very concerned about you.

□ most neighbors are very concerned about you.

4. You and your colleagues:

□ never care about each other, just a nodding acquaintance.

□ difficulties may be a little concerned about.

□ some colleagues are very concerned about you.

□ most colleagues are very concerned about you.

5. Support and care from couples (lovers)

□ without

□ rarely

□ general

□ full support

6. Support and care from parents

□ without

□ rarely

□ general

□ full support

7. Support and care received from children

□ without

□ rarely

□ general

□ full support

8. Support and care from siblings

□ without

□ rarely

□ general

□ full support

9. Support and care received from other members (such as sister-in-law)

□ without

□ rarely

□ general

□ full support

10. In the past, when you encountered an emergency, you have received financial support and practical help from the following sources:

multi-select

□ without any source

□ spouse

□ other family members

□ friend

□ relatives

□ colleagues

□ work unit

□ caucus trade unions and other official or semi-official organization

□ unofficial organizations such as religion, society

□ other

11. In the past, the sources of comfort and care you have received in times of emergency have been:

multi-select

□ without any source

□ spouse

□ other family members

□ friend

□ relatives

□ colleagues

□ work unit

□ caucus trade unions and other official or semi-official organization

□ unofficial organizations such as religion, society

□ other

12. How do you talk about your troubles?

□ never talk to anybody.

□ only had close relations to the 1-2 personal talk.

□ if friends will take the initiative to ask you.

□ active talk your troubles to get support and understanding.

13. When you encounter trouble, the way for help:

□ only depend on oneself, do not accept others help.

□ seldom to ask people for their help.

□ sometimes ask others to help.

□ often have trouble to his family, relatives and friends, for help.

14. For groups (such as caucus organizations, religious organizations, trade unions, student unions, etc.) to organize activities, you:

□ never participate

□ occasionally attending

□ often attend

□ active and positive activities.

Tool to Measure Parenting Self-efficacy (TOPSE)

How to fill in: refer to the table below and fill in the corresponding number in brackets according to how much you agree with each statement. 0 means strongly disagree, 10 means strongly agree, you can choose any integer between 0 and 10, please complete all entries.

0 1 2 3 4 5 6 7 8 9 10

strongly disagree Basically agree Strongly agree

1. Emotion and emotion：

(1) I can show affection to my children （ ）

(2) I can sense whether the child is happy or sad. （ ）

(3) I'm sure my kids come to me when they're feeling down. （ ）

(4) I can always tell why a child is depressed. （ ）

(5) I have a good relationship with my children. （ ）

(6) I have trouble cuddling with my children. （ ）

2. Play and fun:

(7) I can have fun with my kids. （ ）

(8) I can enjoy my children at every stage of growing up. （ ）

(9) My children and I have a great time living every day. （ ）

(10) I plan activities that my children will enjoy. （ ）

(11) It's easy for me to play with my children. （ ）

(12) I can help my children reach their full potential. （ ）

3.Empathy and understanding:

(13) I can explain to my children patiently. （ ）

(14) I can get my children to listen to me. （ ）

(15) I can comfort my child. （ ）

(16) I can listen to children. （ ）

(17) I can think like a child. （ ）

(18) I understand the needs of children. （ ）

4. control force：

(19) As a parent, I think I have my children under control. （ ）

(20) The child will follow the rules I set. （ ）

(21) I can get my child to behave properly without having to argue with him. （ ）

(22) I can keep calm when I meet difficulties. （ ）

(23) I can't stop my child from behaving badly. （ ）

(24) I can handle my child's bad behavior calmly. （ ）

5.Discipline and rule making：

(25) I think it's easy to make rules. （ ）

(26) I can follow the rules I set for my children （ ）

(27) I can reason with children. （ ）

(28) I can manage to avoid conflict （ ）

(29) I stick to my own parenting style. （ ）

(30) I don't feel guilty disciplining my children. （ ）

6.stress：

(31) It's hard for me as a parent to live up to expectations. （ ）

(32) I can't stand my ground when people tell me how to treat my children. （ ）

(33) Other people's advice can make it difficult for me to make a decision. （ ）

(34) I can raise objections when I disagree with others.（ ）

(35) I don't care how other people do things. （ ）

(36) I don't think it's necessary to compare with other parents. （ ）

7.self-acceptance

(37) I think I'm a good enough parent. （ ）

(38) I'm as good as any parent when it comes to parenting. （ ）

(39) I wasn't good enough as a parent. （ ）

(40) As a parent, I take most things in stride. （ ）

(41) I can be strong for my children. （ ）

(42) My child feels safe around me. （ ）

8.Learning and Knowledge:

(43) I can recognize the growth and change of children. （ ）

(44) I can communicate with other parents. （ ）

(45) I can learn and use new methods to teach children. （ ）

(46) I can make the changes necessary to improve my child's behavior. （ ）

(47) I can solve most problems with a few suggestions. （ ）

(48) It's comforting to know that others face similar parenting problems to mine.

（ ）

APPENDIX B

IRB Approval, letter for data collection, and consent form

MHESI 8137/ 1209

Graduate School, Burapha University
169 Longhaad Bangsaen Rd.
Saensuk, Muang, Chonburi
Thailand, 20131

June 14th, 2021

Dear President of The Second Affiliated Hospital & Yuying Children's Hospital of Wenzhou Medical University,

Enclosure: 1. Certificate ethics document of Burapha University
2. Research Instruments (Try out)

On behalf of the Graduate School, Burapha University, I would like to request permission for Ms. XIAOHUI JIA to collect data for conducting research.

Ms. XIAOHUI JIA, ID 62910092, a graduate student of the Master of Nursing Science program, major in Maternity Nursing and Midwifery, Faculty of Nursing, Burapha University, Thailand, was approved her thesis proposal entitled: "Parenting Stress and Its Factors Among Mothers of Infants with Pneumonia" under supervision of Assoc. Prof. Dr. Chintana Wacharasin as the principle advisor. She proposes to collect data from thirty eligible participants in your organization selecting by a purposive sampling with the criteria: **30 mothers in Pediatric Respiratory Department from The Second Affiliated Hospital & Yuying Children's Hospital of Wenzhou Medical University**.

The data collection will be carried out from July 1st, 2021 - July 15th, 2021. In this regard, you can contact Ms. XIAOHUI JIA via mobile phone +86-1350-6643-535 or E-mail: xiaohui.1995@163.com

Please do not hesitate to contact me if you need further relevant queries.

Sincerely yours,

(Assoc. Prof. Dr. Nujjaree Chaimongkol)
Dean of Graduate School, Burapha University

Graduate School Office
Tel: +66 3810 2700 ext. 701, 705, 707
E-mail: grd.buu@go.buu.ac.th
http://grd.buu.ac.th

MHESI 8137/ 1210

Graduate School, Burapha University
169 Longhaad Bangsaen Rd.
Saensuk, Muang, Chonburi
Thailand, 20131

June 14th, 2021

Dear President of The Second Affiliated Hospital & Yuying Children's Hospital of Wenzhou Medical University,

Enclosure: 1. Certificate ethics document of Burapha University
2. Research Instruments

On behalf of the Graduate School, Burapha University, I would like to request permission for Ms. XIAOHUI JIA to collect data for conducting research.

Ms. XIAOHUI JIA, ID 62910092, a graduate student of the Master of Nursing Science program, major in Maternity Nursing and Midwifery, Faculty of Nursing, Burapha University, Thailand, was approved her thesis proposal entitled: "Parenting Stress and Its Factors Among Mothers of Infants with Pneumonia" under supervision of Assoc. Prof. Dr. Chintana Wacharasin as the principle advisor. She proposes to collect data from two hundred eligible participants in your organization selecting by a purposive sampling with the criteria: **200 mothers in Pediatric Respiratory Department from The Second Affiliated Hospital & Yuying Children's Hospital of Wenzhou Medical University**.

The data collection will be carried out from July 16th, 2021 - August 31st, 2021. In this regard, you can contact Ms. XIAOHUI JIA via mobile phone +86-1350-6643-535 or E-mail: xiaohui.1995@163.com

Please do not hesitate to contact me if you need further relevant queries.

Sincerely yours,

(Assoc. Prof. Dr. Nujjaree Chaimongkol)
Dean of Graduate School, Burapha University

Graduate School Office
Tel: +66 3810 2700 ext. 701, 705, 707
E-mail: grd.buu@go.buu.ac.th
http://grd.buu.ac.th

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

伦理委员会审查批件

批件号：伦审（2021-K-63-02）

科室：儿童呼吸内科病区	主要研究者：贾晓慧	职称：副主任护师	
项目名称	肺炎患儿母亲的育儿压力及其影响因素		
申办单位	温州医科大学附属第二医院、育英儿童医院		
审查类别	复审	审查方式	简易审查
审查日期	2021 年 7 月 20 日	审查地点	/
审查委员	王爱霞 陈勰		
审查材料	1. 临床课题研究复审申请 2. 试验方案（版本号：2.0 ；版本日期：2021.07.13 ） 3. 知情同意书（版本号：2.0 ；版本日期：2021.07.13 ）		
审查意见	经过我院医学伦理委员会审查，审查结果为：同意		
年度/定期跟踪审查	审查频率为该研究批准之日起每 12 月一次，首次请于 2022 年 7 月 19 日前 1 个月递交“定期/年度研究进展报告”。 本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。		
批件有效期	2021 年 7 月 20 日—— 2022 年 7 月 19 日（逾期未实施，自行废止）		
主任或副主任委员签字： 日　期：2021 年 7 月 20 日 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（盖章）			

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

เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย

(Participant Information Sheet)

รหัสโครงการวิจัย: ……..

(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)

โครงการวิจัยเรื่อง: …Parenting stress and its factors among mothers of infants with pneumonia…

Dear participants :

I am Mrs. Xiaohui Jia, a student in Master of Nursing Science (International Program) Faculty of Nursing, Burapha University Thailand. My study is “Parenting stress and its factors among mothers of infants with pneumonia”. The objectives are to describe parenting stress among mothers having children with pneumonia, and to examine the predictive relationship between health literacy, self-efficacy, social support, anxiety, illness Severity of illness and parenting stress among mothers having children with pneumonia.

This study is a cross-sectional, correlation descriptive 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 30-40 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 benefits in this study. There will be no identified physical and psychological risk to the person participating in the study and no risk to the society.

You have the right to end your participation in this study at any time, and no necessary to inform the researcher, and it will not hamper their professional career. 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 Ms. Xiaohui Jia under the supervision of my major-advisor, Associate Professor Dr. Chintana Wacharasin. If you have any questions, please contact me at mobile number: + 8613506643535 or by email xiaohui.1995@163.com and/or my advisor's e-mail address chintana@buu.ac.th. Or you may contact Burapha University Institutional Review Board (BUU-IRB) telephone number (+66) 038 102 620, and the e-mail address buuethics@buu.ac.th. Your cooperation is greatly appreciated. You will be given a copy of this consent form to keep.

Xiaohui Jia

知情同意书

项目研究代码: G-HS036/2564

研究课题：肺炎患儿母亲的育儿压力及其影响因素

尊敬的_____女士：

我是贾晓慧，泰国 Burapha 大学护理学院护理学硕士(国际项目)的学生，目前正在进行“肺炎患儿母亲的育儿压力及其影响因素”的课题研究，目的是为了调查肺炎患儿母亲的育儿压力现状，并探讨肺炎患儿母亲的育儿压力与健康素养、自我效能、社会支持、焦虑、肺炎疾病严重程度之间的预测关系。

本研究为横断面、相关描述性研究。参与本项目为自愿的。如果您同意参加本次研究，请您回答以下问卷，大约需要 30～40 分钟。在数据收集期间，研究者将澄清参与者提出的关于语言或内容的任何问题。参与这项研究中不会得到任何好处，也不会对造成生理和心理风险，也不会对社会产生风险。

您有权在任何时候终止参与本研究，不需要通知研究人员，并且不会对他们的职业生涯产生任何影响。从本研究中收集的任何信息，包括您的身份都将被保密。我们给您分配一个编码，而不会使用您的真实姓名，研究结果将以一组参与者的形式呈现，而不会披露任何单个参与者的具体信息。所有的数据仅提供给研究人员，这些数据将在发表研究结果一年后被销毁。如您愿意，您将在研究完成后得到进一步关于研究的性质解释。

研究将由贾晓慧在专业导师 Chintana Wacharasin 副教授的指导下进行。如果您有任何问题，请联系我的手机 (+86)13506643535，或电子邮箱 xiaohui.1995@163.com，以及导师的电子邮箱 chintana@buu.ac.th。您也可以联系 Burapha 大学机构审查委员会(BUU-IRB)电话+66-038 102 620，或电子邮箱 buuethics@buu.ac.th。非常感谢您的配合。您将得到一份本同意书的副本作为留底。

贾晓慧

เอกสารแสดงความยินยอม

ของผู้เข้าร่วมโครงการวิจัย (Consent Form)

รหัสโครงการวิจัย: ……..

(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)

โครงการวิจัยเรื่อง .....Parenting stress and its factors among mothers of infants with pneumonia….

Date of data collection …….……Month…....……Year …….

Before giving my signature below, I have been informed by researcher, Mrs. Xiaohui Jia, about the purposes, method, procedures, benefits and possible risks associated with participation in this study thoroughly, and I understood all of the explanations. I consent voluntarily to participate in this study. I understand that I have the right to leave the study any time I want, without fearing that it might affect the quality of health care services that my children and I will receive from the hospital.

The researcher Mrs. Xiaohui Jia, has explained to me that all data and information of the participants will be kept confidential and only be used for this study. I have read and understood the information related to participation in this study clearly and I am signing this consent form.

Signature ……..…….. Participant

(…….)

知情同意书

研究项目代码：G-HS036/2564

研究课题名称：肺炎患儿母亲的育儿压力及其影响因素

数据收集日期：_____年_____月_____日

在我签字之前，研究人员贾晓慧已经完全告知我参与本次研究的目的、方法、程序、意义和可能存在的风险，我已全部了解。本人自愿参与本次研究。我知晓我有权随时离开这个研究项目，并且不必担心这会对我的职业生涯产生影响。

研究人员贾晓慧护士已向我解释，所有参与者的数据和信息将被保密，只用于本研究。我已清楚阅读和理解参与本次研究的相关信息，并签署此同意书。

签名：

_____年____月____日

APPENDIX C

Permission for using instruments

PSI-SF-15

回复：关于PSI-SF-15量表的探讨

发件人：wmcheng2006<wmcheng2006@126.com>

收件人：xiaohui.1995@163.com<xiaohui.1995@163.com>

时　间：2021年04月18日 00:00 (星期日)

附　件：1个（PSI-SF-15父母教养压力问卷简化版计分方式.doc）查看附件

这个合同系统已打通微信、钉钉。 免费试用>>

贾 护士长您好

附件是您要的问卷和计分键。

36题的中文版本，我们也是从别处获取的。

祝顺利！

王孟成 博士 副教授

广州大学教育学院心理学系

Dr. Meng-Cheng Wang

Associate Professor

Department of Psychology, Guangzhou University

SRSS


回复：关于使用“社会支持量表”的申请

发件人：Xiao SY<xiaosy@live.com>

收件人：xiaohui.1995@163.com<xiaohui.1995@163.com>

时　间：2021年04月19日 12:05 (星期一)

邮件已被回复　查看详情

请试用10份电子合同,不好用就退回! 免费试用>>

好的，没有问题

Xiao SY

xiaosy@live.com

TOPSE

可以的，使用时请标明出处。

Chinese Parental Health Literacy Questionnaire (CPHLQ)

Re: 还是关于量表的问题

优化阅读 | 精简信息

发件人：h_jiang<h_jiang@fudan.edu.cn>

收件人：晓慧<xiaohui.1995@163.com>

时　间：2021年02月24日 20:52 (星期三)

邮件已被回复　查看详情

【小红书】助力企业订单提升！快来咨询吧！ 立即合作　广告

小贾老师：

这个平台是需要在微信平台上打开的https://mp.weixin.qq.com/mp/profile_ext?action=home&__biz=MzkzMTEwNTM3Nw==&scene=124#wechat_redirect，我不太清楚是否可以打开？每个微信号只能提交一次答案，建议要看题目的话到最后不要提交就可以了。因为计分方法比较复杂，所以我们是计划做了平台可以供大家方便使用。您使用后可以让我们导出数据给你们。但是若要对应每一个填写对象的话得要提前设定好录入的ID号与对象的个人信息相对应。

蒋泓

BIOGRAPHY

NAME	Xiaohui Jia
DATE OF BIRTH	23 October 1978
PLACE OF BIRTH	China
PRESENT ADDRESS	Wenzhou zhejiang China
POSITION HELD	Student
EDUCATION	bachelor degree