Development and Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) in Indonesia

Dewi Elizadiani Suza

A Thesis Submitted in Fulfillment of the Requirements for the Degree of

Doctor of Philosophy in Nursing (International Program)

Prince of Songkla University

2013

Thesis Title	Development and Evaluation of the Quality of Nursing Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) in Indonesia
Author	Mrs.Dewi Elizadiani Suza
Major Program	Nursing (International Program)

Major Advior:	**Examining Committee:**
.....	.....Chairperson
(Asst.Prof.Dr.Busakorn Punthmatharith)	(Assoc.Prof.Dr.Aranya Chaowalit)
Co-advisor:	.....
.....	(Assoc.Prof.Dr.Siriporn Khampalikit)
(Assoc.Prof.Dr.Ladawan Prateepchaikul)	.....
	(Asst.Prof.Dr.Busakorn Punthmatharith)
	.....
	(Assoc.Prof.Dr.Ladawan Prateepchaikul)
	.....
	(Asst.Prof.Dr.Umaporn Boonyasopun)

The Graduate School, Prince of Songkla University, has approved this thesis as fulfillment of the requirements for the Doctor of Philosophy Degree in Nursing (International Program).

……

(Assoc.Prof.Dr.Teerapol Srichana)

Dean of Graduate School

This is to certify that the work here submitted is the result of the candidate's own investigations. Due acknowledgement has been made of any assistance received.

.....Signature

(Asst.Prof.Dr.Busakorn Punthmatharith)

Major Advisor

.....Signature

(Mrs.Dewi Elizadiani Suza)

Candidate

I hereby certify that this work has not been accepted in substance for any degree, and is not being currently submitted in candidature for any degree.

.....Signature

(Mrs. Dewi Elizadiani Suza)

Candidate

ACKNOWLEDGEMENTS

I would like to gratefully acknowledge the advice, guidance, and encouragement provided to me by the members of my committee. My major advisor, Assistant Professor Dr. Busakorn Punthmatharith, and my co-advisors, Associate Professor Dr. Ladawan Prateepchaikul offered many kind insights which helped to make this dissertation a reality. I also would like to thanks Professor Dr. Jagdip Singh, Marketing and Policy Studies Department, Weatherhead School of Management, Case Western Reserve University, USA, for his kindly guiding and assisting in data analysis.

I would like to thank the Directorate General Higher Education, Ministry of National Education Republic of Indonesia for financial support during my study at the Faculty of Nursing, Prince of Songkla University, Thailand. I also would like to express my gratitude to Rector University of Sumatera Utara, particularly to the Dean of the Faculty of Medicine and the Dean of the Faculty of Nursing. Their support and encouragement was instrumental to my doctoral study. Further thanks are extended the Director of General Hospitals, experts review, all the pediatric nurses, and other participants who were involved in this study for their contributions to my dissertation.

Finally, I am eternally grateful to my husband, Dr. Setiawan, my only daughter, Banyu Nadine Setiawan, and to the rest of my family for their loving patience, care, and encouragement during my doctoral journey in Thailand.

Dewi Elizadiani Suza

Thesis Title Development and Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) in Indonesia

Author Mrs.Dewi Elizadiani Suza

Major Program Nursing (International Program)

Academic Year 2013

ABSTRACT

This developmental study aimed to develop the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) in Indonesia and to evaluate its validity and reliability. Based on DeVillis's Theory, there were two phases and eight steps for scale development: Phase I Development of the QNCS-HARIC and Phase II Evaluation of the QNCS-HARIC. In phase I, the QNCS-HARIC was developed based on related literature review regarding quality of nursing care, nursing process, holistic nursing care for acute respiratory infection children, and the expert panel meeting with 12 pediatric nurses and pediatricians. Consisted of four dimensions and 79 items: 1) Physical dimension of ARI children (36 items), 2) Psychological dimension of ARI children and family (26 items), 3) Socio-cultural dimension of ARI children and family (10 items), and 4) Spiritual dimension of ARI children and family (7 items). The content validity of the developed QNCS-HARIC was assessed by five experts resulting in a Content Validity Index equal to .96. After the experts' review, one item was deleted. Thus, a 78 item QNCS-HARIC was tested for reliability with 30 pediatric nurses. Cronbach's alpha reliability

coefficients of overall 78 items QNCS-HARIC and its four dimensions were .94, .94, .87, .79, and .73, respectively. In phase II, one item was deleted after testing for reliability; thus, the 77 items QNCS-HARIC was evaluated for construct validity and reliability with 807 pediatric nurses.

For construct validity, the results from EFA using the principal axis factoring extraction with varimax rotation (N = 779) revealed that the acceptable developed QNCS-HARIC consisted of four factors and 37 items: 1) Physical dimension of ARI children (14 items), 2) Psychological dimension of ARI children and family (15 items), 3) Socio-cultural dimension of ARI children and family (3 items), and 4) Spiritual dimension of ARI children and family (5 items). The percentages of variance explained for the overall model and its four dimensions were 22.31, 8.31, 6.76, and 5.55, respectively. The factor loadings for each item of Factor 1, 2, 3, and 4 were acceptable and significant (varied from .30 to .49, p = .000; .34 to .53, p = .000; 37 to .46, p = .000; .55 to .70, p = .000, respectively).

The contrasted group approach result revealed that mean score of the 77 and 37 items QNCS-HARIC of nurses having work experience with ARI children six years or more (n = 508) was significantly higher than that of nurses having workexperience with ARI children less than six years (n = 271) (t = -23.75, p = .000; t = -22.91; p = .000, respectively). For the internal consistency, the Cronbach's alpha coefficients of the overall 77 items QNCS-HARIC and its four dimensions (N = 779) were .92, .85, .79, .77, and .76 respectively whereas those of the 37 items QNCS-HARIC and its four dimensions (N = 779) were .93, .87, .80, .77, and .76 respectively. For stability, the test-retest reliability of the overall 77 items QNCS-HARIC and its four dimensions (N = 30) measured at Time 1 was positively

significant and highly correlated with those measured at Time 2 (r =.75, .78, .77, .73, and .81, respectively).

For social desirability testing, the results revealed that mean scores of the overall 77 items QNCS-HARIC and its factors (Factor 1, 2, and 4) did not significantly correlate with those of social desirability (r =.07, p = .06; r =.06, p =.12; r =.07, p =.07; r =.04, p =.33, respectively) whereas the mean scores of Factor 3 significantly correlated with that of social desirability (r =.07, p =.05). The mean scores of the overall 37 items QNCS-HARIC and its factor (Factor 2 and 3) significantly correlated with social desirability (r =.08, p =.02; r =.10, p =.01; r =.17, p =.00, respectively) whereas the mean scores of Factor 1 and Factor 4 did not significantly correlate with those of social desirability (r =.01, p =.75; r =.02, p =.61, respectively).

Although, the 37 items QNCS-HARIC was demonstrated to be acceptable as far as construct validity and reliability; it was less representative for the socio-cultural dimension of ARI children and family. Further research is needed to revise and balance the items in each dimension of the QNCS-HARIC.

Keywords: quality of nursing care scale acute respiratory infection children

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

LIST OF TABLES

PAGE

TABLE

LIST OF TABLES (Continued)

PAGE

TABLE

LIST OF FIGURES

PAGE

FIGURE

LIST OF PUBLISHED PAPERS AND PROCEEDINGS

PAGE

PUBLISHED PAPER AND PROCEEDING

CHAPTER 1

INTRODUCTION

Background and Significance of the Study

Acute respiratory infection (ARI) is the leading cause of the global burden of diseases (Nair et al., 2013) because of high incidence, substantial morbidity and potential sequele, tendency of over-diagnosis, associated overuse and misuse of antibiotics, and it's contribution to health care costs and indirect societal costs (Schaad, 2005). The global incidence of ARIs in children is estimated to be 156 million new cases per year of which 151 million episodes occur in the developing countries (Rudan, Nair, Marusic, & Campbell, 2013).

One to four million deaths occurs each year among children with ARI worldwide (Liu et al., 2021). Acute respiratory infections consist of upper and lower respiratory infections, the latter being more commonly found in developing countries (Shafik et al., 2012). The main causes of ARI in children are Streptococcus pneumoniae, Haemophilus influenzae, as well as the respiratory syncytial virus (Nair et al., 2010).

Acute respiratory infection in children in Indonesia is a serious problem because it leads to high morbidity and mortality. ARI kills more children under-five years of age than any other illness in Indonesia (Department of Health Government of Indonesia, 2010). Lower respiratory tract infection is the most common found in Indonesia (Wee-Ling, 2010). Pneumonia is a common cause of morbidity and mortality among children under-five years old (Agustina et al., 2012). The two major

diseases of child mortality from ARI in Indonesia are pneumonia and bronchitis (Lipoeta, Wattanapenpaiboon, & Wahlqvist, 2004). Acute respiratory infection was the major primary cause of death among infants and under-five year old children (Affandi & Utji, 2009; Yuliarti, Hadinegoro, Supriyatno, & Karuniawati, 2012) and was ranked second as a cause of death in infant and under five years old children after diarrhea (Basic Health Research, 2007; Faizal, 2012). Hernani, Sudarti, Agustina, and Sariasih (2009) reported that the trend of incidence rates of acute respiratory infection in children under-five from 2004-2008 decreased but was still high (2004 = 39.91%, 2005 = 27.65%, 2006 = 29.12%, 2007 = 27.71%, 2008 = 22.13%).

The high incidence of morbidity and mortality of ARI children in Indonesia is probably due to: 1) inadequate assessment of patients, 2) low quality of nurse clinical performance, and 3) low nurse qualification and education (Faculty of Nursing-University of Indonesia & World Health Organization, 2009), and 4) lack of complete operational procedures for ARI (Hernani, Sudarti, Agustina, & Sariasih, 2009). The other possible reasons include: 1) shortage of nurses at health-care facilities, 2) mismanagement of nurse hiring and placement due to lack of resources (Hamid, 2010), and 3) a low quality of nurse performance (Barber, Gertler, & Harimurti, 2007). In addition, nurses not only face problems of caring for patients with tropical diseases and their families but also have had to adapt at providing care in a system which is beset with difficulties such as shortages of supplies, and inadequate resources (Shields & Hartati, 2003). These possible reasons influence the quality of nursing care for ARI children. In general, quality of nursing care for sick children with ARI in Indonesia is still far from optimal. This is due to the lack of regulatory standards for education and clinical competence, absence of proper job descriptions,

and also, the training of many nurses does not necessarily match the nature of the work being undertaken (Hennessy, Hicks, Hilan, & Kowanal, 2006). Chakraborty and Frick (2002) conducted a study among private hospitals in rural West Bengal, India and focused on providers disease management practices for acute respiratory infections among under-five children. The study reported inadequate technical quality of care for ARI among the providers which was related to a lack of knowledge (technical incompetence), low levels of performance (limited potential), and inconsistency in performance (within-provider variation).

Indonesia's Health Minister (2010) reported that in general, quality of care is often lacking and there is no quality control and treatment options are limited. Similar to the study of Lesa and Dixon (2007) in Nigeria, they found an aberration with the clinical training given to nurses in the training institutions largely because of lack of equipment, lack of continuous training and re-orientation on the job by some employers, lack of commitment on the part of the nurse professionals, and nurses seeing their professional training as just the necessity for registration and licensure.

One possible way to reduce the morbidity and mortality of ARI children and increase quality of nursing care of ARI children is to develop a scale to evaluate quality of nursing care for hospitalized ARI children. The scale development will be based on the related concepts such as quality of nursing care, holistic care, nursing process, and holistic nursing care for ARI children.

Quality of nursing care is measured by patients' met needs in terms of physical, psychosocial, socio-cultural, and spiritual aspects as well as patient satisfaction with the care (Kunaviktikul, Anders, Srisuphan, Chontawan, Nuntasupawat, & Pumarporn, 2001). Williams (1998) defined quality of nursing care

as the degree to which patients' physical, psychosocial, and extra care needs were met. Kunaviktikul et al. (2001) also suggested that nurses' response to patients' needs would be used as an indicator for quality of nursing care and categorized the quality of nursing care indicators into three groups: structure, process, and outcome, which are related to the structure, process, and outcome of care (Donabedian, 1997). The structure indicators were divided into four categories: 1) management, 2) facility, 3) resources, and 4) staff development (Kunaviktikul et al., 2001). The process indicators were divided into two categories: 1) nursing practice and 2) professional characteristics (Kunaviktikul et al., 2001). The outcome indicators were divided into six categories: 1) incidents and complications, 2) patient satisfaction, 3) satisfaction with information, 4) time, 5) satisfaction with pain management, and 6) satisfaction with symptom management (Kunaviktikul et al., 2001). In this study, the quality of nursing care for ARI children will be defined as the degree to which pediatric nurses provide nursing care to meet the needs of ARI children in the physical, psychological, social-cultural, and spiritual dimensions. Thus, one process indicator, namely nursing practice, will be implied as an indicator used to measured quality of nursing care for ARI children.

The concept of holistic care can be defined as all nursing practice that has healing the whole person as its goal (American Holistic Nurses Association, 2003). Holistic care is a specialty practice that draws on nursing knowledge, theories, expertise and intuition to guide nurses in becoming therapeutic partners with people in their care. This practice recognizes the totality of the human being the interconnectedness of physical, psychological, socio-cultural, and spiritual needs (Dossey, 2001). In this study, a scale for quality of nursing care, and holistic care

through physical, psychological, socio-cultural, and spiritual dimensions will be developed and used to evaluate quality of nursing care for hospitalized ARI children.

Quality of nursing care has traditionally focused on the assessment, planning, patients' needs, administering treatments, and making critical decisions in their care (Lang & Mitchell, 2004). For nurses to truly achieve improved quality of nursing care, they must be adept with the application of the nursing process, which basically is described as a modified scientific method of clinical judgment used by nurses in patients care and initially an adapted from of the problem solving technique based on theory used by nurses every day to help patients improve their health (Adeyemo & Olaogun, 2013). Therefore, the nursing process demonstrates the role of nurses as clinical judgment, clinical inquiry, teaching, systems thinking, advocacy, caring practices, and response to diversity (Moloney-Harmon, 1999).

The nursing process is defined as a professional nurse's approach to identifying, diagnosing, and treating human responses to health and illness (American Nurses Association 2003 as cited in Potter & Perry, 2011). It is the basic nursing competency for critical thinking and fundamental to how nurses practice. Nurses will learn to integrate elements of critical thinking from judgments and make safe and effective clinical decisions through the nursing process (Potter & Perry, 2011). The process includes five steps: 1) assessment, 2) nursing diagnosis, 3) planning, 4) implementation, and 5) evaluation. There are two benefits to use the nursing process into practice. First, the benefits of the nursing process for the nurse include self-confidence, job satisfaction, and professional growth (Daniel, 2004). Second, benefits for the patient are the potential for greater participant in their own care and continuity of quality care (Daniel, 2004). In this study, this nursing will be used as an approach

in developing a scale for quality of nursing care, holistic care and to develop a scale and evaluate quality of nursing care for hospitalized ARI children.

Holistic nursing care for ARI children follows established guidelines based on the child's and family's needs (Hueckel & Wilson, 2007). The nursing process for care of the child and family with acute respiratory infection include assessment, diagnosis, planning, implementation, and evaluation (Hueckel & Wilson, 2007). In this study, nursing process and holistic nursing care for ARI children describes the practice of the nurse who cares for ARI children with assessment, diagnosis, planning, implementation, and evaluation and integration by the physical, psychological, socio-cultural, and spiritual needs.

Based on a literature review of studies from 1990 to 2010, no known quality of nursing care scale for hospitalized ARI children was found. However, one study used the concept of holistic care and nursing process (Lee, Hsu, & Chang, 2007) to evaluate the quality of nursing care in orthopedic units. The nursing process and four aspects of holistic care, including physiological, psychological, socio-cultural, and spiritual aspects, were used as the conceptual framework to evaluate the quality of nursing care in orthopedic patients. Other related studies were found in various populations. Lynn, McMillen, and Sidani (2007) developed an instrument to measure nurses' evaluation quality of patient care delivery in acute care setting, in the United States. They found that the components of quality of nursing care consisted of the following factors: interaction, vigilance, individualization, advocate, work environment, unit collaboration, personal characteristics, and mood. Murphy (2007) explored nurses' perceptions of the attributes of quality of care and the factors that facilitate or hinder high-quality nursing care in long-term care in Ireland. The findings

indicated that nurses perceived quality of care for older people in Ireland as holistic, individualized and focused on promoting independence and choice.

From this overview of the literature review, it was found that these previous studies measured quality of nursing care in general were not specific to ARI children. The definition of quality of nursing care for nurses who work with ARI children has not been identified in the nursing literature. Most of the studies were conducted with the different setting and diseases, and also offered the meaning/definition of quality of nursing care based on nurses in western countries. The complexity, subjectivity, and multi-dimensional concept of quality of nursing care is difficult to be defined and measured (Attree, 1993, 1996; Hogston, 1995b; Idvall & Rooke, 1998; Kunaviktikul et al., 2001; Norman, Redfern, Tomalin, & Oliver, 1992). In addition, the issue related to measurement of quality of pediatric nursing care is usually associated with the lack of definition and evaluation of the concept of quality of care (Leino-Kilpi & Vuorenheimo, 1999; Pelander, 2008; Suhonen & Valimaki, 2003). The other problem is that there are few instruments developed especially for evaluating the quality of pediatric nursing care. Furthermore, in Indonesia, the quality of nursing care of children is the main issue in Indonesian hospitals. The fifth target goal of the national development plan of Indonesia is to reduce the under-five child mortality rate by two thirds from 1990 to 2015 (MDGs-Indonesia, 2008). The Indonesian under-five child mortality rate in 1990 was 57/1000 live births and by 2015, this number should be reduced to 38/1000 live births to achieve the target (Hernani, Sudarti, Agustina, & Sariasih, 2009). The under-five child mortality rate in 2005 was 38/1000 live births (Government of Indonesia, 2005) and the major contributor was ARI (MDGs-Indonesia, 2008).

The quality of nursing care is the main concern in a health care setting because of its impact on safety, incidence of pneumonia, length of stay, and mortality rate. Also, low nurse performance related to high morbidity and mortality incidence rate of children is a major concern in Indonesia, (Hennessy, Hicks, Hilan, & Kowanal, 2006). Related to this matter, development and evaluation of the quality of nursing care scale is a vital key to improve the quality of nursing care for hospitalized ARI children in order to decrease morbidity and mortality of ARI children, especially in Indonesia. This scale can used as a guideline for pediatric nurses to assess the quality of nursing care for ARI children, to provide the high quality standard of ARI nursing care, and also to identify the strength and weakness in the delivery of nursing care.

Objectives of the Study

1. To develop the Quality of Nursing Care Scale for hospitalized acute respiratory infection children in Indonesia.
2. To evaluate the validity and reliability of the Quality of Nursing Care Scale for hospitalized acute respiratory infection children in Indonesia.

Research Questions

1. What are the components of the Quality of Nursing Care Scale for acute respiratory infection children in Indonesia?
2. How valid and reliable is the developed Quality of Nursing Care Scale for acute respiratory infection children in Indonesia?

Conceptual Framework

The Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) in this study was developed based on the literature review regarding concepts of quality of nursing care, holistic care, nursing care for ARI children, the nursing process, holistic nursing care for acute respiratory infection children, and norm referenced and based on the expert panel meeting. The concept of quality of nursing care was defined as the degree to which pediatric nurses provide nursing care based on holistic nursing care to meet the physical, psychological, socio-cultural, and spiritual needs of ARI children and family. The quality of nursing care in this study focused on the process-of-care (American Nurses Association, 1996). The process-of-care indicators are nursing practice, nursing practice based on the nursing care plan, implementation of the care plan, and holistic patient-centered care (Kunaviktikul et al., 2001). In order to provide holistic nursing care to meet the needs of ARI children and their families; five nursing processes (e.g., assessment, nursing diagnosis, planning, implementation, and evaluation) were used to assess, diagnose, plan, implement, and evaluate four dimensions of holistic care (e.g., physical, psychological, socio-cultural, and spiritual dimensions). The context of nursing care for ARI children and family was integrated into the five steps of nursing processes. Thus, the integrated QNCS-HARIC was developed and was used to measure the quality of nursing care for ARI children by norm referenced. In addition, DeVellis's Theory of Scale Development Scale was employed to develop and evaluate properties of the QNCS-HARIC. The conceptual framework for the QNCS-HARIC in this study is shown in Figure 1. The details of each concept are as follows

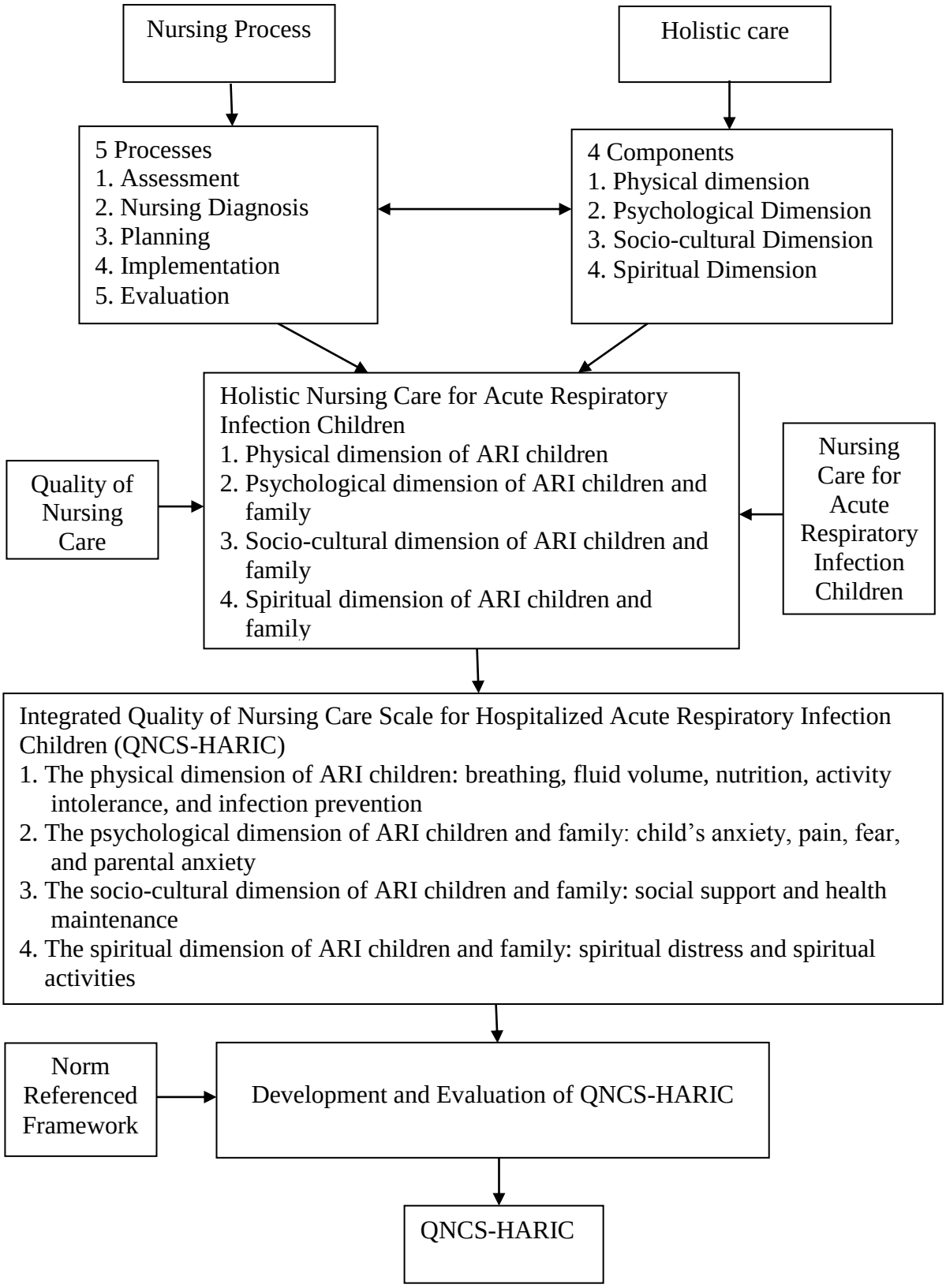


Figure 1. The conceptual framework for the QNCS-HARIC

Quality of nursing care

Quality of nursing care refers to nurses' responses to the physical, psychological, emotional, social, and spiritual needs of patients provided in a caring manner, so that the patients can be cured, healthy, and live normal lives with both patients and nurses being satisfied (Kunaviktikul et al., 2001). Williams (1998) proposed quality of nursing care related to the degree to which patients' physical, psychosocial, and extra care needs were met. In order to measure quality of nursing care, nurses must have reliable and valid indicators against which standard care can be measured. Nurses must clearly describe the quality of nursing care and the nursing indicators.

The American Nurses Association (1996) developed a structure-process-outcome tool called the nursing-sensitive quality indicators which captured care or the outcomes that are most affected by nursing care. This tool was developed based on the Donabedian theory which incorporated the structure, process, and outcome components as indicators to measure the quality of nursing care. The structure-of-care indicators focused on the measurement of staffing patterns that were expected to affect the quality and quantity of care provided by the nurses. The structure-of-care indicators consist of seven categories: 1) ratio of nursing staff per patients, 2) registered nurses (RNs) and nursing staff, 3) RN staff qualification, 4) total nursing hours provided per patient, 5) staff continuity, 6) RN overtime, and 7) nursing staff injury rate.

The process-of-care indicators include two types of measures related to how care was delivered. The first type focuses on how nurses perceive their roles. The second type focuses on the amount and quality of care that nurses in acute-care

settings provided to patients. The process-of-care indicators consist of eight categories: 1) nurse satisfaction, 2) assessment and implementation of patient care requirements, 3) pain management, 4) maintenance of skin integrity, 5) patient education, 6) discharge planning, 7) assurance of patient safety, and 8) responsiveness to unplanned patient care needs. The outcome-of-care indicators focus on how patients and their conditions are affected by their interaction with nursing staff. The outcome-of-care indicators consist of six categories: 1) mortality rate, 2) length of stay, 3) adverse incidents, 4) complications, 5) patient/family satisfaction with nursing care, and 6) patient adherence to discharge plan.

Kunaviktikul et al. (2001) developed indicators to assess the quality of nursing care in Thailand. They categorized the quality of nursing care indicators into three groups: structure, process, and outcome. The structure-of-care indicators included: 1) management, 2) place, 3) resources, and 4) staff development. The process-of-care indicators included: 1) nursing practice (e.g., nursing process, and holistic patient-centered care) and 2) professional characteristic (e.g., interpersonal relationships, competency, and job satisfaction). The outcome-of-care indicators included: 1) adverse incidences, 2) patient satisfaction, 3) satisfaction with information, 4) satisfaction with pain management, 5) satisfaction with symptom management, and 6) time. When compared nursing indicators to measure quality of nursing care between American Nursing Association (ANA) and Kunaviktikul et al.'s study, the numbers of categories in structure and process indicators were different whereas the numbers of categories in the outcome indicator were similar. In Kunaviktikul et al.'s study, there were four categories of structure indicators whereas eight categories were found in the ANA. In terms of process, there were four categories in Kunaviktikul et

al.'s study, whereas eight categories were found in the ANA. For outcome indicator, there were six categories both in Kunaviktikul et al.'s study and ANA.

In this study, the quality of nursing care for ARI children will be defined as the degree to which pediatric nurses provide nursing care based on holistic nursing care plan to meet the physical, psychological, socio-cultural, and spiritual need of ARI children and family. The four dimensions of quality of nursing care for hospitalized acute respiratory infection children will be proposed based on the concepts of quality of nursing care, holistic care, nursing process, and holistic nursing care for ARI children.

The quality of nursing care for hospitalized acute respiratory infection children indicators will focus on the process-of-care (American Nurses Association, 1996; Kunaviktikul et al., 2001). The process-of-care indicators are nursing practice, nursing practice based on the nursing care plan, the implementation of care plan, and holistic patient-centered care (Kunaviktikul et al., 2001). The process-of-care indicator will help the nurses to promote, advocate for and strive to protect the health, safety, and rights of ARI children (American Nurses Association, 1996).

Holistic care

In nursing, holistic care emphasis on a whole-person orientation stems from its tradition as humanistic practice (Kolcaba, 1997). Kolcaba (1997) describes three types of wholes: 1) a system defined as a group of interrelated parts that jointly perform a function, and in relation to biological sciences, 2) an organism as an actualized genetic code, and 3) persons who are experiential beings, human inventions possess knowledge and have an ethical standing. The whole-person occurs when physical,

psychosocial and spiritual needs are met in ways that support maximum functioning (Ress, 2001).

The Dictionary of the English Language (2009) defined holistic care as a system of comprehensive or total patient care that considers the physical, emotional, social, economic, and spiritual needs of the person. Holism means that the whole is greater than the sum of its parts. Holistic in medicine means relating to the medical consideration of the complete person, physically and psychologically, in the treatment of a disease. Holistic nursing care not only covers the care of body, but also includes mind and spirit. It is based on the premise that each of these elements is interconnected and that one affects the other (Narayanasamy et al., 2004).

The holistic philosophy influenced a number of disciplines. It was applied, refined and modified. The utilized the term of bio-psycho-social based on systems theory instead of holism because of the latter association with faith and belief systems, handed down from remote or charismatic authority (Engel, 1977 as cited in Tjale, 2008). Engel (1977, as cited in Tjale, 2008) developed the bio-psycho-social model which treats biological and social issues as systems of the body. The model draws distinction between the actual pathological processes that cause disease and the patient's perception of his or her health called illness. The influence of the bio-psycho-social model is recognizable in health which is the preferred model used in health care assessments. In nursing practice, holistic care is based on the philosophy and theory of holism, and foundation of ethical practice (Dossey & Guzzetta, 2005). The philosophy of holism emphasizes a sensitive balance between art and science, analytic and intuitive skills, self-care, and ability to care for patients using the interconnectedness of body, mind and spirit (Dossey, 1997).

From the literature review, holistic care divided into two dimensions of the concept include: 1) holistic nursing care as the central whole person or the whole range of influence on a person dimension, and 2) the whole person as characterized by the integration and harmonious balance between the body mind spirit dimensions (Bukhardt & Nagai-Jacobson, 2005; Dossey, 2001; Narayanasamy et al., 2004). According to Dossey (1997), holistic care is defined as embraces all nursing care that enhances the healing of the whole person. The goal of holistic nursing care is whole care designed to meet the needs of the whole person. Whole care consists of four dimensions: physical, psychological, socio-cultural, and spiritual. The details for holistic care are as follows.

Physical dimension

Physical dimension refers to the body as distinguished from the mind or spirit (Dictionary of the English Language, 2009). Physical dimension includes deficit in physiological mechanisms that are disrupted or at risk because of an illness (Kolcaba & DiMarco, 2005). Physical care of children refers to the nursing activities provided to by pediatric nurses to meet the needs of the body of the ARI children. The assessment of physical include: 1) physical condition of the whole children which involves the application of nursing knowledge, 2) integration of the affective, and 3) the appropriate psychomotor skills based on the clinical judgment of the attending nurse (Potter & Perry, 2011).

Psychological dimension

Psychological dimension refers to something arising from the mind or emotions (Dictionary of the English Language, 2009). Psychological dimension include: 1) anxiety, 2) pain, and 3) fear associated with processing the effect of the

presenting condition to the mind and stress associate with hospitalization (Wong & Hockenberry, 2003). Psychological care refers to the nursing activities provided by pediatric nurses to meet the needs of ARI children and family in terms of anxiety, pain, fear, and parental anxiety. The assessment of psychological includes 1) psychological condition of the children and parents related to the cognitive function and 2) emotional status (Kyle, 2008).

Socio-cultural dimension

Socio-cultural dimension refers to both social and cultural matters (Dictionary of the English Language, 2009). Socio-cultural dimension includes: 1) financial assistance, 2) family support, 3) family traditions, 4) cultural beliefs, and 5) values (Kolcaba & DiMarco, 2005; Tjale, 2008). Socio-cultural care refers to the nursing activities provided by pediatric nurses to meet the needs of ARI children and their families in terms of financial assistance, family support, family traditions, cultural beliefs, and values that influence the health behavior of the children and parents. The assessment of socio-cultural include: 1) socio-cultural condition of the children and parents related to the needs of parents for financial assistance, 2) family support, and 3) cultural beliefs (Kolcaba & DiMarco, 2005; Tjale, 2008).

Spiritual dimension

Spiritual dimension refers to having the nature of spirit, affecting the soul or relating to God (Dictionary of the English Language, 2009). Spiritual dimension includes: 1) faith, 2) hope, and 3) spiritual well-being (Anderson & Steen, 1995). Spiritual care of children refers to the nursing activities provided by pediatric nurses to meet the needs of ARI children and their families in terms of the existence of love, faith, hope, trust, awe, and inspiration, therein providing meaning and a reason for

existence. The assessment of the spiritual dimension includes: 1) spiritual condition of the children and family related to the religious beliefs, 2) affiliation, and 3) practices (Burkhardt & Nagai-Jacobson, 2005).

Nursing process

The term of nursing process was first mentioned by Hildegarde Peplau in 1952, and later by Lydia Hall in 1955, Dorothy Johnson in 1959, Ida Jean Orlando in 1961, and Ernestine Wiedenbach in 1963 (Daniel, 2004). At that time, nursing processes involved only three steps: assessment, planning, and implementation. The process was formally introduced as a tool for nursing practice in 1967 (Daniel, 2004). In 1967, Yura and Walsh published the comprehensive book on nursing process, in which they described four steps in the nursing process: assessment, planning, intervention, and evaluation (Taylor, Lillis, & LeMone, 2005). They viewed the element of nursing diagnosis as the logical conclusion of the assessment step, whereas Gebbie and Lavin (1974) made nursing diagnosis a separate step in the process (Taylor, Lillis, & LeMone, 2005). These and other studies led to the development of the five-step nursing process commonly used now: assessment, diagnosis, planning, implementation, and evaluation. The details for nursing process are as follows.

Assessment

Assessment is a deliberate and systematic collection of data about a patient (Potter & Perry, 2011). The data will reveal a patient's current and past health status, functional status, and present and past coping patterns (Carpenito-Moyet, 2008). There are two steps in nursing assessment: 1) collection and verification of data from primary and secondary sources, and 2) analysis of all data as a basis (Potter & Perry,

2011). Based on nursing care for ARI children, pediatric nurse assesses the following parameters:

1. The physical assessment of ARI children includes: 1) breathing, 2) fluid volume, 3) nutrition, 4) activity intolerance, and 5) infection prevention (Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle, 2008).

2. The psychological assessment of ARI children and family includes: 1) child's anxiety, 2) child's pain, 3) child's fear, and 4) parental anxiety (Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle, 2008).

3. The socio-cultural assessment of ARI children and family includes: 1) social support and 2) health maintenance (Ackley & Ladwig, 2004).

4. The spiritual assessment of ARI children and family includes: 1) spiritual distress and 2) ability to performed spiritual activities (Ackley & Ladwig, 2004).

Nursing diagnosis

A nursing diagnosis is a clinical judgment about an individual, family or community response to actual and potential health problems or life processes (Potter & Perry, 2011). Nursing diagnoses provide the basis selection of nursing intervention to achieve outcomes for which the nurse is accountable (NANDA International, 2009 as cited in Potter & Perry, 2011). In this study, the nursing diagnoses for ARI children and family were divided into four dimensions. Dimension 1 physical dimension included 1) ineffective breathing pattern, 2) deficient fluid volume, 3) altered nutrition less than body requirements, 4) activity intolerance, and 5) risk for infection. Dimension 2 psychological dimension included 1) child's anxiety, 2) child's acute pain, 3) child's fear, and 4) parental anxiety. Dimension 3 socio-cultural dimension included 1) parental role strain and 2) parent's ineffective health maintenance.

Dimension 4 spiritual dimension included 1) parent's spiritual distress and 2) parent's impaired ability to exercise reliance on beliefs and/or participate in rituals of a particular faith tradition. These nursing diagnoseses were established based on holistic care, nursing process, and nursing care for ARI children (Ackley & Ladwig, 2004; Dossey, 1997; Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle, 2008; Urden, Stacy, & Lough, 2010).

Planning

Planning involves setting nursing diagnosis priorities, identifying patient-centered goals and expected outcomes, and prescribing nursing interventions (Potter & Perry, 2011). Perhaps the most important principle is the individualization of a plan of care for each patient's unique needs. In this study, the planning for ARI children and family will be followed assessment and nursing diagnoses.

Implementation

Implementation is the performance of nursing interventions necessary for achieving the goals and expected outcomes of nursing care (Potter & Perry, 2011). The implementation process refers to efficient, safe, and effective nursing care. The implementation processes activities include: 1) reassessment of the patient, 2) review and revision of the existing nursing care plan, organization of resources and care of delivery, 3) anticipation and prevention of complications, and 4) implementation of nursing interventions care (Potter & Perry, 2011). In this study, the implementation to ARI children and family will follow nursing activities in planning.

Evaluation

Evaluation is crucial to deciding whether, after interventions have been delivered, a patient's condition or well-being improves (Potter & Perry, 2011). The

evaluation process includes five elements: 1) identifying evaluation criteria and standard, 2) collecting data to determine if the nurse met the criteria or standards, 3) interpreting and summarizing findings, 4) documenting findings, and 5) terminating, continuing, or revising the care plan (Potter & Perry, 2011). In this study, the evaluation for ARI children and their family will follow nursing diagnoses, planning and implementation.

Holistic nursing care for acute respiratory infection children

The following holistic nursing care for ARI children will be illustrated based on the integration of the concepts of holistic care (Dossey, 1997) and nursing care for ARI children (Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle, 2008). These nursing care activities will be provided to meet the whole needs of children and family in terms of physical, psychological, socio-cultural, and spiritual dimensions. Details of all holistic nursing care for ARI children are as follows.

Nursing care to meet the physical dimension

Nursing care to meet the physical dimension of ARI children refers to the nursing activities provided by pediatric nurses to meet the needs of the body of the ARI children. These nursing activities include providing: 1) effective breathing, 2) adequate fluid volume, 3) adequate nutrition, 4) activity intolerance reduction, and 5) infection prevention (Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle, 2008).

Nursing care to meet the psychological dimension

The nursing care to meet the psychological dimension of ARI children and family refers to the nursing activities provided by pediatric nurses to meet the needs of ARI children and family in terms of anxiety, pain, fear, and parental anxiety. These

nursing activities include providing care to: 1) decrease child's anxiety, 2) decrease child's pain, 3) decrease child's fear, and 4) decrease parental anxiety (Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle, 2008).

Nursing care to meet the socio-cultural dimension

Nursing care to meet the socio-cultural dimension of ARI children and family refers to the nursing activities provided by pediatric nurses to meet the needs of ARI children and family in terms of social support and health maintenance of ARI children and parents (Engebretson & Haedley, 2005). These nursing activities include providing: 1) adequate social support and 2) effective health maintenance (Ackley & Ladwig, 2004).

Nursing care to meet the spiritual dimension

Nursing care to meet the spiritual dimension of ARI children and their families refers to the nursing activities of pediatric nurses to meet the needs of spiritual distress and spiritual activities. These nursing activities include: 1) decreasing spiritual distress and 2) maintaining an adequate ability to perform spiritual activities (Ackley & Ladwig, 2004).

Norm referenced

Measurement framework is important in guiding the design of the study and interpretation of the measurement. A norm-referenced framework is employed when the interest is in evaluating the performance of a subject relative to the performance of other subjects in some well-defined comparison or norm group (Waltz, Strickland, & Lenz, 2005). The task, when using norm-reference, was to construct tools that measured specific characteristics in such a way that they maximally discriminate among subjects possessing different amounts of that characteristic, along ranges of

scores (Waltz, Strickland, & Lenz, 2005). The norm-referenced measurement framework was used to develop and evaluate of the Quality of Nursing Care Scale for Hospitalized ARI Children in this study.

Hypotheses

The proposed Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) is expected to be a well-developed instrument by containing evidence to support its reliability and validity as follows:

1. Content validity index (CVI) is .80 or greater

2. Internal consistency reliability with Cronbach's alpha coefficient is .70 or greater.

3. Item total correlation is .30 or greater

4. Stability using test-retest reliability with correlation coefficient is .70 or greater.

5. Construct validity evaluation using exploratory factor analysis (EFA) demonstrates that correlation coefficient (*r*) of each pair of the items should be between .30 and .70, communalities is greater than .20, Bartlett's test of Sphericity is statistically significant at $p < .05$, and Kaiser-Mayer Olkin (KMO) measure of sampling adequacy is .60 or greater, and factor loading of each item is greater than .30.

6. Construct validity evaluation, using a contrasted group approach, demonstrates that the mean score of quality of nursing care for ARI children of pediatric nurses who have having six years or more experience is significantly higher than that of pediatric nurses with less than six years' experience.

Definition of Terms

The Quality of Nursing Care for Hospitalized Acute Respiratory Infection Children is defined as the degree to which pediatric nurses provide nursing care based on a holistic nursing care plan to meet the physical, psychological, socio-cultural, and spiritual dimensions of ARI children and family. This quality of nursing care was evaluated by the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC) developed by the researcher based on the literature review regarding quality of nursing care, holistic care, nursing care for ARI children, holistic nursing care for ARI children, nursing process, norm referenced, and DeVellis's Theory of Scale Development. It consists of four dimensions: 1) the physical dimension of ARI children, 2) the psychological dimension of ARI children and family, 3) the socio-cultural dimension of ARI children and family, and 4) the spiritual dimension of ARI children and family. The definitions of each dimension are as follows:

The physical dimension of ARI children are defined as nursing activities provided by Indonesian pediatric nurses to meet the physical needs of ARI children. These nursing activities consist of facilitating effective breathing, providing adequate fluid volume, adequate nutrition, activity intolerance reduction, and infection prevention.

The psychological dimension of ARI children and family is defined as nursing activities provided by Indonesian pediatric nurses to meet the psychological needs of ARI children and family. These nursing activities consist of providing care to decrease child's anxiety, decrease child's pain, decrease child's fear, and decrease parental anxiety.

The socio-cultural dimension of ARI children and family is defined as nursing activities provided by Indonesian pediatric nurses to meet the socio-cultural needs of ARI children and family. These nursing activities consist of adequate social support and effective health maintenance.

The spiritual dimension of ARI children and family is defined as nursing activities provided by Indonesian pediatric nurses to meet the spiritual needs of ARI children and family. These nursing activities consist of activities to decrease the spiritual distress and maintain adequate ability to performed spiritual activities.

Development and evaluation of the QNCS-HARIC is defined as an establishment of the QNCS-HARIC based on the literature review regarding the concept quality of nursing care, holistic care, nursing care for ARI children, holistic nursing care for ARI children, nursing process, and norm referenced; expert panel meeting; and eight steps according to DeVellis's procedure for scale development (DeVellis, 1991). The validity of the scale was determined by content validity index (CVI) using ratings of item relevance by five panel experts. The reliability was determined by internal consistency using Cronbach's alpha, and stability using the test-retest method. The construct validity was determined by an exploratory factor analysis (EFA) and a contrasted group approach.

Significance of the Study

The result of this study hopes to increase pediatric nurses' understanding of quality of nursing care domains. The QNCS-HARIC instrument is expected to be a potential tool for obtaining knowledge about quality of pediatric nursing care with ARI children and thereby contributing to improve quality in nursing practice with a

more genuinely parental involvement approach, especially in Indonesia. The QNCS-HARIC can also be used as a guideline for pediatric nurses to assess the physical, psychological, socio-cultural, and spiritual needs of ARI children, and to promote the integrity and improve the quality standard of nursing care. The use of QNCS-HARIC to evaluate the quality of nursing care will assist administrators and educators in identifying the strengths and weakness in the delivery of nursing care for ARI children.

CHAPTER 2

LITERATURE REVIEW

In this chapter, a number of related articles and studies are reviewed and presented. Related information is grouped under four aspects as follows:

1. Acute Respiratory Infection (ARI) in Children
    - 1.1 Definition
    - 1.2 Incidence
    - 1.3 Etiology
    - 1.4 Signs and symptoms
    - 1.5 Pathophysiology
    - 1.6 Treatment
    - 1.7 Holistic nursing care for ARI children and family
2. Quality of Nursing Care for Acute Respiratory Infection Children
    - 2.1 Definitions of quality of nursing care and quality of nursing care for ARI children
    - 2.2 Dimensions of quality of nursing care and quality of nursing care for ARI children
3. Measurement of Quality of Nursing Care
4. Factors Affecting the Quality of Nursing Care
5. Classical Test Theory
6. Instrument Evaluation
    - 6.1 Reliability

Acute Respiratory Infection in Children

Definition

Acute respiratory infection (ARI) is any of a number of infectious diseases involving the respiratory tract (Wikipedia, 2011c). The most common causes are viruses and bacteria. The signs and symptoms of ARI are breathing faster than usual with short, quick breaths or are having difficulty breathing excluding children with only a blocked nose due to viral and bacterial infection of the lungs and respiratory tracts. Acute respiratory infection is classified based on the site of infection as upper respiratory tract infection (URTI) or lower respiratory tract infection (LRTI) (Wong & Hockenberry, 2003). An upper respiratory tract infection includes nasopharyngitis, pharyngitis, tonsilities, and croup. A lower respiratory tract infection includes bronchitis, bronchiolitis, and pneumonia.

Incidence

The global incidence of ARI in children is estimated that in 2010, 11·9 million episodes of severe and 3·0 million (2.1-4.2 million) episodes of very severe acute lower respiratory infections (ALRI) resulted in hospital admissions in young children worldwide (Nair et al., 2013). According to Yilgwan, John, Abok, and Okolo (2013), ARI are the commonest cause of acute morbidity in children especially those under five in the developing countries.

In Pakistan, the incidence of ARI was 19-20% of total deaths occur due to ARI in children under five years of age (Kumar, Hashmi, Soomro, & Ghouri, 2012). According to the World Health Organization (2012), acute respiratory infections kill an estimated 2.6 million children annually every year worldwide. Baseline data showed that the incidence of ARI was 12.0 episodes per 100 children (Feikin et al., 2012).

In Indonesia, Global Health Initiative (2011) found that ARI was responsible for the second cause of death among infant and under-five year old after diarrhea. Furthermore, Affand and Utji (2009) found that ARI was the primary cause of infant death (40%) and deaths in children under-five years (17%). The incidence rate of acute respiratory infection in children under-five from 2004-2008 reported to sub-directorate ARI control showed that the number of cases reported seemed to be decreasing (2004 = 39.91%, 2005 = 27.65%, 2006 = 29.12%, 2007 = 27.71%, 2008 = 22.13%) (Hernani, Sudarti, Agustina, & Sariasih, 2009).

Etiology

The most acute respiratory infection is due to viruses. Viruses and bacteria are the most common cause of upper respiratory infection (Makela, 1998), and viruses are the most common cause of lower respiratory tract infection in infants and children (van-Woensel, van-Aalderan, & Kimpen, 2003). However, bacteria, protozoa, chemical agent, and aspiration can be the cause as well. The details of the etiology of ARI are as follows.

Virus

Adenoviruses, parainfluenza virus, and influenza virus can be the cause of ARI. Respiratory syncytial virus (RSV) is the most important viral pathogen causing acute lower respiratory infection (ALRI) in young children, although its contribution to ALRI deaths is uncertain (Wright & Cutts, 2000). Parainfluenza and influenza viruses, RSV and adenovirus are the primary causes of upper airway obstruction (Kaditis & Wald, 1998). RSV is the most cases of bronchiolitis (Noble, Murray, Webb, & Alexander, 1996) and adenovirus, parainfluenza, and influenza (Kercsmar, 1998).

Bacteria

Bacterial infection are caused primarily by Streptococcus pneumonia, Haemophilus influenzae (mostly type b), and occasionally by Staphylococcus aureus (James, Ashwill, & Droske, 2002). Staphylococcus aureus is another important gram-positive cause of ARI. A Gram-negative bacterium causes pneumonia less frequently than gram-positive bacteria. Some of the gram-negative bacteria that cause pneumonia include Haemophilus influenzae, Klesiella pneumoniae, Escherichia coli, Pseudomonas aeruginosa, and Moraxella catarrhalis (Anevlavis & Bouros, 2010).

Protozoa

Protozoa rarely cause serious ARI but are important causes of pneumonia immune compromised hosts (Esentesin, Schaechter, & Moslio, 2007). A variety of protozoa can affect the lungs. These protozoa typically enter the body through the skin or by being swallowed. Once inside, they travel to the lungs, usually through the blood. There, as in other cases of pneumonia, a combination of cellular destruction

and immune response causes disruption of oxygen transportation. The most common protozoa causing pneumonia are Toxoplasma gondii, Stronglydoides, and Ascariasis (Martinez-Giron, Esteban, Ribas, & Doganci, 2008).

Chemical agent

ARI can be caused by chemical agents or toxicants such as pesticides, which may enter the body by inhalation or by skin contact. Another cause of chemical is smoke inhalation injury causes lung damage because of thermal and chemical factors (Bye & Mellins, 1998). These factors results in tissue destruction and inflammation. Edema, excessive mucous production, and cellular debris lead to airway obstruction, pneumonia, and impaired surfactant production (Tortorolo, Chiaretti, Piastra, Viola, & Polidori, 1999).

Aspiration

Aspiration is caused by aspirating foreign objects which are usually oral or gastric contents, either while eating, or after reflux or vomiting which can result in bronchopneumonia. The resulting lung inflammation is not an infection but can contribute to one, since the material aspirated may contain anaerobic bacteria or other unusual causes of pneumonia. Aspiration occurs when food, secretions, inert material, volatile compounds or liquids enter lung and cause inflammation (Hueckel & Wilson, 2007). When objects do become lodged in the airway, they cause partial or complete airway obstruction. Partial airway obstruction can cause atelectasis and hyperexpansion of the alveoli and resultant respiratory distress (James, Ashwill, & Droske, 2002).

Signs and symptoms

In general, signs and symptoms of ARI in children are fever, meningismus, anorexia, vomiting, diarrhea, abdominal pain, nasal blockage, nasal discharge, cough, respiratory sounds and sore throat (Hueckel & Wilson, 2007). The sign and symptoms of ARI in children depend on the location of the infection. The most common signs and symptoms of upper respiratory tract infection (URTI) are nasal discharge, nasal congestion, sneezing, sore throat, and cough (Meneghetti, 2009). The lower respiratory tract infection (LRTI) signs and symptoms are more serious and severe than those of URTI. The incubation time for LRTI is usually 2-7 days (may be up to 10 days). The signs and symptoms of LRTI are fever sometimes associated with headache, malaise, and myalgias, dry cough, dyspnoea potentially progressing to hypoxaemia, and necessitating artificial ventilation (van-Woensel, van-Aalderan, & Kimpen, 2003).

Pathophysiology

Pathophysiology of ARI depends on the location of infection such as URTI or LRTI and types of diseases. Upper respiratory tract infections are the illnesses caused by an acute infection which involves the upper respiratory tract, such as nose, sinuses, pharynx or larynx. Inoculation from the viruses or bacteria begins when secretions are transferred by placing a hand exposed to pathogens to the nose or mouth or by directly inhaling respiratory droplets from an infected person who is coughing or sneezing (Meneghetti, 2009). The lower respiratory tract infection usually starts with rhinorrhoea, cough and fever. After one or two days, the LRTI may become involved with signs of respiratory distress such as tachypnea, retractions, cyanosis, and apnea

may occur in infants, particularly infection because of respiratory syncytial virus (van-Woensel, van-Aalderan, & Kimpen, 2003).

Upper respiratory tract infection

Upper respiratory tract infection consists of phryngitis and croup. The details of these are as follows.

Pharyngitis. Pharyngitis is a type of URTI that involves inflammation of the pharynx and surrounding lymphoid tissues which can be caused by viruses or bacteria (James, Ashwill, & Droske, 2002). Most cases of pharyngitis are caused by viruses, bacteria, fungal and chemical substances (Acerra, 2010). Viral pharyngitis etiologies include Adenovirus, Orthomyxoviride, Herpes simplex, Measles, Rhinovirus, Respiratory syncytial virus, and Parainfluenza (John, 2010). Bacterial pharyngitis etiologies include: Group A streptococcus, Corynecbacterium diphtheriae, Neisseria gonorrhoeae, Chlamydophila pneumoniae, and Mycoplasma pneumonia (Bisno, 2001). Transmission of pharyngitis is usually through respiratory secretions and infection localized in lymphatic tissue (e.g., tonsils). Pharyngitis can be accompanied by sore throat, dysphagia, cough, foul breath, headache, and fever (Meneghetti, 2009).

Croup. Croup is a common viral infection of the upper airway manifested by a croupy or barking cough, inspiratory stridor, and some degree of respiratory distress (James, Ashwill, & Droske, 2002). Coup is deemed to be due to a viral and bacterial infection (Rajapaksa & Starr, 2010). Viral croup etiologies include Influenza A and B, Measles adenovirus, and Respiratory syncytial virus (Cherry, 2008). The most common bacterial croup etiologies include: Staphylococcus aureus, Streptococcus pneumoniae, Hemophilus influenzae, and Moraxella catarrhalis (Cherry, 2008). The

viral infection that causes croup leads to swelling of the larynx, trachea and large bronchi (Everard, 2009), due to infiltration of white blood cells (Cherry, 2008). Swelling produces airway obstruction, furthermore the obstruction creates turbulence during inspiration causing the characteristic inspiratory stridor associated with croup (Huether, 2000a).

Lower respiratory tract infection

Lower respiratory tract is the part of the respiratory tract below the vocal cords. Viruses are the most common cause of lower respiratory tract disease in infants and young children and are generally more serious than upper respiratory infections. LTRI consists of bronchitis, bronchiolitis, and pneumonia. The details of them are as follows.

Bronchitis. Bronchitis is an inflammation of the trachea and major bronchi. Acute bronchitis is most often caused by Rhinoviruses, Adenovirus, and Influenza viruses and leads to the hacking cough and phlegm production that often follows URTI (Carolan & Callahan, 2010). This occurs because of the inflammatory response of the mucous membranes within the bronchial passages (Miron et al., 2010). Common symptoms of acute bronchitis include cough, sore throat, runny nose, nasal congestion, fever, pleurisy, malaise, and sputum (Cohen & William, 2004). Chronic bronchitis is caused by recurring injury or irritation to the respiratory epithelium of the bronchi resulting in chronic inflammation, swelling, and increased production of mucus by goblet cells (Cohen & William, 2004). The symptoms of chronic bronchitis include cough, wheezing, and shortness of breath, and often associated with asthma,

cystic fibrosis, dyskinetic cilia syndrome, foreign body aspiration, or exposure to an airway irritant (Cohen & William, 2004).

Bronchiolitis. Bronchiolitis is edema and the accumulation of mucus and cellular debris (James, Ashwill, & Droske, 2002). The infection of bronchiolar and ciliated epithelial cells produces increased mucus secretion, cell death, sloughing, peribronchiolar lymphocytic infiltration and sub mucosal edema (Louden, 2010). These effects result in an occlusion of the bronchioles (James, Ashwill, & Droske, 2002). The occlusion causes air tapping, which leads to hyperinflation of some alveoli and atelectasis, reduced ventilation, and labored breathing (Udeani, 2009). Bronchiolitis is usually caused by viruses that infect the small airways. Viral bronchiolitis etiologies include Respiratory syncytial virus, Adenovirus, Parainfluenza, and Human meta-pneumovirus (Kyle, 2008). The infection on bronchiolar and ciliated epithelial cells produces increased mucus secretion, cell death, sloughing, peribronchiolar lymphocytic infiltrate and sub mucosal edema (Louden, 2010).

Pneumonia. Pneumonia is an acute inflammation of the pulmonary parenchyma associated with alveolar consolidation (James, Ashwill, & Droske, 2002). Most commonly the inflammation is the result of invasion by viruses and bacteria (Neuman et al., 2010). The symptoms of pneumonia include cough, chest pain, and difficulty in breathing (James, Ashwill, & Droske, 2002). Virus pneumonia etiologies include Influenza, Respiratory syncytial virus, Adenovirus, and Parainfluenza (Figueiredo, 2009). The characteristic of virus infection is the accumulation of mononuclear cells in the sub mucosa and perivascular space, resulting in partial

obstruction of the airway (Bennet, Domachowske, & Lowell, 2010). The infection progresses when diminished production of surfactant production and alveolar cell lose their structural integrity, and a hyaline membrane forms and pulmonary edema develops (Bennet, Domachowske, & Lowell, 2010). Bacterial pneumonia etiologies include Streptococcus pneumoniae, Streptococcus aureus, Streptococcus agalactiae, Haemophilus influenza, Klebsiella pneumonia, Pseudomonas aeruginosa, and Moraxella catarrhalis (Anevlavis & Bouros, 2010). The characteristic cause of bacterial infection include: 1) alveoli filled with proteinaceous fluid, which triggers a brisk influx of red blood cells (RBCs) and polymorphonuclear cells followed by the deposition of fibrin and the degradation of inflammatory cells, 2) intra-alveolar debris is ingested and removed by the alveolar macrophages, and this consolidation leads to decreased air entry and dullness to percussion, 3) inflammation and pulmonary edema that results from these infections causing the lungs to become stiff and less distensible, thereby decreasing tidal volume, and 4) poorly ventilated areas of the lung may remain well perfused, resulting in ventilation/perfusion mismatch and hypoxemia (Bennet, Domachowske, & Lowell, 2010).

Treatment

Treatment of ARI depends on the severity of disease and the patient itself. Regular exercise and healthy nutrition are important in preventing and treating respiratory disease. The details for treatment of URTI and LRTI are as follows.

Treatment of upper respiratory tract infection

Treatment of URTI depends on the underlying cause. Most URTI are self-limited viral infections that resolve without treatment. Antibacterial therapy is

appropriate for patients with Group A streptococcus pharyngitis, and cough (Meneghetti, 2009). Antibiotics used as first-line therapy include Penicillin V (Veetids), Penicillin G benzathine, alternative therapy Amoxicillin, oral Cephalosporins, Clindamycin, and Macrolides (Wong, Blumberg, & Lowe, 2006). Treatment for croup includes nebulizer epinephrine, systemic or nebulizer corticosteroids, fluids, rest, and comforting measures (James, Ashwill, & Droske, 2002).

Treatment of lower respiratory tract infection

The treatment of lower respiratory tract infection with RSV is mainly supportive. In general, treatment for LRTI is preservation of adequate fluid intake and correction of hypoxemia (van-Woensel, van-Aalderan, & Kimpen, 2003). The implementation of educational programmes and practical guidelines have been shown to be cost effective and may help in standardizing treatment strategies for viral lower respiratory tract infections in children (Adcock, Sanders, & Marshall, 1998). The hospitalized patient is commonly placed in an atmosphere of cold, humidified oxygen to relieve hypoxemia and to reduce insensible water loss from tachypnea. Progressive hypercarbia, hypoxemia unresponsive to oxygen administration, and recurrent apnea are potential indications for intubation and mechanical ventilation (Park & Barnett, 2002). Specific treatment for treating viral lower respiratory tract infections include bronchodilator agents, corticosteroids may be beneficial in artificially ventilated patients with severe bronchiolitis, antiviral (Ribavirin), and antibiotics (van-Woensel, van-Aalderan, & Kimpen, 2003). Two types of drugs approved for the prophylatic prevention of RSV include respiratory syncytial virus immunoglobulin and

palivizumb (Hueckel & Wilson, 2007). The antibiotic choice for treatment of LRTI is Amoxicillin, Procaine penicillin and Gentamicin (Kabra & Pandey, 2006).

Holistic nursing care for ARI children and family

Holistic nursing care for ARI children and family was established through nursing process. Nursing process consists of five steps: assessment, diagnosis, planning, implementation, and evaluation (Potter & Perry, 2011). The nursing care should be individualized based on the patient's symptoms and needs. The details of holistic nursing care for ARI children and family based on each step of nursing process are as follows.

Step 1 Assessment

The first step is holistic assessment. Holistic nursing assessment means the nurses assess each person holistically using appropriate methods while the uniqueness of the person is honored (Dossey, Keegan, & Guzzetta, 2005). Holistic nursing assessment for ARI children and family includes physical, psychological, socio-cultural, and spiritual needs. Information of each need can be retrieved from taking health history and physical examination.

Physical assessment. A physical assessment includes performing a comprehensive physical examination of the child by inspection, palpation, percussion, and auscultation. Physical assessment for ARI children includes examination of airway and respiratory function carefully. Good observation skills are important to ensure timely interventions for worsening respiratory symptoms and prevention of respiratory distress. Assessment guidelines for ARI children include: 1) quality of

respirations (inspect the rate, depth, and ease of respirations, identify the signs of respiratory distress, note lack of simultaneous chest and abdominal rise with inspiration, and auscultation breath sounds to see if they are bilateral, diminished, or absent, and for presence of adventitious sound), 2) quality of pulse (assess the rate and rhythm and compare pulse sites for strength and rate), 3) color (observe overall color with respiratory distress, color progresses from pallor to mottled to cyanosis; central cyanosis is a late sign of respiratory distress), 4) cough (note whether it is dry, wet, brassy, croupy or weak; weak cough may indicate an airway obstruction or fatigue from prolonged respiratory effort (not valid in newborns), 5) behavior change (note level of consciousness: alert or lethargic; lethargy may indicate hypoxia; restlessness and irritability are associated with hypoxia; watch for abrupt behavior changes; restlessness, irritability, and lowered level of consciousness may indicate increasing hypoxia), and signs of dehydration (inspect for dry mucous membranes, lack of tears, poor skin turgor, and decreased urine output, which indicate that fluid needs are not being met) (London, Ladewig, Ball, & Bindler, 2007).

Psychological assessment. A psychological assessment includes performing a psychological examination including cognitive function and emotional status. The psychological dimension refers to the child and parent problems during hospitalization with acute respiratory infection. Having a child hospitalized is a stressful event for parents who often experience anxiety and depression during the period of hospitalization (Commodari, 2010). Psychological assessment for ARI children is focused on healing the mind of the person alleviating fears and addressing concerns. The history of psychological assessment based on the patient/parent's

previous experience. Children with ARI are fearful because of difficulty in breathing. Psychosocial impacts of ARI in children and parents are feelings of vulnerability, uncertainty and threat to life. Somatic and cognitive symptoms of anxiety can be seen in children and parents. Psychological impact is stressful experiences for children and parents. Stress or anxiety influences the extent of negative reaction of children to medical intervention. The unfamiliar hospital environment and procedures can increase stress. Parents' questions, as well as their nonverbal cues, help direct nursing interventions during admission and throughout hospitalization (Kyle, 2008).

Socio-cultural assessment. Socio-cultural assessment includes nurses identifying a financial assistance, family supports, cultural beliefs, and values. Socio-cultural needs assessment for ARI children is focused on family and financial support, family traditions, cultural beliefs, and values (Kolcaba & DiMarco, 2005). Socio-cultural assessment provides important information regarding culture care beliefs, values, patterns, expressions, and meanings related to the patients' needs for obtaining or maintaining health or to face acute or chronic illness, disabilities, or death. Careful negotiations in such instances require a team effort in order to achieve the best possible result (Linnard-Palmer & Kools, 2005). Another socio-cultural impact is parental involvement. Some study found that parental involvement and presence report that children are less anxious and often demonstrate fewer negative effects post hospitalization if their parents are allowed to stay with them (Baker, 2004; Bennet, 2001).

Spiritual assessment. A spiritual assessment refers to the nurses performing a spiritual evaluation regarding an expression and experience through living our

connectedness with the sacred source, the self, others, and nature (Dossey, Keegan, & Guzzetta, 2005). Spiritual assessment for ARI children is focused on the care acknowledges the parent in need of care as a spiritual being and designing care that identify and meet those needs by connecting to a God or higher Being through prayer or other rituals to source out comfort, and healing. The spiritual assessment includes 1) religious beliefs, 2) affiliation, and 3) practices. Spirituality is the cornerstone of the hierarchy of dimensions of human experience, as spiritual religion, interpersonal, and physical general medicine (Culliford, 2002). Body and mind are both influenced and united by its action; this informs and enriches the biological, psychological and inter-personal realms. Pehler (1997) reported that spiritual assessment by an expert panel of hospital chaplains of whether a model spiritual well-being index accurately measures how children manifest spiritual distress a survey of health care providers in a single neonatal intensive care unit, found that strong undercurrent of spiritual and religious beliefs and practices regarding patient care (Catlin et al., 2001) and a qualitative study that described a variety of spiritual and religious beliefs or coping mechanisms among children with cystic fibrosis (Pendleton, Cavalli, Pargament, & Nasr, 2002).

Steps 2-4 Nursing diagnosis, planning, implementation, and evaluation

The next four steps of nursing process consist of nursing diagnosis, planning, implementation, and evaluation. These four steps were integrated together to develop holistic nursing care plan for ARI children and family. Holistic nursing care plan for ARI children is derived from analyzing the assessment data in order to determine diagnosis as the nurse's clinical judgment about actual or potential health

problems/life process occurring with children and family, planning as the plan outlines nursing interventions chosen to facilitate achievement of identified outcomes, implementation the plan, and evaluation as a planned review of the nurse-children and family interaction to identify factors facilitating or hindering anticipated outcomes (Kozier, Berman, & Snyder, 2004). Based on the holistic care concept (Dossey, 1997), nursing process (Potter & Perry, 2011), and the integrated nursing care for ARI children (Ackley & Ladwig, 2004; Hueckel & Wilson, 2007; James, Ashwill, & Droskke, 2002; Kyle; Urden, Stacy, & Lough, 2010), the following holistic nursing care plan of ARI children and *family* is divided into four dimensions related to the needs of ARI children and family.

Physical dimension

Nursing diagnosis 1 Ineffective breathing pattern related to inflammatory or infectious process

Planning and implementation

1. Assess respiratory rate, breath sounds, work of breathing, and heart rates frequently to ensure progress with treatment and so that deterioration can be noted early. Signs and symptoms of increased respiratory indicate increasing air way obstruction.

2. Administer humidified oxygen at the ordered flow rate, administer mist only if ordered. Monitor pulse oximetry readings or transcutaneous oxygen concentration frequently. Oxygen may be ordered to alleviate hypoxia and restlessness. The child condition must be monitored closely, because oxygen use can mask early signs of hypoxia and increasing obstructions.

3. Administer nebulized epinephrine as ordered. Epinephrine relieves airway obstruction by causing vasoconstriction of airway.

4. Administer systemic or nebulized as ordered. Corticosteroids serve to decrease airway obstruction by reducing the edema of respiratory mucosa.

5. Assist child to maintain upright position with head of bed elevated. Upright position facilitates diaphragmatic moment and air intake.

6. Maintain a clear airway by encouraging child to clear own secretions with effective coughing. If secretions cannot be cleared, suction as needed to clear secretions.

7. Ensure the emergency equipment is available (e.g., appropriate size ventilation bag, endotracheal tubes, laryngoscope, and emergency medication). The child condition can deteriorate rapidly. Immediate resuscitation may be necessary in the event of severe respiratory distress.

8. Provide calm, supportive environment. Encourage parents participation in care. Supportive care by parents in a calm atmosphere, decrease anxiety and reduce demands on the respiratory system.

9. Provide rest periods balanced with periods of activity. Rest periods decrease oxygen consumption.

Evaluation

The child respiratory function with absence of retractions, accessory muscle use, grunting, clear breath sounds with adequate aeration, oxygen saturation > 94% or within prescribed parameters.

Nursing diagnosis 2 Deficient fluid volume related to inadequate oral intake and insensible losses via fever, tachypnea, or diaphoresis

Planning and implementation

1. Assess and monitor hydration status at least every 8 hours. The assessment includes measuring intake and output, assessing mucous membranes and skin turgor, and weighing daily on the same time of day. Assessment data provides information necessary for guiding and evaluating the plan of care. Check mucus membranes and skin turgor. An increased respiratory rate causes insensible water loss.

2. Administer and monitor intravenous fluids as ordered. Intravenous fluids may be ordered to maintain adequate hydration in nothing per oral (NPO) state. Intravenous (IV) fluids may be ordered to prevent dehydration and decrease the physical effort associated with oral fluids.

3. Encourage child to drink the prescribed amounts of fluid. If oral fluids are tolerated, provide oral fluids child prefer. Place at bedside within easy reach. Provide fresh water and a straw. Be creative in selecting fluid sources (e.g., flavored gelatin, frozen juice bars, sports drink).

4. Teach parents to prevent future episodes of inadequate intake. Parents need to understand the importance of drinking extra fluid during bouts of diarrhea, fever, and other conditions causing fluid deficits.

5. Administer acetaminophen for fever as ordered. Monitor temperature every 4 hours.

Evaluation

1. The child has urine output appropriate for age.

2. The child takes adequately hydrated, and is able to tolerate oral fluids.

3. The child has elastic turgor and mucous membrane moist.

Nursing diagnosis 3 Altered nutrition less than body requirements related to difficulty feeding

Planning and implementation

1. Measure body weight with the same scale and at the same time daily. Increase body weight or maintenance indicate adequate nutritional intake.

2. Identify factors that reduce nutritional intake such as poor oral intake or tiring with feeding. Proper assessment guides intervention.

3. Encourage the child and parents to participate in recording food intake using a daily log. Determination of type, amount, and pattern of food or fluid intake is facilitated by accurate documentation by child or parents as the intake occurs memory is insufficient.

4. Assist the child with meals as needed. Ensure a pleasant environment, facilitate proper position, and provide good oral hygiene and dentition. Elevating the head of bed 30 degrees aids in swallowing and reduces risk of aspiration.

5. Consult dietitian for further assessment and recommendations regarding food preferences and nutritional support. Dietitians have a greater understanding of the nutritional value of foods and may be helpful in assessing specific ethnic or cultural foods.

6. Observe and record number and consistency of stools and urine per day. Documentation of output provides a baseline and helps direct replacement nutrition therapy.

Evaluation

1. The child will maintain adequate nutritional intake: weight gain or maintenance occurs.

2. The child consumes adequate diet.

Nursing diagnosis 4 Activity intolerance related to high respiratory demand

Planning and implementation

1. Assess the child's level of mobility. This aids in defining what the child is capable of, which is necessary before setting realistic goals.

2. Assess nutritional status. Adequate energy reserves are required for activity.

3. Provide rest periods balanced with periods of activity and encourage adequate rest periods, especially before meals, other activity daily living, exercise sessions, and ambulation. Rest between activities provides time for energy conservation and recovery. Heart rate recovery following activity is greatest at the beginning of a rest period.

4. Establish guidelines and goals of activity with the child and parents. Motivation is enhanced if the child and parents participate in goal setting.

5. Monitor the child sleep pattern and amount of sleep achieved over past few days. Difficulties in sleeping need to be addressed before activity progression can be achieved.

Evaluation

1. The child maintains activity level within capabilities, as evidenced by normal heart rate and blood pressure during activity, as well as absence of shortness of breath, weakness, and fatigue.

2. The child exhibits no evidence of increased respiratory distress.

Nursing diagnosis 5 Risk for infection related to presence of infection organism

Planning and implementation

1. Maintain aseptic environment, using sterile suction catheters and good hand washing to prevent introduction of further infection agents.

2. Isolate the child as indicated to prevent nosocomial spread of infection. Protective isolation is established if white blood cell counts indicate neutropenia (<500 to 1000 mm^3). Institutional protocols may vary.

3. Assess nutritional status, including weight, history of weight loss, and serum albumin. A child with poor nutritional status may be weak or unable to muster a cellular immune response to pathogens and are therefore more susceptible to infection.

4. Provide nutrition according to the child preferences and ability to consume nourishment to support body natural defenses.

5. Teach parents to wash hands before and after contact with the child and provide procedures to the child. Friction and running water effectively remove microorganisms from hands. Washing between procedures reduces the risk of transmitting pathogens from one area of the body to another. Use of disposable gloves does not reduce the need for hand washing.

6. Limit visitors. This reduces the number of organisms in the child environment and restricts visitation by individuals with any type of infection to reduce

the transmission of pathogens to the child at risk for infection. The most common modes of transmission are by direct contact (touching) and by droplet (airborne).

7. Encourage coughing and deep breathing; consider use of incentive spirometer. These measures reduce stasis of secretions in the lungs and bronchial tree. When stasis occurs, pathogens can cause upper respiratory infections, including pneumonia.

8. Administer antimicrobial (antibiotic) drugs as ordered and observe side effects of medications. Antimicrobial drugs include antibacterial, antifungal, antiparasitic, and antiviral agents. All of these agents are either toxic to the pathogen or retard the pathogen's growth. Ideally, the selection of the drug is based on cultures from the infected area; this is often impossible or impractical, and in these cases, empirical management usually is undertaken with a broad-spectrum drug.

9. Teach parents to take antibiotics as prescribed. Most antibiotics work best when a constant blood level is maintained; a constant blood level is maintained when medications are taken as prescribed. The absorption of some antibiotics is hindered by certain foods; patient should be instructed accordingly.

Evaluation

The child exhibits evidence of diminishing symptoms of infection.

Psychological dimension

Nursing diagnosis 1 Child's anxiety related to hospitalization

Planning and implementation

1. Assess for indications of isolation and loneliness (e.g. absence of supportive significant others, being lonely or sad).

2. Encourage parents to touch and cuddle the child.

3. Encourage family-centered care and encourage family to become involved in their child care.

4. Provide parents with breaks as needed, and assure them that their child will be cared for in their absence.

5. Allow the child to keep a favorite toy or blanket.

6. Use developmentally appropriate communication techniques such as play and puppets.

Evaluation

The child shows reduced expression of feelings of anxiety and talks with family/nurse

Nursing diagnosis 2 Child's acute pain related to inflammatory process of diseases, and procedures of treatment

Planning and implementation

1. Assess pain characteristics: quality, severity, location, onset, and duration. Identify the extent of pain using pain instruments such as a faces scale.

2. Monitor signs and symptoms associated with pain, such as blood pressure, heart rate, temperature, color and moisture of skin, restlessness, and ability to focus.

3. Assess for probable cause of pain. Different etiological factors respond better to different therapies.

4. Evaluate the child's response to pain and medications or therapeutics aimed at abolishing or relieving pain. It is important to help the child express pain as factually as possible (i.e., without the effect of mood, emotion, or anxiety).

5. Anticipate need for pain relief. One can most effectively deal with pain by preventing it. Early intervention may decrease the total amount of analgesic required.

6. Respond immediately to any complaint of pain. In the midst of painful experiences a child perception of time may become distorted. Prompt responses to complaints may result in decreased anxiety in the child.

7. Eliminate additional stressors or sources of discomfort whenever possible. The child may experience an exaggeration in pain or a decreased ability to tolerate painful stimuli if the child is more exposed to environmental and intrapersonal factors such as noise, anxiety, and fear.

8. Determine the appropriate pain relief method

8.1 Pharmacological methods include the followings:

1) Nonsteroidal antiinflammatory drugs (NSAIDs) that may be administered orally or parenterally (to date, ketorolac is the only available parenteral NSAID).

2) Use of opiates that may be administered orally, intramuscularly, subcutaneously, intravenously, systemically by patient-controlled analgesia (PCA) systems, or epidurally (either by bolus or continuous infusion). Narcotics are indicated for severe pain, especially in the hospice or home setting.

8.2 Nonpharmacological methods include the followings: cold compress or ice pack, and storytelling.

9. Give analgesics as ordered, evaluating effectiveness and observing for any signs and symptoms of untoward effects. Pain medications are absorbed and

metabolized differently by the child, so their effectiveness must be evaluated from the child. Analgesics may cause side effects that range from mild to life-threatening.

Evaluation

The child has no pain or acceptable pain level

Nursing diagnosis 3 Child's fear related to difficulty in breathing, unfamiliar personnel, procedures, and environment (hospital)

Planning and implementation

1. Use developmentally appropriate communication techniques. A calm, emphatic, caring approach is helpful in providing emotional support to the child.

2. Use play therapy. Therapeutic play allows the child to work through fears in a nonthreatening manner.

3. Explain all treatments, equipment, and procedures to the child and parents. Fear related to lack of knowledge can be minimized by providing clear and timely explanation.

4. Maintain a calm and restful environment. Organize nursing care as to disturb the child as little as possible. Postpone unnecessary procedures until the child is in less distress. Allow periods of uninterrupted rest. Fear and crying will increase oxygen consumption and respiratory distress.

5. Encourage parents to touch and cuddle the child. Infants and toddlers like to be held when they are ill. If the child has a mist tent, parents should be told it is acceptable to sit inside the mist tent with the child. Children who are not in tents can be held in their parents arms while mist is directed toward their faces. A parents presence is important in reducing fear of infants and toddlers.

6. Encourage parents participation in care. Explain ways that they can make their child more comfortable, and tell them that their presence is important. Parents feeling of helplessness and anxiety are decreased when they are allowed to comfort and care for their child. Participation in the child care also helps prepare the parents for discharge and home care.

7. Provide parents with breaks as needed, and assure them that their child will be cared for in their absence. Caring for a child in the hospital is exhausting to parents' fatigue and magnifies feelings of anxiety and helplessness.

8. Allow the child and parents to ask questions and to discuss fears and concerns. Cooperation is increased with understanding of the purpose of treatment.

Evaluation

The child shows reduced fear with resting quietly, crying less, and cooperating with nursing care as appropriate for age.

Nursing diagnosis 4 Parental anxiety related to the child's hospitalization, lack of knowledge concerning the child condition and treatment

Planning and implementation

1. Assess parent's level of anxiety. Mild anxiety enhances the parent awareness and ability to identify and solve problems. Moderate anxiety limits awareness of environmental stimuli. Problem solving can occur but may be more difficult, and the child and parent may need help.

2. Explain to parents about the child condition and all procedures, treatments and equipments. Anxiety related to lack of knowledge can be lessened if explanations are provided beforehand and through the child hospitalization.

3. Encourage parents to participate in the child care. Provide them with breaks as needed. Assure them that the child will be observed closely in their absence. Participation and presence of parents promotes comfort and rest. Emotional supports for parents help them cope with the crisis of hospitalization.

4. Maintain a calm manner while interacting with parents. Parent's feeling of stability increases in a calm and nonthreatening atmosphere.

5. Establish a working relationship with the child and parents through continuity of care. An ongoing relationship establishes a basis for comfort in communicating anxious feelings.

6. Use simple language and brief statements when explaining to parents about all treatments, equipment's, and procedures. When experiencing moderate to severe anxiety, parents may be unable to comprehend anything more than simple, clear, and brief instructions.

7. Reduce sensory stimuli by maintaining a quiet environment; keep threatening equipment out of sight. Anxiety may escalate with excessive conversation, noise, and equipment around parents.

8. Encourage parents to talk about anxious feelings and examine anxiety-provoking situations if able to identify them. Assist parents in assessing the situation realistically and recognizing factors leading to the anxious feelings.

Evaluation

1. Parents show decreasing anxiety and feel more secure in a hospital environment.

Socio-cultural dimension

Nursing diagnosis 1 Parental role strain related to inadequate personal resources, factors contributing of satisfying personal relationships, and cultural difference

Planning and implementation

1. Assess parents or family communication pattern. Open communication in the parents or family creates a positive environment, whereas concealing feelings creates problems for caregiver and care recipient.

2. Assess parents or family resources and support systems. Parents or family and social support are related positively to coping effectiveness. Some cultures are more accepting of this responsibility. However, factors such as blended family units, aging parents, geographical distances between family members, and limited financial resources may hamper coping effectiveness.

3. Encourage parents to identify available family and friends who can assist with parents. Successful parents should not be the sole responsibility of one person. In some situations there may be no readily available resources; however, often family members hesitate to notify other family members or significant others because of unresolved conflicts in the past.

4. Encourage involvement of other family members to relieve pressure on primary parents. Caring for a family member can be mutually rewarding and satisfying family experience.

5. Acknowledge to caregiver the role he or she is carrying out and its value. Parents have identified how important it is to feel appreciated for their efforts.

6. Provide time for parents to discuss problems, concerns, and feelings. Ask caregiver how he or she is managing.

7. Provide information on disease process and management strategies. Accurate information increases understanding of care recipient's condition and behavior. Parents may have an unrealistic picture of the extent of care required at the present time.

8. Refer to social worker for referral for community resources and/or financial aid, if needed.

Evaluation

1. Parents use strengths and resources to withstand stress of care giving.

2. Parents report that formal and informal support systems are adequate and helpful.

Nursing diagnosis 2 Parent's ineffective health maintenance related to deficient knowledge and cultural sensitive regarding signs and symptoms of ARI children and treatment

Planning and implementation

1. Determine who will be the learner: patient or family.

2. Assess ability to learn or perform desired health-related care. Cognitive impairments need to be identified so an appropriate teaching plan can be designed.

3. Identify priority of learning needs within the overall plan of care. Adults learn material that is important to them.

3. Assess cultural beliefs or practices that affect health. Many people view illness as a punishment from God that must be treated through spiritual healing practices (e.g., prayer, pilgrimage), not medications.

3. Assess cultural beliefs about the treatment plan. Understanding any worries or misconceptions patient may have about the plan or side effects will guide future interventions.

4. Determine cultural influences on importance of health care. Not all persons view maintenance of health the same. For example, some may place trust in God for treatment and refuse pills, blood transfusions, or surgery**.**

5. Provide information to support self-efficacy, self-regulation, and self-management. When focusing on information about problem solving and decision making, significant improvement in symptom limitations were noted.

6. Acknowledge racial/ethnic differences on the onset of care. Show respect, acknowledge racial/ ethnic differences, show sensitivity and self-awareness to enhance communication and rapport, and promote treatment outcomes.

7. Use teaching methods that are culturally sensitive and support parents or family customs, values, and lifestyle. Teaching focused on preferred language, cultural dietary preferences, family and social involvement, and discussion of cultural health beliefs resulted in significant improvement knowledge and self-care behavior.

Evaluation

1. Parents demonstrate flexibility in dealing with problem behavior of care recipient.

2. Parents describe positive health maintenance behaviors.

Spiritual dimension

Nursing diagnosis 1 Parents have spiritual distress related to separation from religious practice and children illness

Planning and implementation

1. Assess history of formal religious affiliation and desire for religious practice. Information regarding specific religion and importance of rituals or practices may improve understanding of parent's need.

2. Assess cultural beliefs. Individuals may have other important beliefs besides religion that provide strength and inspiration. Likewise, physical impairments or suffering may be seen as punishment from God.

3. Assess spiritual meaning of illness or treatment. Questions such as the following provide a basis for future care planning: what is the meaning of your illness? How does your illness or treatment affect your relationship with God, your beliefs, or other sources of strength?

4. Assess hope. Being hopeful provides a link to spiritual well-being.

5. Facilitate communication between parents and religious consultant (ustad). Parents may desire privacy or rest, or may not want religious consultant (ustad) present, but may find it difficult to express.

6. Integrate parent's spirituality into practice as appropriate. Undergirding strong families, promoting healing from abusive family situations, and maintaining relationships with ancestor are important in spirituality promotion.

7. Be physically present and actively listen to the parents. Being present and actively listening to the parents promote nurse-parent or family connectedness and helps the parents feels valued.

8. Help the parents make a list of important and unimportant values. Nurses implement value clarification to support parents spiritually.

9. Provide appropriate religious materials. Reading the Al-Quran is rated highly in promoting spiritual well-being.

10. Assess for influence of cultural beliefs, norms, and values on the parents ability to cope with spiritual distress.

11. Acknowledge the value conflict from acculturation stresses that may contribute to spiritual distress. Challenges to traditional beliefs are anxiety provoking and can produce distress.

12. Validate the parents' concerns and convey respect for their beliefs. Validation is a therapeutic communication technique that lets the parent or family knows the nurse has heard and understood what was said.

Evaluation

1. Parents express the hope with spiritual activities such as praying, zikir and reading the Al-Quran.

2. Parents express a sense of well-being.

Nursing diagnosis 2 Parents have impaired ability to exercise reliance on beliefs and/or participate in rituals of a particular faith tradition related to spiritual crisis

Planning and implementation

1. Identify parents' concerns regarding spiritual expression. Spiritual predicts greater social support, fewer depressive symptoms, better cognitive, greater cooperative and better physical functioning.

2. Encourage and coordinate the use of and participation in usual spiritual rituals or practices that are not detrimental to health. Spirituality is associated with more cooperatives, and better physical health.

3. Encourage the use of prayer or meditation as appropriate. Parents who participate in a spiritual meditation exercise experience will have less anxiety and more positive mood, spiritual health, and spiritual experiences.

4. Determine parent's spiritual practices and encourage use of spiritual practice to help cope with loss. A spirituality assist survivor in coping with life's challenges after the loved one is gone.

5. Provide spiritual leadership, professional counseling as needed. The number one need expressed by hospitalized parents of all denominations and faith is for their spiritual advisor to not abandon them.

6. Promote spiritual practices that are culturally appropriate. Spirituality and prayer based approaches as coping resources.

7. When requested by parents, arrange for a religious consultant (ustad), religious rituals, or the display of religious objects, especially when the child is hospitalized. These help lessen feelings of separation and provide strength and inspiration. If child and parents belongs to a highly codified or ritualized religion, such as Muslim, religious consultant (ustad) is important at times of passage, such as

suffering or death. In times of crisis the child and parents may not have the inner strength to call religious consultant (ustad) without assistance.

Evaluation

1. Parents express a sense of well-being.
2. Parents express satisfaction with religious activity.

Quality of Nursing Care for Acute Respiratory Infection Children

This section presents the definitions of quality of nursing care and quality of nursing care for ARI children and dimensions of quality of nursing care and quality of nursing care for ARI children.

Definitions of quality of nursing care and quality of nursing care for ARI children

Quality

The importance of quality concept is begun in business sector in 1940s and 1950s (Katz & Green, 1992). This concept, then, bring about a restructuring of health care. The works of experts such as Fiegenbaum, Crosby, and Deming has influenced the concept of quality in health care. Fiegenbaum (1951, as cited in Katz & Green, 1992) defined quality as the capability of a product to fulfill its intended purpose, produced with the least possible cost. While Crosby (1979, as cited in Katz & Green, 1992) acknowledged the importance the relationship of quality and cost, he broadened the definition to include conformance to requirements. Crosby emphasizes the need to do things right the first time; his popular concept of zero defects has been implemented throughout industry.

In the health care sector, the concept of quality from Donabedian is widely used. Donabedian (1980) described the quality as the application of medical science and technology in a way that maximizes its benefits to health without correspondingly increasing its risks. The degree of quality is, therefore, the extent to which the care provided is expected to achieve the most favorable balance of risks and benefits. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defined quality as the degree to which patient care service increase the probability of desired outcomes and reduce probability of undesired outcomes given the current state of knowledge (JCAHO, 1991).

The definition of quality and its essential components have broadened in recent years. Many years ago, quality could define as a characteristic or attribute of something being excellent, superior having a, degree or grade of excellence (Wandelt & Stewart, 1975 as cited in Chance, 1997). Quality is a high standard of something, and it is used to describe how good or bad is it in relation to other similar things (Lohr & Schroeder, 1990). Phaneuf (1973 as cited in Chance, 1997) defines quality as the essential character of care considered within the context of degree of merit. Quality often seems to relate to something good or excellent, such as degree of excellence of product, good moral or superiority (The Dictionary of the English Language, 2009). Zimmer (1974 as cited in Chance, 1997) asserts that quality is the observable characteristics that depict a desired and valued degree of excellence and the expected, observed variations. In addition, Hagen (1972 as cited in Chance, 1997) stated that quality may be defined as characteristics of the setting in which nursing care is given,

as types of processes and activities that nurses engage in when giving care to patients, or as patient outcomes.

Quality of care

Quality of care is a complex and multidimensional concept (Donabedian, 1996; Wilde, Larsson, Larsson, & Starrin, 1993). Quality of care can be defined as the degree to which health care services meet the needs, expectations, and standards of care of the patients, and their families (Zastowny et al., 1995). Quality of care is not a single, homogeneous variable, but rather a complex construct incorporating values, beliefs, and attitudes of individuals involved in a health care interaction (Gunther & Alligood, 2002). Donabedian (1980) made a synthesis of earlier attempts to define quality of care where the patient's wishes concern three closely interrelated factors: technical care, interpersonal relationship and amenities in the care environment. Campbell, Roland, and Buetow (2000) defined quality of care as the ability to access effective care on an efficient and equitable basis for the optimization of health benefit/well-being for the whole population and of whether individuals can access the health structures and processes of care which they need and whether the care received is effective. The definition is twofold because Campbell, Roland, and Buetow (2000) differentiated between use of the concept quality of care with reference to the population and use of it with reference to the individual. They regarded the latter use as being the more meaningful. Wilde (1994) considers that wide ranging definitions of quality tend to be vague and difficult to operationalize and concretize.

Quality of nursing care

The history of quality in nursing can be traced back to Florence Nightingale's attempts to improve the conditions of care given to the soldiers of the Crimean War in 1858. Her standards to assess the care given to the soldiers has been established as one of the first documented efforts of quality improvement work, and since then, assurance of quality of nursing care has remained a priority for nurses throughout the world (Kahn, 1987). Subsequently, nursing has developed into a profession with an emerging unique body of knowledge and this has resulted in a growing interest in the improvement of quality of nursing care.

The definition of quality when applied to nursing care is multidimensional and complex (National Academy of Sciences, 1976 as cited in Chance, 1997). The quality of nursing care is the level of excellence achieved (Sale, 1996). Attree (1993) reviewed the available literature and found that they failed to offer a definition, as intended, due to the complex and multi-dimensional nature of quality of nursing care. The subsequent development of a provisional conceptual model of quality of care by Attree (1996) reflected this complexity, lacked a succinct definition, and incorporated the often used quality triad of structure, process, and outcome of Donabedian (2005) to organize the complex elements identified. Hogston (1995b) attempted to seek out practicing nurses' perceptions of quality of nursing care and to present a definition of quality as described by nurses. Eighteen nurses from a large hospital in the south of England were interviewed. Qualitative analysis based on the grounded theory approach revealed three categories described as structure, process, and outcome. The findings demonstrate how nurses cited quality of nursing care in terms of process and

outcome than structure. It is speculated that the significance of this rests with the fact that nurses have direct control over process and outcome whereas the political and economic climate in which nurses work is beyond their control and decisions over structure lie with their managers.

Based on a qualitative approach, Williams (1998) explored Australian nurses perspectives on the delivery of quality of nursing care using the grounded theory. Data were gathered by tape-recorded interviews, published literatures and some participant observations. Findings revealed that quality of nursing care was perceived by nurses as the degree to which patients' physical, psychosocial, and extra care needs were met. High quality of nursing care was described as meeting all needs of the patients. Insufficient time (caused by lack of human and physical resources) was perceived as the main reason for inability to consistently provide quality of nursing care. To deal with this, nurses used a process named selective focusing. It means that work was planned to most effectively utilize the time available, within the parameters of safety (Williams, 1998).

Burhans and Alligood (2010) explored the lived meaning of quality of nursing care for nurses practicing in acute care hospitals. This lived meaning was revealed through analysis of practicing nurse interviews using van Manen's hermeneutic phenomenology. Findings revealed that the lived meaning of quality nursing care for practicing nurses was meeting human needs through caring, empathetic, respectful interactions within which responsibility, intentionality and advocacy form an essential, integral foundation. Caring was revealed in words and phrases such as caring, kind, a caring heart, and has aspect of caring. Empathy was interpreted in

phrases such as appreciating the patient's experience, treat and view the patient as either yourself or your loved one, and being empathetic with the patient. Respect was interpreted in phrases such as treat them all with respect and dignity, don't lie to them, met patient choice and desire, and take that sacred trust to the bedside every time. Responsibility was revealed in words and phrases such as assuming your responsibilities, make sure that things aren't missed and omitted, and doing the right thing. Intentionality, interpreted as the nurse's intention to deliver quality nursing care, was revealed in phrases such as actually wanting to give that good care, giving the best I can to the patient, just day to day commitment to doing, and we know when we do it.

In Thailand, Kunaviktikul et al. (2001) conducted a qualitative approach to develop a definition of quality of nursing care. This study consisted of two phases. The first phase consisted of individual in-depth interviews and focus groups of various stakeholders concerning quality of nursing care. The second phase used a consultative meeting of experts in quality of care. The quality of nursing care was defined as nursing's response to the physical, psychological, emotional, social and spiritual needs of patients provided in a caring manner, so that the patients are cured, healthy, to live normal lives and both patients and nurses are satisfied.

The literature review revealed that there were some reasons for the difficulty of defining the concept of quality. According to Frost (1992), the concept could be modified in different contexts. It is based on the values and experiences of a certain community or society and it is bound to time. It can be determined as bad, good, minimum or maximum. Quality of care is also affected by economical, legislator, and

professional factors (Aiken, Clarke, & Sloane, 2002; Chance, 1997; Tervo-Heikkinen, Kvist, Partanen, Vehvilainen-Julkunen, & Aalto, 2008) as well as individual values, beliefs and attitudes (Koch, 1992). In addition, quality of nursing care is lack of agreement, multiple definitions of quality of nursing care, and excellence without universal agreement throughout the nursing profession (Burhans, 2008).

In summary, quality could be defined as degree of excellence of product, good moral or superiority. Quality of care is described as a complex and multidimensional concept related to various components such as the educated, skilled, and committed caregiver; fulfillment of the needs of patients, caregivers, and payers; patient satisfaction; available resources; the management of risks and the prevention, investigation, and follow-up of errors and accidents; organizational culture; leadership; productivity; and efficiency. Quality of nursing care is defined as the degree or standard as being consistent with current professional knowledge to which patients physical, psychological, socio-cultural, and spiritual needs were met by the nursing care provided. In this study, quality of nursing care with ARI children is defined as the degree to which pediatric nurses provide nursing care based on holistic nursing care plan to meet the physical (e.g., breathing, fluid volume, nutrition, activity intolerance, and infection prevention), psychological (e.g., anxiety, pain, fear, and parental anxiety), socio-cultural (e.g., social support and health maintenance), and spiritual (e.g., spiritual distress and spiritual activities) needs of ARI children and family.

Dimensions of quality of nursing care and quality of nursing care for ARI children

Dimensions of quality of nursing care

Quality of nursing care is not clear and difficult to define (Gunther & Alligood, 2002; Burhans & Alligood, 2010). The literature review showed that very few articles described dimensions of quality of nursing care based on nurse's perceptions. In addition, the available studies were for the most part, conducted in Australia, England, Ireland, Korea, Sweden, Taiwan, and the United States. Therefore, those dimensions' descriptions could be applicable to nurses in those countries only.

In nursing, the dimensions of quality of nursing care are primarily focused on the processes of care: assessment, planning and care delivery as well as interpersonal aspects of nursing practice. Lee, Hsu, and Chang (2007) defined the five dimensions of quality of nursing care with 180 orthopedic patients in Taiwan such as the plan of nursing care was formulated, the physical needs of the patient were attended, the psycho-social-spiritual needs of the patient were attended, and achievement of nursing care objectives.

Irish nurses' perceptions of the attributes of quality of nursing care in a long term care setting were determined using a modified hermeneutic phenomenological approach (Murphy, 2007). This study focused on nurses' perceptions and experiences of providing quality care for older people drove the choice of a phenomenological method. Three themes were identified: holistic, individualized, and family-centered. Another qualitative study in Australian students and nurses by

Coulon, Mok, Krause, and Anderson (1996) identified themes of professionalism, holistic care, practice, and humanism as significant in nurses' quest for excellence. Their findings suggested that the client is the central focus of excellent nursing care at all times.

Redfern and Norman (1999a; 1999b) explored perceptions of quality of nursing care by both nurses and patients in England. The study sample consisted of 96 patients and 80 nurses were interviewed from four wards for elderly people (46 patients), three medical (39 patients), and one surgical ward (11 patients) in three hospitals. The nurses included 7 clinical ward managers, 21 registered nurses, 17 enrolled nurses, and 35 nurse students. They grouped 4546 indicators of high and low quality of nursing care generated from the interview transcripts into 316 subcategories, 68 categories, and 31 themes. The result showed that congruence between nurses' and patients' perception of quality was high and significant, although there was some different emphasis. For example, the same three positive categories were most frequently identified by both patients and nurses, although all three were identified by a higher proportion of nurses: 1) therapeutic ward atmosphere (patients' rank 1, nurses' rank 1), 2) therapeutic relationships in patient care (patients' rank 2, nurses' rank 3), and 3) attends to emotional needs (patients' rank 3, nurses' rank 2). Three other categories were also highly valued by both groups, again identified by a higher proportion of nurses than patients: 1) thoroughness in care giving (patients' rank 6, nurses' rank 6), 2) proactive care (patients' rank 7, nurses' rank 8), and 3) treating patients as individuals (patients' rank 9, nurses' rank 10).

A number of positive categories were ranked substantially higher by one group than the other. Categories ranked markedly higher by patients than nurses were: 1) promotes patients' morale (patients' rank 4, nurses' rank 15), 2) responds promptly to patients' needs (patients' rank 5, nurses' rank 30), and 3) well prepared (patients' rank 21, nurses' rank 33). Categories ranked higher by nurses than patients were: 1) effective leadership (patients' rank 14, nurses' rank 4), 2) commitment to teaching and clinical supervision of students and staff (patients' rank 21, nurses' rank 5), 3) individualized assessment of patients (patients' rank 25, nurses' rank 15), 4) adequate documentation (patients' rank 31, nurses' rank 20), and 5) effective care of unconscious and dying patients (patients' rank 34, nurses' rank 24). Important elements of quality of nursing care for nurses in this study included both the delivery of psychosocial, therapeutic, and thorough care and the ability to work with knowledgeable, committed colleagues, supervisors, and educators. Interpersonal aspects of care delivery were highly valued.

Idvall and Rooke (1998) conducted focus groups with 20 Swedish surgical nurses to determine their perceptions of important aspects of nursing care that influence their quality of care. Fifteen categories of important aspects of care, which could be condensed into two dimensions, called prerequisites (e.g., staffing, routines and attitudes) and elements of performance (e.g., detecting and acting on signs and symptoms and acting on behalf of the patients). Parish (1986) depicted quality of nursing care using process criteria: commitment to holistic and individualized care, involvement of patients and family, provision of emotional support and comfort.

Maben and Griffiths (2008) identified the core elements of quality of nursing care as holistic approach, efficiency and effectiveness, safe and prompt nursing interventions, and support and advocacy. Kwon et al. (2001) explored the perception of quality of nursing care among 19 nurses who worked at diverse clinical areas in eight general and university hospitals. They found that the attributes of quality of nursing care were categorized into seven hierarchies in the order of caring, specialty, nurses attainments, patient-centered, nursing management, sincerity, kindness, and satisfaction.

In summary, the dimensions of quality of nursing care consist of caring, ethical issues related to care, holistic care, individualized care, interpersonal process of care, professional knowledge, and technical skill.

Dimensions of quality of nursing care for ARI children

The dimensions of quality of nursing care for nurses who work with ARI children has not been identified in the nursing literature. Thus, development of dimensions of quality of nursing care for ARI children was based on the extensive review of the literature regarding quality of nursing care as previously mentioned. These four dimensions consist of: 1) the physical dimension of ARI children, 2) the psychological dimension of ARI children and family, 3) the socio-cultural dimension of ARI children and family, and 4) the spiritual dimension of ARI children and family. Details of each dimension of quality of nursing care for ARI children are as follows.

Dimension 1 The physical dimension of ARI children

The physical dimension of ARI children refers to pediatric nurses performing nursing care to meet the needs of ARI children which include effective breathing, adequate fluid volume, adequate nutrition, activity intolerance reduction, and infection prevention.

Dimension 2 The psychological dimension of ARI children and family

The psychological dimension of ARI children and family refers to pediatric nurses performing nursing care to meet the needs of ARI children and their parents which include decrease child's anxiety, decrease child's pain, decrease child's fear, and decrease parental anxiety.

Dimension 3 The socio-cultural dimension of ARI children and family

The socio-cultural dimension of ARI children and family refer to pediatric nurses providing nursing care to meet the needs of ARI children and their parents which include adequate social support and effective health maintenance.

Dimension 4 The spiritual dimension of ARI children and family

The spiritual dimension of ARI children and family refers to pediatric nurses provide nursing care to meet the needs of ARI children and their parents which include decrease spiritual distress and adequate ability to performed spiritual activities.

Measurement of Quality of Nursing Care

Measurement of quality of nursing care is one way in which nurses can promote their contributions to health care (Toms, 1992). Kunaviktikul et al. (2005)

reexamined some established indicators available for measuring the quality of nursing care in Thailand such as structure, process, and outcome indicators. The structure describes physical, organizational, and other characteristics of the system (e.g. staff, education level, and the equipment of the department). The structure indicator is a quantitative measure that reflects the availability of resources. Process is what is done in caring for patients. The process indicator generally measures discrete steps in patient care that are important and often linked to patient outcome. Both structure and process indicators are related to the outcome indicators. Outcome achievement can be assessed for not only health indicators but also for attitudes and knowledge. The outcome indicators measure what happens or does not happen to the patient after something is done or not done.

Some measurement studies have been carried out in nursing at hospitals setting that used the term of structure indicators, process indicators, and outcome indicators such as Orthopedic Nursing Care Quality Monitor Tools, Quality Patient Care Scale (QUALPACS), Rush Medicus Tool-Monitoring the Quality of Nursing Care (RMT-MQNC), Patient's Assessment of Quality Scale Acute Care Version (PAQS-ACV), Oncology Patients Perception of the Quality Nursing Scale (OPPQNC), and Child Care Quality at Hospital (CCQH). All of these studies were done to evaluate the effectiveness of facilities in these hospitals and patient satisfaction with care provided. The details of them are as follows.

Orthopedic Nursing Care Quality Monitor Tool

Lee, Hsu, and Chang (2007) modified the Orthopedic Nursing Care Quality Monitor Tool from the study of Hsu et al. (2002). This tool was used to evaluate

quality of nursing care from the perceptions of orthopedic adult patients in Taiwan and compare the quality score on four main objectives, namely: 1) the plan of nursing care was formulated, 2) the physical needs of the patient were attended, 3) the psycho-social-cultural-spiritual needs of the patient were attended, and 4) achievement of nursing care objectives was evaluated.

The sample consisted of 180 orthopedic patients from two orthopedic units. There were 97 male and 83 female patients. The mean age of the patients was 51.27 years. Data were collected using the Orthopedic Nursing Care Quality Evaluation Tool in terms of 1) information from patients record, 2) observation of the patients, 3) interview with the patients, 4) interview with the nurses, 5) observation of the nurses, 6) observation of the patients environment, and 7) interview with the main caregiver.

Three methods were used to assign the quality achievement percentage score for the criterion depending upon the number of response choices. Two-choice items: quality score = (numbers of yes answers/total number of yes and no answers) x 100%. Three-choice items: quality score = (number of complete answers/ total number of complete and incomplete or no record answers) x 100%. Four-choice items: quality score = [3 (number of complete answers) + 2 x (number of incomplete answers)/ 3 x (total number of complete, incomplete, and no record answers)] x100%. Tests on inter-rater reliability proved to be 98%.

The results found that the achievement of nursing care goals was evaluated in 89.49%, the plan of nursing care was formulated in 85.91%, the physical needs of the patient were attended in 85.84%, and the psycho-social-cultural-spiritual needs of the patient were attended in 80.11%. This instrument was useful to evaluate the quality of

nursing care, and assist administrators and educators to identify the strengths and weakness in the delivery of nursing care. The disadvantage of this instrument was that it did not give an indication of the patient outcome.

The Quality for Patient Care Scale

The Quality Patient Care Scale (QUALPACS) was developed by Wandelt and Ager (1974 as cited in Chance, 1997). The QUALPACS is a 68-item instrument designed to measure the quality of nursing care observed by adult patients in any setting, in the United States. The scale is observer-rated while nursing care is in progress. Items are arranged in six subsections conceptually grounded in the primary scientific and cultural bases for the nursing care action to be rated. It consists of psychosocial-individual (15 items), psychosocial-group (8 items), physical (15 items), general (15 items), communication (8 items), and professional implications (7 items). Observers indicate the perceived level of care on each of the items using a 5-point Likert scale with responses ranging from “best care" to "poorest care." The higher the total score, the higher the perceived quality of care.

The QUALPACS scores items are rated as best care=5; between=4; average care=3; between=2; and poorest care=1. No score is assigned to items checked as not applicable or not observed. Individual nurses may be rated or groups of nursing personnel may be rated together as they interact with specific patients. The score for each item is the average of the ratings for that item. The total mean score is derived from the total of the item mean scores and is the measure of the quality of nursing care received by the patient. Interclass correlation index of agreement among raters in the original sample was .74. Kuder-Richardson reliability for 55 of the 68 items

containing at least 20 observations was .96. Spearman-Brown rank order correlation between the QUALPACS scores and subjective measures of quality rankings for the units by nursing supervisors was .44 uncorrected and .52 when corrected for attenuation.

Tomalin, Oliver, Redfern, and Norman (1993) found some problems when applying the QUALPACS such as 1) unwieldiness (the main schedule, with its 68 items, is a manageable length, but if the observer carries around the 20 pages of cues to the items, as is advised, the whole makes a bulky document to handle in the ward), 2) verbal obscurity (items in the schedule are described in the passive voice), 3) unequivocal identification of items (difficulties were encountered with the comprehensiveness of the items, mutual exclusivity, and coherence), 4) cues (the cues provided examples to aid the observer in interpreting the items, but it proved difficult to avoid rating the cue rather than the item), 5) delimiting an interaction (as is always a problem in observation, deciding when an interaction began and ended required frequent discussion until agreement was reached), 6) identification of sections (identifying the appropriate section for the interaction observed was not always easy), 7) rating interaction (the standard of measurement that is, the care expected of a first level staff nurse-required considerable discussion by the raters to reach an approximate consensus, and it was never easy to articulate the details of this consensus), and 8) omitted care (the manual specified that omitted care should be rated the same as poorest care, which is an important distinction). The strengths of the QUALPACS are that it treats the patient as a whole rather than a bundle of conditions and another is its unequivocal reliance on professional judgment, which is

essential when rating professional interactions (Tomalin, Oliver, Redfern, & Norman, 1993).

The QUALPACS was applied to evaluate the impact of primary nursing practice on the quality of nursing care: a Nigerian study (Archibong, 1999). The researcher presented a comparative evaluation of the impact of primary nursing on the quality of care received by patients in a 37 bed acute medical surgical, mixed-sex ward in a specialist hospital in the Eastern part of Nigeria. The sample consisted of 44 nurses interact with 10 patients in the pre-NPN period and 58 nurses interact with 8 patients in the post-NPN period. Patients in the two groups were aged between 15 to 60 years. The results showed a significant improvement in the quality of nursing care with primary nursing practice. The greatest improvements in quality appeared to be in the elements that addressed the individual needs of the patients while the smallest improvements were in the area of physical care elements of routine technical nursing care. Archibong (1999) expressed as a concern and a limitation the fact that the use of the QUALPACS instrument in a different setting from that where it was originally designed could have affected the results. Similarly, Sale (1996) said that the scale developed in the United States could have some difficulties if used in other countries.

Rush-Medicus Quality Monitoring Instrument

The Rush-Medicus Quality Monitoring Instrument (RMT-MQNC) was developed by Hegyvary and Haussmann (1975 as cited in Chance, 1997). This instrument was used to monitor the quality of nursing care from the perception of adult patient in the United States. The Rush-Medicus Quality Monitoring Instrument consists of six dimensions and 21 sub-dimensions (Hegyvary & Haussmann, 1975,

cited in Chance, 1997). The six dimensions of the RMT-MQNC are 1) the plan of nursing care is formulated, 2) the physical needs of the patient are attended, 3) the psychologist, emotional, mental, social needs of the patient are attended, 4) achievement of nursing care objectives is evaluated, 5) procedures are followed for the protection of all patients, and 6) the delivery of nursing care is facilitated by administration and managerial services (Haussmann, Hegyvary, Newman, & Bishop, 1974 as cited in Chance, 1997).

The RMT-MQNC was applied to monitor the quality of nursing care in Taiwan by Hsu (1989). The sample consisted of 384 adult patients from medical and surgical wards. The modified Rush Medicus Tool for monitoring the quality of nursing care in Taiwan has four main objectives: 1) formulating a nursing care plan, 2) attending to a patient's physical care, 3) attending to a non-physical need, and 4) evaluating the achievement of objectives. The interrater reliability for the observers was 98% agreement.

The result found that the combined primary medical and surgical units were significantly different from the combined team nursing medical and surgical units on the quality of nursing care scores. There were statistically significant differences on the quality of nursing care scores for objectives 1, 3, and 4 between the nursing modality, primary nursing and team nursing for both the medical and surgical units. There was no significant difference on the quality of nursing care scores for objective 2 between primary and team nursing for both the medical and surgical units. There was no significant difference between the nursing specialty, medical and surgical specialty units on the quality of nursing care scores. There was a significant difference

between months on the quality of nursing care scores. Research to analyze the factors that influence the quality of nursing care should be conducted in the future. Fox (1982) used the QUALPACS and the RMT-MQNC to measure the quality of nursing care in a surgical unit. The results showed that's the QUALPACS appeared appropriate for measurement of individual differences in care received by patients, while the RMT-MQNC was designed to estimate quality for a nursing unit, but may not be suitable for measurement of differences in care received by individual patients.

Patient's Assessment of Quality Scale Acute Care Version

The Patient's Assessment of Quality Scale Acute Care Version (PAQS-ACV) was developed by Lynn, McMillen, and Sidani (2007). It consists of five factors: 1) individualization, 2) nurse characteristics, 3) caring, 4) environment, and 5) responsiveness. This scale was used with the adult patients to assess the quality of nursing care in acute care units in the United States. The PAQS-ACV was developed from qualitative interviews with patients. The original 90 item PAQS-ACV was tested with 1,470 medical surgical patients in 43 units across seven hospitals. The original PAQS-ACV maintained in the words of the interviewed patients were transformed into a Likert scale, with half of the items worded positively and half worded negatively. A 4-point balanced scale (strongly disagree to strongly agree) was selected for item response.

After doing exploratory factor analysis, the 90-item PAQS-ACV was reduced to 45 items on five factors, accounting for 54% of the variance in the items. Factor loadings in the final solution ranged from .42-.78. The reliability estimates (coefficient alpha) for four of the five factors ranged from .83-.94 whereas the other

factors had a reliability estimate of .68. Test-retest reliability estimates for the factors measured over a 2-week interval ranged from r = .58 to .71. Content validity was established and construct validity had been explored preliminarily by examining the relationship between the PAQS-ACV scores and patients compliance. The PAQS-ACV is a relatively new measure of the quality of nursing care.

Oncology Patients Perceptions of the Quality of Nursing Care Scale

The Oncology Patients Perceptions of the Quality of Nursing Care Scale (OPPQNCS) was developed by Radwin, Alster, and Rubin (2003). This scale was used with the oncology adult patients to measure the quality of nursing care in New England. The sample consisted of 436 hematology-oncology patients in active treatment in a New England tertiary medical center. Two-thirds were female and the mean age was 54.8 years. Eight subscales and 112 initial items were developed from concepts and the study of patients perspectives of the quality of cancer nursing care based on a grounded theory. Fifty-nine items resulted from an expert panels review for content validity. The OPPQNCS consist of 59 items were designed to be rated by each patient on a six point Likert scale reflecting the frequency of the nursing activity from 1=never to 6=always. Construct validity was tested using exploratory factor analysis. Principal components analyses (PCA) with promax (oblique) rotation were conducted. Criteria for item retention were a factor loading of greater than or equal to .40. Internal consistency reliability was determined using coefficient alpha.

The findings showed that the PCA yielded four factors that explained 81% of the variance. Three forced four-factor solutions using PCA and promax rotation were required for all items to meet criteria. The final scale included 40 items (alpha .99) in

four subscales: 22 items for responsiveness (alpha .99), 10 items for individualization (alpha .97), 3 items for coordination (alpha .87), and 5 items for proficiency (alpha .95). The study implications for nursing were that the OPPQNCS held promise for nurses who wished to monitor and improve the quality of patient-centered cancer nursing care and those who wished to investigate relations among care quality and healthcare system characteristics, patient characteristics, and nurse-sensitive patient outcomes.

Child Care Quality at Hospital Instrument

The literature review revealed that one study focused on the evaluation of the Child Care Quality at Hospital (CCQH) instrument for hospitalized school age children (7–11 years) in Finland (Pelander, Leino-Kilpi, & Katajisto, 2009). The sample consisted of 40 hospitalized children. The CCQH instrument was developed in three phases 1) literature review and interviews/drawings by hospitalized children, the items were designed and an expert panel assessed the instrument's content validity, 2) revisions were made based on children's interviews, children's questionnaires and nurses' evaluations, and 3) construct validity was assessed by principal component analysis. In the CCQH questionnaire, the items concerning nurse characteristics and nursing activities are rated with a three-point Likert scale to measure frequency, using both words and pictures of faces (1 = never, 2 = sometimes, and 3 = always).

They found that the quality of nursing care categories were nurse characteristics, nursing activities and environment. Generally, the alpha values showed a tendency to increase during the course of the instrument development in phases II and III for all the main categories: in nursing characteristics from .38 to .55,

nursing activities from .76 to .80, and nursing environment from .58 to .76. Item-to-total correlation ranged from .62 to .61 in phase III. The validity showed over .90 for all subcategories measuring quality. Principal components analysis supported the theoretical construct of the subcategories in the nursing activities and environment categories.

This study showed that children are capable of evaluating their care. Their perspectives should be seen as a part of the entire quality development process to improve quality in practice with a more genuinely child-centered approach. The CCQH is a potential tool for obtaining knowledge about children's evaluations of the quality of pediatric nursing care, but more testing should be done in the future.

In conclusion, there is no study and suitable instrument that has identified quality of nursing care instrument for ARI children in the literature review. Some problem applying the QUALPACS were found, such as unwieldiness, verbal obscurity, unequivocal identification of items, cues, delimiting an interaction, identification of sections, rating interaction, and omitted care. The QUALAPACS is a representation of American values which could pose some difficulties if used in other countries. The RMT-MQNC was designed to estimate quality for a nursing unit only, but may not be suitable for measurement of differences in care received by individual patients. The Orthopedic Nursing Care Quality Monitor Tool was used to evaluate quality of nursing care from the perceptions of orthopedic patients. The PAQS-ACV was used to measure adult patient perceptions regarding quality of nursing care in acute care. The OPPQNSC was used to measures the perceptions of patients with cancer on the quality of nursing care and may reflect the characteristic of the quality

of nursing care that is particularly important to patients with cancer. The CCQH was used to examine the perception of the quality of pediatric nursing care for school age children. These evidences showed that the Orthopedic Nursing Care Quality Monitor Tool, QUALPACS, RMT-MQNC, PAQS-ACV, and OPPQNCS were appropriate for adult patients, and the CCQH was appropriate for school age children.

Factors Affecting the Quality of Nursing Care

Quality of nursing care is affected by many factors. According to Irurita (1999), there are three main factors that affect the quality of nursing care: 1) nursing care system factors, 2) organizational factors, and 3) personal attributes of patients and nurses factor.

Nursing care system factors

Nursing care systems defines how work is organized, how nursing staff are deployed and who will provide nursing care (Gabr & Mohamed, 2012). The nursing care systems are enforced to redesign roles of the caregivers specially nurses role (Gabr & Mohamed, 2012). Nursing care systems are developed to describe a structure for the organization of nursing work, to identify the types of health care workers providing the nursing care, and to define limits for the delegation of authority (Gabr & Mohamed, 2012). Historically, four traditional nursing care delivery models have dominated the organization of inpatient nursing care (Jennings, 2008). Functional and team nursing are task-oriented and use a mix of nursing personnel; total patient care and primary nursing are patient-oriented and rely on registered nurses (RNs) to deliver care (Tiedeman & Lookinland, 2004).

Nursing care systems factor that influences the quality of nursing care include: nursing care delivery models, nursing staffing, and economic consideration (Harris & Hall, 2012). Nursing care delivery models have been shown to have a significant impact on patient and nurse outcomes. For example, Tomblin Murphy, Alder, Mackenzie, and Rigby (2010) found that collaborative models of care had positively influence to patients such as patients shorter lengths of stay in the hospital, fewer repeated admissions, and better self-reported health status within four months of discharge. Most nursing care delivery models demonstrated improved outcomes for nurses (Allen & Vitale-Nolen, 2005) and patients (LeClerc et al., 2008).

Nursing staffing levels have been shown to have a significant impact on improve quality of nursing care, lower urinary tract infection rates, fewer pressure ulcers, and reduced hospitalizations. For example, increasing registered nurses levels (RNs) had been specifically linked with improved quality of nursing care (Castle & Engberg, 2007; Kim, Harrington, & Greene, 2009). A higher number of hours of care per day provided by RNs was related to lower urinary tract infection rates (Needleman et al., 2002), fewer pressure ulcers (Kotnetzka et al., 2008), and reduced hospitalizations (Decker, 2008). In addition, inadequate nursing staffing definitely affects the time that a nurse can allot to various tasks. For example, under a heavy workload, nurses may not have sufficient time to perform tasks that can have a direct effect on patient safety (Carayon & Gurses, 2008) and a heavy workload can lead to poor nurse-patient communication (Davis, Kristjanson, & Blight, 2003).

In economic consideration, increasingly, health-care systems are focusing on enhanced efficiency and effectiveness to improve quality (Aiken, 2008). Studies have

now emerged demonstrating that higher RN staffing levels had the potential to reduce hospital costs through improved patient outcomes (Harris & Hall, 2012). Lang, Hodge, Olson, Romano, and Kravitz (2004) determined whether the peer-reviewed literature supports specific, minimum nurse-patient ratios for acute care hospitals and whether nurse staffing is associated with patient, nurse employee, or hospital outcomes. They found that that richer nurse staffing was associated with lower failure-to-rescue rates, lower inpatient mortality rates, and shorter hospital stays. Needleman (2008) examined the social and business case for quality related to nursing and the need to restructure incentives to align the interests of the hospital and payers with the interests of the patients. He found that increasing the proportion of nurses who were registered nurses was associated with net cost savings, increasing both nursing hours and the proportion of nurses who were registered nurses would result in improved quality and fewer deaths (creating a social case for improved staffing), higher staffing would reduce the net cost increase, and hospitals that increase nurse staffing to improve patient outcomes. Shamliyan, Kane, Mueller, Duval, and Wilt (2009) analyzed the savings-cost ratio of increased RN-to-patient ratios for patients in ICUs and patients in surgical and medical units based on a meta-analysis of published observational studies. They found that increasing RN staffing was associated with lower hospital related mortality and adverse patient events and generates a positive savings-cost ratio in different clinical settings.

Organizational factors

Organizational factors influence the quality of nursing care given to patients. Organizational factors relate to type of hospital, communication and coordination,

patient information, interrelated aspects of sufficient time, nurse-patient relationship, and the ability of nurses to meet patients need in a timely manner (Irurita, 1999). Different types of hospitals lead to different expectations and perceptions of care, patients/family expect and perceive a higher quality of care in private hospitals or public hospitals. Lack of time for nurses to spend with patients inhibits the development of the nurse-patient relationship and also inhibits the quality of care. This lack of time is often due to high patient turnovers, short-staff, lack of consistency and continuity in nurses, and patients being moved to different areas/wards. This factor also fragmented care delivery, increasing the risk of errors in, and omissions of, care and fragmented communication (Irurita, 1999).

Personal attributes of patients and nurse factors

Personal attributes of patients and nurse factors affect the quality of nursing care as well. Patient attributes perceived to influence the quality of nursing care include the patient age, patient behavior, and patients' ability to enhance the development of effective nurse-patient relationships. Nurse attributes perceived as facilitating or inhibiting the delivery of quality of nursing care pertained to the nurse's knowledge, skills, values, personality traits and other characteristics, such as marital status and family background (Irurita, 1999).

In addition, there are other factors affecting the quality of nursing care, such as manpower, nursing education, nursing research, leadership, customer expectation, and the policy of the country. Manpower plays a vital role in improving quality of nursing care. A fully qualified nurse will be essential if the care is to retain high quality

standards. To provide high quality, safe clinical care, it is essential that nursing care have staffing levels and the correct skill mix.

Nursing education is another important factor influencing the quality of nursing care. Quality of nursing school is expected to produce high a quality of nurses or manpower in nursing. Nursing schools train the nursing students and equip them with skills that are needed in delivery of nursing care in the clinical setting. They also introduce the quality assurance program that becomes an integral part of the student's learning from the first day in the clinical component (Larson, 1992).

Research in nursing also has contributed to quality of nursing care. Nurses who use valid research findings in their daily practice can improve their performance. Research can be used by nurses to evaluate and improve practice and to stimulate their critical thinking (Savage & Leigh, 2002).

Leadership is another crucial factor in maintaining and improving the quality of nursing care. Appropriate leadership will bring the nurses to the situations that help them to work carefully. Quality of nursing leadership creates an internal and external organizational climate that enhances the quality of nursing care (Smith, 2002). Leaders are expected to maintain a value of system that supports team performance (McShane & Von Glinow, 2003).

Customer expectation of quality of nursing care is also an important factor influencing the quality of nursing care. Consumers of health care are more knowledgeable and sophisticated than in the past. They are exposed too much information regarding the health care, including nursing care. They expect that they will have the following when they are seeking health care: competent practitioners,

information and education, partners in care, responsiveness, sensitivity to needs, and individualized care (Black, 1992).

Finally, factor affecting the quality of nursing care for the hospitalized child with acute respiratory infection is the policy of the country. Policy makers at any level that are involved in designing a health care system can consider this evidence and use it in planning a policy related to quality of nursing care with ARI children in Indonesia.

In conclusion, several factors affecting the quality of nursing care for acute respiratory infection children in Indonesia include: 1) nursing care system factors, 2) organizational factors including type of hospital, communication and coordination, patient information, interrelated aspects of sufficient time, nurse-patient relationship and the ability of nurses to meet patient needs in a timely manner, 3) personal attributes of patients and nurse factors, 4) nursing education, 5) nursing research, 6) leadership, 7) customer expectation, and 8) the policy of the country.

Classical Test Theory

The Classical Test Theory is a theoretical foundation of psychometric evaluation that predicts the outcomes of psychological testing. The principle of the Classical Test Theory is that every observed score is composed of a true score and an error score (Waltz, Strickland, & Lenz, 2005). The assumptions of the Classical Test Theory consist of 1) the amount of error associated with items varies randomly, 2) one item's error term is not correlated with another item's error term, and 3) error terms are not correlated with the true score of the latent variable (DeVellis, 1991).

The Classical Test Theory consists of three variables: observed score (X), true score (T), and error score (E) in the population (Waltz, Strickland, & Lenz, 2005). The most important concept in the Classical test theory is that of reliability. The basic variance formula is as follow.

$$\text{Var (O)} = \text{Var (T)} + \text{Var (E)}$$

Whereas Var (O) = variance of the observed-score distribution

Var (T) = variance of the true-score distribution

Var (E) = variance of the error-score distribution

This basic variance formula holds only when true scores and error scores are not correlated; that is when the true score cannot be used to predict the error score and vice versa (Waltz, Strickland, & Lenz, 2005).

The basic variance formula can be converted to illustrate the statistical definition of reliability. In order to do this, each term in the basic formula is divided by Var (O). The result is as follows.

$$\text{Var (O)} = \text{Var (T)} + \text{Var (E)}$$

$$\frac{\text{Var (O)}}{\text{Var (O)}} = \frac{\text{Var (T)}}{\text{Var (O)}} + \frac{\text{Var (E)}}{\text{Var (O)}}$$

Note that Var (O)/Var(O) is equal to one. The expression Var (T)/Var (O) is the statistical definition of reliability. It is representative of the proportion of variation in the observed score distribution that results because of true-score differences among respondents or subjects (Waltz, Strickland, & Lenz, 2005).

The Classical Test Theory uses the standard deviation of errors as the basic measure of error. Usually this is called the standard error of measurement. In practice,

the standard deviation of the observed score and the reliability of the test are used to estimate the standard error of measurement (Kaplan & Saccuzzo, 1997). The large the standard error of measurement, the less certain is the accuracy with which an attribute is measured. Conversely, a small standard error of measurement that indicates individual scores is probably close to the true scores. Traditionally, a method of analysis is based on the Classical Test Theory and has been used to evaluate tests. The focus of the analysis is on the total score, frequency of correct responses (to indicate question difficulty), frequency of responses (to examine distracters), reliability of the test and item total correlation (to evaluate discrimination at the item level) (Impara & Plake, 1997).

In this study, the Classical Test Theory was used as the theoretical foundation in the reliability of the QNCS-HARIC. Under the Classical Test Theory, the reliability can be estimated by calculating the correlation between two sets of scores, or by calculating Cronbach's alpha, which is based on the variance of different sets of scores (Bachman, 1990). In general, a Cronbach's alpha value of .80 and above is considered ideal whereas a score of more the .70 is desirable (Nunnally & Bernstein, 1994). Inter-rater reliability is assessed by calculating Cohen's kappa if the data is interval scale or Spearman correlation coefficient if the data is rank ordered scale. Hambleton and Jones (1993) compared the Classical Test Theory and item response theory and also their applications to test development. The result demonstrated that the Classical Test Theory relatively has weak theoretical assumptions, which make the Classical Test Theory easy to apply in many testing situation.

Instrument Evaluation

The purpose of the present study is to construct and evaluate the reliability and validity of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia. The details of reliability, validity, and factor analysis are as follows.

Reliability

Reliability is concerned with the consistency, accuracy, precision, stability, equivalence, and homogeneity (Brink & Wood, 1998). The reliability of a test concerns the degree to which an assessment measures a particular construct in a systemic and repeatable manner (Bernstein, Penner, Clarke- Stewart & Roy, 2006). Two commonly used forms of reliability that apply to the construction of the present scale are test-retest reliability and internal consistency reliability (Walsh & Betz, 2001). The details of internal consistency and stability are as follows.

Internal consistency

Internal consistency reliability is concerned with the homogeneity of the items comprising a scale (DeVellis, 1991). A homogenous instrument contains items that are closely correlated with each other and have high inter-item correlations and indicated it good internal consistency of the instrument (DeVellis, 1991). Cronbach's coefficient alpha is the most common form of internal consistency reliability coefficient (Ary, Jacobs, & Razavieh, 2002). Cronbach's alpha indicates the level for which items can be treated as reliable or internally consistent (Nunnally & Bernstein, 1994). The interpretation of internal consistency for an alpha of .70 or higher considered necessary for a claim that a test has internal consistency and is thus

reliable **(**Hair, Anderson, Tatham, & Black, 1998). Apha below .60 is unacceptable, between .60-.65 is undersirable, between .65-70 is minimal acceptable, between .70-.80 is acceptable, between .80-.90 is very good, and above .90, one should consider reducing the number of items in the scale (DeVellis, 1991). For a new instrument, an alpha of .70 or above is considered adequate (Nunnally & Bernstein, 1994). If the alpha coefficient is below .70, the researcher should try to delete items one at a time until the new alpha reaches .70 or higher, or revise that item (DeVellis, 1991). In this study, the cut-off value of Cronbach's alpha is .70.

Stability

Test-retest reliability is estimated based on the correlation between two administrations of the same item, scale, or instrument for different times, locations, or populations, when the two administrations do not differ on other relevant variables typically (Jacobson, 1997). Test-retest evaluation is performed using Pearson Product-Moment Correlation. Interpretation is that if the correlation is less than .20 there is a slight or almost negligible relationship, .20-.40 indicates a low relationship, .40-70 indicates a moderate correlation or substantial relationship, .70-90 indicates a high correlation or marked relationship, and .90-1.00 indicates a very high correlation or very dependable relationship (Nunnally & Bernstein, 1994). In this study, the cut-off value for stability using test-retest for two times measures is .70.

Validity

Validity is concerned with how well the concept is defined by the measure (Hair, Anderson, Tatham, & Black, 1998). It refers to the extent to which a measure

or set of measures correctly represents the concept of the study. The details of content validity and construct validity are as follows.

Content validity

Content validity refers to the representativeness of the items on the instrument as they relate to the construct and dimensions being measured. Content validity is the degree to which as instrument logically appears to measure an intended variable and is determined by expert judgment (Fraenkel & Wallen, 2003). In the present study, the content was validated by five experts. The experts were requested to review the instrument and determine whether it measured the concept of quality of nursing care for ARI children. Each item was rated by the experts independently on a 4-point Likert scale for how close the statement reflects the idea present by category definition. The rating scale ranged from 1= not relevant, 2= somewhat relevant, 3= quite relevant, and 4= very relevant. The data from these scores representing the relevance scale were computed for the Content Validity Index (CVI). The CVI for each item is determined by the proportion of experts who rate it as content valid (a rating of 3 or 4); the CVI for the entire instrument is the proportion of total items judged content valid (Lynn, 1986). The level of considered acceptable for CVI is .80 (Lynn, 1986; Polit & Back, 2004).

Construct validity

Construct validity refers to the ability of a test to measure a theoretical construct investigation (Cronbach & Meehl, 1955 as cited in Green, 2010). Construct validity involves the test of the hypothesized constructs which represent the concept that researcher is trying to measure, and a number of replicated studies will earn

credibility of validating the hypothesized constructs (Creswell, 2002). In this study, exploratory factor analysis and contrasted groups approach were used to test construct validity of the QNCS-HARIC. The details of each factor analysis and contrasted group approach are as follows.

Exploratory factor analysis

Exploratory factor analysis (EFA) seeks to uncover the underlying structure of a relatively large set of variables. The assumption, when conducting an exploratory factor analysis, is that there exists underlying factors within a collection of observed variables and that the underlying factors can explain the interrelationship between a collections of variables (Tabachnick & Fidell, 2007). There is more than one way of extracting the factors from a set of variables. The list of extraction methods includes: principal components analysis (PCA), principal axis factoring (PAF), and maximum likelihood (ML). The details of each extraction methods are as follows.

Principal components analysis (PCA) involves the estimation of a correlation matrix (Kline, 1997). It is a method used to reduce a larger number of correlated variables into a smaller number of variables which capture a high proportion of the variance of the original variables (Niskanen & Lin, 2001). To estimate the correlation matrix, the characteristic equation of the matrix must first be estimated and this equation requires eigenvalues and eigenvectors (Kline, 1997). According to Tabachnick and Fidell (2007), PCA is useful when a researcher wants to use a small number of components to summarize a larger number of variables. It is a straightforward and easy to understand technique in factor analysis (Pett, Lackey, & Sullivan, 2003).

Principal axis factoring (PAF) is developed the iterative approach to estimating the communalities and subsequently extraction (Kline, 1997). The estimates based on the squared multiple correlation coefficients (R^2) are inserted in the diagonal of correlation matrix (Pett, Lackey, & Sullivan, 2003). The level of considered acceptable for the squared multiple correlation coefficients .30 or above (Tabachnick & Fidell, 2007).

Maximum likelihood is a popular factor analysis method owing to its asymptotic properties (Bickel & Daksum, 1977 as cited in Myung, 2003). ML is based on the assumption that the eigenvalues in the correlation matrix are greater than zero, that is, that the correlation matrix is positive definite (Pett, Lackey, & Sullivan, 2003). When carrying out a ML technique, large and sufficient samples are needed because the technique obtains a set of factor by successive factoring which explains as much variance as possible in the population correlation matrix which has been estimated from the sample correlation matrix (Kline, 1997). In this study, the PAF was used to extract factors.

There are two types of rotation techniques that a researcher can carry out on a set of factors: orthogonal and oblique (Tabachnick & Fidell, 2007). The difference between the two methods is that the orthogonal rotation is used when there is no relationship between the factors and the solutions offered by the rotation is easy to interpret and report; whereas the oblique rotation is used if the factors are thought to be correlated and the results are not so easy to report and interpret (Tabachnick & Fidell, 2007). In this study, an orthogonal rotation by using varimax was used as factor rotation because the varimax rotation identifies the most advisable in a situation

where the factors extracted are not correlated (Kline, 2000). Varimax rotation is to maximize the variance of factor loadings by making high loadings higher and low ones lower for each factor (Tabachnick & Fidell, 2007). Tabachnick and Fidell (2007) suggest guidelines to decide which type of rotation to use in factor analysis; firstly run an oblique rotation with the required number of factors and then look at the correlations among these factors, if these correlations are above .30 then there is at least a 10% overlap in variance among the extracted factors and this level of variance would necessitate an oblique rotation to be carried out. If these criteria are not met then the orthogonal rotation should be used.

Interpretation of the factorability indices for EFA include the correlation coefficient (*r*) in which all pair of items should range from .30 to .70 (Nunnally & Bernstein, 1994), communalities should greater than .20 (Tabachnick & Fidell, 2007), Bartlett's test of Sphericity should be statistically significant at $p < .05$ (Hair et al., 1998), and Kaiser-Mayer Olkin (KMO) measure of sampling adequacy should be .60 or greater (Tabachnik & Fidell, 2007), and factor loading of each item should be greater than .30 (Hair et al., 1998).

Contrasted group approach

The contrasted group approach is a procedure that can be classified as construct validity. Contrasted group validation typically involves demonstrating that some scale can differentiate members of one group from another based on their scale scores (DeVellis, 1991). In the contrasted group approach, the researcher identifies two groups of individuals who are known to be extremely high and extremely low in the characteristic being measured by the instrument. The instrument is then

administered to both the high and low groups, and the differences in the scores obtained by each are examined. If the instrument is sensitive to individual differences in the trait being measured, the mean performance of these two groups should differ significantly. In this study, the independent t-test will be used to evaluate between the mean differences of the pediatric nurses having work experience with ARI children less than six years and pediatric nurses having work experience with ARI children six years or more.

Conclusion

The quality of nursing care in children is the major concern in a health care setting and nursing department in Indonesia because of the high morbidity and mortality of children, and low nurse performance. Development and evaluation of the quality of nursing care scale based on theories related to quality of nursing care is a vital key to improve quality of nursing care for hospitalized ARI children leading to a decrease in morbidity and mortality of ARI children. This scale will be used to 1) evaluate the quality of nursing care with ARI children and 2) assist pediatric nurses to identify the strengths and weakness in the delivery of nursing care.

Theoretical foundations of the QNCS-HARIC development were mostly based on a concept of quality of nursing care, holistic care, nursing care for acute respiratory infection children, holistic nursing care for acute respiratory infection children, nursing process, norm referenced, and DeVellis's Theory of Scale Development Scale. The expected four dimensions of this scale consist of 1) the physical dimension of ARI children, 2) the psychological dimension of ARI children and family, 3) the

socio-cultural dimension of ARI children and family, and 4) the spiritual dimension of ARI children and family. The process of establishment of the QNCS-HARIC started with a literature review about the quality of care, quality of nursing care perspective, quality of nursing care evaluation, existing quality of nursing care instrument, holistic care, nursing process, and holistic nursing care for ARI children. Information obtained from the literature review and expert panels meeting was used to generate an item pool, and determine the format for measurement. The QNCS-HARIC properties were evaluated in terms of reliability and validity. Internal consistency was determined using Cronbach's alpha. Stability was determined using a test-retest. Content validity index (CVI) was reviewed by five experts. Construct validity was determined using EFA and contrasted group approach.

CHAPTER 3

METHODOLOGY

The purpose of this chapter is to describe the methodological procedures utilized to examine and answer the research questions presented in Chapter 1. This chapter is presented in five sections that include: 1) research design, 2) settings and sampling, 3) scale development, 4) contrasted group approach, and 5) protection of human subjects.

Research Design

An inductive methodological design was used to develop an instrument to measure nurse perceptions of quality of nursing care for hospitalized acute respiratory infection (ARI) children.

Setting and Sampling

Indonesia has four regions: eastern, western, northern, and southern (Wikipedia, 2011a). Each region is divided into provinces. Administratively, Indonesia consists of 39 provinces, five of which have a special status (Wikipedia, 2011b). In this study, the setting was pediatric wards in hospitals. There are 39 hospitals: 5 hospitals in eastern, 27 hospitals in western, 4 hospitals in northern, and 3 hospitals in the southern region of Indonesia. Each hospital consists of 100-150 beds and one pediatric ward. In each pediatric ward, approximately 20-25 pediatric nurses provide nursing care to ARI children. Thus, the total number of pediatric nurses in

Indonesia is approximately 660-825. Since the approximate sample size in this study was 385 to 770 pediatric nurses, purposive sampling was used to recruit all 39 hospitals in Indonesia.

Scale Development of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children

Based on DeVellis (1991), the eight steps in scale development were used to establish the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC). These steps are: 1) determine what is to be measured, 2) generate an item pool, 3) determine the format for measurement, 4) have the initial item pool reviewed by experts, 5) consider inclusion of validation items, 6) administer the items to the development sample, 7) evaluate the items, and 8) optimize scale length. In this study, there were two phases for scale development: Phase I Development of the QNCS-HARIC (Steps 1-5) and Phase II Evaluation of the QNCS-HARIC (Steps 6-8).

Phase 1 Development of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children.

Step 1 Determine what is to be measured

The purpose in this step was to explore the literature to deduce a clear framework for the theoretical construct (DeVellis, 1991). A first step in the development of any measurement process was to identify the specific constructs, dimensions, and factors to be studied. This step consists of two parts: literature review and expert panel meeting.

Literature review

The process of constructing the QNCS-HARIC (version 1) started with a broad review of the literature about the quality of care, quality of nursing care perspective, quality of nursing care evaluation, existing quality of nursing care instrument, nursing process, holistic care, nursing care for ARI children, and holistic nursing care for ARI children.

The literature search for the first time was based on the literary meaning and perceptions of quality nursing care. The second search was based on the quality evaluation of nursing care in hospitals. Search did not have a publishing deadline. Inclusion criteria included quantitative and qualitative research designs, English abstracts and full papers, hospital settings, nurses, patients and families. Various databases were used for the analysis part of the literature search, including MEDLINE, CINAHL, PUB-MED, Science Direct, and Google Scholar. Relevant studies were identified by using certain key words in different combinations. Search terms used were meaning of quality of nursing care, quality of nursing care and nurse's perception, the perception of the quality of nursing care of patients, quality of care, and holistic nursing care. Information from the literature review was used to determine what is to be measured. After extensively reviewing the available literature, the researcher categorized or determined the four dimensions of quality of nursing care for hospitalized ARI children as follows.

Dimension 1 The physical dimension of ARI children. The physical dimension of ARI children refers to nursing activities provided by pediatric nurses to meet the needs of the body of the ARI children. It consists of breathing, fluid volume, nutrition,

activity intolerance, and infection prevention. This dimension also was found in previous studies as one dimension of quality of nursing care (Bouthillete, 2001; Chang et al., 2007; Coulon et al., 1996; Frei-Rhein & Hantikainen, 2002; Ervin et al., 2006; Gunther & Alligood, 2002; Hogston, 1995a; Kane & Preze, 2009; Kunaviktikul et al., 2001; Leino-Kilpi & Vuorenheimo, 1994; Leinonen et al., 2001; Murphy, 2007; Thorsteinsson, 2002; Williams, 1998).

Dimension 2 The psychological dimension of ARI children and family. The psychological dimension of ARI children and family refers to nursing activities provided by pediatric nurses to meet the needs of ARI children and family in terms of anxiety, pain, fear, and parental anxiety. This dimension was also found in previous studies as one dimension of quality of nursing care (Bouthillete, 2001; Buhans, 2008; Burhans & Alligood, 2010; Chang et al., 2007; Chao & Roth, 2005; Charalambous et al., 2009; Frei-Rhein & Hantikainen, 2002; Ervin et al., 2006; Kunaviktikul et al., 2001; Larrabe & Bolden, 2001; Leino-Kilpi & Vuorenheimo, 1994; Leinonen et al., 2001; Redfern, 1993; Schaffer et al., 2000; Schmidt, 2003; Williams, 1998).

Dimension 3 The socio-cultural dimension of ARI children and family. The socio-cultural dimension of ARI children and family refers to nursing activities provided by pediatric nurses to meet the needs of ARI children and family in terms of social support and health maintenance. This dimension was found in previous studies as one dimension of quality of nursing care (Boswell et al., 2004; Bouthillete, 2001; Charalambous et al., 2009; Coulon et al., 1996; Kunaviktikul et al., 2001; Kwon et al., 2001; Murphy, 2007; Thrasher & PurcStephenson, 2008).

Dimension 4 The spiritual dimension of ARI children and family. The spiritual dimension of ARI children and family refers to nursing activities provided by pediatric nurses to meet the needs of ARI children and family in terms of spiritual distress and spiritual activities of ARI children and parent. This dimension is the other dimension of the quality of pediatric nursing care that was found in previous studies (Boswell et al., 2004; Charalambous et al., 2009; Coulon et al., 1996; Kunaviktikul et al., 2001; Murphy, 2007; Thrasher & PurcStephenson, 2008).

The result from literature review was the QNCS-HARIC (version1) consisted of: 1) physical dimension of ARI children (36 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Expert panel meeting

Next, the QNCS-HARIC (version 1) was examined by the 12 expert panels to the extent to which a test is subjectively viewed as covering the concept it purposes to measure. It refers to relevance of a test as they appear to test participants (Gravetter & Forzano, 2012). The purpose of the expert panel meeting was to determine whether the proposed four dimensions of the QNCS-HARIC and their items covered the concept of quality of nursing care for ARI children.

Sample, sampling and sample size

The sample for the expert panel meeting consisted of pediatric nurses, pediatric nurse lecturers, and pediatricians. Purposive sampling was used to recruit the expert panel who met the inclusion criteria. The participants for the expert panel meeting consisted of four pediatric nurses who provide nursing care to ARI children

in hospital, four pediatric nurse lecturers, and four pediatricians who provide care to ARI children in hospital. The inclusion criteria consist of: 1) pediatric nurses who have provided nursing care to ARI children for at least 6 years, 2) pediatric nurse lecturers who have taught nursing care of ARI children for at least 6 years, and 3) pediatricians who have provided care to ARI children for at least 6 years. Banner (2001) recommended that 6 years' experience was the minimum number of years required before being an expert in the field.

Instruments

The expert panel meeting was performed by using a semi-structured interview. The semi-structured interview helps to differentiate between items on a list that the researcher has already obtained. In this study, the experts reviewed four dimensions with 80 items of QNCS-HARIC (version 1) and determined whether the items could measure the concept. After the face validity, the researcher revised these four dimensions and their items based on the expert panel suggestions.

Data collection

The data collection steps were divided into 2 phases: preparation phase and implementation phase.

Preparation phase

Objectives of this phase are to meet the expert panels, building the good relationship with participants, and exploring the quality of nursing care concept for hospitalized acute respiratory infection children.

Implementation phase

To get the sense and atmosphere of current clinical nursing practice in medical pediatric care units, the researcher conducted a semi-structured interview by using open ended questions and group discussions with pediatric nurses who provide nursing care to ARI children in hospital, pediatric nurse lecturers, and pediatricians who provide care to ARI children. The expert panel meeting process ran for between 60-90 minutes, and was divided to two main areas of discussion. First step, the researcher was explained about the underlining conceptual framework of the QNCS-HARIC. Then, a discussion was led by the reseacher. The expert panels were invited to discuss about their understanding of physical, psychological, socio-cultural, and spiritual dimension for ARI children. The following stimulus questions and probes included: 1) what do you think about holistic care?, 2) when you think of physical dimension of ARI children, what do you think about?, 3) when you think of psychological dimension of ARI children and family, what do you think about?, 4) what come to mind when you think about of socio-cultural dimension of ARI children and family?, and 5), what come to mind when you think about of spiritual dimension of ARI children and family?

Second step, the expert panels in the expert panel meeting explored the items of quality of nursing care scale for hospitalized acute respiratory infection children in Indonesia. Each participant was reviewed 80 QNCS-HARIC items to determine whether the items can capture the concept of quality of nursing care for ARI children and rate each item according to their knowledge or experience. The expert panels were asked to respond in their own words what they thought the item was asking.

They were asked to suggest any modifications and to assist in deletion of items. The expert panels were also facilitated to reach some consensus on a common issue identified by the group and discuss the significance of the issue. At this point the researcher did not enter the discussion with any further prompting until the discussion of that issue was concluded. The researcher ended the discussion when there was no further new information being mentioned by the group.

Data analysis

The data from the expert panel meeting were analyzed by using interpretation the questions and provide more useful and accurate answers. The results from the expert panel meeting were the QNCS-HARIC (version 2) consisted of: 1) physical dimension of ARI children (36 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items). In addition, item 14 (perform suction as needed) was deleted because it was redundant with item 13 (perform chest physiotherapy (percussion, vibration, postural drainage, and suction).

Step 2 Generate an item pool

Generating an item pool was started by identifying operational definitions of the four dimensions of the QNCS-HARIC (version 2) based on a review of the previous studies, nursing process, holistic care, nursing care for ARI children, and holistic nursing care for ARI children and the expert panel suggestions. Data collected from literature review and the expert panel meeting was generated into an item pool within the content of four QNCS-HARIC dimensions. These proposed four

dimensions consisted of totally 79 items: 1) physical dimension of ARI children (36 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Step 3 Determine the format for measurement

All items were written in a structure of the five-point Likert scale. A five-point Likert scale was chosen because it may produce slightly higher mean scores relative to the highest possible attainable score. Dawes (2008) found that a 5- or 7-point Likert scale may produce slightly higher mean scores relative to the highest possible attainable score, compared to those produced from a 10-point Likert scale, and this difference was statistically significant. Therefore, in this study, the rating scale reflecting the frequency of the pediatric nursing activities was labeled for each item as 1 = never practice, 2 = seldom practice, 3 = sometimes practice, 4 = often practice, 5 = always practice. According to Krosnick and Fabrigar (1997), a 5-point Likert scale offers a midpoint on a bipolar scale, indicating a neutral position, thus increases reliability.

Step 4 Have the initial item pool reviewed by experts

The purpose of this step was to rate the relevance of each item to the intended measure. The content validity index (CVI) was used to evaluate the clarity and conciseness of each item and point out ways of tapping phenomenon that it have been failed to be included (DeVellis, 1991).

Sample

The sample for the expert review consisted of: one pediatrician from Faculty of Medicine, Prince of Songkla Univesity, Songkla, Thailand; two experts in pediatric nursing of Faculty of Nursing, University of Indonesia, Indonesia; one pediatrician working with ARI children in General Hospital, Indonesia; and one pediatric nurse working with ARI children in General Hospital, Indonesia. The inclusion criteria consist of: 1) pediatric nurses who have provided nursing care to ARI children for at least 6 years, 2) pediatric nurse lecturers who have taught nursing care of ARI children for at least 6 years, 3) pediatricians who have provided care to ARI children for at least 6 years, and 4) willing to participate in this study.

The CVI of the QNCS-HARIC (version 2) in the original English version was validated by these five experts. The experts were requested to review the instrument and decide whether it measures the concept of quality of nursing care for ARI children. Each item was rated by the experts independently place each statement into one of four categories, and rated statement on a 4-point Likert scale for how close the statement reflects the idea presented by category definition. The rating scale varies from 1= not relevant, 2= somewhat relevant, 3= quite relevant, and 4= very relevant. In addition, the experts were suggested whether the instrument is readable and length of the instrument is appropriate.

After validation of the scale by the experts, the researcher made a decision to retain or delete items through the calculation of CVI. The CVI for every item was computed by calculating the proportion of pediatric nurse experts who rated on score 3 or 4. The CVI of the total instrument was retrieved by summing the percentage of

agreement scores of the items that are given a rating of 3 or 4 by the experts. The CVI which was relevant and representative would be calculated for each item (the proportion of agreement between the experts who rate the item as valid as a rating of 3 or 4), and for the entire instrument (compute by averaging the CVI across items) (Dyrbye, Szydlo, Downing, Sloan, & Shanafelt, 2010).

The equation for proportion (Lynn, 1986) is shown as follows.

$$CVI = \frac{\text{Number of items expert agreement rated 3 or 4}}{\text{Total numbers of items}}$$

Level of acceptable CVI is correlation coefficient in the .80 considered as minimal for individual predictors (Lynn, 1986; Polit & Beck, 2004). After the experts reviewed the 78 item QNCS-HARIC (version 2), 78 items were rated 3 or 4 by all experts. Therefore, the calculation of CVI in this process was .96.

Based on the experts reviewed revealed that 2 items were deleted (items 21, 22), one item was added (item 34), 67 items were retained, and nine items were modified. Result from this step was the QNCS-HARIC (version 3, 78 items) consisted of: 1) physical dimension of ARI children (35 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Step 5 Consider inclusion of validation items (pilot-testing)

Since the QNCS-HARIC (version 3) and the Marlow-Crown Social Desirability Scale-C (MCSDS-C) was established in the English language, before performing the pilot testing to verify the readability and reliability, all instruments were translated from the English version to the Indonesian version using the back

translation technique (Brislin, 1986). The back translation consists of three steps as follows.

1. Forward translation of the development instrument

The original English version of the QNCS-HARIC (version 3) was translated into the Indonesian version by three nursing experts from Indonesia who are fluent in both English and Indonesian, and also have knowledge in quality of nursing care with ARI children, instrument development and Indonesian culture.

2. A blind back-translation

The Indonesian version was back-translated into English by another three nursing experts from Indonesia who are fluent in English and Indonesian, and also have knowledge in quality of nursing care with ARI children, instrument development and Indonesian culture, and were also blind to the original English version. A blind back-translation of English version ensures the meaning of the English version to adequately reflect in the back-translated version without any prior knowledge about the content of the instrument.

3. Comparison of the original and back-translated version

One native English editor compares item by item of the original and back-translated scales to evaluate their semantic equivalence (concepts, grammar, wording, meaning, and format).

Results from original version of QNCS-HARIC (version 3) and back-translated English version were compared. No items were deleted or added at this stage of the research. A Native English speaker commented on the sematic equivalence related to items 1, 5, and 12. The result from back translation was the

QNCS-HARIC (version 4, 78 items) consisted of: 1) physical dimension of ARI children (35 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Pilot test

The purpose of pilot test was to identify potential problems with the QNCS-HARIC (version 4), clarity, comprehensiveness of items, and reliability.

Sample, sampling and sample size

The sample for the pilot test was 30 pediatric nurses from general hospitals in western Indonesia. Purposive sampling was used to recruit nurses who met the inclusion criteria. The inclusion criteria include: 1) pediatric nurses who have provided nursing care to ARI children (age under-five) for at least 1 year, 2) are willing to participate in this study, and 3) are able to communicate in Indonesian language.

Instruments

There were two questionnaires: 1) the Demographic Data Questionnaires and 2) the QNCS-HARIC (version 4).

Data collection

The data collection steps were divided into 2 phases: preparation phase and implementation phase.

Preparation phase

The researcher submitted a letter and a document from Institute Review Board (IRB) of Faculty of Nursing, Prince of Songkla University to the director of nursing

of one general hospital at western Indonesia to ask a permission to conduct the study with 30 pediatric nurses. The Demographic Data Questionnaires, the QNCS-HARIC (version 4), and informed consent form were administered to pediatric nurses who provided nursing care to ARI children at medical pediatric room.

Implementation phase

The researcher directly contacted the head nurse of pediatric ward in one general hospital, at western Indonesia and gave her the data collection packages for administration. This package consisted of a cover letter from the researcher, the Demographic Data Questionnaires, the QNCS-HARIC (version 4), and an informed consent form. The researcher explained to the head pediatric nurses regarding the objectives of the study, procedure to complete the questionnaires and informed consent form. The pilot study was conducted on April 2012. The pediatric nurses completed the Demographic Data Questionnaires, the QNCS-HARIC (version 4), and commented on the clarity, wording, thoroughness, and ease of use. Both issues of anonymity and confidentiality were addressed and the purpose of the study was verbally stated to the participants.

Data analysis

Descriptive statistic was used to calculate the result. The pilot testing was administration required about 45-60 minutes to complete the instruments. All pediatric nurses agreed on the readability and clarity of QNCS-HARIC items. There was not reported difficulty encountered during the process of collecting pilot testing. The results of pilot study supported the readiness for constructing psychometric evaluation. The Cronbach's alpha coefficient for overall QNCS-HARIC was .94 for

these 78 items. The Cronbach's alpha coefficient of each dimension equaled .94 .87, .79, and .66, respectively. Corrected item-total-correlation of all items were greater than .30, except item 75 (r= .155). Therefore, item 75 was deleted. After deleting item 75 of the spiritual dimension of ARI children and family, the internal consistency of the spiritual dimension of ARI children and family increased from .66 to .73. Overall Cronbach's alpha coefficient 77 items of the QNCS-HARIC was .94 and those of the physical, psychological, socio-cultural, and spiritual dimensions were 94, .87, .79, and .73, respectively. The result from this step was the QNCS-HARIC (version 5, 77 items) consisted of: 1) physical dimension of ARI children (35 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (6 items).

Phase II Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children

Step 6 Administer items to the development sample

After the QNCS-HARIC (version 5) is formulated on the basis of the feedback and data received from the Step 5 of DeVellis process, the researcher administered the Demographic Data Questionnaire (see Appendix A), the QNCS-HARIC (version 5) (see Appendix A), and the MCSDS-C (see Appendix A) to 807 pediatric nurses at 39 pediatric wards from 4 regions in Indonesia. This was done in order to test for internal consistency and stability of the questionnaire. After receiving the questionnaires back, construct validity were performed using exploratory factor analysis (EFA) and the

contrasted group approach. Reliability was performed both internal consistency and stability.

Sample, sampling and sample size

The sample for testing the Quality of Nursing Care Scale in this study was pediatric nurses providing nursing care to ARI children at pediatric wards in 39 hospitals in Indonesia. Purposive sampling was used to recruit nurses who met the inclusion criteria. The inclusion criteria includes 1) pediatric nurses who have provided nursing care to ARI children (age under-five) for at least 1 year, 2) are willing to participate in this study, and 3) are able to communicate in Indonesian language. Casey, Fink, Krugman, and Propst (2004) found that graduate nurses felt that it took at least 12 months to feel comfortable and confident practicing in the acute care setting.

The sample size estimation for doing exploratory factor analysis can be varied. According to DeVellis (1991), larger samples produce a more stable factor pattern. The sample size can vary from 5 subjects per item with a minimum of 100 (Gorsuch, 1983), up to 3 to 6 subjects per item with a minimum of 250 (Cattell, 1966), up to 5 to 10 subjects per item with a minimum of 250 (Tinsley & Tinsley, 1987), and up to 10 subjects per item (Munro, 2005). Another set of guidelines in determining the adequacy of sample size includes: 100 = poor, 200 = fair, 300 = good, 500 = very good, and 1,000 or more = excellent. In this study, approximately 77 items of quality of nursing care for ARI children was established and 10 subjects per item was used to estimate the sample size. Thus, the sample size was 770 nurses.

Instruments

There were three questionnaires: 1) the Demographic Data Questionnaires, 2) the QNCS-HARIC (version 5), and 3) the MCSDS-C.

Data collection

The data collection steps were divided into 2 phases: preparation phase and implementation phase.

Preparation phase

1. After the research proposal was approved by the examination dissertation committee from Faculty of Nursing, Prince of Songkla University, it was reviewed and approved by Insitute Review Board (IRB) Committee of Prince of Songkla University.

2. After asking for the attachment of the approvals and a letter of permission to collect data from the Dean of the Faculty of Nursing, Prince of Songkla University and University of Sumatera Utara, the researcher sent a letter to the directors of nursing of 39 study hospitals in order to ask for permission to conduct the study before collecting the data.

3. After receiving written permission from the hospitals and the study was approved by the Hospital Institutional Review Board, the researcher coordinated with research assistants to collect data from June to November, 2012.

4. The researcher sent a letter for describing and administrating the study to the head pediatric nurses in each hospital in order to inform the starting of the data collection.

5. Before the beginning of the data collection from the 39 hospitals, the researcher recruited three research assistants; two with a Master degree and one with a Bachelor degree in nursing. The researcher introduced the purpose of study, explained the research assistants' responsibility such as asking the head pediatric nurse in each of the studied unit to distribute all questionnaires, explained how to obtain informed consent, posted a reminder letter, formally announced the information written in the reminder letter, and checked all questionnaires returned from the participants.

Implementation phase

1. The researcher and research assistants directly contacted the head nurse of the pediatric ward in each hospital and gave her the data collection packages to distribute to participants. This package consisted of a cover letter from the researcher, the Demographic Data Questionnaire (see Appendix A), the QNCS-HARIC version 5 (see Appendix A), the MCSDS-C (see Appendix A), and informed consent form (see Appendix B).

2. The researcher and research assistants explained the objectives of the study to the head pediatric nurses, outlined the procedure to complete the questionnaires and obtain informed consent, and explained the procedure to return the questionnaires within two weeks.

3. The head pediatric nurse was then asked to announce the information about approval and the study period of this investigation to nurses and also asked to distribute the data collection package to each of the eligible nurses.

4. The participants gave the questionnaires to their head pediatric nurse, who kept the questionnaires in a safe place.

5. After one week, the researcher and research assistants asked head the pediatric nurses to check for completeness of the questionnaires.

6. After the deadline (two weeks), the researcher and research assistants came to each hospital and met the head pediatric nurses to collect the data collection packages. The researcher and research assistants checked for completeness of the questionnaires again.

7. All participants were informed that the information they provided during the study was kept confidential and was used for research purposes only.

Step 7 Evaluate the items

In this step, the data from the development sample was analyzed for construct validity and reliability. The data from the QNCS-HARIC (version 5) was assessed for construct validity and reliability (e.g., internal consistency and stability).

Construct validity

The pupsose of contruct validity was to measure a theoretical construct of the QNCS-HARIC-HARIC (version 5).

Data analysis

The data was examined using descriptive statistical analysis. There was no missing data, no skewness and kurtosis values greater than ± 3.29 (Tabachnick & Fidell, 2007), the scatter plots showed positive linear relationship with all linear correlation, and no outliers of the data. The demographic data was computed using descriptive statistical analysis in order to acquire the characteristics of the participants. Construct validity was performed using EFA. Exploratory factor analysis is a method to identify the internal dimensions of the QNCS-HARIC.

Exploratory factor analysis has two general purposes: 1) identify underlying dimensions of a construct in instrument development and 2) identify the item reduction in which a set of variables is summarized into a new set of a smaller number of variables (Hair et al., 1998). Principal axis factoring (PAF) was performed because it used more often for theoretical explorations of the underlying factor structure. Principal axis factoring is a factor model in which the factors are based on a reduced correlation matrix that is communalities are inserted in the diagonal of the correlation matrix, and the extracted factors are based only on the common variance with specific and error variance excluded (Hair et al., 1998). The orthogonal rotation method was done using varimax rotation because the most advisable in a situation where the factors extracted are uncorrelated (Kline, 2000).

This process was to evaluate the performance of the each items by using EFA principle. Rotated factors are interpreted by examining the factor loading of each item greater than .30 (Hair et al., 1998). The criteria in evaluating items were 1) eigenvalues should be ≥ 1 (Hair et al., 1998), 2) scree test criterion data points above the break (Tabachnick & Fidell, 2007), 3) percent of total variance explained at least 40% or more (Scherer et al., 1988), 4) percentage of variance criteria should be ≥ 5% of variance explained (Hair et al., 1998), 5) factor loading at least .30 (Hair et al., 1998), 6) reliability of each factor at least .70 (DeVellis, 1991), 7) item-total correlation at least .30 (Nunnally & Bernstein, 1994), and 8) theoretical interpretability (Hair et al., 1998).

Determination the reliability of the scale

This step was composes of two reliability tests: 1) internal consistency and 2) stability. Internal consistency was established using Cronbach's alpha coefficient. Stability was performmed by the administered twice within a 2 week interval between the tests to a group of pediatric nurses.

Internal consistency

The purpose of internal consistency was to examine the consistency of QNCS-HARIC (version 5).

Sample, sampling and sample size

The sample for internal consistency was 807 pediatric nurses from 39 general hospitals in Indonesia. Purposive sampling was used to recruit nurses who met the inclusion criteria. The inclusion criteria includes 1) pediatric nurses who have provided nursing care to ARI children (age under-five) for at least 1 year, 2) are willing to participate in this study, and 3) are able to communicate in Indonesian language.

Instruments

There were two questionnaires: 1) the Demographic Data Questionnaires and 2) the QNCS-HARIC (version 5).

Data collection

The data collection steps were divided into 2 phases: preparation phase and implementation phase.

Preparation phase

The researcher submitted a letter and a document from Institute Review Board (IRB) of Faculty of Nursing, Prince of Songkla University to the director of nursing of 39 general hospitals in Indonesia to ask a permission to conduct the study with 807 pediatric nurses for perform internal consistency.

Implementation phase

The researcher directly contacted the head nurses of pediatric wards in the general hospitals and gave them the data collection packages for administration. This package consisted of a cover letter from the researcher, the Demographic Data Questionnaires, the QNCS-HARIC (version 5), and an informed consent form. The researcher and research assistants explained the objectives of the study to the directors of nursing and head pediatric nurses outlined the procedure to complete the questionnaires and obtain informed consent, and explained the procedure to return the questionnaires within two weeks.

The head pediatric nurses were then asked to announce the information about approval and the study period of this investigation to nurses and also asked to distribute the data collection package to each of the eligible nurses. The participants gave the questionnaires to their head pediatric nurses, who kept the questionnaires in a safe place. After the deadline (two weeks), the researcher and research assistants came to each hospital and met the head pediatric nurses to collect the data collection packages back.

Data analysis

The internal consistency of the the QNCS-HARIC (version 5) was performed using Cronbach's alpha coefficient as minimal acceptable at least .70 (Nunnally & Bernstein, 1994). The interpretation of internal consistency for an alpha of .70 or higher considered necessary for a claim that a test has internal consistency and is thus reliable **(**Hair, Anderson, Tatham, & Black, 1998). Cronbach's alpha coefficient below .60 is unacceptable, between .60-.65 is undersirable, between .65-70 is minimal acceptable, between .70-.80 is acceptable, between .80-.90 is very good, and above .90 is excellent (DeVellis, 1991). For a new instrument, an alpha of .70 or above is considered adequate (Nunnally & Bernstein, 1994). If the alpha coefficient is below .70, the researcher should try to delete items one at a time until the new alpha reaches .70 or higher, or revise that item (DeVellis, 1991). In this study, the cut-off value of Cronbach's alpha is .70 or greater.

Stability

The purpose of stability was to examine the test-retest of the QNCS-HARIC (version 5) among different administrations.

Sample, sampling and sample size

The sample for the test-retest was 30 pediatric nurses from a general hospital, at southern Indonesia. Purposive sampling technique was used. The inclusion criteria includes: 1) pediatric nurses who have provided nursing care to ARI children (age under-five), 2) are willing to participate in this study, and 3) are able to communicate in Indonesian language.

Instruments

There were two questionnaires: 1) the Demographic Data Questionnaires and 2) the QNCS-HARIC (version 5).

Data collection

The data collection steps were divided into 2 phases: preparation phase and implementation phase.

Preparation phase

The researcher submitted a letter and a document from Institute Review Board (IRB) of Faculty of Nursing, Prince of Songkla University to the director of nursing of one general hospital, at southern Indonesia to ask a permission to conduct the study with 30 pediatric nurses for performing the test-retest.

Implementation phase

The researcher directly contacted the head nurse of a pediatric ward in the general hospital. The data collection packages for administration were given to the head pediatric nurse twice. This package consisted of a cover letter from the researcher, the Demographic Data Questionnaires, the QNCS-HARIC (version 5), and an informed consent form. The researcher explained the objectives of the study and procedure of data collection to the the director of nursing and head pediatric nurse. The QNCS-HARIC (version 5) was administered to 30 pediatric nurses twice, within 2 weeks interval. After completing all questionnaires, the pediatric nurses gave the questionnaires back to the head nurse, who kept the questionnaires in a safe place. After two weeks, the researcher came to the hospital and met the head pediatric nurse to collect the data collection packages back.

Data analysis

The correlations between the results of two tests (test-retest reliability) was examined using Pearson Product Moment Correlation as minimal acceptable at least .70 or greater (DeVellis, 1991). Interpretation is that if the correlation is less than .20 there is a slight or almost negligible relationship, .20-.40 indicates a low relationship, .40-70 indicates a moderate correlation or substantial relationship, .70-90 indicates a high correlation or marked relationship, and .90-1.00 indicates a very high correlation or very dependable relationship (Nunnally & Bernstein, 1994).

Step 8 Optimize Scale Length

At this step, the QNCS-HARIC will have acceptable reliability and validity. Based on step 7, the optimal length of the QNCS-HARIC final version was established. Details of development and evaluation of the QNCS-HARIC are shown in Figure 2.

Contrasted Group Approach

In this study, the contrasted-group approach was used to evaluate construct validity. This method is based on the premise that a valid instrument is able to differentiate individuals who are known to be different on the construct the instrument intends to measure (Polit & Hungler, 1999).

Sample, sampling and sample size

The sample for the contrasted group approach was pediatric nurses in 39 hospitals. Purposive sampling was used to recruit the participants who met the inclusion criteria. The inclusion criteria consist of: 1) pediatric nurses having work experience with ARI children less than six years, 2) pediatric nurses having work experience six years or more), and 3) willing to participate in this study. These two categories of nurses were identified based on Banner (2001). Banner (2001) described the level of skill experience such as advanced beginner (typically less than 2 years), competent (typically 2 to 3 years), proficient (typically 3 to 5 years), and expert (typically 6 or more years).

The sample size was estimated based on the most relevant study of Nontapet (2008) entitled "The Development of Primary Care Competency Assessment Scale (PC-CAS) for Primary Care Providers in Thailand". The means and standard deviations of care management of full-time PC providers and part-time PC providers were 47.70 (SD =7.21) and 42.40 (SD =10.85), respectively. The effect size calculated based on this study was .57. The sample size was estimated at .05 level of significance (α), with an effect size of .57, and a power of .80, giving 49/group

(Daniel, 2011). In this study, the researcher used the same data as for doing exploratory factor analysis.

Instruments

There were two questionnaires: 1) the Demographic Data Questionnaires and 2) the QNCS-HARIC (version 5).

Data analysis

The contrasted-group approach is a construct validity test using an analysis of the scale-separated groups that will be different based on contrasting characteristic. To demonstrate differences in the quality of nursing care ARI children of nurses' access, independent t-test was used to determine whether there would be significant differences in quality of nursing care for ARI children between two nurse groups. If the mean scores of the QNCS-HARIC of the two groups were significantly different, the researcher might claim some evidence for construct validity that is that the instrument measures the attribute of interest (Waltz, Strickland, & Lenz, 2005). However, if no significant difference is found between the means of the two contrasted groups, there are three possible interpretations: 1) the test is unreliable, 2) the test is reliable, but not a valid measure of the characteristic and 3) the construct conception of the construct of interest are faulty and needs reformulation (Waltz, Strickland, & Lenz, 2005).

Social Desirability

The social desirability test was used to examine social desirability response bias which affects the validity of a questionnaire (Huang, Liao, & Chang, 1998). In

this study, the Indonesian version of Marlowe-Crowne Social Desirability Scale-C (MCSDS-C) was used to determine the degree of social desirability to the participants answer (true or false) to a set of socially desirable but improbable statements (Crowne & Marlowe, 1960). The MCSDS-C is a 13 item self-report measure that determines which individuals are likely to respond in a culturally appropriate and acceptable manner. Total scores range from 0 (low) to 13 (high social desirability) (Hays, Hayashi, & Stewart, 1989).

Data analysis

The Pearson Product Moment Correlation coefficient was used to measure the relationship between the QNCS-HARIC scores and the MCSDS-C scores. If the coefficient is not statistically significant, it means that social desirability is not a factor affecting the participants' response to the QNCS-HARIC (Crowne & Marlowe, 1960). If the coefficient is positive and statistically significant, it means that social desirability is a factor affecting the participants' response to the QNCS-HARIC.

Strategies for minimizing social desirability bias include: 1) using do guess directions when multiple-choice measures are employed, 2) wording directions as clearly and concisely as possible, 3) avoiding item formats that use fixed-responses, 4) using items with a general rather than a personal different, 5) designing measures whenever possible that assess multiple dimensions of a phenomenon rather than only one dimension, 6) avoiding any words or actions that might communicate to subjects that the investigators would certain responses, 7) use a mailed questionnaire that has a lower probability of producing socially desirable responses than does a telephone interview, and 8) employing a measure of social desirability as a covariate in order to

statistically control the social desirability response set (Waltz, Srickland, & Lenz, 2005).

Protections of Human Subjects

Before starting the study, the researcher asked for permission from the Institutional Review Board of the Faculty of Nursing, Prince of Songkla University. Permission was also asked from the directors of the study hospitals. The purpose and process of the study were explained to participants by giving a full explanation concerning the purposes of the study, the voluntary nature of participating in the study, and the benefits of the findings for the nursing profession. The participants then were asked to participate in this study and those willing to join were asked to sign an informed consent form. All QNCS-HARIC information provided would be treated in a confidential manner and anonymity would be assured. The participants were informed of no risks are associated with their participation and no repercussions would occur if that they would be refused to participate or decide to leave the study after agreeing to join.

CHAPTER 4

RESULTS AND DISCUSSION

The purposes of this study were to develop and evaluate the validity and reliability of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia (QNCS-HARIC). The results of the study are presented following the research questions and objectives of the study: 1) the components of the QNCS-HARIC, 2) validity and reliability of the QNCS-HARIC, and 3) social desirability.

The Components of the QNCS-HARIC

Five versions of the QNCS-HARIC were developed based on literature reviews, an expert panel meeting, and DeVellis's Theory of Scale Development. Comparisons of these five versions are shown in Table 1.

Results from the literature review

Based on the literature review regarding the quality of care, the quality of nursing care perspective, the quality of nursing care evaluation, the existing quality of nursing care instruments, the nursing process, holistic care, nursing care for ARI children, and holistic nursing care for ARI children; four dimensions and 80 items of the QNCS-HARIC version 1 were established: 1) physical dimension of ARI children (37 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items) (see Table 1).

Results from the expert panel meeting

The panel of experts consisted of 12 participants from pediatric nurses (n= 4), pediatric nurse lecturers (n= 4), and pediatricians (n= 4). Based on the expert panel meeting, four dimensions and 79 items of the QNCS-HARIC (version 2) were identified: 1) the physical dimension of ARI children (36 items), 2) the psychological dimension of ARI children and family (26 items), 3) the socio-cultural dimension of ARI children and family (10 items), and 4) the spiritual dimension of ARI children and family (7 items) (see Table 1). Only item 14 in the physical dimension of ARI children dimension was deleted because it was redundant,(already contained within item 13). In addition, the reseacher also explained more regarding holistic nursing care and gave an example because some of the panel of experts did not clearly understand the concepts of holistic nursing care and nursing care plan.

Result from the experts' review

The content validity of the QNCS-HARIC (version 2) was performed by five experts. The acceptable Content Validity Index (CVI) of the QNCS-HARIC (version 2) was .96. Two items of the QNCS-HARIC version 2 (items 21, 22) were deleted because they were not relevant to nursing care for ARI children. One item (item 34) was added by the experts because they believed that the parents should be instructed to monitor signs of respiratory distress including danger signs at home and when to bring the child to the hospital. Nine items (items 1, 2, 5, 14, 30, 31, 53, 67, and 77) were modified because of lack of clarity. Sixty seven items were retained. Thus, after the experts' review, the QNCS-HARIC (version 3) consisted of four dimensions and 78 items: 1) physical dimension of ARI children (35 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI

children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items) (see Table 1).

Result from the back translation

The back translation method was used to translate the original English version of the QNCS-HARIC (version 3) into the Indonesian version (version 4) (Brislin, 1986). The translation process included forward translation of the development instrument, a blind back-translation, and comparisons of the original and back-translated version.

First, the original English version of the QNCS-HARIC (version 3) was translated into the Indonesian language by three nursing experts who were natives of Indonesia and fluent in both English and Indonesian, and also having knowledge in quality of nursing care with ARI children, instrument development and Indonesian culture. After the translation, the researcher carefully compared and checked for discrepancies among the three questionnaires from the three translators. There were no discrepancies among three translators.

Second, the Indonesian version of the QNCS-HARIC (version 4) was translated back to English language by another three nursing experts native to Indonesia who were fluent in both English and Indonesian. After the back translation, the researcher examined, compared, and checked for discrepancies among three questionnaires from three translators. There were no discrepancies among the three translators.

Third, an editor who was fluent in English compared the equivalence of two English versions: the original version and back translated version. This method was expected to result in equivalence between the original and back translation instrument.

The evaluations of semantic equivalence during the translation process indicated that the translated Indonesian version of the QNCS-HARIC demonstrated satisfactory semantic equivalence as relative to the English version of the QNCS-HARIC through the quality of translation. The original version of QNCS-HARIC and back-translated English version were compared. No items were deleted or added at this stage of research. However, the editor made suggestions to change some words or delete items 1, 5, and 12. Item 1 Assess for signs of inadequate oxygen (e.g., cyanotic lip or fingernails, irregular breathing or restlessness, capillary refill > 2 seconds, hypoxia). The phrase" restlessness" was changed to "difficulty breathing". Item 5 Assess the child's response to activity daily intolerance. The word" daily" was deleted. Item 12

Administer oxygen correctly as prescribed. The phrase "prescribed" was changed to "physician order". In addition, verb tenses also were changed for appropriateness.

In summary, through the back translation technique, the four dimensions and 78 items of the QNCS-HARIC (version 4) demonstrated satisfactory semantic equivalence questionnaire.

Result from the pilot study

The pilot study was conducted with 30 pediatric nurses who had similar qualifications as the study sample from the general hospital, at western Indonesia. The participants' ages ranged from 25 to 48 years. Eighteen of them (60.0%) were aged more than 40 years old (M = 40.03; SD = 7.04). All participants were female. Twenty-one participants were Chistian (70.0%) and eight were Muslim. Twenty-eight participants were married (93.3%). All participants had a bachelor degree (100%). Twenty-six participants (86.7%) had more than six years of nursing experience

(*M* = 15.13; *SD* = 6.74). Twenty-six participants (86.7%) had more than six years of working experience with acute respiratory infection children (*M* = 11.17; *SD* = 5.23). Thirteen participants (43.3 %) took care of ARI children at a rate of less than ten cases per month (*M* = 8.63; *SD* = 6.43) (see Table 10, Appendix C).

The result from the pilot study showed that Cronbach's alpha coefficient for overall QNCS-HARIC (78 items) was .94. Cronbach's alpha coefficients for the physical dimension of ARI children, the psychological dimension of ARI children and family, the socio-cultural dimension of ARI children and family, and the spiritual dimension of ARI children and family dimensions were .94, .87, .79, and .66, respectively. Since Cronbach's alpha coefficient of the spiritual of ARI children and family dimension was low (*r*=.66) and an item-to-total correlation of item 75 belonging to the spiritual dimension was also low (*r*=.155), it was deleted. After deleting that item, Cronbach's alpha coefficient of the spiritual dimension increased to .73. Overall Cronbach's alpha coefficient 77 items of the QNCS-HARIC and the physical, psychological, socio-cultural, and spiritual dimensions were .94, .94, .87, .79, and .73, respectively. Details of the four dimensions and 77 items of the QNCS-HARIC (version 5) are shown in Table 1.

Table 1

Comparison of Five Versions of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
Dimension 1: The physical dimension of ARI children (37 items)	Dimension 1: The physical dimension of ARI children (36 items)	Dimension 1: The physical dimension of ARI children (35 items)	Dimension 1: The physical dimension of ARI children (35 items)	Dimension 1: The physical dimension of ARI children (35 items)
1. Assess for signs of inadequate oxygen (e.g., cyanotic lip or fingernails, irregular breathing or restlessness)	1. Assess for signs of inadequate oxygen (e.g., cyanotic lip or fingernails, irregular breathing or restlessness)	*1. Assess for signs of inadequate oxygen (e.g., cyanotic lip or fingernails, irregular breathing or restlessness, capillary refill > 2 seconds, hypoxia)*	*1. Assess for signs of inadequate oxygen (e.g., cyanotic lips or fingernails, irregular breathing or difficulty breathing, capillary refill > 2 seconds, hypoxia)*	1. Assess for signs of inadequate oxygen (e.g., cyanotic lips or fingernails, irregular breathing or difficulty breathing, capillary refill > 2 seconds, hypoxia)
2. Assess vital signs	2. Assess vital signs	2. *Assess vital signs(e.g., pulse, respiratory rate, blood pressure, temperature)*	2. Assess vital signs (e.g., pulse, respiratory rate, blood pressure, temperature)	2. Assess vital signs (e.g., pulse, respiratory rate, blood pressure, temperature)
3. Assess for signs of dehydration	3. Assess for signs of dehydration when the child had severe ARI (e.g., sunken eyes, decreased frequency of urination, increase urine specific gravity, dark urine color, no tears when the child cries, dry mucous membranes, lethargy or irritability, poor skin turgor)	3. Assess for signs of dehydration when the child had severe ARI (e.g., sunken eyes, decreased frequency of urination, increase urine specific gravity, dark urine color, no tears when the child cries, dry mucous membranes, lethargy or irritability, poor skin turgor)	3. Assess for signs of dehydration when the child had severe ARI e.g., sunken eyes, decreased frequency of urination, increase urine specific gravity, dark urine color, no tears when the child cries, dry mucous membranes, lethargy or irritability, poor skin turgor)	3. Assess for signs of dehydration when the child had severe ARI e.g., sunken eyes, decreased frequency of urination, increase urine specific gravity, dark urine color, no tears when the child cries, dry mucous membranes, lethargy or irritability, poor skin turgor)
4. Assess type/amount/frequency of food intake	4. Assess type/amount/frequency of food intake	4. Assess type/amount/frequency of food intake	4. Assess type/amounts/frequency of food intake	4. Assess type/amounts/frequency of food intake

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
5. Assess the child's level of activity intolerance	5. Assess the child's response to activity intolerance	*5. Assess the child's response to activity daily intolerance*	*5. Assess the child's response to activity intolerance*	5. Assess the child's response to activity intolerance
6. Assess signs of ARI	6. Assess signs of ARI such as runny/stuffy nose, fever, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting, sore throat, headache (only for older children)	6. Assess signs of ARI such as runny/stuffy nose, fever, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting, sore throat, headache, sore throat (only for older children)	6. Assess signs of ARI such as runny/stuffy nose, fever, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting, sore throat, headache, sore throat (only for older children)	6. Assess signs of ARI such as runny/stuffy nose, fever, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting, sore throat, headache, sore throat (only for older children)
7. Assess parent's knowledge (e.g., caring for ARI children, cause of ARI, danger signs and symptoms, antibiotic treatment, immunizations)	7. Assess parent's knowledge (e.g., caring for ARI children, cause of ARI, danger signs and symptoms, antibiotic treatment, immunizations)	7. Assess parent's knowledge (e.g., caring for ARI children, cause of ARI, danger signs and symptoms, antibiotic treatment, immunizations)	7. Assess parent's knowledge (e.g., caring for ARI, cause of ARI , danger signs and symptoms, antibiotic treatment, immunizations)	7. Assess parent's knowledge (e.g., caring for ARI, cause of ARI , danger signs and symptoms, antibiotic treatment, immunizations)
8. Assess parent's skills (e.g., counts respirations, checks for fast breathing, checks for chest in-drawing, and give drugs as appropriate)	8. Assess parent's skills (e.g., counts respirations, checks for fast t breathing, checks for chest in-drawing, and give drugs as appropriate)	8. Assess parent's skills (e.g., counts respirations, checks for fast breathing, checks for chest in-drawing, and give drugs as appropriate)	8. Assess parent's skills (e.g., counts respirations, checks for fast breathing, checks for chest in-drawing, and give drugs as appropriate)	8. Assess parent's skills (e.g., counts respirations, checks for fast breathing, checks for chest in-drawing, and give drugs as appropriate)
9. Prioritize nursing diagnoses regarding the physical needs of ARI children	9. Prioritize nursing diagnoses regarding the physical needs of ARI children	9. Prioritize nursing diagnoses regarding the physical needs of ARI children	9. Prioritize nursing diagnoses regarding the physical needs of ARI	9. Prioritize nursing diagnoses regarding the physical needs of ARI
10. Do pre conference regarding plan for performing nursing care to meet the physical needs of ARI children	10. Do pre conference regarding plan for performing nursing care to meet the physical needs of ARI	10. Do pre conference regarding plan for performing nursing care to meet the physical needs of ARI children	10. Do pre conference regarding plan for performing nursing care to meet the physical needs of ARI	10. Do pre conference regarding plan for performing nursing care to meet the physical needs of ARI

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
	children	Children	Children	children
11. Position the child with head elevate for maximum ventilation	11. Provide head up position the child 15 -30 ^{o} for maximum ventilation	11. Provide head up position the child 15 -30 ^{o} for maximum ventilation	11. Provide head up position for the child 15 -30 ^{o} for maximum ventilation	11. Provide head up position for the child 15 -30 ^{o} for maximum ventilation
12. Administer oxygen as prescribed	12. Administer oxygen correctly as prescribed	12. Administer oxygen correctly as prescribed	*12. Administer oxygen correctly as physician order*	12. Administer oxygen correctly as physician order
13. Perform chest physiotherapy (percussion, vibration, postural drainage, and suction)	13. Perform chest physiotherapy (percussion, vibration, postural drainage, and suction), if necessary	13. Perform chest physiotherapy (percussion, vibration, postural drainage, and suction), if necessary	13. Perform chest physiotherapy (percussion, vibration, postural drainage, and suction), if necessary	13. Perform chest physiotherapy (percussion, vibration, postural drainage, and suction), if necessary
14. Perform suction as needed	*Deleted item 14 because it was redundant (found in item 13).*	-	-	-
15. Teach parents to observe signs of inadequate oxygen (e.g., cyanotic lip of fingernails, irregular breathing or restlessness)	14. Teach parents to observe signs of inadequate oxygen (e.g., cyanotic lip or fingernails, irregular breathing or restlessness)	*14. Teach parents to observe signs of inadequate oxygen (e.g., cyanotic lip or fingernails, chest indrawing, irregular breathing or restlessness)*	14. Teach parents to observe signs of inadequate oxygen (e.g., cyanotic lips or fingernails, chest indrawing, irregular breathing or restlessness)	14. Teach parents to observe signs of inadequate oxygen (e.g., cyanotic lips or fingernails, chest indrawing, irregular breathing or restlessness)
16. Record intake and output	15. Record intake and output	15. Record intake and output	15. Record intake and output	15. Record intake and output
17. Provide enteral fluid or parental fluids as prescribed	16. Provide enteral fluid or parental fluids as prescribed	16. Provide enteral fluid or parental fluids as prescribed	16. Provide enteral fluid or parenteral fluid as prescribed	16. Provide enteral fluid or parenteral fluid as prescribed
18. Measure weight with the same scale and at the same time daily	17. Measure weight with the same scale and at the same time daily	17. Measure weight with the same scale and at the same time daily	17. Measure weight with the same scale and at the same time	17. Measure weight with the same scale and at the same time
19. Teach parents how to maintain their child hydration (e.g., give water or juice by oral with the small amount but	18. Teach parents how to maintain their child hydration (e.g., give water or juice by oral with the small amount but	18. Teach parents how to maintain their child hydration (e.g., give water or juice by oral with the small amount	18. Teach parents how to maintain their child's hydration (e.g., give water or juice orally with a small but	18. Teach parents how to maintain their child's hydration (e.g., give water or juice orally with a small

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
often)	often)	often)	amount but often)	amount but often)
20. Advise the child or parents to take food (e.g., small amount and often, take meals as needed, take preference food)	19. Advise the child or parents to take food (e.g., small amount and often, take meals as needed, take preference food)	19. Advise the child or parents to take food (e.g., small amount and often, take meals as needed, take preference food)	19. Advise the child or parents to take food (e.g., small amount and often, take meals as needed, take preference food)	19. Advise the child or parents to take food (e.g., small amount and often, take meals as needed, take preference food)
21. Record a number and consistency of stools per day	20. Record a number and consistency of stools per day	*Deleted items 20 and 21 because they were not relevant to nursing care for ARI children*	-	-
22. Maintain good oral hygiene before and after taking of food	21. Provide good oral hygiene before and after taking of food		-	-
23. Teach parents or children about diets (e.g., size of feedings, food choices with high calorie)	22. Teach parents or children about diets (e.g., size of feedings, food choices with high calorie)	20. Teach parents or children about diets (e.g., size of feedings, food choices with high calorie)	20. Teach parents or children about diets (e.g., size of feedings, food choices with high calorie)	20. Teach parents or children about diets (e.g., size of feedings, food choices with high calorie)
24. Assist the child in daily activity	23. Assist the child in daily activity	21. Assist the child in daily activity	21. Assist the child in daily activity	21. Assist the child in daily activity
25. Monitor the child response for activity	24. Monitor the child response for activity	22. Monitor the child response for activity	22. Monitor the child's response for activity	22. Monitor the child's response for activity
26. Provide play activities as needed	25. Provide play activities as needed	23. Provide play activities as needed	23. Provide play activities as needed	23. Provide play activities as needed
27. Cluster activities or minimize stimulation to provide rest periods	26. Cluster activities or minimize stimulation to provide rest periods	24. Cluster activities or minimize stimulation to provide rest periods	24. Cluster activities or minimize stimulation to provide rest periods	24. Cluster activities or minimize stimulation to provide rest periods
28. Maintain a quiet environment	27. Provide a quiet environment	25. Provide a quiet environment	25. Provide a quiet environment	25. Provide a quiet environment
29. Use strict aseptic practice when performing procedure or	28. Use strict aseptic practice when performing procedure or	26. Use strict aseptic practice when performing procedure or	26. Use strict aseptic practice when performing procedure or	26. Use strict aseptic practice when performing procedure or

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
nursing care	nursing care	nursing care	nursing care	nursing care
30. Teach parents to wash hands before and after contact with the child	29. Teach parents to wash hands before and after contact with the child	27. Teach parents to wash hands before and after contact with the child	27. Teach parents to wash hands before and after contact with the child	27. Teach parents to wash hands before and after contact with the child
31. Administer medicines as prescribed (e.g., antibiotics, antipyretics, nebulizers, or bronchodilators)	30. Administer medicines as prescribed (e.g., antibiotics, antipyretics, nebulizers, or bronchodilators)	28. Administer medicines as prescribed (e.g., antibiotics, antipyretics, , nebulizers, or bronchodilators)	28. Administer medicines as prescribed (e.g., antibiotics, antipyretics, nebulizers, or bronchodilators)	28. Administer medicines as prescribed (e.g., antibiotics, antipyretics, nebulizers, or bronchodilators)
32. Observe side effects of medicines	31. Observe side effects medicines	29. Observe side effects of medicines	29. Observe side effects of medicines	29. Observe side effects of medicines
33. Provide hygiene care	32. Provide hygiene care	*30. Provide hygiene care (e.g., bath care, mouth care, hand washing, etc.)*	30. Provide hygiene care (e.g., bath care, mouth care, hand washing, etc.)	30. Provide hygiene care (e.g., bath care, mouth care, hand washing, etc.)
34. Provide environmental care	33. Provide environmental care	*31. Provide environmental care (e.g., changing a bed sheet as necessary, cleaning a floor and bedside area, re-arranging bedside area, providing a garbage disposal can nearby)*	31. Provide environmental care (e.g., changing a bed sheet as necessary, cleaning a floor and bedside area, re-arranging bedside area, providing a garbage disposal can nearby)	31. Provide environmental care (e.g., changing a bed sheet as necessary, cleaning a floor and bedside area, re-arranging bedside area, providing a garbage disposal can nearby)
35. Monitor signs of ARI (e.g., runny/stuffy nose, sore throat, fever, headache, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting)	34. Monitor signs of ARI (e.g., runny/stuffy nose, sore throat, fever, headache, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting)	32. Monitor signs of ARI (e.g., runny/stuffy nose, sore throat, fever, headache, cough, difficult breathing chest indrawing, stridor, wheezing, anorexia, vomiting)	32. Monitor signs of ARI (e.g., runny/stuffy nose, sore throat, fever, headache, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting)	32. Monitor signs of ARI (e.g., runny/stuffy nose, sore throat, fever, headache, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting)

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
36. Teach parents to observe signs and symptoms of ARI -	35. Teach parents to observe signs and symptoms of ARI -	33. Teach parents to observe signs and symptoms of ARI *34. Teach parents to observe danger signs of ARI that need to take the child to the hospital urgently* *(Added item)*	33. Teach parents to observe signs and symptoms of ARI 34. Teach parents to observe danger signs of ARI that need to take the child to the hospital urgently	33. Teach parents to observe signs and symptoms of ARI 34. Teach parents to observe danger signs of ARI that need to take the child to the hospital urgently
37. Evaluate nursing care to meet the physical need of ARI children	36. Evaluate nursing care to meet the physical need of ARI children	35. Evaluate nursing care to meet the physical need of ARI children	35. Evaluate nursing care to meet the physical needs of ARI children	35. Evaluate nursing care to meet the physical needs of ARI children
<u>Dimension 2:</u> The psychological dimension of ARI children and family (26 items)	<u>Dimension 2:</u> The psychological dimension of ARI children and family (26 items)	<u>Dimension 2:</u> The psychological dimension of ARI children and family (26 items)	<u>Dimension 2:</u> The psychological dimension of ARI children and family (26 items)	<u>Dimension 2:</u> The psychological dimension of ARI children and family (26 items)
38. Establish trusting relationship with the child or parents	37. Establish trusting relationship with the child or parents	36. Establish trusting relationship with the child or parents	36. Establish trusting relationship with the child or parents	36. Establish trusting relationship with the child or parents
39. Assess the child for contributing factors of anxiety, fear, or pain for the child aged between 3-5 years old	38. Assess the for contributing factors of anxiety, fear, or pain for the child aged between 3-5 years old	37. Assess for contributing factors of anxiety, fear, or pain only for the child aged between 3-5 years old	37. Assess for contributing factors of anxiety, fear, or pain only for the child aged between 3-5 years old	37. Assess for contributing factors of anxiety, fear, or pain only for the child aged between 3-5 years old
40. Assess parents for contributing factors of anxiety or fear	39. Assess parents for contributing factors of anxiety or fear	38. Assess parents for contributing factors of anxiety or fear	38. Assess parents for contributing factors of anxiety or fear	38. Assess parents for contributing factors of anxiety or fear
41. Assess the child's anxiety or fear	40. Assess the child's anxiety or fear	39. Assess the child's anxiety or fear	39. Assess the child's anxiety or fear	39. Assess the child's anxiety or fear
42. Assess the child's pain	41. Assess the child's pain	40. Assess the child's pain	40. Assess the child's pain	40. Assess the child's pain

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
43. Assess the child or parents for presence of misconception about pain or its treatment (e.g., fear for addict to pain medication)	42. Assess the child or parents for presence of misconception about pain or its treatment (e.g., fear for addict to pain medication)	41. Assess the child or parents for presence of misconception about pain or its treatment (e.g., fear for addict to pain medication)	41. Assess the child or parents for presence of misconception about pain or its treatment (e.g., fear of addiction to pain medication)	41. Assess the child or parents for presence of misconception about pain or its treatment (e.g., fear of addiction to pain medication)
44. Evaluate the child's response to anxiety, fear, or pain	43. Evaluate the child's response to anxiety, fear, or pain	42. Evaluate the child's response to anxiety, fear, or pain	42. Evaluate the child's response to anxiety, fear, or pain	42. Evaluate the child's response to anxiety, fear, or pain
45. Explore coping skills previously used by parents to deal with fear, or anxiety of the child or themselves	44. Explore coping skills previously used by parents to deal with fear, or anxiety of the child or themselves	43. Explore coping skills previously used by parents to deal with fear, or anxiety of the child or themselves	43. Explore coping skills previously used by parents to deal with fear, or anxiety of the child or themselves	43. Explore coping skills previously used by parents to deal with fear, or anxiety of the child or themselves
46. Plan for performing nursing care to meet the psychological need of ARI children and family	45. Plan for performing nursing care to meet the psychological need of ARI children and family	44. Plan for performing nursing care to meet the psychological need of ARI children and family	43. Plan for performing nursing care to meet the psychological need of ARI children and family	43. Plan for performing nursing care to meet the psychological need of ARI children and family
47. Inform parents (e.g., the child's condition, treatment, unfamiliar procedure)	46. Inform parents (e.g., the child's condition, treatment, unfamiliar procedure)	45. Inform parents (e.g., the child's condition, treatment, unfamiliar procedure)	45. Inform parents (e.g., the child's condition, treatment, unfamiliar procedures)	45. Inform parents (e.g., the child's condition, treatment, unfamiliar procedures)
48. Encourage parents to participate in the child care	47. Encourage parents to participate in the child care	46. Encourage parents to participate in the child care	46. Encourage parents to participate in the child care	46. Encourage parents to participate in the child care
49. Maintain a clam manner while interacting with the child or parents	48. Maintain a clam manner while interacting with the child or parents	47. Maintain a clam manner while interacting with the child or parents	47. Maintain a calm manner while interacting with the child or parents	47. Maintain a calm manner while interacting with the child or parents

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
50. Assist the parents in developing anxiety-reducing skills	49. Assist the parents in developing anxiety-reducing skills	48. Assist the parents in developing anxiety-reducing skills	48. Assist the parents in developing anxiety-reducing skills	48. Assist the parents in developing anxiety-reducing skills
51. Provide psychological support to the child and parents to decrease anxiety or fear	50. Provide psychological support to the child and parents to decrease anxiety or fear	49. Provide psychological support to the child and parents to decrease anxiety or fear	49. Provide psychological support to the child and parents to decrease anxiety or fear	49. Provide psychological support to the child and parents to decrease anxiety or fear
52. Avoid painful procedure	51. Avoid painful procedure	50. Avoid painful procedure	50. Avoid painful procedures	50. Avoid painful procedures
53. Monitor severity of the child's pain using the Wong-Baker FACES Pain Rating Scale	52. Assess severity of the child's pain using the Neonatal Infant Pain Scale (NIPS) or Wong-Baker FACES Pain Rating Scale	51. Assess severity of the child's pain using the Neonatal Infant Pain Scale (NIPS) or Wong-Baker FACES Pain Rating Scale	51. Assess severity of the child's pain using the Neonatal Infant Pain Scale (NIPS) or Wong-Baker FACES Pain Rating Scale	51. Assess severity of the child's pain using the Neonatal Infant Pain Scale (NIPS) or Wong-Baker FACES Pain Rating Scale
54. Respond immediately to complaint of anxiety, fear, or pain	53. Respond immediately to complaint of anxiety, fear, or pain	52.Respond immediately to complaint of anxiety, fear, or pain	52. Respond immediately to complaint of anxiety, fear, or pain	52. Respond immediately to complaint of anxiety, fear, or pain
55. Eliminate additional stressors or sources of discomfort whenever possible	54. Eliminate additional stressors or sources of discomfort whenever possible	*53. Eliminate additional stressors or sources of discomfort whenever possible (e.g., bodily injury or pain from treatments or procedures, separation from parents, restraint only if necessary)*	53. Eliminate additional stressors or sources of discomfort whenever possible (e.g., bodily injury or pain from treatments or procedures, separation from parents, restraint only if necessary)	53. Eliminate additional stressors or sources of discomfort whenever possible (e.g., bodily injury or pain from treatments or procedures, separation from parents, restraint only if necessary)

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
56. Explain causes of pain or discomfort to the parents	55. Explain causes of pain or discomfort to the parents	54. Explain causes of pain or discomfort to the parents	54. Explain causes of pain or discomfort to the parents	54. Explain causes of pain or discomfort to the parents
57. Use communication techniques with the child to decrease anxiety and fear (e.g., play, puppets, or drawing)	56. Use communication techniques with the child to decrease anxiety and fear (e.g., play, puppets, or drawing)	55. Use communication techniques with the child to decrease anxiety and fear (e.g., play, puppets, or drawing)	55. Use communication techniques with the child to decrease anxiety and fear (e.g., play, puppets, or drawing)	55. Use communication techniques with the child to decrease anxiety and fear (e.g., play, puppets, or drawing)
58. Provide comfort or transitional objects to the child when they are separated from parents (e.g., blanket, toys)	57. Provide comfort or transitional objects to the child when they are separated from parents (e.g., blanket, toys)	56. Provide comfort or transitional objects to the child when they are separated from parents (e.g., blanket, toys)	56. Provide comfort or transitional objects to the child when they are separated from parents (e.g., blanket, toys)	56. Provide comfort or transitional objects to the child when they are separated from parents (e.g., blanket, toys)
59. Encourage parents to explore the child's feelings that may be contributing to the child fear	58. Encourage parents to explore the child's feelings that may be contributing to the child fear	57. Encourage parents to explore the child's feelings that may be contributing to the child fear	57. Encourage parents to explore the child's feelings that may be contributing to the child fear	57. Encourage parents to explore the child's feelings that may be contributing to the child fear
60. Encourage parents to touch/cuddle/comfort/or be with the child during procedures	59. Encourage parents to touch/cuddle/comfort/or be with the child during procedures	58. Encourage parents to touch/cuddle/comfort/or be with the child during procedures	58. Encourage parents to touch/cuddle/comfort/or be with the child during procedures	58. Encourage parents to touch/cuddle/comfort/or be with the child during procedures
61. Be physically present to child or family	60. Be physically present to child or family	59. Be physically present to child or family	59. Be physically present with child or family	59. Be physically present with child or family
62. Actively listen to parents	61. Actively listen to parents	60. Actively listen to parents	60. Actively listen to parents	60. Actively listen to parents
63. Evaluate nursing care to meet the psychological needs of ARI children and family	62. Evaluate nursing care to meet the psychological needs of ARI children and family	61. Evaluate nursing care to meet the psychological needs of ARI children and family	61. Evaluate nursing care to meet the psychological needs of ARI children and family	61. Evaluate nursing care to meet the psychological needs of ARI children and family

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
Dimension 3: The socio-cultural dimension of ARI children and family (10 items) 64. Assess inadequate economic resources 65. Assess socio-cultural barrier 66. Assess cultural beliefs or practices of the child or parents that affect the child's illness or treatment 67. Prioritize nursing diagnoses regarding the socio-cultural needs of ARI children and family 68. Plan for performing nursing care to meet the socio-cultural need of ARI children and family 69. Encourage parents to identify available family members or friends who can assist with parents to relieve pressure on parents 70. Assist to identify for activities assistance if desired	Dimension 3: The socio-cultural dimension of ARI children and family (10 items) 63. Assess inadequate economic resources 64. Assess socio-cultural barrier 65. Assess cultural beliefs or practices of the child or parents that affect the child's illness or treatment 66. Prioritize nursing diagnoses regarding the socio-cultural needs of ARI children and family 67. Plan for performing nursing care to meet the socio-cultural need of ARI children and family 68. Encourage parents to identify available family members or friends who can assist with parents to relieve pressure on parents 69. Assist to identify for activities assistance if desired	Dimension 3: The socio-cultural dimension of ARI children and family (10 items) 62. Assess inadequate economic resources 63. Assess socio-cultural barrier 64. Assess cultural beliefs or practices of the child or parents that affect the child's illness or treatment 65. Prioritize nursing diagnoses regarding the socio-cultural needs of ARI children and family 66. Plan for performing nursing care to meet the socio-cultural need of ARI children and family *67. Encourage parents to identify available family members or friends who can assist with parents to relieve pressure on parents* 68. Assist to identify for activities assistance if desired	Dimension 3: The socio-cultural dimension of ARI children and family (10 items) 62. Assess inadequate economic resources 63. Assess socio-cultural barriers 64. Assess cultural beliefs or practices of the child or parents that affect the child's illness or treatment 65. Prioritize nursing diagnoses regarding the socio-cultural needs of ARI children and family 66. Plan for performing nursing care to meet the socio-cultural needs of ARI children and family 67. Encourage parents to identify available family members or friends who can assist with parents to relieve pressure on parents 68. Assist to identify for activities assistance if desired	Dimension 3: The socio-cultural dimension of ARI children and family (10 items) 62. Assess inadequate economic resources 63. Assess socio-cultural barriers 64. Assess cultural beliefs or practices of the child or parents that affect the child's illness or treatment 65. Prioritize nursing diagnoses regarding the socio-cultural needs of ARI children and family 66. Plan for performing nursing care to meet the socio-cultural needs of ARI children and family 67. Encourage parents to identify available family members or friends who can assist with parents to relieve pressure on parents 68. Assist to identify for activities assistance if desired

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
72. Assist the parents or family to identify health behaviors that are compatible with their life-style (e.g., Muslim diet)	71. Assist the parents or family to identify health behaviors that are compatible with their life-style (e.g., Muslim diet)	70. Assist the parents or family to identify health behaviors that are compatible with their life-style (e.g., Muslim diet)	70. Assist the parents or family to identify health behaviors that are compatible with their life-style (e.g., Muslim diet)	70. Assist the parents or family to identify health behaviors that are compatible with their life-style (e.g., Muslim diet)
73. Evaluate nursing care to meet the socio-cultural needs of ARI children and family	72. Evaluate nursing care to meet the socio-cultural needs of ARI children and family	71. Evaluate nursing care to meet the socio-cultural needs of ARI children and family	71. Evaluate nursing care to meet the socio-cultural needs of ARI children and family	71. Evaluate nursing care to meet the socio-cultural needs of ARI children and family
<u>Dimension 4:</u> The spiritual dimension of ARI children and family (7 items)	<u>Dimension 4:</u> The spiritual dimension of ARI children and family (7 items)	<u>Dimension 4:</u> The spiritual dimension of ARI children and family (7 items)	<u>Dimension 4:</u> The spiritual dimension of ARI children and family (6 items)	<u>Dimension 4:</u> The spiritual dimension of ARI children and family (6 items)
74. Explore whether parents desires to engage in an allowable religious or spiritual practice or ritual	73. Explore whether parents desires to engage in an allowable religious or spiritual practice or ritual	72. Explore whether parents desires to engage in an allowable religious or spiritual practice or ritual	72. Explore whether parents desire to engage in an allowable religious or spiritual practice or ritual	72. Explore whether parents desire to engage in an allowable religious or spiritual practice or ritual
75. Prioritize nursing diagnoses regarding the spiritual needs of ARI children and family	74. Prioritize nursing diagnoses regarding the spiritual needs of ARI children and family	73. Prioritize nursing diagnoses regarding the spiritual needs of ARI children and family	73. Prioritize nursing diagnoses regarding the spiritual needs of ARI children and family	73. Prioritize nursing diagnoses regarding the spiritual needs of ARI children and family
76. Plan for performing nursing care to meet the spiritual need of ARI children and family	75. Plan for performing nursing care to meet the spiritual need of ARI children and family	74. Plan for performing nursing care to meet the spiritual need of ARI children and family	74. Plan for performing nursing care to meet the spiritual needs of ARI children and family	74. Plan for performing nursing care to meet the spiritual needs of ARI children and family
77. Provide appropriate religious materials to parents e.g., Al-Qur'an, Bible or spiritual books	76. Provide appropriate religious materials to parents e.g., Al-Qur'an, Bible or spiritual books	75. Provide appropriate religious materials to parents e.g., Al-Qur'an, Bible or spiritual books	75. Provide appropriate religious materials to parents e.g., Al-Qur'an, Bible or spiritual books	*Deleted item 75 because it had low an item-to-total correlation (r =.155)*

Note. The revised items are shown in italic writing

Table 1 (*Continued*)

QNCS-HARIC Version 1 Literature review (80 items)	QNCS-HARIC Version 2 Expert panel meeting (N=12) (79 items)	QNCS-HARIC Version 3 Expert review (N=5) (78 items)	Back Translation Version 4 (78 items)	QNCS-HARIC Version 5 Pilot study (N= 30) (77 items)
78. Inform the place for spiritual or religious practices nearby 79. Encourage parents to pray or read Al-Qur'an 80. Evaluate nursing care to meet the spiritual needs of ARI children and family	77. Inform the place for spiritual or religious practices nearby 78. Encourage parents to pray or read religious books such as Al-Qur'an, Bible 79. Evaluate nursing care to meet the spiritual needs of ARI children and family	76.Inform the place for spiritual or religious practices nearby *77. Encourage parents to pray or read holy books such as Al-Qur'an, Bible* 78. Evaluate nursing care to meet the spiritual needs of ARI children and family The Content Validity Index (CVI) was .96	75. Inform the place for spiritual or religious practices nearby 76. Encourage parents to pray or read holy books such as Al-Qur'an, Bible 77. Evaluate nursing care to meet the spiritual needs of ARI children and family	75. Inform the place for spiritual or religious practices nearby 76. Encourage parents to pray or read holy books such as Al-Qur'an, Bible 77. Evaluate nursing care to meet the spiritual needs of ARI children and family Total alpha Cronbach's coefficient QNCS-HARIC- 77 items: .94 Alpha Cronbach's Coefficient in each of dimension equal to .94, .87, .79, and .73, respectively

Note. The revised items are shown in italic writing

Validity and Reliability of the QNCS-HARIC

Construct validity was identified using the EFA and contrasted group approach. The reliability was evaluated in terms of internal consistency (Cronbach's alpha) and stability (test-retest). The results of evaluation of the validity and reliability of the QNCS-HARIC (version 5) are as follows.

Construct validity of the QNCS-HARIC

Results from exploratory factor analysis

Testing assumptions for EFA

Before performing EFA, all assumptions of EFA were examined. The assumptions of EFA consisted of type of data, sample size, normality, linearity, outliers, and multicollinearity (see Table 11, Appendix D). The details of assumptions for EFA are as follows.

Type of data

EFA requires an interval level of measurement. In this study, the QNCS-HARIC (version 5) has items that are assessed using a Likert scale. Although the response categories in Likert scales have a rank order and should be viewed as ordinal-level measurement, it has become common practice to assume that Likert-type categories constitute interval-level measurement as well as the intervals between values are equal.

Sample size

The sample size should be at least 1 to 10 cases per variable. In this study, the QNCS-HARIC (version 5) consisted of 77 variables. Thus, sample size should be 770. Data were available initially from 807 pediatric nurses with no missing data and

1: 10.48 cases per variable (see Table 11, Appendix D). After deleting 28 outliers, the sample size was 779 and 1:10.1 cases per variable. Thus, this assumption was met.

Normality

The distribution of the 77 variables was examined for each item looking at skewness and kurtosis values. All 76 variables were normally distributed, except variable 70 which had a kurtosis value of 3.78. The box plot was used to detect outliers. After deleting the outliers (cases 6, 7, and 8), item 70 had a normal distribution (see Table 11, Appendix D). The skewness values varied from 0.00-3.12, while the kurtosis values ranged from 0.51-3.26. Thus, this assumption was met. A summary of the normality assessment of each item is given in Table 12, Appendix E.

Linearity

Linearity was assessed through inspection of scatter plots. The scatter plots of the residual against the predicted values provide information about possible non linearity. In this study, the scatter plots showed a positive linear relationship with all linear correlation. Thus, this assumption was met. A summary of the linearity is given in Table 13, Appendix F.

Outliers

Factor analysis is sensitive to outlier cases. Outliers were assessed using boxplots and Mahalanobis distance. Using a criterion of *p*-values equals to .001 with 77 df, critical X^2 = 121.11. In this study, 25 outliers were found (cases 2, 34, 373, 385, 403, 431, 434, 470, 486, 553, 569, 574, 672, 673, 674, 682, 699, 726, 736, 750, 751, 758, 773, 775, and 776). The reseacher re-evaluated the variables several times until no outliers were detected by checking the boxplots and calculating Mahalanobis

distances. Finally, the assumption was met. A summary of the outliers is given in Table 11, Appendix D.

Multicollinearity

Multicollinearity was detected using correlation matrices for the independent variables. In this study, multicolinearity was not found (r=.30-.82) Thus, this assumption was met. A summary of the multicollinearity is given in Table 11, Appendix D.

Demographic data of pediatric nurses result

Seven hundred and seventy-nine pediatric nurse participants were involved in this study (see Table 2). Most of the pediatric nurses were female (90.9%). Their ages ranged from 25 to 48 years old and about less than fifty percent of them (44.3%) were an average of 30 to 40 years old *(Md = 35, QD = 6).* The majority of the participants were Muslim (73.8%) and one hundred ninety eight participants were Christian (25.4%). The majority of the participants were married (78.7%). All participants had a bachelor degree (100%). More than fifty percent of the participants (60.6%) had more than six years of nursing experience (*Md = 10, QD = 6).* Less than fifty percent of the participants (41.8%) had more than six years of working experience with acute respiratory infection children *(Md = 6, QD = 3.5).* Less than fifty percent of the participants (41.1%) took care of ARI children more than 10 cases per month *(Md = 10, QD = 3).*

Table 2

Frequency, Percentage, Mean (M), Standard Deviation (SD), Median (Md), Quartile Deviation (QD), Minimum-Maximum, Skewness Value and Kurtosis Value of Demographic Data of Pediatric Nurses (N=779)

Items	Frequency	Percent
Gender		
Male	71	9.10
Female	708	90.90
Age (years)		
< 30	100	12.80
30-40	345	44.30
>40	334	42.90
M 36.67 *SD* 6.96 *Md* 35.00 *QD* 6.00 Min-Max 25-48		
Skewness value 1.17 Kurtosis value 7.31		
Religion		
Muslim	575	73.80
Christian	198	25.40
Catholic	6	0.80
Marital Status		
Single	166	21.30
Married	613	78.70
Nursing Education		
Bachelor degree	779	100.00
Nursing experience (years)		
< 6	104	13.40
Equal 6	203	26.00
> 6	472	60.60
M 11.67 *SD* 6.81 *Md* 10.00 *QD* 6.00 Min-Max 1-23		
Skewness value 1.98 Kurtosis value 7.48		
Working experience with acute respiratory infection children (years)		
< 6	271	34.80
Equal 6	182	23.40
> 6	326	41.80
M 8.04 *SD* 5.22 *Md* 6 .00 *QD* 3.50 Min-Max 1-23		
Skewness value 10.78 Kurtosis value 0.97		
Number of acute respiratory infection children under you care (cases/month)		
<10	173	22.20
Equal 10	286	36.70
> 10	320	41.10

Table 2 (*Continued*)

Items								Frequency	Percent
	M	12.08	*SD*	4.94	*Md*	10.00	*QD*	3.00	Min-Max 3-25
	Skewness value		5.91		Kurtosis value		2.42		

Item Analysis

Before performing an EFA, an item analysis (an item-total correlation) was conducted. The results showed that 28 items had low item-total correlations, ranging from .02 to .29 indicating that the items might be less consistent and less reliable to reflect the construct when compared with other items in the 77 item QNCS-HARIC. Therefore, nine items (items 7, 21, 22, 29, 30, 31, 38, 41, and 57) were eliminated from 77 item QNCS-HARIC. However, based on theoretically interpretation, 19 of 28 items were retained. Thus, 68 items were used to perform the EFA.

Based on Table 3, the item-total correlations coefficients for Factor 1 of the 77 item QNCS-HARIC ranged from .04 to .54 whereas those of the 68 item QNCS-HARIC ranged from .11 to .62. The item-total correlations coefficients for Factor 2 of the 77 item QNCS-HARIC ranged from .02 to .62 whereas those of the 68 item QNCS-HARIC ranged from .04 to .62. The item-total correlations coefficients for Factor 3 of the 77 item QNCS-HARIC ranged from .33 to .55 whereas those of the 68 item QNCS-HARIC ranged from .22 to .55. The item-total correlations coefficients for Factor 4 of the 77 item QNCS-HARIC ranged from .09 to .58 whereas those of the 68 item QNCS-HARIC ranged from .08 to .60 (see Table 3).

Table 3

Comparisons of Item-Total Correlation Coefficients of the 77 Item QNCS-HARIC and 68 Item QNCS-HARIC (N=779)

Factors/ Dimensions	Item-total correlation *coefficients*	
	77 items	68 items
Dimension 1: The physical of ARI children	.04 - .54	.11- .62
Dimension 2: The psychological of ARI children and Family	.02 - .62	.04- .62
Dimension 3: The socio-cultural of ARI children and family	.33- .55	.22- .55
Dimension 4: The spiritual of ARI children and family	.09 - .58	.08- .60

Exploratory factor analysis results

The model fit interpretation

To determine the number of factors underlying the QNCS-HARIC (version 5) (see Appendix A), an exploratory factor analysis was conducted with 779 pediatric nurses using the principle axis factoring (PAF) extraction with orthogonal rotation by using varimax method. In this study, EFA was performed several times with the 77 item QNCS-HARIC. The final model consisted of 37 items. Before interpretation of the results, the model fits of the 77 and 37 items QNCS-HARIC were identified. Based on Table 4, Kaiser-Meyer-Olkin (KMO) indices of both models were satisfactory (.85-.86). Bartlett's tests of sphericity were significant. The Eigenvalues showed in 4 to 22 factors and scree test showed 3-4 factors. The percentage of total variance explained was acceptable only for the model of 37 item QNCS-HARIC (40.92%). The percentages of variance explained per factor were acceptable only for the model of 37 item QNCS-HARIC. In summary, based on the model fit evaluation, only the 37 item QNCS-HARIC model was acceptable.

Table 4

Comparisons of the Criteria to Select the Number of Components to be Retained among EFAs

Methods/The criteria to be retained	QNCS-HARIC 1 *N*=779 77 items	QNCS-HARIC 2 *N*=779 37 items	Normal Value
Factor method	PAF	PAF	PAF may be used if data are not normally distributed (Tabachnick & Fidell, 2007)
Rotational method	Varimax	Varimax	Varimax rotations produce factors that are uncorrelated (Tabachnick & Fidell, 2007)
KMO	.85	.86	≥ .60 (Tabachnick & Fidell, 2007)
Bartlett's test of sphericity	.000	.000	Sig.000 (Hair et al., 1998)
Eigenvalues (factors)	22	4	≥ 1 (Hair et al., 1998)
Scree test (factors)	3-4	4	Data points above the break (Tabachnick & Fidell, 2007)
Percent of total variance explained	32.11	42.92	40% or more (Scherer et al., 1988)
Percent of variance explained	Factor 1:17.45 Factor 2: 6.35 Factor 3: 4.65 Factor 4: 3.65	Factor 1: 22.31 Factor 2: 8.31 Factor 3: 6.76 Factor 4: 5.55	≥ 5% of variance explained (Hair etal., 1998)

Factors, items, and factor loadings

Factors, items and factor loadings were interpret only the 37 items QNCS-HARIC because it had a model fit. Based on Table 5, the 37 item QNCS-HARIC consisted of 4 factors. Factor 1 The physical dimension of ARI children consisted of 14 items. The factor loading of all items of Factor 1 were acceptable and significant

(varied from .33 to .79, p = .000). The communalities of all items of Factor 1 were acceptable (varied from .25 to .74). In Factor 2, the psychological dimension of ARI children and family consisted of 15 items. The factor loadings of all items were acceptable and significant (varied from .33 to .79, p = .000). The communalities of all items were acceptable (varied from .30 to .58). Factor 3, the socio-cultural dimension of ARI children and family consisted of 3 items. The factor loadings of all items were acceptable and significant (varied from .33 to .55, p = .000). The communalities of all items were acceptable (varied from .42 to .56). In Factor 4, the spiritual dimension of ARI children and family consisted of 5 items. The factor loadings of all items were acceptable and significant (varied from .54 to .75, p = .000). The communalities of all items were acceptable (varied from .41 to .64).

Table 5

Items, Factor Loadings, and Communalities (h^2) of the 37 Items QNCS-HARIC (N=779)

	Factors/Items	37 items QNCS-HARIC	
		Factor Loadings	h^2
Factor 1: The physical dimension of ARI children			
1	Assess for signs of inadequate oxygen (e.g., cyanotic lips or fingernails, irregular breathing or difficult breathing, capillary refill > 2 seconds, hypoxia)	.35	.25
2	Assess vital signs (e.g., pulse, respiratory rate, blood pressure, temperature)	.79	.64
3	Assess for signs of dehydration when the child had severe ARI	.45	.52
4	Assess type/amounts/frequency of food intake	.76	.63
5	Assess the child's response to activity intolerance	.78	.74
6	Assess signs of ARI such as runny/stuffy nose, fever, cough, difficult breathing, chest indrawing, stridor, wheezing, anorexia, vomiting, sore throat, headache, sore throat (only for older children)	.76	.74
10	Do pre conference regarding plan for performing nursing care to meet the physical needs of ARI children	.40	.37
12	Administer oxygen correctly as prescribed	.42	.27
13	Perform chest physiotherapy (percussion, vibration, postural drainage, and suction), if necessary	.52	.40
18	Teach parents how to maintain their child's hydration	.50	.38
24	Cluster activities or minimize stimulation to provide rest periods	.37	.44
27	Teach parents to wash hands before and after contact with the child	.46	.36
28	Administer medicines as prescribed	.43	.49
34	Teach parents to observe danger signs of acute respiratory infection that need to take the child to the hospital urgently	.33	.45

Table 5 (*Continued*)

	Factors/Items	37 items QNCS-HARIC	
		Factor Loadings	h^2
Factor 2: The psychological dimension of ARI children and family			
36	Establish trusting relationship with the child or parents	.31	.30
37	Assess for contributing factors of anxiety, fear, or pain only for the child aged between 3-5 years old	.41	.33
40	Assess the child's pain	.38	.35
42	Evaluate the child's response to anxiety, fear, or pain	.43	.37
44	Plan for performing nursing care to meet the psychological needs of acute respiratory infection children and family	.55	.58
45	Inform parents (e.g., the child's condition, treatment, unfamiliar procedures)	.49	.51
46	Encourage parents to participate in the child care	.39	.30
47	Maintain a calm manner while interacting with the child or parents	.42	.34
48	Assist the parents in developing anxiety-reducing skills	.54	.44
49	Provide psychological support to the child and parents to decrease anxiety or fear	.33	.31
50	Avoid painful procedures	.46	.34
53	Eliminate additional stressors or sources of discomfort whenever possible	.41	.44
54	Explain causes of pain or discomfort to the parents	.54	.40
58	Encourage parents to touch/cuddle/comfort/or be with the child during procedures	.48	.51
61	Evaluate nursing care to meet the psychological needs of ARI and family	.37	.42
Factor 3: The socio-cultural dimension of ARI children and family			
62	Assess inadequate economic resources	.33	.42
64	Assess cultural beliefs or practices of the child or parents that affect the child's illness or treatment	.56	.56
65	Prioritize nursing diagnoses regarding the socio-cultural needs of ARI and family	.50	.46

Table 5 (*Continued*)

	Factors/Items	37 items QNCS-HARIC	
		Factor Loadings	h^2
Factor 4: The spiritual dimension of ARI children and Family			
72	Explore whether parents desire to engage in an allowable religious or spiritual practice or ritual	.56	.47
74	Plan for performing nursing care to meet the spiritual needs of acute respiratory infection children and family	.54	.46
75	Inform the place for spiritual or religious practices nearby	.54	.67
76	Encourage parents to pray or read holy books such as Al-Qur'an, Bible	.59	.65
77	Evaluate nursing care to meet the spiritual needs of acute respiratory infection children and family	.75	.63

Contrasted group approach results

The independent t-test was used to examine the construct validity of the 77 and 37 item QNCS-HARIC with nurses who had work experience with ARI children less than six years (Group 1, n = 271) and nurses having work experience six years or more (Group 2, n = 508). Before testing, all assumptions of independent t-test were assessed and were met (see Table 15, Appendix H). The results showed that the mean scores of the 77 and 37 item QNCS-HARIC of nurses who had work experience six years or more were significantly higher than those of nurses who had work experience less than six years (see Table 6).

Table 6

Comparisons of Mean (M), and Standard Deviation (SD) of the QNCS-HARICs using Independent t-test

Groups	77 item QNCS-HARIC			37 item QNCS-HARIC		
	Mean (*SD*)	*t*	*p* (1-tailed)	Mean (*SD*)	*t*	*p* (1-tailed)
1	3.94 (0.18)	-23.75	.000*	3.94 (0.22)	-22.91	.000*
2	4.25 (0.17)			4.29 (0.20)		

*p <.05

Reliability of the QNCS-HARIC

Internal consistency results

Cronbach's alpha coefficient of the total 77 items QNCS-HARIC was .92 whereas that of the 37 item QNCS-HARIC was .93. Cronbach's alpha coefficients of Factor 1, 2, 3, and 4 of the 77 item QNCS-HARIC were .85, .79, .77, and .76, respectively whereas those of the 37 item QNCS-HARIC were .87, .80, .77, and .76, respectively. In summary, the internal consistency of all two versions of the QNCS-HARIC were acceptable. All details are shown in Table 7.

Table 7

Comparison of the Internal Consistency (Alpha Cronbach's Coefficient) between the 77 and 37 items QNCS-HARICs (N=779)

Total/ Dimensions	QNCS-HARIC		Range values of Alpha Cronbach's Coefficient
	77 items	37 items	
Total QNCS-HARIC	.92	.93	Below .60: Unacceptable
The physical dimension of ARI children	.85	.87	.60-.65: Undesirable
The psychological dimension of ARI children and family	.79	.80	65-.70: Minimally acceptable
The socio-cultural dimension of ARI children and family	.77	.77	.70-.80: Acceptable
The spiritual dimension of ARI children and family	.76	.76	.80-.90: Very good Above .90: Excellent (DeVellis, 1991)

Test-retest reliability results

Before performing a test-retest reliability, all assumptions of Pearson Product Moment Correlation were examined and were met (see Table 14, Appendix G). Test-retest was administered twice within a 2 week interval between the tests to two groups of pediatric nurses. The results revealed that the mean score of the 77 item QNCS-HARIC measured at Time 1 was positively significant and highly correlated with that of measured at Time 2 (r =.75). The mean scores of each dimension measured at Time 1 also were positively significant and highly correlated with those of measured at Time 2 (r = .78, .77, .73, and .81). These high correlations indicate that the instrument is stable over time (see Table 8).

Table 8

Test-Retest Reliability of the 77 Items QNCS-HARIC using Pearson's Product-Moment Correlation (N=30)

Total/Dimensions	Time 1	Time 2	*r*	Range values for *r*
	Mean (*SD*)	Mean (*SD*)		
Total QNCS-HARIC (77 items)	327.76 (12.26)	315.07 (8.79)	.75**	.00 -.25: Little .26 -.49: Low .50 -. 69: Moderate .70-.89: High .90-. 1.00: Very high (Munro, 2005)
The physical dimension of ARI children (35 items)	152.87 (6.88)	144.07 (5.06)	.78**	
The psychological dimension of ARI children and family (26 items)	116.03 (7.25)	114.63 (6.85)	.77**	
The socio-cultural dimension of ARI children and family (10 items)	35.87 (4.86)	34.67 (2.59)	.73**	
The spiritual dimension of ARI children and family (6 items)	23.00 (2.69)	21.70 (1.80)	.81**	

** $p < .01$

Social Desirability Results

Before performing social desirability testing, all assumptions of Pearson Product Moment Correlation were examined and were met (see Table 16, Appendix I). The results revealed that the overall mean scores of the 77 items QNCS-HARIC did not significantly correlate with the mean score of social desirability (r =.07, p =.06) whereas that of the 37 item QNCS-HARIC did significantly correlate with mean score of social desirability (r =.08, p =.02). For each dimension/factor of the 77 item QNCS-HARIC, the mean scores of Factor 1 (Physical dimension of ARI children), Factor 2 (Psychological dimension of ARI children and family), and Factor 4 (Spiritual dimension of ARI children and family) did not significantly correlate with that of the social desirability (r =.06, p =.12; r =.07, p =.07; r =.04, p =.33,

respectively) whereas the mean score of Factor 3 (Socio-cultural dimension of ARI children and family) significantly correlated with that of the social desirability (r =.07, p =.05). For each dimension/factor of the 37 item QNCS-HARIC, the mean scores of Factor 1 (Physical dimension of ARI children) and Factor 4 (Spiritual dimension of ARI children and family), did not significantly correlate with that of the social desirability (r =.01, p =.75; r =.02, p =.61, respectively) whereas the mean scores of Factor 2 (Psychological dimension of ARI children) and Factor 3 (Socio-cultural dimension of ARI children and family) significantly correlated with that of the social desirability (r =.10, p =.01; r =.17, p =.00, respectively) (see Table 9).

Table 9

Comparisons of Social Desirability Testing with QNCS-HARICs using Pearson Product-Moment Correlation

Dimensions/Factors	Social desirability			
	QNCS-HARIC (77 items)		QNCS-HARIC (37 items)	
	r	*p*	*r*	*p*
Total QNCS-HARIC	.07	.06	.08	.02
The physical dimension of ARI children	.05	.19	.01	.75
The psychological dimension of ARI children and family	.07	.07	.10	.01
The socio-cultural dimension of ARI children and family	.07	.05	.17	.00
The spiritual dimension of ARI children and family	.04	.33	.02	.60

Discussion

The discussion section is divided into 3 parts: 1) the development and components of the QNCS-HARIC, 2) the validity and reliability of the QNCS-HARIC, and 3) social desirability.

The Development and Components of the QNCS-HARIC

Many of the criteria considered in developing of the QNCS-HARIC were based on three suppositions: 1) the complex, subjective, and multi-dimensional concept of quality of nursing care make it difficult to be defined and measured (Attree, 1993, 1996; Hogston, 1995b; Idvall & Rooke, 1998; Kunaviktikul et al., 2001; Norman, Redfern, Tomalin, & Oliver, 1992), 2) there is a the lack of definition and evaluation of the concept of quality of nursing care in children (Leino-Kilpi & Vuorenheimo, 1999; Pelander, 2008; Suhonen & Valimaki, 2003), and 3) acute respiratory infection is the major cause of childhood mortality (MDGs-Indonesia, 2008).

The components of quality of nursing care for nurses who work with ARI children has not been identified in the nursing literature. Thus, development of components of quality of nursing care for ARI children was based on an extensive review of the literature regarding quality of nursing care as previously mentioned, expert panel meeting, and expert review. These four components consisted of: 1) the physical dimension of ARI children, 2) the psychological dimension of ARI children and family, 3) the socio-cultural dimension of ARI children and family, and 4) the spiritual dimension of ARI children and family.

This study used DeVellis (1991) as the guideline to develop the QNCS-HARIC. DeVellis's Theory of Scale Development described basic measurement concepts and contains sufficient practical guidance to support construction of a working scale development. There are eight steps in developing the instrument. By using DeVellis's theory, the researcher was guided in developing of the QNCS-

HARIC to specify the content domain of the construct, generate an item pool that samples the domain of the QNCS-HARIC, assess the relevance of items by expert review, consider validation items, administer items to developmental sample, and evaluate of items.

During the research process, the researcher realized that teamwork among the nurses in the expert panels, education back ground of the expert reviewers, participation of pediatric nurses, and DeVellis's Theory of Scale Development were the prerequisites for the success of the scale development process of implementation. Plans and strategies set up in every step always involved other parties in the unit to ensure its successful completion. To arrange a meeting among the involved parties was difficult due to limited time. But, with coordination and understanding, the overall process of scale development research was completed and conducted in an appropriate manner.

Several previous studies regarding development of instruments were successfully conducted based on DeVellis's Theory. For example, Della-Monica (2008) developed and tested the psychometric properties of the Nurse Caring Patient Survey (NCPS). Dennis and Bocarnea (2005) developed the Servant Leadership Assessment Instrument using DeVellis' guidelines in scale development. Earp (2007) developed and validated the Statistics Anxiety Measure (SAM). Kanjanawetang, Yunibhand, Chaiyawat, Bill Wu, and Denham (2009) developed and tested the psychometric properties of the Thai Family Health Routines (TFHR) scale. Richmond and Wright (2006) developed a Constipation Risk Assessment Scale. DeVellis guidelines a framework of tool development and this structure was followed in this study. Udomluck, Tonmukayakul, Tiansawad, and Srisuphan (2010) developed a Thai

Nurses' Caring Behavior Scale and tested its psychometric properties. Webel, Asher, Cuca, Okonsky, Kaihura, Rose, Hanson, and Salata (2012) developed and validated the HIV Self-Management Scale for Women, a new measure of HIV Self-Management.

The QNCS-HARIC was developed based on the quality of nursing care, holistic care, nursing process, and holistic nursing care for ARI children. The philosophy of holism emphasizes a sensitive balance between art and science, analytic and intuitive skills, self-care, and ability to care for patients using the interconnectedness of body, mind and spirit (Dossey, 1997). Use of the holistic nursing care is believed to help pediatric nurses provide nursing care as whole care designed to meet the needs of the whole person. Whole care consists of four dimensions: physical, psychological, socio-cultural, and spiritual (Dossey, 1997). The results of the review of quality of nursing care instrument using holistic nursing care as the conceptual framework showed that there is only one instrument designed for orthopedic adult patients in Taiwan (Lee, Hsu, & Chang, 2002). The Orthopedic Nursing Care Quality Monitor Tool (ONCQMT) was used to evaluate quality of nursing care and compare the quality score based on the plan of nursing care, the physical needs of the patient were attended, the psycho-social-cultural-spiritual needs of the patient were attended, and achievement of nursing care objectives was evaluated.

In similarities, the Quality Patient Care Scale (QUALPACS) was developed by Wandelt and Ager (1974 as cited in Chance, 1997). The QUALPACS is designed to measure the quality of nursing care observed by adult patients in any setting in the United States. It consists of physical, psychosocial, general activities, communication,

and professional implications. The Rush-Medicus Quality Monitoring Instrument (RMT-MQNC) was developed by Hegyvary and Haussmann (1975 as cited in Chance, 1997). The Rush-Medicus Quality Monitoring Instrument consists of: the plan of nursing care is formulated, the physical needs of the patient are attended, the psychologist, emotional, mental, social needs of the patient are attended, achievement of nursing care objectives is evaluated, procedures are followed for the protection of all patients, and the delivery of nursing care.

In differences, the Patient's Assessment of Quality Scale-Acute Care Version (PAQS-ACV) was developed by Lynn, McMillen, and Sidani (2007). The PAQS-ACV is designed to measure the quality of nursing care in acute care units, in the United States. The PAQS-ACV consisted of individualization, nurse character, caring, environment, and responsiveness. The Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPQNCS) was developed by Radwin, Alster, and Rubin (2003). The OPPQNCS is designed to measure the quality of nursing care in New England. The OPPQNCS consists of responsiveness, individualization, coordination, and proficiency.

When comparing the present instrument with those other instruments, there were some similarities as well as different features. The ONCQMT, QUALPACS, and RMT-MQNC showed some similarities with the physical, psychosocial, socio-cultural and spiritual needs, and the plan of nursing care. The ONCQMT was useful to evaluate the quality of nursing care, and assist administrators and educators to identify the strengths and weaknesses in the delivery of nursing care. The disadvantage of this instrument was that it did not give an indication of the patient outcome. The QUALPACS results showed a significant improvement in the quality of nursing care

with primary nursing practice. However, the fact that the use of the QUALPACS instrument in a different setting from where it was originally designed could have affected the results (Archibong, 1999) and some difficulties are expected if it is used in other countries (Sale, 1996). The RMT-MQNC was designed to estimate quality for a nursing unit, but may not be suitable for measurement of differences in care received by individual patients (Fox, 1982).

Furthermore, the PAQS-ACV and OPPQNCS focused on the individualization, nurse character, caring, environment, responsiveness, coordination, and proficiency. Those instruments were not designed to measure quality of nursing care based on holistic care approach. That instrument was representative for adult patients and developed to measure quality of nursing care from a patient's perspectives. There is only one study focused on the evaluation of the Child Care Quality at Hospital (CCQH) instrument for hospitalized school age children (7-11 years) developed in Finland (Pelander, Leino-Kilpi, & Katajisto, 2009).

The Rush Medicus Nursing Process Quality Monitoring Instrument (RMI-MSV) developed by Jelenik et al. (1975 as cited in Chance, 1997). The RMI-MSV examined using patient records, patient observation, patient interviews, staff interviews, staff observation, patient environment observation, observer inference and management observation. The RMI-MSV has been translated, modified and tested in several countries. A Swedish version of the RMI-MSV instrument was modified and tested by Gotherstron, Hamrin, and Carstensen (1994). The modified Swedish version of the RMI-MSV has been tested within surgical, medical, and orthopedic units in a county hospital. The RMI-MSV was found to be sensitive to changes and appropriate for quality assessment.

The QNCS-HARIC instrument was expected to be a potential tool for obtaining knowledge about quality of pediatric nursing care with ARI children and thereby contributing to improve quality in nursing practice with a more genuinely parental involvement approach especially in Indonesia. To improve quality of nursing care delivery, pediatric nurses need to be equipped with a quality instrument which should be psychometrically tested, sensitive, specific, accurate, objective, and feasible. However, after further testing for construct validity, only physical, psychological, and spiritual dimensions of the 37 item QNCS-HARIC were acceptable.

Validity and Reliability of the QNCS-HARIC

Content validity

A panel of five experts evaluated the clarity and conciseness of items and indicated ways of tapping a phenomenon that has not been included. Each item was rated by the experts independently placing each statement into one of four categories, and rating each statement on a 4-point Likert scale. Instrument items and content were evaluated, resulting in 78 items of the QNCS-HARIC from the experts' review of 79 items QNCS-HARIC (version 2). Regarding each item relevant to objectives of the study, relevant to the measured concept, redundancy of items, and clarity of items, the results achieved an acceptable CVI of .96. According to Lynn (1986), a content validity index greater than .80 represents an acceptable level of agreement among experts. Therefore, the evidence supported the content validity of the QNCS-HARIC.

Construct validity

An exploratory factor analysis was conducted with 779 pediatric nurses using the principle axis factoring (PAF) extraction with varimax rotation. The PAF extraction was chosen because it is the best method of extraction in EFA for non-normality distributed data (Fabrigar, Wegener, MacCallum, & Strahan, 1999). PAF will give reseacher the best results, depending on whether the data are generally normally-distributed or significantly non-normal, respectively (Costello & Osborne, 2005). The varimax rotation method was chosen because when using varimax rotation, rotated matrix is interpreted after orthogonal rotation and to maximize the factor coefficient for each variable on only one factor (Weiner et al., 2012).

Based on the item analysis of 77 item QNCS-HARIC revealed that twenty-eight items had item-total correlation less than .30. The item-total correlation is a reflection of how well items measure what they are intended to be measured. Correlations should be range from .30 to .70 (Nunnally & Bernstein, 1994). Correlations that exceed .70 suggest item redundancy, while correlations less than .30 suggest the item is measuring an entirely different construct. According to Ferketich (1991), a low item-total correlation is less likely to correlate with other items to form factor in factor analysis.

The unexpected results of the EFA occurred with the 77 items QNCS-HARIC. Although almost all of the criteria for the model fit of the 77 item QNCS-HARIC were satisfactory, the total variance explained was only 32.11%. According to Scherer, Wiebe, Luther, and Adams (1988), the total variance explained for new instrument should be at least 40%. In this model, the total variance explained was only 32.11% and thus indicates an unsatisfactory.

To pursue a distinguishable and interpretable solution with sound psychometric evaluation for the QNCS-HARIC, the researcher re-examined each item, assigned items to each factors according to the criteria for determining the number of factors included using the following: item-total correlation at least .30 (Nunnally & Bernstein, 1994), reliability of each factor at least .70 (DeVellis, 1991), eigenvalues should be equal or more than 1 (Hair et al., 1998), scree test criterion should be the data points above the break (Tabachnick & Fidell, 2007), percent of total variance explained at least 40% or more (Scherer et al., 1988), percentage of variance should be equal or more than 5% of variance explained (Hair et al., 1998), factor loading at least .30 (Hair et al., 1998), and had theoretical interpretability of the item (Hair et al., 1998). After item reduction was completed, the number of items was reduced from 77 to 37.

Four factors were obtained from 37 items, which extracted 42.92% of the total variance explained. Scherer, Wiebe, Luther, and Adams (1988) state that the variance explained between 40% and 60% is considered sufficient in social sciences. In this model, the total variance explained was 42.92% which indicated that it was sufficient for a newly development instrument. The KMO was .86 and is acceptable (Hair et al., 1998). Bartlett's test of sphericity was significant ($p = .000$) indicating the suitability of the sample for factor analysis (Hair et al., 1998). The eigenvalue for the first factor was 8.25; the second factor eigenvalue was 3.08; the third factor eigenvalue was 2.50, and the fourth factor eigenvalue was 2.05, and since they were all greater than 1.0 indicate a good fitting model (Hair et al., 1998). Factor loading of all items were acceptable (varied from .30 to .70), indicating that the model fit was acceptable. In

this model, all items had communalities greater than .20 indicating an acceptable fit and all items were retained.

Although the 37 items QNCS-HARIC model was acceptable, it was less representative, especially in the socio-cultural dimension of ARI children and family because it consisted of only 3 from 10 items which could not measure the complate dimension of the socio-cultural aspect. Based on the conceptual framework, the researcher expected that the quality of nursing care for acute respiratory infection children consisted of four dimensions. However, few items of the the socio-cultural dimension of ARI children and family were loaded on Factor 3, probably due to an unequal number of initial items between Factor 3 and the others 3 factors. According to Mroch and Bolt (2003), the number of items per dimension is manipulated such that a test contains either the same number of items per dimension, or varying numbers of items per dimension. If there are an equal number of items per dimension, each dimension will have an equal proportion. Thus, further study is needed to revise and balance the items in each dimension of the QNCS-HARIC.

When performing the contrasted group analysis, the overall mean scores of the 77, and 37 items of the QNCS-HARIC of the nurses who had six or more years of work experience with ARI children were significantly higher than those of the nurses having work experience with ARI children for less than six years. This indicated that the construct measured by all 2 versions of the QNCS-HARIC could be distinguished between groups with extremely different characteristics (Polit & Beck, 2004; Waltz, Strickland, & Lenz, 2005). Therefore, the researcher may claim some evidence for construct validity that is the instrument measures the attribute of interest (Waltz,

Strickland, & Lenz, 2005). The pediatric nurses who had more work experience with ARI children would provide better quality of nursing care to ARI children and family.

Reliability

The internal consistency of total 77 and 37 item versions of the QNCS-HARIC was excellent (Cronbach's alpha coefficients .92, .93, respectively). Cronbach's alpha coefficients of 77 and 37 items QNCS-HARIC for Factor 1 (Physical dimension of ARI children) were very good (.85, .86, respectively); Factor 2 (Psychological dimension of ARI children and family) were acceptable (.79) and very good (.81), respectively; Factor 3 Social-cultural dimension of ARI children and family were acceptable (.77, .77, respectively); and Factor 4 (Spiritual dimension of ARI children and family) were acceptable (.76, .76, respectively). This indicated that internal consistency of total 77 and 37 items of the QNCS-HARIC were acceptable. In general, a Cronbach's alpha of at least .70 is the criterion used to establish an acceptable level of internal consistency (Nunnally & Bernstein, 1994). A strong Cronbach alpha coefficient scale provides useful information about the internal structure of the scale indicates that the items in the scale are quite correlated with each other (Worthington & Whittaker, 2006). Furthermore, the evidence of reliability is very important in the development of research as far as scale increases confidence that the items on the scale that produces consistent scores.

For the test-retest of the 77 items of the QNCS-HARIC, total mean scores from administering the QNCS-HARIC on two separate occasions (two weeks apart) gave a correlation coefficient equaled to .75, ($p < .001$) indicating that the instrument is stable over time (DeVon et al., 2007). Unfortunately, the test-retest was not

performed with the 37 item of the QNCS-HARIC. Further performing the test-retest reliability with 37 item QNCS-HARIC is needed.

Social Desirability

The overall mean score of the 77 item QNCS-HARIC did not significant correlate with that of the social desirability whereas the overall mean score of the 37 items of the QNCS-HARIC significantly correlated with that of the social desirability. All mean scores of all dimensions of the 77 item QNCS-HARIC did not significantly correlate with that of the social desirability except the mean score of Factor 3 Socio-cultural dimension of ARI children significantly correlated with that of the social desirability (r =.07, p =.05). For 37 item QNCS-HARIC, the mean scores of Factor 2 and Factor 3 significantly correlated with that of social desirability whereas the other two factors did not.

Non-significant correlation indicates that social desirability is not a factor affecting the participants' response to the instrument (Crowne & Marlowe, 1960). The results of non-significant correlation of these two measures were similar to the study of Konggumnerd, Isaramalai, Suttharangsee, and Villarruel (2009) developed a scale to measure sexual health protective behavior in Thai female adolescents and to examine its psychometric properties. The results indicated that there was no significant correlation between the mean scores of the Sexual Health Protection Scale and the Marlow-Crown Social Desirability Scale, which means that participants answered the Sexual Health Protection Scale without social desirabiliy bias.

In contrast, a significant correlation indicates that that social desirability is a factor affecting the participants' response to the instrument (Kassam, Papish, Modgill,

& Patten, 2012). The results of significant correlation of these two measures were similar to the study of Sriratanaprapat, Chaowalit, and Suttharangsee (2012) which was developed and determined the psychometric properties of the Job Satisfaction Scale for Thai Nurses (TNJSS). The results revealed that the correlation coefficient between social desirability and the TNJSS was small (r =.12, p < .01) and significant probably due to large number of subjects (N= 963) (Sriratanaprapat, Chaowalit, & Suttharangsee, 2012). In this study, the sample size also was large (N= 779). Paulhus (1991) suggested that researchers should try to reduce social desirability by employing representative subjects. Another way, the researcher could administer the Marlowe-Crowne scale to identify individuals who tend to respond in a socially desirable way and eliminate them from the studies. No design, of itself, can control for motivation and response bias factors. Further study, the researcher should use some strategies for minimizing social desirability including: 1) using do guess directions when multiple-choice measures are employed, 2) wording directions as clearly and concisely, 3) avoiding items formats that use fixed-response, 4) using items with a general rather than a personal difference, and 5) avoiding any words or actions that might communicate to subjects that the investigators would give certain responses (Waltz, Srickland, & Lenz, 2005).

CHAPTER 5

CONCLUSION AND RECOMMENDATION

An inductive methodological design was used to develop an instrument to measure nurse perceptions of quality of nursing care for hospitalized acute respiratory infection (ARI) children. This chapter presents the conclusion, implications for nursing, recommendations for further research, and the strengths and limitations of the study.

Conclusion

The conclusions of the study are presented following the research questions and objectives of the study: 1) the components of the QNCS-HARIC, 2) validity and reliability of the QNCS-HARIC, and 3) social desirability.

The Components of the QNCS-HARIC

Literature review

Four dimensions and 80 items of the QNCS-HARIC (version 1) were established: 1) physical dimension of ARI children (37 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Expert panel meeting

Based on the expert panel meeting, four dimensions and 79 items of the QNCS-HARIC (version 2) were identified: 1) physical dimension of ARI children (36

items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Expert review

Based on the five expert reviews, the CVI was .96. The QNCS-HARIC (version 3) consisted of four dimensions and 78 items: 1) physical dimension of ARI children (35 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Back translation

The original version of QNCS-HARIC (version 3) and back-translated English version were compared. No items were deleted or added at this stage of the research. A Native English speaker commented on the sematic equivalence related to items 1, 5, and 12. The QNCS-HARIC (version 4) consisted of four dimensions and 78 items included: 1) physical dimension of ARI children (35 items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (7 items).

Pilot study

Overall Cronbach's alpha coefficient 77 items of the QNCS-HARIC (version 5) was .94 and the physical, psychological, socio-cultural, and spiritual dimensions were .94, .87, .79, and .73, respectively. The QNCS-HARIC (version 5) consisted of four dimensions and 77 items included: 1) physical dimension of ARI children (35

items), 2) psychological dimension of ARI children and family (26 items), 3) socio-cultural dimension of ARI children and family (10 items), and 4) spiritual dimension of ARI children and family (6 items).

Validity and Reliability of the QNCS-HARIC

Construct validity

Exploratory factor analysis result

The QNCS-HARIC (version 6) consisted of 37 items with four factor and total variance explained of 42.92%. Factor loadings of the QNCS-HARIC ranged from .30 to .70. The results of four factors were as follows. Factor 1 The physical dimension of ARI children consisted of 14 items with factor loadings ranged from .33 to .79, communalities ranged from .25 to .74, and accounted for 22.31% of the variance with an eigenvalue of 8.25.

Factor 2 The psychological dimension of ARI children and family consisted of 15 items with factor loadings ranged from .33 to .55, communalities ranged from .30 to .58, and accounted for 8.31% of the variance with an eigenvalue of 3.08.

Factor 3 The socio-cultural dimension of ARI children and family consisted of 3 items with factor loadings ranged from .33 to .56, communalities ranged from .42 to .56, and accounted for 6.76 % of the variance with an eigenvalue of 2.50.

Factor 4 The spiritual dimension of ARI children and family consisted of 5 items with factor loadings ranged from .54 to .75, communalities ranged from .41 to .64, and accounted for 5.55 % of the variance with an eigenvalue of 2.05.

Contrasted group approach result

The independent t-test was used to examine the construct validity of the QNCS-HARIC with nurses who had work experience with ARI children less than six years (n = 271) and nurses having work experience with ARI children six years or more (n = 508).

The nurses having work experience six years or more reported the 77 items of the QNCS-HARIC mean scores of 4.25 (SD= 0.17) whereas nurses having work experience with ARI children less than six years mean scores was 3.94 (SD= 0.18). The mean scores of the 77 items QNCS-HARIC between two groups were significantly different (t = -23.75; p = .000).

The nurses having work experience six years or more reported the 37 items of the QNCS-HARIC mean scores of 4.29 (SD=0.20) whereas nurses having work experience with ARI children less than six years mean scores was 3.94 (SD= 0.22). The mean scores of the 37 items QNCS-HARIC between two groups were significantly different (t = -22.91; p = .000).

Reliability

The instrument had sufficient internal consistency and stability. The Cronbach's alpha coefficients of total 77 and 37 items QNCS-HARIC were excellent (.92, .93), respectively. For each dimension of the QNCS-HARIC, Cronbach's alpha coefficient of the physical dimension of ARI children (77 items was .85; 37 items was .86), the psychological dimension of ARI children and family (77 items was .79; 37 items was .80), the socio-cultural dimension of ARI children and family (77 items

was .77; 37 items was .77), and the spiritual dimension of ARI children and family (77 items was .76; 37 items was .76).

The test-retest results revealed that the mean score of the 77 item QNCS-HARIC measured at Time 1 was positively significant and high correlated with that of measured at Time 2 (r =.75). The mean scores of each dimension measured at Time 1 also were positively significant and high correlated with those of measured at Time 2 (r =.78, .77, .73, and .81). These high correlations mean that this instrument is stable over time.

Social desirability

The overall mean scores of the 77 items of the QNCS-HARIC did not significant and positively correlated with that of the social desirability (r =.07, p = .06) whereas the overall mean scores of the 37 items of the QNCS-HARIC significantly and positively correlated with that of the social desirability (r =.08, p =.02). For each dimension of the 77 items QNCS-HARIC, the mean scores of the physical, psychological, and spiritual dimensions did not significantly correlate with that of the social desirability (r =.06, p =.12; r =.07, p =.07; r =.04, p =.33, respectively) whereas the mean score of the socio-cultural dimension of ARI children and family significantly correlated with that of the social desirability (r =.07, p =.05). For each dimension of the 37 items of the QNCS-HARIC, the mean scores of the physical and spiritual dimensions did not significantly correlate with that of the social desirability (r =.01, p =.75; r =.02, p =.61, respectively) whereas the mean scores of the psychological and socio-cultural dimensions of ARI children and family

significantly correlated with that of the social desirability (r =.10, p =.01; r =.17, p =.00, respectively).

Implications for Nursing

Nursing practice

Although the socio-cultural dimension of ARI children is not representative and capture the socio-cultural concept, pediatric nurses can use the other three dimensions of the 37 items QNCS-HARIC to evaluate the quality of nursing care that they provide to ARI children and family. Based on the quality of nursing care results, pediatric nurses may find a unified understanding of quality of nursing care, especially in Indonesia context.

Recommendations for Further Research

The 37 items the QNCS-HARIC is not representative and cannot capture the socio-cultural dimension of ARI children because the number of items is few. Therefore, further research is needed to revise and balance the items in each dimension of the QNCS-HARIC.

Strengths and Limitations

Strengths of the QNCS-HARIC

The strengths of the present study were: 1) research methodology, 2) adequate sample size, 3) the five-point Likert scale format, 4) the initial item pool was

reviewed by experts, 5) factorability of exploratory factor analysis, 6) evaluate the items, and 7) contrasted group approach. Each detail is as follows.

Research methodology

The development and evaluation of the QNCS-HARIC lies in the multi-step construction which combine qualitative and quantitative methods and its development was based on the literature review regarding quality of nursing care, holistic care, nursing process, holistic nursing care for ARI children, and DeVellis's Theory of Scale Development. The steps of scale development included: 1) determine what is to be measured, 2) generate an item pool, 3) determine the format for measurement, 4) have the initial item pool reviewed by experts, 5) consider inclusion of validation items, 6) administer the items to the development sample, 7) evaluate the items, and 8) optimize scale length (DeVellis, 1991).

Adequate sample size

The sample size should be at least 1 to 10 cases per variable. In this study, the QNCS-HARIC consisted of 77 variables. Thus, sample size should be 770. Data were available initially from 807 pediatric nurses with no missing data. However 28 cases were outliers. The final sample included 779 pediatric nurses and 1: 10.12 cases per variable. This ratio was a little bit more than adequate for the criteria of Munro (2005) up to 10 subjects per item.

The five-point Likert scale format

The QNCS-HARIC used the five-point Likert scale format because a neutral option response continuum was included for those respondents who were uncertain of

the items or unable to discriminate the category meaningfully to avoid the tendency to not respond to an item (DeVellis, 1991).

The initial item pool reviewed by experts

Content validity using the panel of expert reviews was established satisfaction (CVI = .96).

Factorability of exploratory factor analysis

The criteria of factorability in exploratory factor analysis were met. The Kaiser-Meyer-Olkin was .86, and the Bartlett's test of sphericity was significant (*p* =.000) showing sampling adequacy. The 37 items QNCS-HARIC accounted for 42.92% of the total variance explained is acceptable. The percent of variance the 37 items QNCS-HARIC for Factor 1 accounted for 22.31% of the variance, Factor 2 accounted for 8.31% of the variance, Factor 3 accounted for 6.76% of the variance, and Factor 4 accounted for 5.55% of the variance.

Evaluate the items

Acceptable findings from EFA supported that the QNCS-HARIC was structurally made of the identified four factors.

Contrasted group approach

The findings of contrasted group approach confirmed that the QNCS-HARIC (both 77 and 37 items) is a valid instrument.

Limitations of the QNCS-HARIC

The limitations of the present study were: 1) use of purposive sampling and 2) social desirability.

Purposive sampling

The purposive sampling method was chosen as the most appropriate method for this research. The issues of availability and difficulty to recruit participants in considerable sample size could not be possible because of limitation of pediatric nurses who took care of ARI children.

Social desirability

Results showed that the overall QNCS-HARIC (37 items) and its two dimensions did significantly correlate with the Social Desirability scale. The reasons of the significant correlation were probably due to the large number of subjects or it might have some relationship between measuring stigma and social desirability (e.g., participants responding to the instrument may attempt to provide socially desirable responses).

REFERENCES

Acerra, J. R. (2010). *Pharyngitis.* Retrieved from http://emedicine.medscape.com/article/764304-overview

Ackley, B. J., & Ladwig, G. B. (2004). *Nursing diagnosis handbook: An evidence-based guide to planning care* (6th ed.). St. Louis, MO: Mosby.

Adcock, P. M., Sanders, C. L., & Marshall, G. S. (1998). Standardizing the care of bronchiolitis. *Archives of Pediatrics & Adolescent Medicine, 152*, 739-744.

Adeyemo, F. O., & Olaogun, A., A. (2013). Factors affecting the use of nursing process in health institutions in Ogbomoso Town, Oyo State. *International Journal of Medicine and Pharmaceutical Sciences, 3*(1), 91-98.

Affandi, N. B., & Utji, R. (2009). *Lower respiratory tract infection in Indonesia with special reference to Harapan Kita Children and Maternity Hospital, Jakarta*. Retrieved from http://www.tempo.co.id/medika/arsip/092002/art-4.htm

Agustina, R., Kok, F. J., de Rest, O. V., Firmansyah, A., Lukito, W., Ferkens, E. M., ... Bovee-Oudenhoven, I. M. (2012). Randomized trial of probiotics and calcium on diarrhea and respiratory tract infections in Indonesian children. *Pediatrics, 5*(129), 1155-1164.

Aiken, L. H. (2008). Economics of nursing. *Public, Politics, & Nursing Practice, 9*(2), 73-79.

Aiken, L. H., Clarke, S. P., & Sloane, D. M. (2002). Hospital staffing, organization, and quality of care: Cross national findings. *Nursing Outlook, 50*(5), 187-194.

Allen, D. E., & Vitale-Nolen, R. A. (2005). Patient care delivery model improves nurse job satisfaction. *Journal of Continuing Education in Nursing, 36*(6), 277-282.

American Holistic Nursing Association. (2003). *AHNA standards of advanced holistic nursing practice for graduate prepared nurses*. Flagstaff, AZ: Author.

American Nurses Association. (2001). *Code of ethics for nurses.* Retrieved from http://nursingworld.org/ethics/ecode.htm

American Nurses Association. (1996). *Nursing quality indicators: Guide for implementation.* Washington, DC: American Nurses Publishing.

Anderson, B., & Steen, S. (1995). Spiritual care reflecting Gods love to children. *Journal of Christian Nursing, 12*, 12-17.

Anevlavis, S., & Bouros, D. (2010). Community acquired bacterial pneumonia. *Expert Opinion on Pharmacotherapy, 11*(3), 361-374.

Archibong, U. E. (1999). Evaluating the impact of primary nursing practice on the quality of nursing care: A Nigerian study. *Journal of Advanced Nursing, 29*(3), 680-689.

Ary, D., Jacobs, L. C., & Razavieh, A. (2002). *Introduction to research in education*. Belmont, CA: Wadsworth-Thomas Learning.

Attree, M. (1993). An analysis of the concept quality as it relates to contemporary nursing care. *International Journal of Nursing Studies, 30*(4), 355-369.

Attree, M. (1996). Towards a conceptual model of quality care. *International Journal of Nursing Studies, 33*, 13-28.

Bachman, L. F. (1990). *Fundamental consideration in language testing*. Oxford, UK: Oxford University Press.

Baker, C. (2004). Preventing ICU syndrome in children. *Pediatric Nursing, 16*(10), 32-35.

Banner, P. (2001). *From novice to expert: Excellence and power in clinical nursing practice.* Upper Saddle River, NJ: Prentice Hall.

Barber, S. L., Gertler, P. J., & Harimurti, P. (2007). Differences in access to high quality outpatient care in Indonesia. *Health Affairs, 26*(3), 352-366.

Basic Health Research (2007). *Indonesia demographic and health survey 2007.* Retrieved from www.itp-bkkbn.org/pulin/004-population/004_IDHS_2007_prelim.pdf

Bennet, M. (2001). Pain assessment and management in pediatric intensive care: Part 1. *Pediatric Nursing, 13*(5), 26-28.

Bennet, N. N., Domachowske, J., & Lowell, V. I. (2010). *Pneumonia*. Retrieved from http://emedicine.medscape.com/article/967822-overview

Bernstein, D. A., Penner, L. A., Clarke-Stewart, A., & Roy, E. J. (2006). *Psychology*. Boston, MA: Houghton Mifflin.

Bisno, A. L. (2001). Acute pharyngitis. *The New England Journal of Medicine, 344*(3), 205-211.

Black, M. K. (1992). Teaching quality assurance: the undergraduate student/faculty experience. In C. G. Meisenheimer (Eds.), *Improving quality: A guide to effective programs* (pp. 2-30). Maryland, MD: An Aspen.

Boswell, S., Lowrt, L. W., & Wilhoit, K. (2004). New nurses perceptions of nursing practice and quality patient care. *Journal of Nursing Care Quality, 19*(1), 76-81.

Bouthillete, F. (2001). Patients with cancer described 8 attributes of high quality nursing care that contributed to a sense of wellbeing and increased fortitude. *Evidence Based Nursing, 4*, 30.

Brink, P. J., & Wood, M. J. (1998). *Advanced design in nursing research* (2nd ed.). Thousand Oaks, CA: Sage.

Brislin, R. W. (1986). The wording and translation of research instrument. In W. J. Lonner & J. W. Berry (Eds.), *Field methods in cross-cultural research* (pp. 137-164). Beverly Hills, NP: Sage.

Burhans, L. M. (2008). *What is good nursing care? The live meaning of quality of quality nursing care for practicing nurse* (Doctoral dissertation). Retrieved from http://thescholarship.ecu.edu/handle/10342/1085

Burhans, L. M., & Alligood, M. R. (2010). Quality nursing care in the words of nurses. *Journal of Advanced Nursing, 66*(8), 1689-1697.

Burkhardt, M. A., & Nagai-Jacobson, M. G. (2005). Holistic nursing: A handbook for practice. In B. M. Dossey, L. Keagen, & C. E. Guzzetta (Eds.), *Spirituality and health* (pp. 137-172). Sudbury, MA: Jones & Bartlett.

Bye, M., & Mellins, R. (1998). Lung injury from hydrocarbon aspiration and smoke inhalation. In V. Chernik & T. Boat (Eds.), *Kendig's disorders of the respiratory tract in children* (pp. 777-778). Philadelphia, PA: W. B. Saunders.

Campbell, S. M., Roland, M. O., & Buetow, S. A. (2000). Defining quality of care. *Social Science & Medicine, 51*, 1611-1625.

Carayon, P., & Gürses, A. P. (2005). A human factors engineering conceptual framework of nursing workload and patient safety in intensive care units. *Intensive and Critical Care Nursing, 21*, 284-301.

Carolan, P., & Callahan, C. (2010). *Bronchitis- Acute and Chronic*. eMedicine from WebMD. Retrieved from http://emedicine.medscape.com/article/1001332-overview

Capernito-Moyet, L. J. (2008). *Nursing diagnosis: Application to clinical practice* (12th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Casey, K., Fink, R., Krugman, M., & Propst, J. (2004). The graduate nurse experience. *Journal of Nursing Administration, 34*(6), 303-311.

Castle, N. G., & Engberg, J. (2007). The influence of staffing characteristics on quality of care in nursing homes. *Health Research and Educational Trust, 42*(5), 1822-1847.

Catlin, E. A., Guillemin, J. H., Thiel, M. M., Hammond, S., Wang, M. L., & O'Donnell, J. (2001). Spiritual and religious components of patient care in the neonatal intensive care unit: Sacred themes in a secular setting. *Journal of Perinatal Medicine, 21*, 426-430.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1,* 245-276.

Chakraborty, S., & Frick, K. (2002). Factors influencing private health providers technical quality of care for acute respiratory infections among under five in rural West Bengal, India. *Social Science & Medicine, 55*(9), 1579-1587.

Chance, K. S. (1997). The quest for quality: An exploration of attempts to define and measure quality nursing care. *Image, 128*(2), 41-45.

Chang, P. F., Chao, Y. M., & Chen, S. Y. (2007). Good nursing from the perspective of nurses. *Journal of Nursing Hu Li Za Zhi, 54*(4), 26-34.

Chao, S. Y., & Roth, P. (2005). Dimension of quality in long term care facilities in Taiwan. *Journal of Advanced Nursing, 52*(6), 609-618.

Charalambous, A., Papadopoulos, R., & Besdsmoore, A. (2009). Towards a theory of quality nursing care for patients with cancer through hermeneutic phenomenology. *European Journal of Oncology Nursing, 13*(5), 350-360.

Cherry, J. D. (2008). Clinical practice: Croup. *The New England Journal of Medicine, 358*(4), 384-391.

Cohen, J., & William, P. (2004). Infectious diseases. In J. Cohen & P. William (Eds.), *Bronchitis, bronchiectasis, and cystic fibrosis* (pp. 123-135). St. Louis, MO: Mosby.

Commondari, E. (2010). Children staying in hospital: A research on psychological stress of caregivers. *Italia Journal Pediatrics, 36*(40), 1-9.

Costello, A. B., & Osborne, J.W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*(7), 1-9.

Coulon, L., Mok, M., Krause, K., & Anderson, M. (1996). The pursuit of excellence in nursing care: What does it mean? *Journal of Advanced Nursing, 24*, 817-826.

Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson Education.

Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory.* New York, NY: Harcourt Brace Jovanovich.

Crowley, S., & Fan, X. (1997). Structural equation modeling: Basic concept and application in personality assessment research. *Journal of Personality Assessment, 68*, 508-531.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*, 349-354.

Culliford, L. (2002). Spiritual care and psychiatric treatment: An introduction. *Advances in Psychiatric Treatment, 8*, 249-261.

Daniels, R. (2004). Nursing fundamentals: Caring & clinical decision making. In R. N. Grendell (Eds.), *Nursing process* (pp. 180-194). New York, NY: Thomson Delmar Learning.

Daniel, S. (2011). *Free statistics calculators*. Retrieved from http://www.danielsoper.com/statcalc/

Davis, S., Kristjanson, L. J., & Blight, J. (2003). Communicating with families of patients in an acute hospital with advanced cancer: Problems and strategies identified by nurses. *Cancer Nursing, 26*, 337-445.

Dawes, C. J. (2007). Do data characteristics change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales. *International Journal of Market Research, 50*(1), 61-77.

Decker, F. H. (2008). The relationship of nursing staff to the hospitalization of nursing home residents. *Research in Nursing & Health, 31*(3), 238-251.

Della-Monica, R. D. (2008). *Development and Psychometric Evaluation of the Nursing Caring Patient Scale* (Doctoral dissertation). Retrieved from http://hdl.handle.net/2345/37

Deniss, R. S., & Bocarnea, M. (2005). Development of the servant leadership assessment instrument. *Leadership & Organization Development Journal, 26*(8), 600-615.

Departement of Health, Government of Indoneisa (2010). *Acute respiratory infection and nutritional issues of children under 5 in Indonesia*. Retrieved from http:// Indonesia.usaid.gov/.../USAID Indonesia nutrition assessment for 2010 new project design.

DeVellis, R. F. (1991). *Scale development: Theory and applications*. Newbury Park, NP: Sage.

DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., Lazzara, D. J., Savoy, S. M., & Kostas-Polston, E. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship, 39*(2), 155-164.

Dictionary of the English Language. (2009). *American Heritage Dictionary of English Language* (4th ed.). Retrieved from http://education.yahoo.com/reference/dictionary/

Donabedian, A. (1980). *Exploration in quality assessment and monitoring.* Ann Arbor, MI: Health Administration Press.

Donabedian, A. (1996). The effectiveness of quality assurance. *The International Journal for Quality in Health Care, 8*, 401-407.

Donabedian, A. (1997). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, *44,* 106-206.

Donabedian, A. (2005). Evaluating the quality of medical care. *The Milbank Quarterly, 83*(4), 691-729. (Reprinted from The Milbank Memorial Fund Quarterly, 44 (3), Pt.2, 1966, pp.166-203).

Dossey, B. M. (1997). *Core curriculum for holistic nursing*. Gaithersburg, MD: Aspen.

Dossey, B. M. (2001). Holistic nursing: Taking your practice to the next level. *The Nursing Clinics of North America, 36*(1), 1-22.

Dossey, B. M., & Guzzetta, C. E. (2005). Holistic nursing: A handbook for practice. In B. M. Dossey, L. Keagen, & C. E. Guzzetta (Eds.), *Holistic nursing practice* (pp. 5-37). Sudbury, MA: Jones & Bartlett.

Dossey, B. M., Keegan, L., & Guzzetta, C. E. (2005). *Holistic nursing: A handbook for practice* (4th ed.). Sudbury, MA: Jones & Bartlett.

Dyrbye, N. D., Szydlo, D. W., Downing, S. M., Sloan, J. A., & Shanafelt, T. D. (2010). Development and preliminary psychometric properties of a well-being index for medical students. *British Journal of Medical Education, 10*(8), 2-9.

Earp, M. S. (2007). *Development and validation of the statistics anxiety measure* (Doctoral dissertation). Retrieved from https://www.stat.auckland.ac.nz/~iase/publications

Engebretson, J. C., & Haedley, J. A. (2005). Holistic nursing: A handbook for practice. In B. M. Dossey, L. Keagen, & C. E. Guzzetta (Eds.), *Cultural diversity and care* (pp. 307-336). Sudbury, MA: Jones & Bartlett.

Ervin, N. E., Chen, S. P., & Upshaw, H. S. (2006). Nursing care quality: Process and outcome relationships. *Canadian Journal of Nursing Research, 38*(4), 174-190.

Esentesin, B, I., Schaechter, & Moslio. (2007). DNA and Chromosome Mechanics. In N. C. Engleberg, V. J. DiRita, & T. S. Dermody (Eds.), *Schechter's mechanisms of microbial disease* (pp.762-790). Hagerstown, MD: Lippincott Williams & Wilkins.

Everard, M. L. (2009). Acute bronchiolitis and croup. *Pediatric Clinics of North America, 56*(1), 119-133.

Faculty of Nursing-Universitas Indonesia & World Health Organization (2009). *Final report: Development of clinical learning practice standards for nursing students*. Retrieved from http:// whoindonesia.healthrepository.org/handle/123456789/616

Faizal, E. B. (2012). *Poor skills among health workers blamed for high infant mortality*. Retrieved from http://www.thejakartapost.com/news/2012/04/21/poor-skills-among-health-workers-blamed-high-infant-mortality.html

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272-299.

Feikin, D. R., Njenga, M. K., Bigogo, G., Aura, B., Aol. G., Audi, A., ... Jagero, G. (2012). Etiology and incidence of viral and bacterial acute respiratory illness among older children and adults in Rural Western Kenya, 2007-2010. *PLOS ONE, 7*(8), 1-11.

Ferketich, S. (1991). Aspects of item analysis. *Journal of Research in Nursing and Health, 14*, 165-168.

Figueiredo, L. T. (2009). Viral pneumonia: Epidemiological, clinical, pathophysiological, and therapeutic aspects. *Journal of Brasilia Pneumonology, 35*(9), 899-906.

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Journal of Psychological Assessment, 7,* 286-299.

Fox, R. N. (1982). *Measurement of quality of nursing care received by hospitalized surgical patients: Conceptual and methodological sources of variation*. New York, NY: Buffalo.

Fraenkel, J. R., & Wallen, N. E. (2003). *How to design and evaluate research in education*. New York, NY: McGraw-Hill.

Frei-Rhein, G., & Hantikainen, V. (2002). How do nurses experience and describe quality of care in everyday nursing. *Pflege Journal, 14*(6), 395-405.

Frost, M. H. (1992). Quality: A concept of importance to nursing. *Journal of Nursing Care Quality, 7*(1), 64-69.

Gabr, H., & Mohamed, N. (2012). Job characteristics model to redesign care delivery system in general surgical unit. *Academic Reseach International, 2*(1), 199-211.

Global Health Initiative (2011). *Indonesia global health initiative country strategy improved health impact through collaboration.* Retrieved from http://www.ghi.gov/documents/organization/175131.pdf

Green, C. D. (2010). *Classics in the history of psychology: Introduction to psychology as the behaviorist views it*. Retrieved from http://philpapers.org/rec/GRECIT-2

Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Gotherstron, C., Hamrin, E., & Carstensen, J. (1994). Testing a modified Swedish version of the Rush Medicus Nursing Process Quality Monitoring Instrument in short-term care. *International Journal Quality Health Care, 6*(1), 77-83.

Government of Indonesia. (2005). *Indonesia progress report on the millennium development goal*. Retrieved from http:// www.undp.or.id/pubs/imdg2005/index.asp.

Gravetter, F. J., & Forzano, L. B. (2012). *Research methods for the behavioral sciences* (4th ed.). Belmont, CA: Wadsworth.

Gunther, M., & Alligood, M. R. (2002). A discipline-specific determination of high quality nursing care. *Journal of Advanced Nursing, 38*(4), 353-359.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Hambleton, R. K., & Jones, R. W. (1993). Comparison of classical test theory and item response theory and their applications to test development. *Educational Measurement: Issues and Practice Journal, 12*(3), 38-47.

Hamid, A. Y. (2010). Wanted: 2.4 million nurse and that's just in India. *Bulletin of the World Health Organization, 88,* 327-328.

Hansson, L., & Hoglund, E. (1995). Patient satisfaction with psychiatric services. *Nordic Journal of Psychiatry, 49,* 257-262.

Harris, A., & McGillis Hall, L. (2012). *Evidence to inform staff mix decision-making: A focused literature review*. Ottawa, ON: Canadian Nurses Association.

Hays, R. D., Hayashi, T., & Stewart, A., L. (1989). A five-item measure of socially desirable response set. *Educational and Psychological Measurement, 49,* 629-636.

Hennessy, D., Hicks, C., Hilan, A., & Kowanal, Y., (2006). The training and development needs of nurses in Indonesia: Paper 3 of 3. *Human Resources for Health, 4*(10), 1-14.

Hernani., Sudarti., Agustina, T. A., & Sariasih, T. (2009). *Report on situation analysis of acute respiratory infection in children in Indonesia, Jakarta*. Retrieved from http://files.dcp2.org/pdf/DCP/DCP25.pdf

Hogston, R. (1995a). Evaluating quality nursing care through peer review and reflection; the findings of a qualitative study. *International Journal of Nursing Studies, 32*(2), 162-172.

Hogston, R. (1995b). Quality of nursing care: A qualitative enquiry. *Journal of Advanced Nursing, 21*, 116-124.

Hsu, N. (1989). The comparison of the quality of nursing care under primary and team nursing. *Veterans General Hospital Journal, 6*(4), 318-329.

Hsu, N., Lai, C. F., Lin, B. C., Liao, H. E., Lee, Y. Z., & Hsu. M. Y. (2002). The establishment of orthopedic nursing standard and nursing quality monitoring tool to evaluate the quality of care. *Tzu Chi Nursing Journal, 1*(4), 43-51.

Huang, C. Y., Liao, H. Y., & Chang, S. H. (1998). Social desirability and the clinical self-report inventory: Methodological reconsideration. *Journal of Clinical Psychology, 54*(4) 517-528.

Hueckel, R. & Wilson, D. (2007). The child with respiratory dysfunction. In M. J. Hockenberry & D. Wilson, D (Eds.), *Wong's nursing care of infants and children* (pp. 1314-1385). St. Louis, MO: Mosby.

Huether, S. (2008). Pain, temperature, sleep, and sensory function. In S. Huether & K. McCance (Eds.), *Understanding pathophysiology* (pp. 14-53). St. Louis, MO: Mosby.

Idvall, E., & Rooke, L. (1998). Important aspects of nursing care in surgical wards as expressed by nurses. *Journal of Clinical Nursing, 7*(6), 512-520.

Impara, J. C., & Plake, B. S. (1998). Teacher's ability to estimate item difficulty: A test of the assumptions in the Angoff standard setting method. *Journal of Educational Measurement, 35,* 69-81.

Indonesian Health Ministry (2010). Quality control. Retrieved from http://*www.time.com/time/world/article/0,8599,1964611,00.html*

Irurita, V. F. (1999). Factors affecting the quality of nursing care: The patient's perspective. *International Journal of Nursing Practice, 5*, 86- 94.

Jacobson, S. P. (1997). Instruments for clinical health care research. In M. F. Stromberg & S. J. Olson (Eds.), *Evaluating instrument for use in clinical nursing research* (pp. 3-19). Sudbury, MA: Jones & Bartlett.

James, S. R., Ashwill, J. W., & Droske, S. C. (2002). The child with a respiratory alteration. In S. R. James, J. W. Ashwill, & S. C. Droske (Eds.), *Nursing care of children: Principles and practice* (pp. 621-686). Philadelphia, PA: W. B. Saunders.

Jennings, B. (2008). *Work stress and burnout among nurses: Role of the work environment and working conditions. In patient safety and quality: An evidence-based handbook for nurses (Publication no. 08-0043, chapter 26). Agency for health care research and quality*. Retrieved from http://www.ahrq.gov/qual/nursesh-dbk

John, M. (2010). *Rosen's emergency medicine: Concepts and clinical practice*. (7th ed.). Philadelphia, PA: W. B. Saunders.

Joint Commission on Accreditation of Healthcare Organizations. (1991). *An introduction to quality improvement in health care*. Chicago, IL: Author.

Kabra, S. K. L. R., & Pandey, R. M. (2006). Antibiotics for community acquired pneumonia in children. *Cochrane Database of Systematic Reviews, Issue 17*(3), 146-157.

Kaditis, A., & Wald, E. (1998). Viral croup: Current diagnosis and treatment. *Journal of Pediatric Infection, 17*(9), 827-832.

Kahn, J. (1987). *Stepping up to quality assurance*. Canada, AE: Methuen Publications.

Kane, J. M., & Preze, E. (2009). Nurses' perceptions of sub specialization in pediatric cardiac intensive care unit: Quality and patient safety implications. *Journal of Nursing Care Quality, 24*(4), 354-361.

Kanjanawetang, J., Yunibhand, J., Bill Wu, Y., and Denham, S. A. (2006). Thai family routines: Scale development and psychometric testing. *Southeast Asian Journal Tropical Medicine Publich Health, 40*(3), 629-643.

Kaplan, R. M., & Saccuzo, D. P. (1997). *Psychological testing: Principles, applications, and issues* (7th ed.). Belmont, CA: Thompson Wadsworth.

Kassam, A., Papish, A., Modgill, G., & Patten, S. (2012) The development and psychometric properties of a new scale to measure mental illness related stigma by health care providers: The opening minds scale for health care providers (OMS-HC). *Biomedicalcentral Psychiatry, 12*(62), 2-12.

Katz, J., & Green, E. (1992). *Managing quality: A guide to monitoring and evaluating nursing services*. St. Louis, MO: Mosby.

Kercsmar, C. (1998). Asthma. In V. Chernick., T. Boat & E. Kendig (Eds.), *Kendig's disorders of the respiratory tract in children* (pp.181-184). Philadelphia, PA: W. B. Saunders.

Kim, H., Harrington, C., & Greene, W. H. (2009). Registered nurse staffing mix and quality of care in nursing homes: A longitudinal analysis. *The Gerontologist, 49*(1), 81-90.

Kline, P. (1997). *An easy guide to factor analysis*. New York, NY: Routledge

Kline, P. (2000). *The handbook of psychometric testing* (2nd ed.). New York, NY: Routledge.

Koch, T. (1992). A review of nursing quality assurance. *Journal of Advanced Nursing, 17*(7), 785-794.

Kolcaba, R. (1997). The primary holism in nursing. *Journal of Advanced Nursing, 25,* 290-296.

Kolcaba, K., & DiMarco, M. A. (2005). Comfort theory and its application to pediatric nursing. *Journal of Pediatric Nursing, 31*(3), 187-194.

Konggumnerd, P., Isaramalai, S., Suttharangsee, W., & Villarruel, A. M. (2009). Development and Psychometric Evaluation of the Sexual Health Protection Scale for Thai Female Adolescents. *Journal of Health Science, 18*(1), 1-9.

Kotnetzka, R. T., Stearns, S. C., & Park, J. (2008). The staffing-outcomes relationship in nursing homes. *Health Services Research. 43*(3), 1025-1042.

Kozier, B., Erb, G., Berman, A., & Snyder, S. (2004). *Fundamentals of nursing: Concepts, process, and practice* (7th ed.). Upper Saddle River, NJ: Pearson Education.

Krosnick, J. A., & Fabrigar, L. R. (1997). Designing rating scales for effective measurement in surveys. In L. Lyberg, P. Biemer, M. Collins, L. Decker, E. DeLeeuw, C. Dippo, N. Schwarz, & D. Trewin (Eds.), *Survey measurement and process quality* (pp. 141-164). New York, NY: Wiley-Interscience.

Kumar, R., Hashmi, A., Soomro, J. A., & Ghouri, A. (2012). Knowledge attitude and practice about acute respiratory infection among the mothers of under five children attending civil Hospital Mithi Tharparkar Desert. *Primary Health Care, 2* (108), 1-3.

Kunaviktikul, W., Anders, R. L., Chontawan, R., Nuntasupawat, R., Hanuchareonkul, S., Srisuphan, W., Pumaporn, 0., & Hirunnuj, S. (2005). Development of indicators to assess the quality of nursing care in Thailand. *Journal of Nursing and Health Sciences, 7,* 273-280.

Kunaviktikul, W., Anders, R. L., Srisuphan, W., Chontawan, R., Nuntasupawat, R., & Pumarporn, O. (2001). Development of quality nursing care in Thailand. *Journal of Advanced Nursing, 36* (6), 776-784.

Kwon, S. B., Chi, S. A., Back, K. S., Yu, S. O., Ju, S. N., Kim, B. J., … Ann, O. H. (2001). Content analysis of quality nursing care perceived by nurses. *Journal of Korean Academy Nursing, 31*(3), 380-390.

Kyle, T. (2008). Nursing care of the child with a respiratory disorder. In T. Kyle (Eds.), *Essentials of pediatric nursing* (pp.1-61). Philadelphia, PA: Lippincott Williams & Wilkins.

Lang, N. M., & Mitchell, P. H. (2004). Guest editorial: Quality as an enduring and encompassing concept. *Nursing Outlook, 52,* 1-2.

Lang, T. A., Hodge, M., Olson, V., Romano, P. S., & Kravitz, R. L. (2004). Nurse patient ratios: A systematic review on the effects of nurse staffing on patient, nurse employee, and hospital outcomes. *Journal of Nursing Administration, 34* (7-8), 326-337.

Larrabee, J. H., & Bolden, L.(2001). Defining patient-perceived quality of nursing care. *Journal of Nursing Care Quality, 16*(1), 34-60.

Larson, E. R. (1992). Teaching quality assurance: The undergraduate student/faculty experience. In C. G. Meisenheimer (Eds.), *Improving quality: a guide to effective programs* (pp. 237-258). Maryland MD: Aspen.

LeClerc, C. M., Doyon, J., Gravelle, D., Hall, B., & Roussel, J. (2008). The autonomous-collaborative care model: Meeting the future head on. *Nursing Leadership, 21*(2), 63-75.

Lee, L. L., Hsu, N., & Chang, S. C. (2007). An evaluation of quality of nursing care in orthopedic units. *Journal of Orthopaedic Nursing, 11,* 160-168.

Leino-Kilpi, H., & Vuorenheimo, J. (1994). The patients perspective on quality: Developing a framework for evaluation. *International Journal of Quality Health Care*, *6*(1), 85-95.

Leinonen, T., & Leino-Kilpi, H. (1999). Research in peri-operative nursing care. *Review Journal of Clinical Nursing, 8*,123-138.

Leinonen, T., Leino-Kilpi, H., Staehlberg, M., & Lertola, K. (2001). The quality of perioperative care: Development of a tool for the perceptions of patients. *Journal of Advanced Nursing, 35*(2), 294-306.

Lesa, R., & Dixon, A. (2007). Physical assessment implications for nurse educators and nursing practice. *International Nursing Review, 54*(2), 166-172.

Linnard-Palmer, L., & Kools, S. (2005). Parents' refusal of medical treatment for cultural or religious beliefs: an ethnographic study of health care professionals experiences. *Journal of paediatric oncology nursing*, *22*(1), 48-57.

Lipoeta, N. L., Wattanapenpaiboon, N., Malik, A., & Wahlqvist, M. L. (2004). The nutrition transition in West Sumatra, Indonesia Asia. *Pacific Journal Clinical Nutrition*, *13*(3), 312-316.

Liu, L., Johnson, H. L., Cousens, S., Perin, J., Scott, S., Lawn, J. E. (2012). Global, regional, and national causes of child mortality: An updated systematic analysis for 2010 with time trends since 2000. *Lancet, 9*(379), 2151-2161.

Lohr, K. N., & Schroeder, S. A. (1990). A strategy for quality assurance in Medicare. *New England Journal of Medicine*, *322*(10), 707-712.

London, M., Ladewig, P., Ball, J., & Bindler, R. (2007). The child with alterations in respiratory function. In M. London, P. Ladewig, J, Ball & R. Bindler (Eds.), *Maternal & child nursing care* (pp. 1388-1438). Saddle River, NJ: Prentice Hall.

Louden, M. (2010). Bronchiolitis. *Pediatrics, 126*(4), 623-631.

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, *35*, 382-385.

Lynn, M. R., McMillen, B. J., & Sidani, S. (2007). Including the provider in the assessment of quality care: Development and testing of the nurses assessment

of quality scale-acute care version. *Journal of Nursing Care Quality, 22*(4), 328-336.

Maben, J., & Griffiths, P. (2008). National nursing research. In J. Marben & P. Griffths (Eds.), *Nurses in society: Starting the debate* (pp. 1-30). London, UK: Royal College of Nursing.

Makela, M. J. (1998). Viruses and bacteria in the etiology of the common cold. *Journal of Clinical Microbiology, 36*(2), 539-542.

Martinez-Giron, R., Esteban, J. G., Ribas, A., & Doganci, L. (2008). Protozoa in respiratory pathologi: A review. *Europe Respiratory Journal, 32,* 1354-1370.

McShane, S. L., & Von Glinow, M. A. (2003). *Organizational behavior: Emerging realities for the workplace revolution.* Boston, MA: McGraw-Hill.

Meneghetti, A. (2009). *Upper respiratory tract infection: Treatment & medication*. Retrieved from http://emedicine.medscape.com/article/302460

Millennium Development Goals of Indonesia. (2008). Current situation on MDG 4 and 5 in Indonesia. Retrieved from *http://www.targetmdgs.org/download/MDG_Report_2008_En.pdf*

Miron, D., Srugo, L., Kra-Oz, Z., Wolf, D., & Amirav, I. (2010). Sole pathogen in acute bronchiolitis: Is there role for other organisms apart from respiratory syncytial virus? *The Pediatric Infectious Disease Journal, 29*(1), 7-10.

Moloney-Harmon, P. A. (1999). The synergy model: Contemporary practice of the clinical nurse specialist. *Critical Care Nurse, 19*(2), 101-104.

Mroch, A. A., & Bolt. D. M. (2003, April). *A monte carlo comparison of parametric and nonparametric dimensionality detection procedures*. Paper presented at the annual meeting of the National Council on Measurement in Education Chicago, IL. Paper presented. Retrieved from http://irt.com.ne.kr/data/ncme03md.pdf

Munro, B. H. (2005). *Statistical methods for health care research* (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Murphy, K. (2007). A qualitative study explaining nurses perceptions of quality care for older people in long-term care setting in Ireland. *Journal of Clinical Nursing, 16,* 477-485.

Myung, I. J. (2003). Tutorial on maximum likelihood estimation. *Journal of Mathematical Psychology, 47*(1), 90-100.

Nair, H., Simoes, E. A., Rudan, I., Gessner, B. D., Azziz-Baumgartner, E., Zhang, J. S., ... Feikin, D. R. (2013). Global and regional burden of hospital admissions for severe acute lower respiratory infections in young children in 2010: A systematic analyis. *Lancet, 20*(381), 1380-1390.

Narayanasamy, A., Clissett, P., Parumal, L., Thompson, D., Annasamy, S., & Edge, R. (2004). Responses to the spiritual needs of older people. *Journal of Advanced Nursing, 48*(1), 6-16.

Needleman, J. (2008). Is what's goodfor the patient good for the hospital? Aligning incentives and the business case for nursing. *Policy, Politics, & Nursing Practice, 9*(2), 80-87.

Neuman, M. I., Scully, K. J., Kim, D. B., Shah, S., & Bachur, R. G. (2010). Physician assessment of the likelihood of pneumonia in a pediatric emergency department. *Pediatric Emergency Care, 26*(11), 817-822.

Niskanen, A., & Lin, C. (2001). Regional similarities of forest resources and socio-economic structures in the EU member states. *Journal of Forest Policy and Economics, 3*, 55-67.

Noble, V., Murray, M., Webb, M. S. C., & Alexander, J. (1997). Respiratory status and allergy nine to 10 years after acute bronchiolitis. *Archives of Disease in Childhood, 76*, 315-319.

Nontapet, O. (2008). *The Development of Primary Care Competency Assessment Scale (PC-CAS) for primary care providers in Thailand* (Doctoral dissertation). Retrieved from http://kb.psu.ac.th/psukb/bitstream/2553/1423/11/296561_ti.pdf

Norman, I. J., Redfern, S. J., Tomalin, D. A., & Oliver, S. (1992). Developing Flanagan's critical incident technique to elicit indicators of high and low quality nursing care from patients and their nurses. *Journal of Advanced Nursing*, *17*(5), 590-600.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. New York, NY: McGraw-Hill.

Parish, S. (1986). Quality v quantity nursing: Which type of nursing do you practice? *Journal of Practical Nursing, 36*(2), 30-31.

Park, J. W., & Bernett, D. (2002). Respiratory syncytial virus infection and the primary care physician. *Southern Medical Journal, 95*(3), 279-374.

Paulhus, D. L. (1991). Measurement and Control of Response Bias. In J. P. Robinson, P. Haver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17-60). San Diego, CA: Academic Press.

Pedhazur, E., & Scmelkin, L. P. (1991). *Measurement, design and analysis: An integrated approach*. Hillsdale, NJ: Lawrence Erlbaum.

Pehler, S. R. (1997). Children‘s spiritual response: Validation of the nursing diagnosis spiritual distress. *Nursing Diagnosis Journal, 8,* 55-66.

Pelander, T. (2008). *The quality of paediatric nursing care-children's perspective* (Doctoral dissertation). Retrieved from https://www.doria.fi/bitstream/handle/

Pelander, T., Leino-Kilpi, H., & Katajisto, J. (2009). The quality of paediatric nursing care: Developing the Child Care Quality at Hospital instrument for children. *Journal of Advanced Nursing, 65*(2), 443-453.

Pendleton, S. M., Cavalli, K. S., Pargament, K., & Nasr, S. Z. (2002). Religious/spiritual coping in childhood cystic fibrosis: A qualitative study. *Pediatrics, 109,* 1.

Pett, M., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research.* Thousand Oaks, CA: Sage.

Polit, D. F., & Beck, C. T. (2004). *Nursing research: Principles and practices* (7th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Polit D. F., & Hungler, B. P. (1999). *Nursing research: Principles and methods* (6th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Potter, P., & Perry, A. (2011). *Basic nursing-essentials for practice* (7th ed.). St Louis, MO: Mosby.

Radwin, L, E., Alster, K., & Rubin, K. (2003). The Development and Psychometric Testing of the Oncology Patient's Perceptions of the Quality of Nursing Care Scale (OPPQNCS). *Oncology Nursing Forum, 30*, 283-290.

Rajapaksa, S., & Starr, M. (2010). Croup-assessment and management. *Journal of Australian Family Physician, 39*(5), 280-282.

Redfern, S. (1993). In pursuit of quality nursing care. *Journal of Clinical Nursing, 2*, 141-148.

Redfern, S., & Norman, I. (1999b). Quality of nursing care perceived by patients and their nurses: An application of the critical incident technique, Part 2. *Journal of Clinical Nursing, 8*, 414-421.

Ress, B. (2001). Caring for patients with HIV disease in the new millennium. *Critical Care Nurse Journal, 1,* 69 -76.

Richmond, J. P., & Wright, M. E. (2006). Development of a constipation risk assessment scale. *Journal of Orthopedic Nursing, 10*, 186-197.

Rudan, I., Nair, H., Marusic, A., & Campbell, H. (2013). Reducing mortality from childhood pneumonia and diarrhoea: The leading priority is also the greatest opportunity. *Journal Global Health, 3*(1), 1-4.

Sale, D. N. T. (1996). *Quality assurance for nurses and other members of the healthcare team* (2nd ed.). Hampshire, AE: Macmillan Press.

Savage, T. A., & Leigh, L. A. (2002). Quality management and process improvement. In P. G. Zimmermann (Eds.), *Nursing management secrets* (pp. 187-192). Philadelphia, PA: Hanley & Belfus.

Schaad, U. B. (2005). Preventions of pediatric respiratory tract infections: Emphasis on the role of OM-85. *The European Respiratory Review, 14*(95), 74-77.

Schaffer, P., Vaughn, G., Kenner, C., Donahue, F., & Longo, A. (2000). Revision of parent satisfaction survey based on the parent perspective. *Journal of Pediatric Nursing, 15*(6), 373-377.

Scherer, R. F., Wiebe, F. A., Luther, D. C., & Adams, J. S. (1988). Dimensionality of coping: Factor stability using the ways of coping questionnaire. *Psychological Reports, 67*,763-770.

Schmidt, L. A. (2003). Patients' perceptions of nursing care in the hospital setting. *Journal of Advanced Nursing, 44*(4), 393-399.

Shafik, C. F., Mohareb, E. M., Yassin, A. S., Amin, M. A., Kholy, A. E., El-Karaksy, H., & Youssef, F. G. (2012). Viral etiologies of lower respiratory tract infections among Egyptian children under five years of age. *British Medical Journal Infectious Diseases,12*(350), 2-8.

Shamliyan, T. A., Kane, R. L., Mueller, C., Duval, S., & Wilt, T. J. (2009). Cost savings associated with increased RN staffing in acute care hospitals: Simulation exercise. *Nursing Economic, 27*(5), 302-331.

Shields, L., & Hartati, L. (2003). Nursing and health care in Indonesia. *Journal of Advanced Nursing, 44*(2), 209-216.

Smith, L. S. (2002). Applying research in practice. In P. G. Zimmermann (Eds.), *Nursing management secrets* (pp. 203-209). Philadelphia, PA: Hanley and Belfus.

Sriratanaprapat, J., Chaowalit, A., & Suttharangsee, W. (2012). Development and Psychometric Evaluation of the Thai Nurses' Job Satisfaction Scale. *Pacific Rim International Journal Nursing Research. 16*(3) 175-191.

Suhonen, R., & Valimaki, M. (2003). Surveying patient satisfaction: Challenging for nursing research. *Hong Kong Nursing Journal, 39*(2), 7-14.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). New York, NY: Harper Collins.

Taylor, C., Lillis, C., & LeMone, P. (2005). Fundamentals of nursing: The art and science of nursing care. In C. Taylor, C. Lillis & P. LeMone (Eds.), *The nursing process: Blended skills and critical thinking throughout the nursing process* (pp. 193-250). Philadelphia, PA: Lippincott Williams & Wilkins.

Tervo-Heikkinen, T., Kvist, T., Partanen, P., Vehvilainen-Julkunen, K., & Aalto, P. (2008). Patient satisfaction as a positive nursing outcome. *Journal of Nursing Care Quality, 23*(1), 58-65.

Tiedeman, M. E., & Lookinland, S. (2004). Traditional models of care delivery: What have we learned? *Journal of Nursing Administration, 34*(6), 291-297.

Thrasher, C., & Purc-Stephenson, R. (2008). Patient satisfaction with nurse practitioner care in emergency departments in Canada. *Journal of the American Academy of Nurse Practitioners, 20*(5), 231-237.

Thorsteinsson, L. S. (2002). The quality of nursing care as perceived by individuals with chronic illness: The magical touch of nursing. *Journal of Clinical Nursing*, *11*, 32-40.

Tinsley, H. E. A., & Tinsley, D. J. (1987). Uses of factor analysis in counseling psychology research. *Journal of Counseling Psychology*, *34*, 414-424.

Tjale, A. A. (2008). *A framework for holistic nursing care in pediatric nursing* (Doctoral dissertation) Retrieved from http://hdl.handle.net/10539/4650

Tomalin, D. A., Oliver, S., Redfern, S. J., & Norman, I. J. (1993). Inter-rater reliability of Monitor, Senior Monitor and QUALPACS. *Journal of Advanced Nursing*, *18*, 1152-1158.

Tomblin, M, G., Alder, R., MacKenzie, A., & Rigby, J. (2010). *Model of care initiative in Nova Scotia (MOCINS): Final evaluation report.* Retrieved from http://www.gov.ns.ca/health/MOCINS/docs/MOCINS-evaluation-report.pdf

Toms, E. C. (2000). Evaluating the quality of patient care in district nursing. *Journal of Advanced Nursing, 17*, 1489-1495.

Tortorolo, L., Chiaretti, A., Piastra, M., Viola, L., & Polidori, B. (1999). Sufactant treatment in a pediatric burn patient with respiratory failure. *Pediatric Emergency Care*, *15*(6), 410-411.

Udeani, J., & Ojielo, C. I. (2009). *Bronchiolitis.* Retrieved from http://emedicine.medscape.com/article/304649-overview

Udomluck, S., Tonmukayakul, O., Tiansawad, S., & Srisuphan, W. (2010). Development of Thai Nurses' Caring Behavior Scale. *Pacific Rim International Journal Nursing Research, 14*(1), 32-44.

Urden, L., Stacy, K. L., & Lough, M. E. (2010). *Thelan's critical care nursing: Diagnosis and management* (6th ed.). St. Louis, MO: Mosby.

van Woensel, J. B., van Aalderen, W. M., & Kimpen, J. L. (2003). Viral lower tract infection in infants and young children. *British Medical Journal, 327,* 36-40.

Walsh, W.B., & Betz, N. E. (2001).*Tests and assessment* (4th ed.). Upper Saddle River, NJ: Prentice-Hall.

Waltz, C. F, Strickland, O. L., & Lenz, E. R. (2005). Issue in nursing measurement. In. C. F. Waltz, O. L. Strickland, & E. R. Lenz (Eds.), *Measurement in nursing research* (pp 3-19). Philadelphia, PA: Davis.

Webel, A. R., Asher, A., Cuca,Y., Okonsky, J. G., Kaihura, Dawson, R. C., Hanson, J. E., Salata, R. A., & Burant, C. J. (2012) Develop and validate the HIV self-management scale for women, a new measure of HIV self-management. *Journal of Acquired Immune Deficiency Syndromes, 60* (3), 72-81.

Wee-Ling, S. S. (2010). *Molecular epidemiology of respiratory viruses in a pediatric cohort from Indonesia* (Doctoral dissertation). Retrieved from http://eprints.qut.edu.au/37309/1/

Weiner, I. B., Schinka, J. A., & Velicer, W. F. (2012). *Handbook of psychology: Research methods in psychology* (2nd ed.). Hoboken, NJ: John Wiley.

Wikipedia (2011a). *Daftar rumah sakit di Indonesia*. Retrieved from http://id.wikipedia.org/wiki/Daftar_rumah_sakit_di_Indonesia

Wikipedia (2011b*). Indonesia*. Retrieved from http://en.wikipedia.org/wiki/Indonesia

Wikipedia (2011c). *Respiratory tract infection*. Retrieved from http://en.wikipedia.org/wiki/Respiratory_tract_infection

Wilde, B. (1994) *Quality of care*: *Models, instruments and empirical result among elderly* (Doctoral dissertation). Retrieved from http://hdl.handle.net/2077/14972

Wilde, B., Starrin, B., Larsson, G., & Larsson, M. (1993). Quality of care from a patient perspective: A grounded theory study. *Scandinavian Journal of Caring Sciences, 7*, 113-120.

Williams, A. M. (1998). The delivery of quality nursing care: A grounded theory study of the nurses perspective. *Journal of Advanced Nursing, 2*, 808-816.

Wong, D. M., Blumberg, D. A., & Love, L. G. (2006). Guidelines for the use of antibiotic in acute upper respiratory tract infections. *Journal of American Family Physician, 74*, 956-966.

Wong, D., & Hockenberry, M. J. (2003). Wong's nursing care of infants and children. In D. Wong & M. J. Hockenberry (Eds.), *The child with respiratory dysfunction* (pp. 1343-1415). St. Louis, MO: Mosby.

World Health Organization (2012). *Documents on acute respiratory infections/pneumonia*. Retrieved from http://www.who.int/maternal child adolescent/documents/respiratory/en/

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist, 34*,806-838.

Wright, P. F., & Cutts, F. T. (2000). *Generic protocol to examine the incidence of lower respiratory infection due to respiratory syncytial virus in children less than 5 years of age.* Retrieved from

http://www.who.int/vaccines-documents/DocsPDF99/www9906.pdf

Yilgwan, C.S., John, C., Abok , I., & Okolo,S. N. (2013). Pattern of acute respiratory infections in hospitalized children under five years of age in Jos Nigeria. *Niger Journal Pediatric, 40*(2),150-153.

Yuliarti, K., Hadinegoro, S.R., Supriyatno, B., & Karuniawati, A. (2012). Invasive pneumococcal disease among hospitalized children aged 28 days to 60 months in Jakarta. *Southeast Asian Journal Tropical Public Health, 43*(1), 136-144.

Zastowny, T. R., Stratmann, W. C., Adams, F. H., & Fox, M. L. (1995). Patient satisfaction and experiences with health care. *Quality Managed Health Care Journal, 3*, 50-61.

APPENDICES

APPENDIX A

INSTRUMENTS

The Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children Questionnaire (QNCS-HARIC)

Code …….

Date …….

Direction: Three questionnaires will be answered in this study. These consist of:

1. Demographic Data Questionnaire
2. The Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC-Version 5)
3. The Marlowe-Crowne Social Desirability Scale-Form (MCSDS-C)

The Demographic Data Questionnaire

Code …….

Date …….

Direction: Please check (√) or fill the blank at each question of demographic data that is appropriate for you.

1. Gender

   ( ) 1. Male ( ) 2. Female

2. Age ..... years

3. Religion

   ( ) 1. Islam ( ) 2. Christian

   ( ) 3. Others (please specify……..)

4. Marital Status

   ( ) 1. Single ( ) 2. Married ( ) 3. Widowed

   ( ) 4. Divorced ( ) 5. Separated

5. Nursing education

   ( ) 1. Bachelor degree ( ) 2. Master degree

6. Years of nursing experience ……years

7. Working experience with ARI children……years

8. Number of ARI children under you care with an average of…….. cases/month

The Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (77 items of the QNCS-HARIC)

Code …….

Date …….

Directions: This scale consists of four dimensions, 77 items, regarding the quality of nursing care for hospitalized acute respiratory infection children in Indonesia. The physical dimension of ARI children consist of 35 items. The psychological dimension of ARI children and family consist of 26 items. The socio-cultural dimension of ARI children and family consist of 10 items. The spiritual dimension of ARI children and family consist of 6 items. As accurately as possible, please make a checkmark (√) in the column that represents how you perform nursing activities to hospitalized acute respiratory infection children and family. There is no right or wrong answer. The rating scales are as follows:

Never practice (1) = You completely never perform that nursing activity (0%)

Seldom practice (2) = You seldom perform that nursing activity (1- 25%)

Sometime practice (3) = You sometimes perform that nursing activity (26-50%)

Often practice (4) = You often perform that nursing activity (51-75%)

Always practice (5) = You always perform that nursing activity (76-100%)

For example:

Subscales/Items	Never practice (1)	Seldom practice (2)	Sometime practice (3)	Often practice (4)	Always practice (5)
Dimension1: The plan of nursing care					
1. Assess vital signs				√	

Note: I often assess vital signs.

Table 13a

The Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children (QNCS-HARIC 77 Items)

Subscales/Items	Never practice (1)	Seldom practice (2)	Sometime practice (3)	Often practice (4)	Always practice (5)
Dimension 1: The physical dimension of ARI children					
1. Assess for signs of inadequate oxygen (e.g., cyanotic lips or fingernails, irregular breathing or difficult breathing, capillary refill > 2 seconds, hypoxia)					
2. Assess vital signs (e.g., pulse, respiratory rate, blood pressure, temperature)					
.					
.					
.					
35. Evaluate nursing care to meet the physical needs of acute respiratory infection					

children

Table 13a (*Continued*)

Subscales/Items	Never practice (1)	Seldom practice (2)	Sometime practice (3)	Often practice (4)	Always practice (5)
Dimension 2: The psychological dimension of ARI children and family					
36. Establish trusting relationship with the child or parents					
.					
.					
.					
61. Evaluate nursing care to meet the psychological needs of acute respiratory infection children and family					

Table 13a (*Continued*)

Subscales/Items	Never practice (1)	Seldom practice (2)	Sometime practice (3)	Often practice (4)	Always practice (5)
Dimension 3: The socio-cultural dimension of ARI children and family					
62. Assess inadequate economic resources					
.					
.					
.					
71. Evaluate nursing care to meet the socio-cultural needs of acute respiratory infection children and family					

Table 13a (*Continued*)

Subscales/Items	Never practice (1)	Seldom practice (2)	Sometime practice (3)	Often practice (4)	Always practice (5)
Dimension 4: The spiritual dimension of ARI children and family					
72. Explore whether parents desire to engage in an allowable religious or spiritual practice or ritual					
.					
.					
.					
77. Evaluate nursing care to meet the spiritual needs of acute respiratory infection children and family					

The Marlowe-Crowne Social Desirability Scale-Form

Direction: Listed below are a number of statements concerning personal attitudes and traits. There are 13 items. Read each item and decide whether the statement is true or false as it pertains to you personally. Place a checkmark (√) in the column that represents your personality as accurately as possible.

For example:

No	Items	True	False
1.	I have never hesitated to go out of my way to help someone in trouble	√	

Note: It is true that I have never hesitated to go out of your way to help some in trouble.

Table 13b The Marlowe-Crowne Social Desirability Scale-Form

No	Items	True	False
1.	It is sometimes hard for me to go on with my work if I am not encouraged.		
2.	.		
3.	.		
4.	.		
13.	I have never deliberately said something that hurt someone's feelings		

APPENDIX B

INFORMED CONSENT FORM

Title: Development and Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia

Researcher: Dewi Elizadiani Suza

Faculty of Nursing, Prince of Songkla University, Hat Yai, Songkla Thailand

Tel. Songkla, Thailand: 66-74-0873929690; Medan, Indonesia: 62-81361769044, e-mail:elizadiani@hotmail.com

You are invited to take part in the study entitled "Development and Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia." The study is conducted by Dewi Elizadiani Suza, a Doctoral student at the Faculty of Nursing, Prince of Songkla University, Thailand, under supervision of Asst. Prof. Dr. Busakorn Punthmatharith. The purpose of this study is to development and evaluation of the quality of nursing care scale for hospitalized acute respiratory infection children in Indonesia. If you agree to take part in the research study, you will proceed to complete the enclosed questionnaire and returning the questionnaire in the envelope directly to the head pediatric nurse. Your participation will provide valuable information to nurses and health care providers to improve quality of nursing care for acute respiratory infection children.

Your information will be kept confidential. The result of this study will be published as group data, and no one will be able to identify your personally in this report. You can withdraw from this study at any time. This study has no physical and psychological risk of harm for you. You are not abandoned any of your legal rights by signing this consent form. Your signature below indicates that you agree to participate in this study. If you have any questions about the study, you can directly contact me by phone number 62-81361769044 or by e-mail elizadiani@hotmail.com

Signature of participants ---------- Date ----------

Signature of researcher ---------- Date ----------

APPENDIX C

PILOT STUDY

Table 10

Frequency, Percentage, Mean (M), Standard Deviation (SD), Median (Md), Quartile Deviation (QD), Minimum-Maximum, Skewness Value and Kurtosis Value of Demographic Data of Pediatric Nurses (N=30)

Items			Frequency	Percent
Gender				
Female			30	100.00
Age (years)				
< 30			3	10.00
30-40			9	30.00
> 40			18	60.00
M 40.00	*SD* 7.04	Min-Max 25 - 48		
Skewness value 1.93		Kurtosis value 0.53		
Religion				
Muslim			8	26.70
Christian			21	70.00
Catholic			1	3.30
Marital Status				
Single			2	6.70
Married			28	93.30
Nursing Education				
Bachelor degree			30	100.00
Nursing experience (years)				
< 6			4	13.30
> 6			26	86.70
M 15.13	*SD* 6.74	Min-Max 1 - 23		
Skewness value 1.78		Kurtosis value 0.74		
Working experience with acute respiratory infection children (years)				
< 6			4	13.30

> 6	26	86.70
M 11.17 *SD* 5.23	Min-Max 1 - 23	
Skewness value 0.07	Kurtosis value 0.17	

Table 10 (*Continued*)

Items	Frequency	Percent
Number of acute respiratory infection children under you care (cases/month)		
<10	13	43.30
equal 10	8	26.70
> 10	9	30.00
M 8.63 *SD* 6.44	Min-Max 2 - 25	
Skewness value 2.96	Kurtosis value 0.50	

APPENDIX D

SUMMARY FOR ASSUMPTIONS TEST OF THE QNCS-HARIC

Table 11

Summary for the EFA Assumption Test of the QNCS-HARIC

Assumption Test	N=807	N=790	N=783	N=782	N= 779	Interpretation
Type of data	Interval level	Interval level	Interval level	Interval level	Interval level	Interval (Munro, 2005)
Sample size	1: 10.48 cases per variable	1: 10.26 cases per variable	1: 10.17cases per variable	1: 10.16 cases per variable	1: 10.12 cases per variable	1: 10 cases per variable (Munro, 2005)
Normality test	All items had normal distribution	All items had normal distribution	Items 6 and 70 had non- normal distribution	After deleting cases no. 6, 7 and 8, all items had normal distribution	All items had normal distribution	Less than ± 3.29 (Tabachnick & Fidell, 2007)
Linearity	All items	All items	All items	All items	All items	The scatterplot should show a balanced spread of scores (Tabachnick & Fidell, 2007)
Outliers	17 outliers (case number: 2, 373, 403, 431, 470, 569, 574, 673, 682, 699, 726, 736, 750, 751, 773, 775, 776)	7 outliers (case number: 34, 385, 434, 553, 672, 674, 758)	1 outlier (case number: 486)	No outliers	No outliers	No outlier (Tabachnick & Fidell, 2007)
Multicollinearity (*r* coefficient of range)	No correlation (.30 - .70)	No correlation (.30 - .70)	No correlation (.30 - .76)	No correlation (.30 - .82)	No correlation (.30 - .82)	cut-off ≥.85 (Munro, 2005)

APPENDIX E

NORMALITY TEST

Table 12

Comparisons of Normality Test of each Item of the QNCS-HARIC using Skewness and Kurtosis, Standard Error of Skewness and Kurtosis, and Skewness and Kurtosis Value (N=807, N=779)

Variables	Skewness		Kurtosis		Skewness value		Kurtosis value	
	SE of skewness (.086)	SE of skewness (.088)	SE of kurtosis (.172)	SE of kurtosis (.175)				
	N=807	N=779	N=807	N=779	N=807	N=779	N=807	N=779
1. Assess for signs of inadequate	0.09	0.07	0.35	0.36	1.00	0.08	2.05	2.06
2. Assess vital signs	0.22	0.26	0.52	0.57	2.51	0.30	3.03	3.26
3. Assess for signs of dehydration	0.09	0.10	0.45	0.46	1.06	0.11	2.62	2.63
4. Assess type /amount/ frequency	0.11	0.07	0.49	0.48	1.26	0.08	2.85	2.75
5. Assess the child's response	0.04	0.01	0.48	0.53	0.50	0.01	2.80	3.01
6. Assess signs of acute respiratory	0.27	0.26	0.26	0.25	3.13	0.30	1.53	1.40
7. Assess parent's knowledge	0.14	0.02	0.17	0.17	1.57	0.22	1.01	0.94
8. Assess parent's skills	0.10	0.09	0.42	0.41	1.15	0.10	2.44	2.32
9. Prioritize nursing diagnoses	0.00	0.02	0.37	0.35	0.05	0.02	2.14	2.00
10.Do pre conference	0.14	0.16	0.50	0.53	1.60	0.18	2.90	3.01
11. Provide head up position	0.09	0.10	0.47	0.48	1.00	0.11	2.74	2.74
12. Administer oxygen correctly	0.04	0.05	0.53	0.52	0.47	0.06	3.06	2.97

Note. Interpretation: Less than ± 3.29 (Tabachnick & Fidell, 2007)

Table 12 (*Continued*)

Variables	Skewness		Kurtosis		Skewness value		Kurtosis value	
	SE of skewness (.086)	SE of skewness (.088)	SE of kurtosis (.172)	SE of kurtosis (.175)				
	N=807	N=779	N=807	N=779	N=807	N=779	N=807	N=779
13. Perform chest physiotherapy	0.01	0.01	0.39	0.38	0.12	0.01	2.30	2.17
14.Teach parents to observe signs	0.07	0.08	0.28	0.24	0.79	0.10	1.62	1.37
15. Record intake and output	0.12	0.12	0.47	0.47	1.38	0.14	2.73	2.69
16. Provide enteral fluid or parenteral	0.11	0.10	0.49	0.49	1.26	0.11	2.85	2.77
17. Measure weight with the same scale	0.14	0.10	0.52	0.50	1.64	0.11	3.00	2.87
18. Teach parents how to maintain their	0.18	0.17	0.55	0.55	2.03	0.19	3.17	3.06
19. Advise the child or parents	0.13	0.14	0.52	0.54	1.55	0.16	3.02	3.08
20. Teach parents or children	0.02	0.06	0.39	0.38	0.26	0.07	2.26	2.19
21. Assist the child in daily activity	0.01	0.00	0.27	0.27	0.07	0.00	1.58	1.53
22. Monitor the child's response	0.04	0.05	0.35	0.37	0.51	0.06	2.04	2.10
23. Provide play activities as needed	0.12	0.12	0.44	0.43	1.37	0.14	2.55	2.45
24. Cluster activities	0.03	0.00	0.45	0.48	0.33	0.00	2.59	2.74
25. Provide a quiet environment	0.13	0.13	0.53	0.54	1.48	0.15	3.08	3.10
26. Use strict aseptic practice	0.10	0.08	0.49	0.46	1.19	0.09	2.84	2.62
27. Teach parents to wash hands	0.06	0.05	0.38	0.35	0.71	0.06	2.21	1.99
28. Administer medicines as prescribed	0.11	0.01	0.48	0.49	1.23	0.01	2.80	2.82
29. Observe side effects of medicines	0.10	0.10	0.50	0.50	1.16	0.11	2.93	2.84
30. Provide hygiene care	0.10	0.06	0.44	0.42	1.19	0.07	2.53	2.42

Note. Interpretation: Less than ± 3.29 (Tabachnick & Fidell, 2007)

Table 12 (*Continued*)

Variables	Skewness		Kurtosis		Skewness value		Kurtosis value	
	SE of skewness (.086)	SE of skewness (.088)	SE of kurtosis (.172)	SE of kurtosis (.175)				
	N=807	N=779	N=807	N=779	N=807	N=779	N=807	N=779
31. Provide environmental care	0.09	0.06	0.43	0.40	0.99	0.07	2.50	2.26
32. Monitor signs of acute respiratory	0.04	0.02	0.25	0.20	0.41	0.02	1.45	1.15
33. Teach parents to observe signs ARI	0.10	0.09	0.46	0.42	1.15	0.10	2.65	2.40
34. Teach parents to observe ARI	0.10	0.20	0.25	0.20	1.10	0.21	1.45	1.15
35. Evaluate nursing care to physical	0.06	0.04	0.45	0.42	0.70	0.05	2.65	2.40
36. Establish trusting relationship	0.01	0.01	0.39	0.38	0.08	0.01	2.26	2.17
37. Assess for contributing factors of	0.05	0.02	0.41	0.38	0.52	0.02	2.36	2.18
38. Assess parents for contributing	0.08	0.08	0.41	0.40	0.88	0.09	2.35	2.31
39. Assess the child's anxiety or fear	0.01	0.01	0.17	0.09	0.13	0.01	0.96	0.51
40. Assess the child's pain	0.08	0.08	0.47	0.46	0.94	0.09	2.74	2.61
41.Assess the child or parents for	0.11	0.10	0.52	0.48	1.33	0.11	3.01	2.74
42. Evaluate the child's response	0.08	0.07	0.37	0.36	0.87	0.08	2.15	2.07
43. Explore coping skills previously	0.07	0.07	0.36	0.40	0.77	0.08	2.09	2.26
44. Plan for performing nursing care	0.05	0.01	0.36	0.31	0.52	0.01	2.09	1.75
45. Inform parents	0.09	0.05	0.53	0.52	1.01	0.06	3.08	2.99
46.Encourage parents to participate	0.01	0.01	0.47	0.49	0.12	0.01	2.74	2.81
47. Maintain a calm manner	0.05	0.05	0.48	0.47	0.58	0.06	2.80	2.66
48. Assist the parents in developing	0.09	0.10	0.54	0.54	1.09	0.11	3.13	3.09
49. Provide psychological support	0.05	0.04	0.38	0.40	0.63	0.05	2.20	2.30

Note. Interpretation: Less than ± 3.29 (Tabachnick & Fidell, 2007)

Table 12 (*Continued*)

Variables	Skewness		Kurtosis		Skewness value		Kurtosis value	
	SE of skewness (.086)	SE of skewness (.088)	SE of kurtosis (.172)	SE of kurtosis (.175)				
	N=807	N=779	N=807	N=779	N=807	N=779	N=807	N=779
50. Avoid painful procedures	0.10	0.08	0.50	0.50	1.12	0.09	2.91	2.87
51. Assess severity of the child's pain	0.14	0.15	0.49	0.50	1.60	0.17	2.84	2.87
52. Respond immediately to complaint	0.23	0.22	0.25	0.24	2.69	0.25	1.43	1.37
53. Eliminate additional stressors	0.02	0.02	0.19	0.17	0.24	0.02	1.12	0.97
54. Explain causes of pain or	0.01	0.04	0.52	0.48	0.59	0.05	3.00	2.77
55. Use communication techniques	0.05	0.04	0.44	0.40	0.56	0.05	2.54	2.30
56. Provide comfort or transitional	0.11	0.11	0.51	0.52	1.31	0.13	2.97	2.98
57. Encourage parents to explore	0.11	0.10	0.52	0.48	1.27	0.11	3.03	2.76
58. Encourage parents to touch	0.01	0.00	0.41	0.41	0.08	0.00	2.40	2.31
59. Be physically present with child	0.09	0.09	0.43	0.43	1.02	0.10	2.50	2.46
60. Actively listen to parents	0.09	0.11	0.44	0.46	1.01	0.13	2.55	2.65
61. Evaluate nursing care psychological	0.05	0.04	0.33	0.28	0.60	0.05	1.90	1.58
62. Assess inadequate economic	0.16	0.14	0.54	0.56	1.81	0.16	3.13	3.18
63.Assess socio-cultural barriers	0.11	0.12	0.24	0.22	1.26	0.14	1.38	1.26
64. Assess cultural beliefs or practices	0.00	0.06	0.42	0.43	0.03	0.07	2.45	2.43
65. Prioritize nursing diagnoses	0.10	0.06	0.25	0.32	1.13	0.07	1.42	1.80
66. Plan for performing nursing care	0.03	0.03	0.43	0.43	0.30	0.03	2.52	2.45
67. Encourage parents to identify	0.12	0.15	0.49	0.53	1.40	0.17	2.83	3.03
68. Assist to identify for activities	0.071	0.05	0.37	0.42	0.83	0.06	2.15	2.40
69. Refer to social worker or health	0.25	0.28	0.44	0.46	2.88	0.32	2.57	2.60

Note. Interpretation: Less than ± 3.29 (Tabachnick & Fidell, 2007)

Table 12 (*Continued*)

Variables	Skewness		Kurtosis		Skewness value		Kurtosis value	
	SE of skewness (.086)	SE of skewness (.088)	SE of kurtosis (.172)	SE of kurtosis (.175)				
	N=807	N=779	N=807	N=779	N=807	N=779	N=807	N=779
70. Assist the parents to identify	0.02	0.01	0.52	0.47	0.28	0.01	3.02	2.70
71. Evaluate nursing care to meet the	0.03	0.05	0.40	0.44	0.85	0.06	2.34	2.50
72. Explore whether parents desire	0.12	0.09	0.39	0.43	1.35	0.10	2.26	2.45
73. Prioritize nursing diagnoses	0.06	0.05	0.31	0.32	0.69	0.06	1.77	1.83
74. Plan for performing nursing care	0.15	0.15	0.52	0.52	1.73	0.17	3.02	2.98
75. Inform the place for spiritual	0.13	0.11	0.38	0.37	1.50	0.13	2.20	2.10
76. Encourage parents to pray	0.16	0.11	0.32	0.38	1.87	0.13	1.88	2.19
77. Evaluate nursing care to meet	0.10	0.10	0.48	0.50	1.12	0.11	2.76	2.84

Note. Interpretation: Less than ± 3.29 (Tabachnick & Fidell, 2007)

APPENDIX F

LINEARITY

Table 13

Comparisons of Linearity of each Item of the QNCS-HARIC (N=807, N=779)

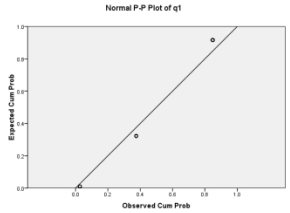
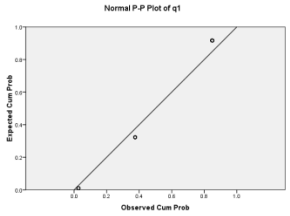
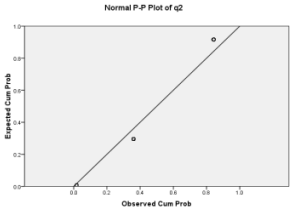
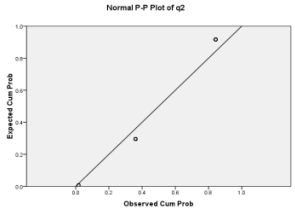
N=807	N=779
Items 1	Items 1
	
Items 2	Items 2
	

Table 13 (*Continued*)

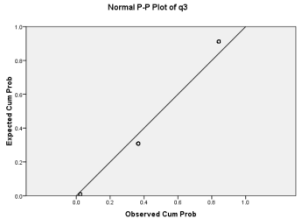
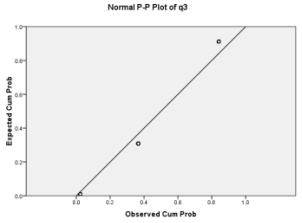
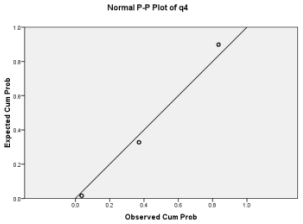
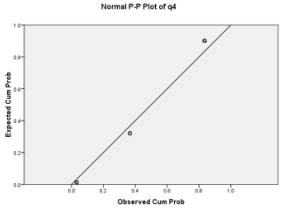
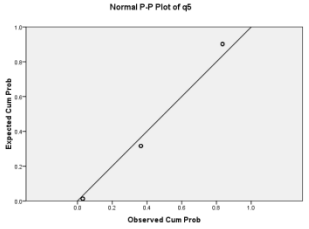
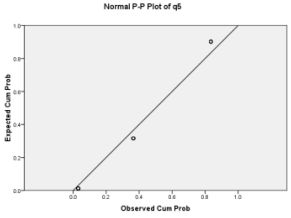
	N=807	N=779
Items 3		Items 3 
Items 4		Items 4 
Items 5		Items 5 

Table 13 (*Continued*)

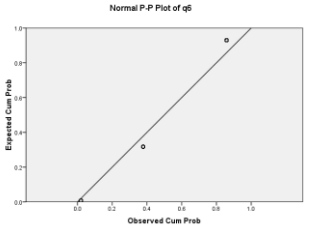
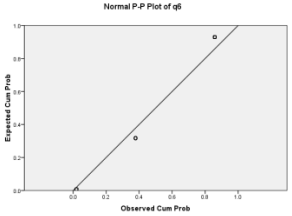
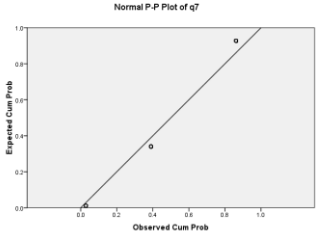
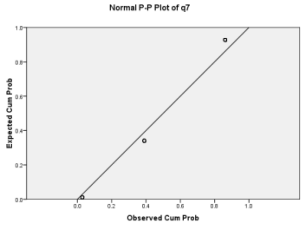
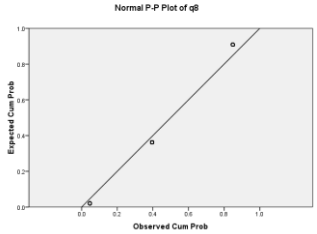
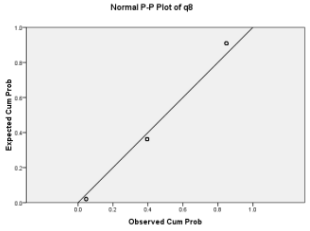
	N=807	N=779
Item 6		Item 6 
Items 7		Items 7 
Items 8		Items 8 

Table 13 (*Continued*)

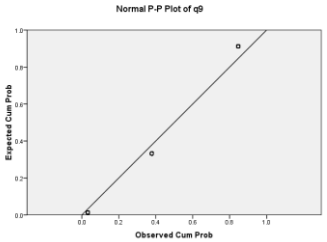
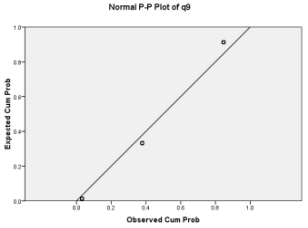
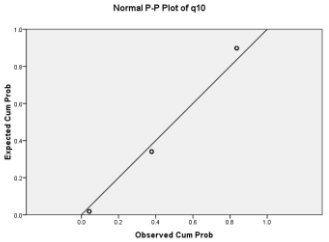
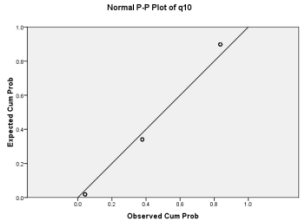
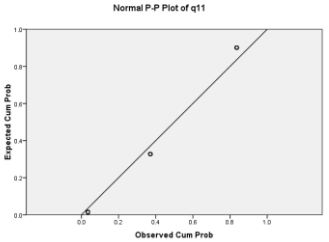
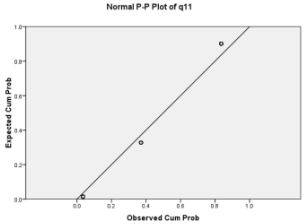
N=807	N=779
Items 9	Items 9
	
Items 10	Items 10
	
Items 11	Items 11
	

Table 13 (*Continued*)

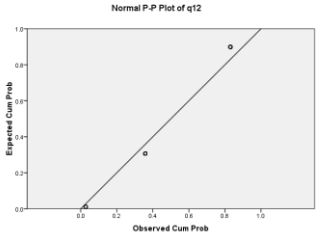
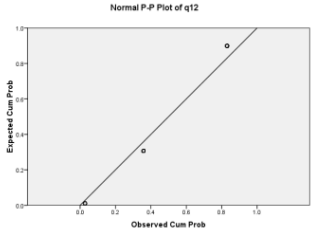
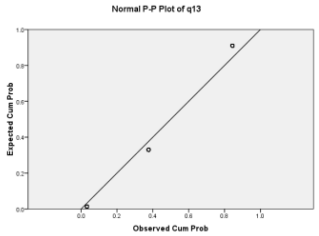
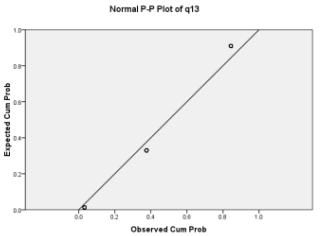
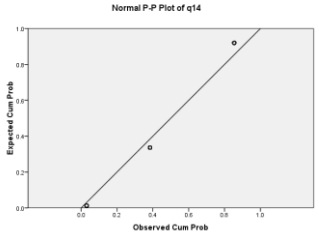
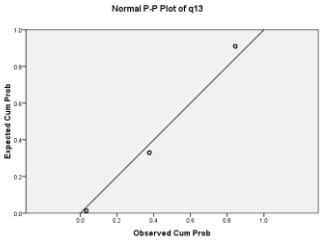
	N=807	N=779
Items 12		Items 12 
Items 13		Items 13 
Items 14		Items 14 

Table 13 (*Continued*)

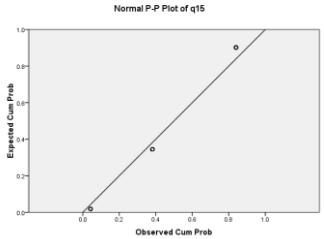
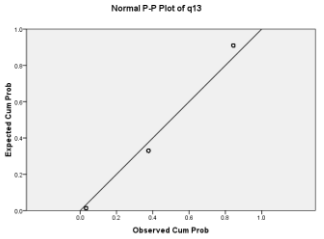
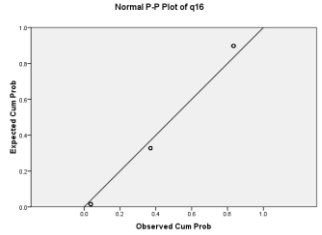
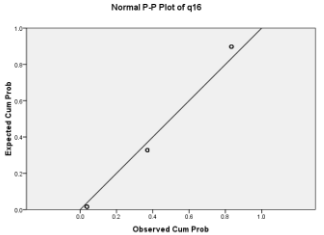
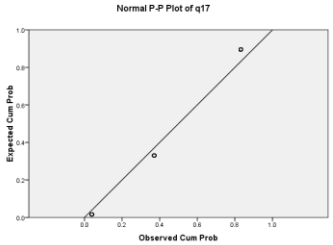
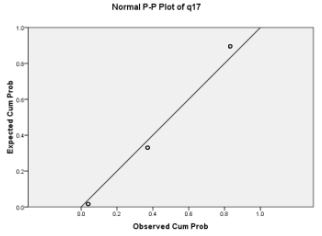
N=807	N=779
Items 15	Items 15
	
Items 16	Items 16
	
Items 17	Items 17
	

Table 13 (*Continued*)

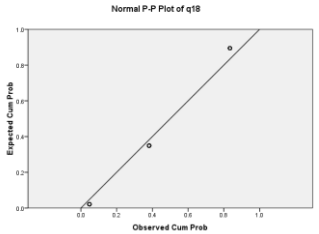
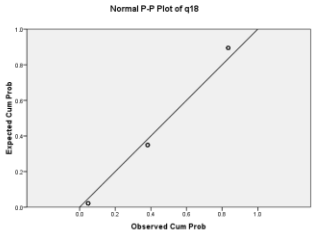
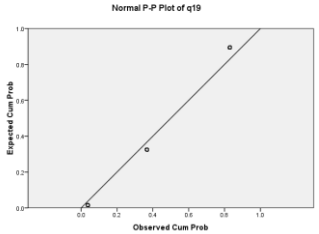
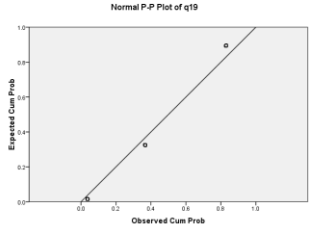
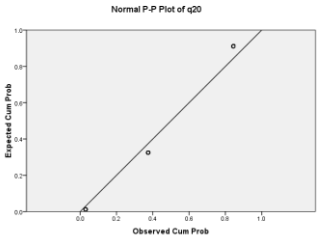
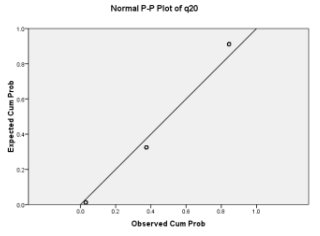
	N=807	N=779
Items 18		Items 18 
Items 19		Items 19 
Items 20		Items 20 

Table 13 (*Continued*)

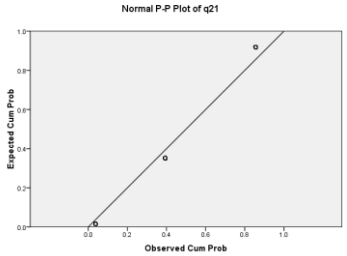
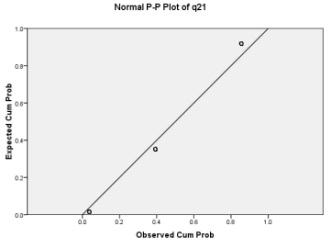
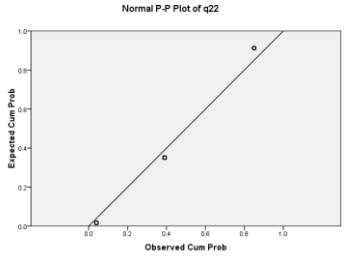
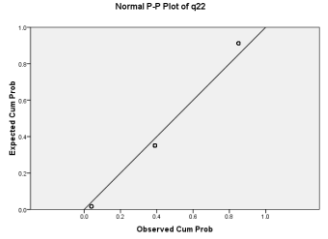
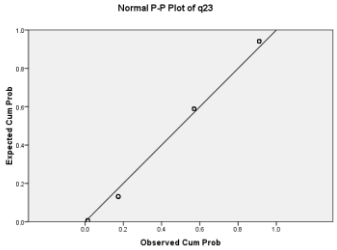
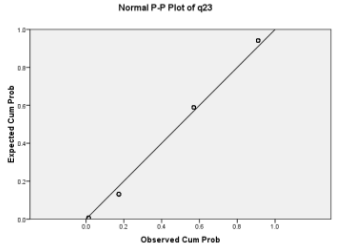
	N=807	N=779
Items 21		Items 21 
Items 22		Items 22 
Items 23		Items 23 

Table 13 (*Continued*)

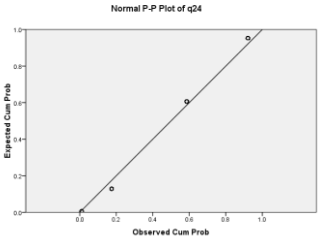
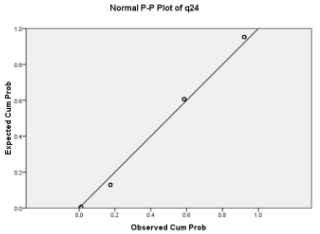
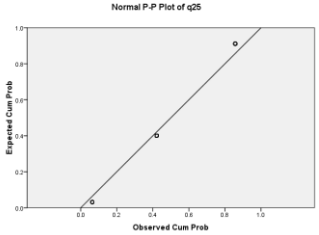
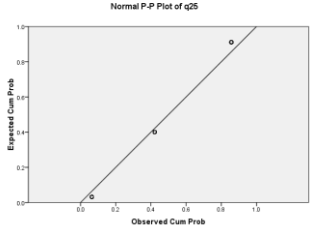
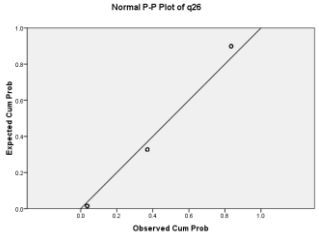
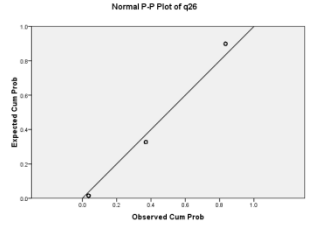
	N=807	N=779
Items 24		Items 24 
Items 25		Items 25 
Items 26		Items 26 

Table 13 (*Continued*)

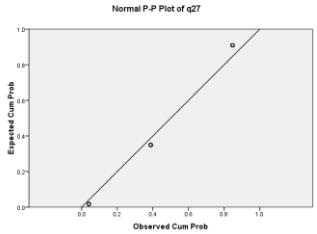
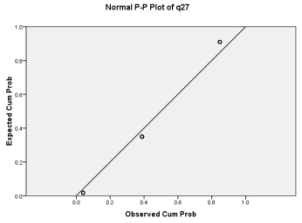
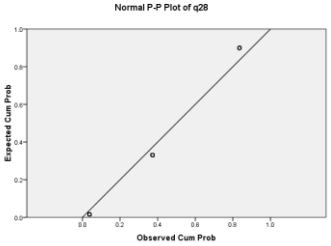
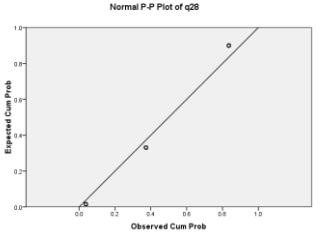
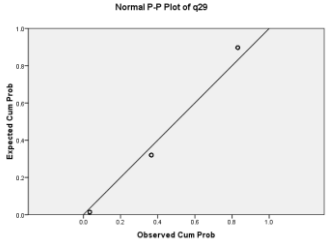
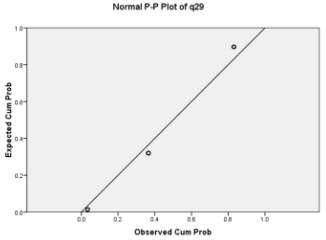
	N=807	N=779
Items 27		Items 27 
Items 28		Items 28 
Items 29		Items 29 

Table 13 (*Continued*)

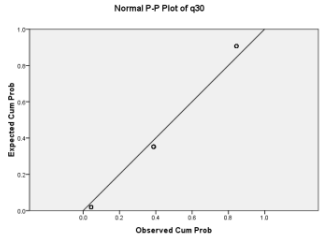
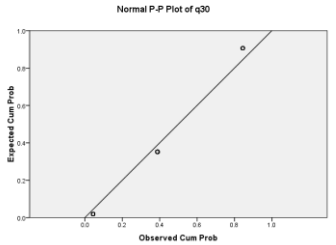
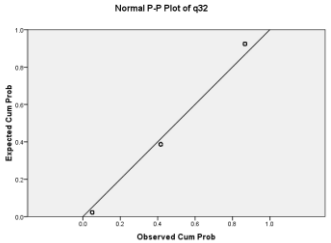
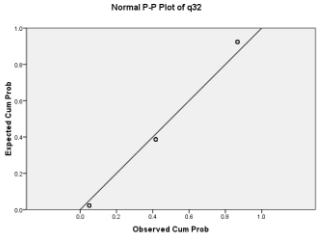
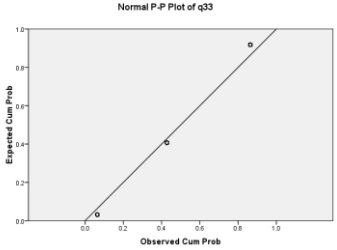
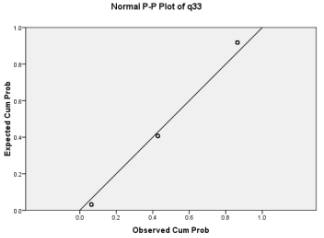
	N=807	N=779
Items 30		Items 30 
Items 31		Items 31 
Items 32		Items 32 

Table 13 (*Continued*)

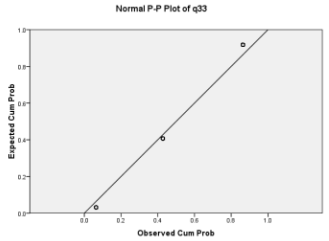
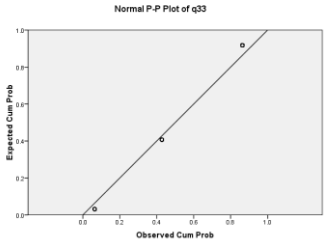
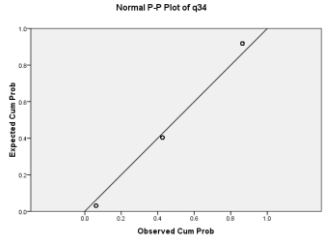
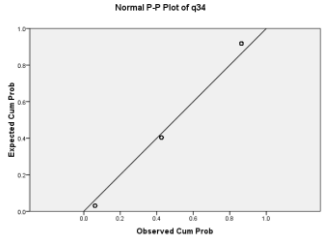
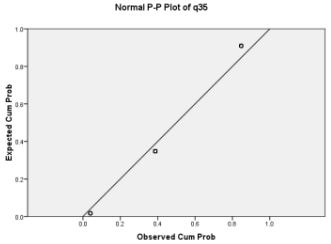
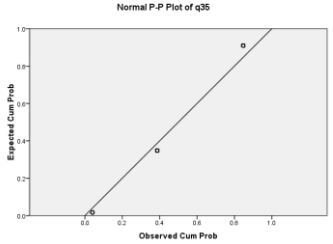
N=807	N=779
Items 33	Items 33
	
Items 34	Items 34
	
Items 35	Items 35
	

Table 13 (*Continued*)

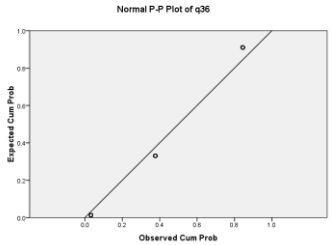
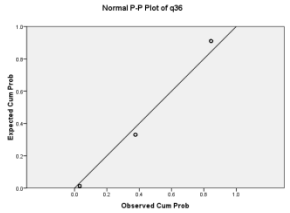
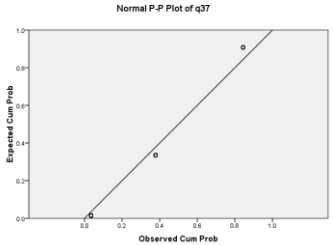
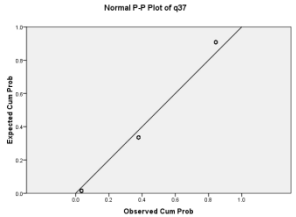
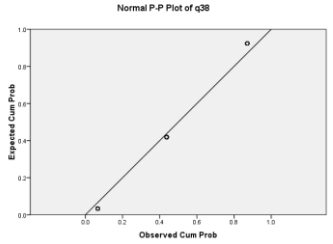
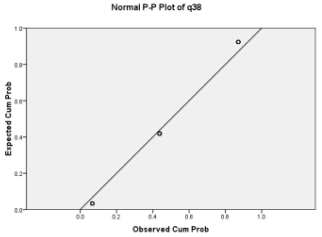
N=807	N=779
Items 36	Items 36
	
Items 37	Items 37
	
Items 38	Items 38
	

Table 13 (*Continued*)

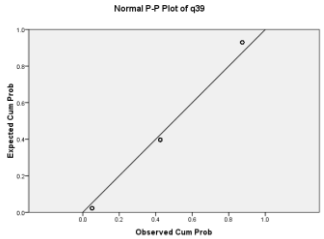
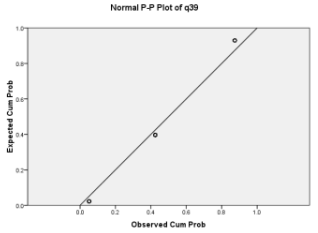
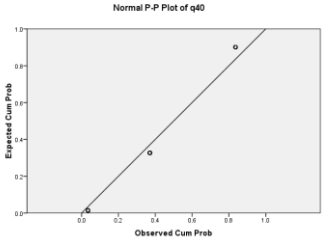
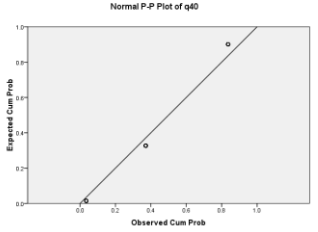
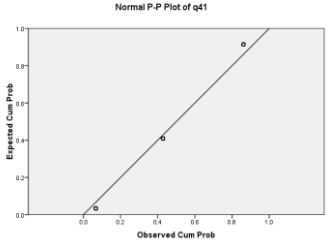
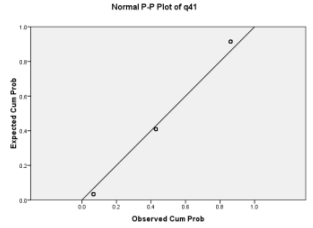
	N=807	N=779
Items 39		Items 39 
Items 40		Items 40 
Items 41		Items 41 

Table 13 (*Continued*)

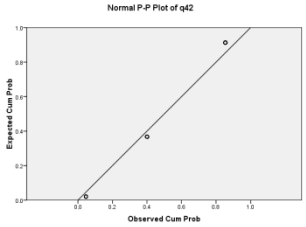
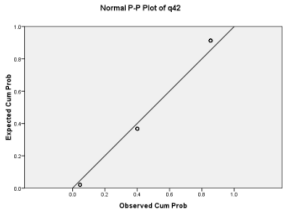
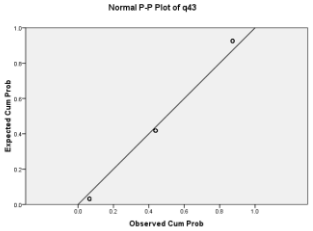
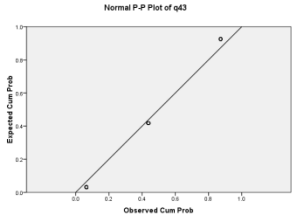
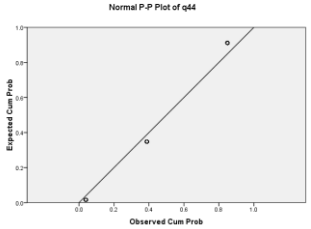
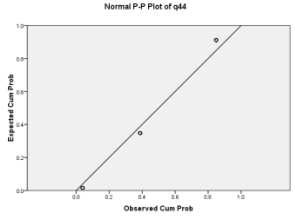
N=807	N=779
Items 42	Items 42
	
Items 43	Items 43
	
Items 44	Items 44
	

Table 13 (*Continued*)

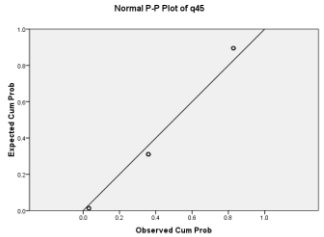
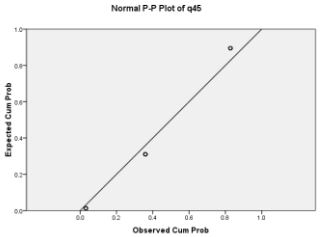
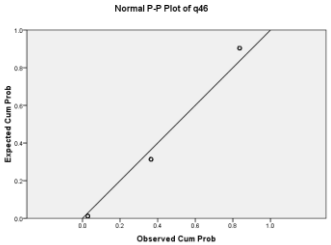
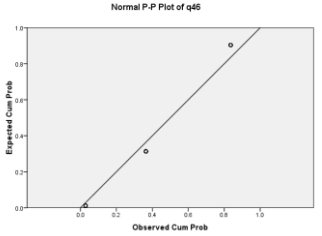
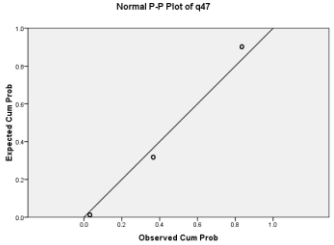
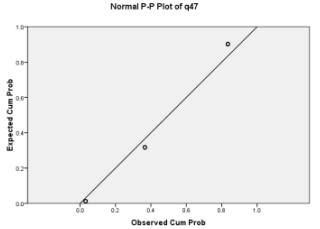
	N=807	N=779
Items 45		Items 45 
Items 46		Items 46 
Items 47		Items 47 

Table 13 (*Continued*)

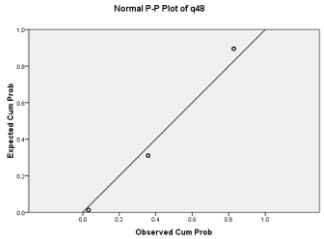
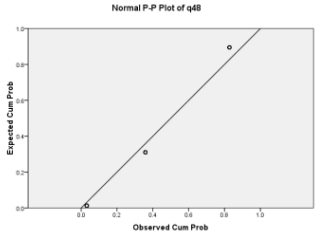
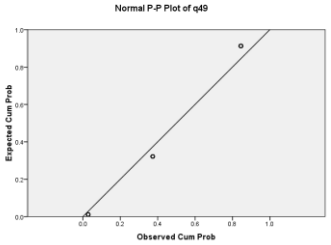
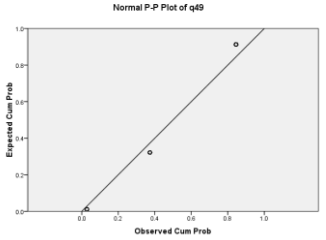
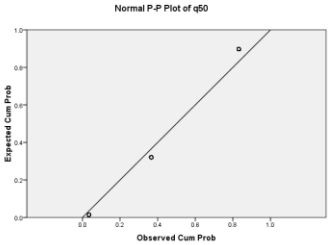
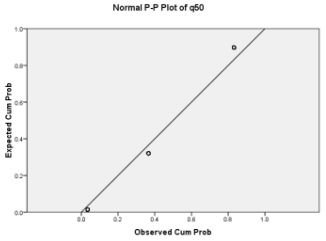
N=807	N=779
Items 48	Items 49
	
Items 49	Items 49
	
Items 50	Items 50
	

Table 13 (*Continued*)

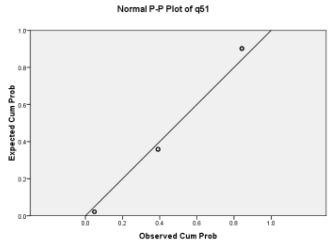
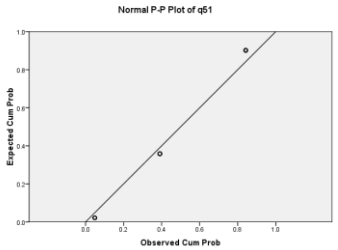
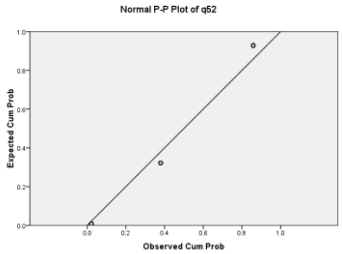
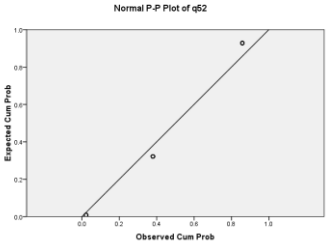
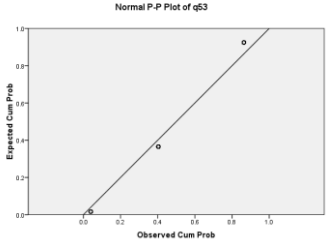
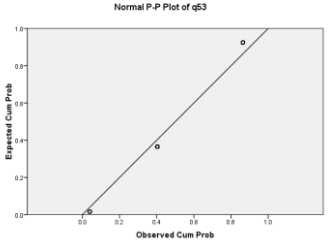
	N=807	N=779
Items 51		Items 51 
Items 52		Items 52 
Items 53		Items 53 

Table 13 (*Continued*)

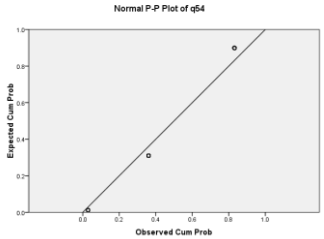
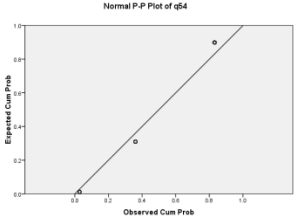
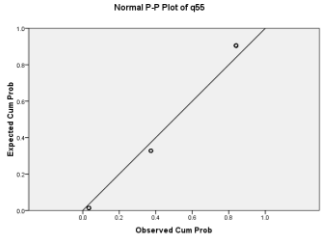
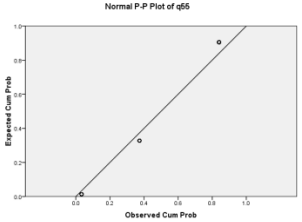
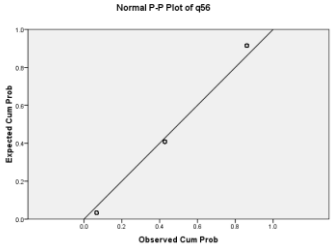
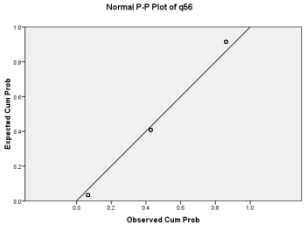
	N=807	N=779
Items 54		Items 54 
Items 55		Items 55 
Items 56		Items 56 

Table 13 (*Continued*)

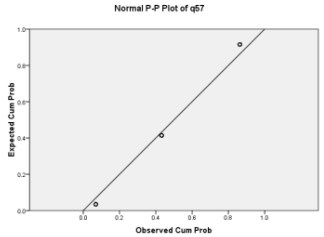
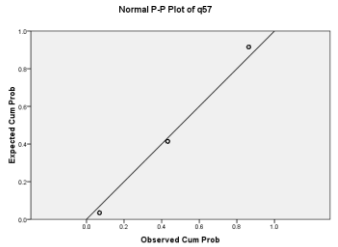
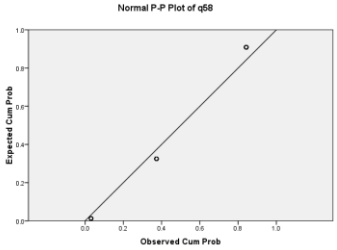
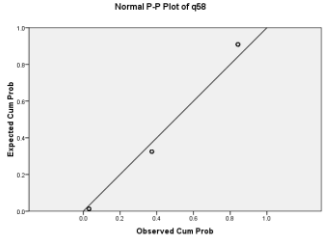
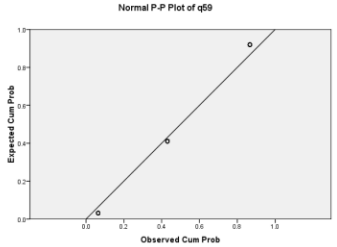
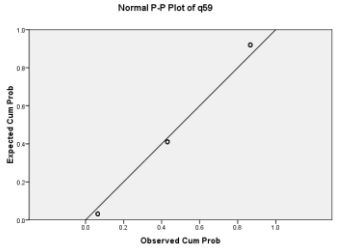
	N=807	N=779
Items 57		Items 57 
Items 58		Items 58 
Items 59		Items 59 

Table 13 (*Continued*)

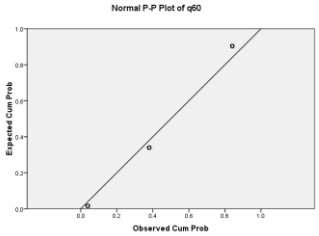
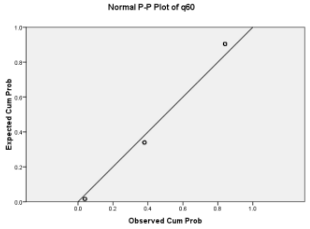
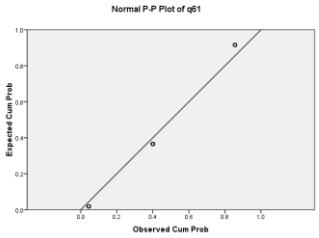
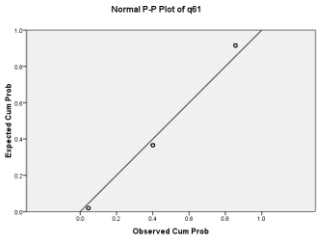
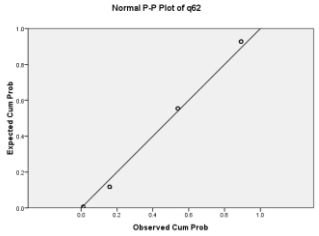
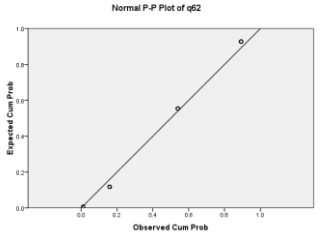
	N=807	N=779
Items 60		Items 60 
Items 61		Items 61 
Items 62		Items 62 

Table 13 (*Continued*)

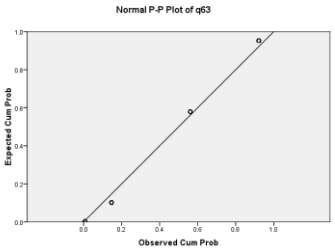
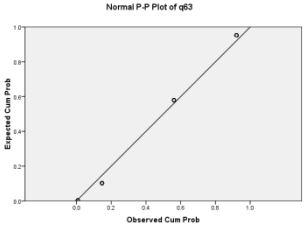
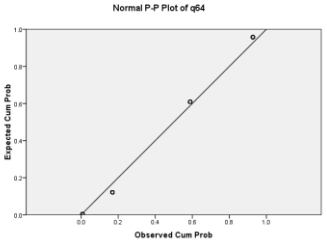
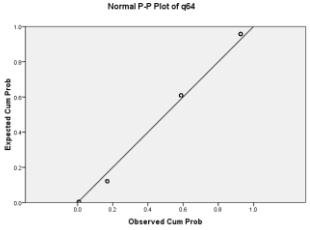
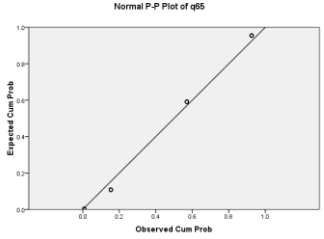
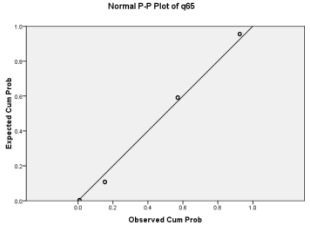
N=807	N=779
Items 63	Items 63
	
Items 64	Items 64
	
Items 65	Items 65
	

Table 13 (*Continued*)

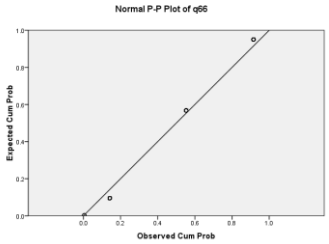
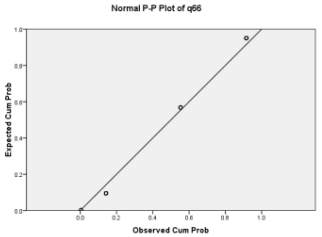
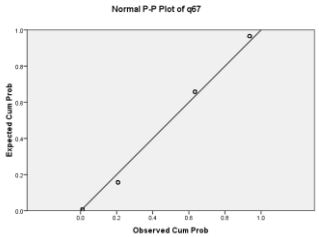
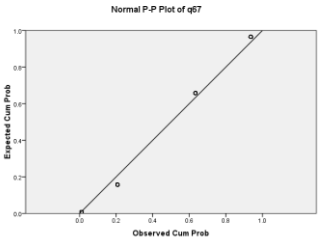
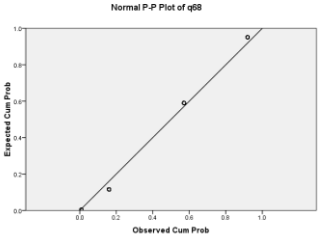
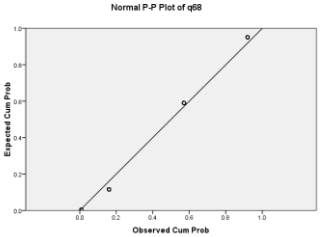
	N=807	N=779
Items 66		Items 66 
Items 67		Items 67 
Items 68		Items 68 

Table 13 (*Continued*)

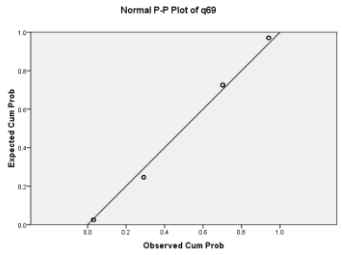
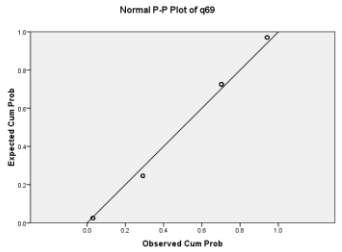
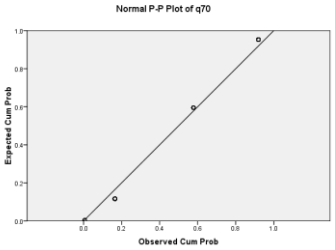
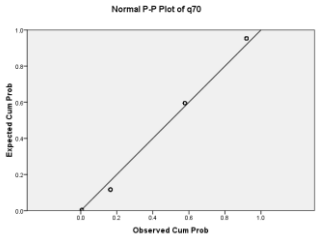
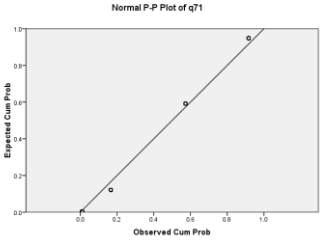
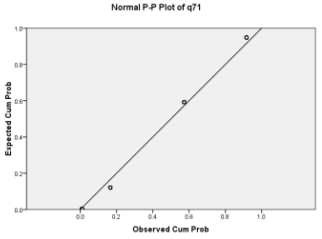
N=807	N=779
Items 69	Items 69
	
Items 70	Items 70
	
Items 71	Items 71
	

Table 13 (*Continued*)

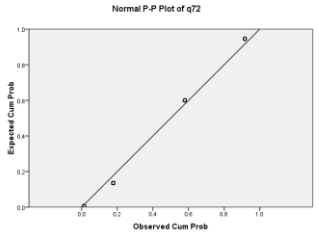
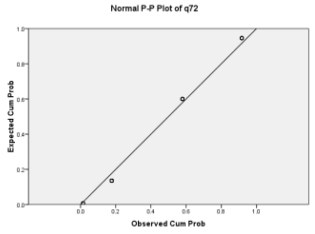
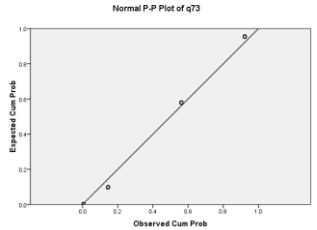
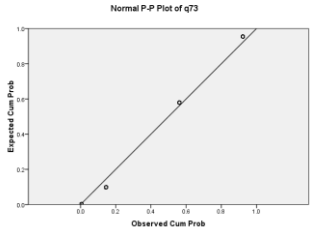
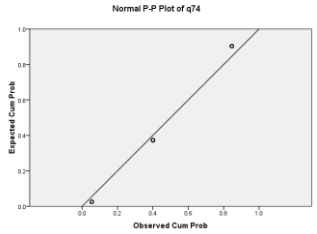
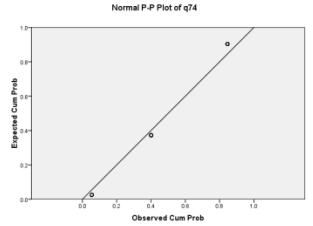
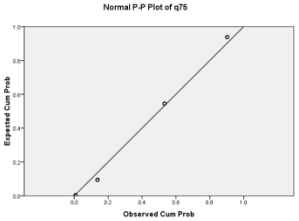
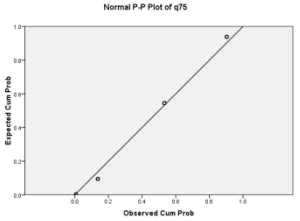
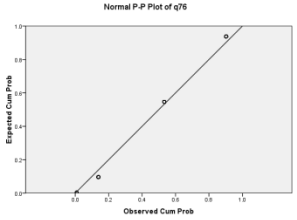
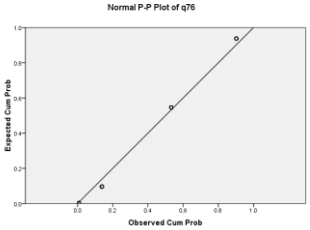
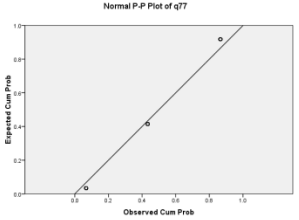
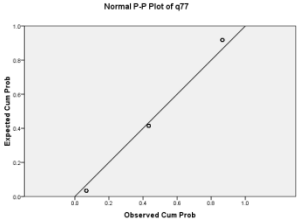
	N=807	N=779
Items 72		Items 72 
Items 73		Items 73 
Items 74		Items 74 

Table 13 (*Continued*)

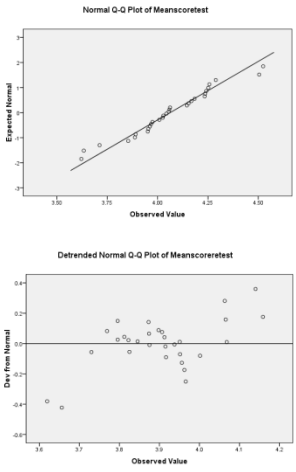
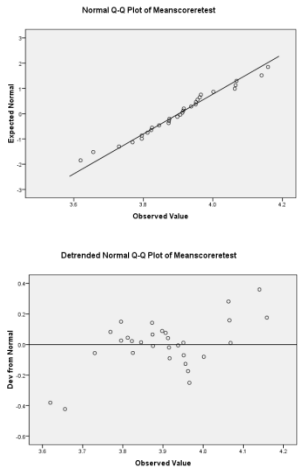
N=807	N=779
Items 75	Items 75
	
Items 76	Items 76
	
Items 77	Items 77
	

APPENDIX G

TEST-RETEST

Table 14

Summary of the Pearson Product-Moment Correlation Assumptions for Test-Retest of the QNCS-HARIC

Test	Time 1	Time 2
1.The data should be interval or ratio level of measurement	√	√
2. Normality	Skewness value= 0.02 Kurtosis value= 0.44	Skewness value= 0.16 Kurtosis value= 0.23
3. Linear relationship between the two variables		
4. Outlier	No outlier (box plot)	No outlier (box plot)

APPENDIX H

INDEPENDENT T-TEST ASSUMPTIONS

Table 15

Summary of the Independent t-test Assumptions for Contrasted Group Approach of the QNCS-HARIC

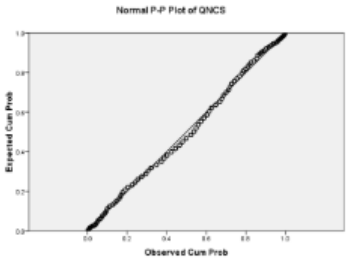
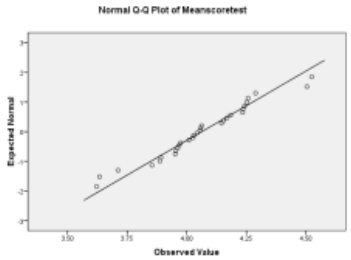
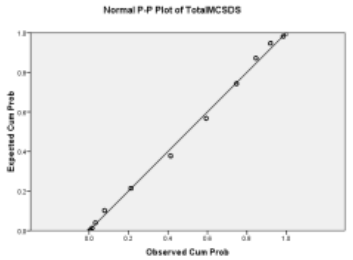
Assumptions for the Independent t-test	77 Items QNCS-HARIC		37 Items QNCS-HARIC	
	≥ 6 years (*N*=508)	<6 years (*N*=271)	≥ 6 years (*N*=508)	<6 years (*N*=271)
1. Dependent variable should be measured at the interval or ratio level	√	√	√	√
2. Independent variable should consist of two categorical, independent groups	√	√	√	√
3. Normal distribution	Skewness value= 2.49 Kurtosis value=2.91	Skewness value=1.65 Kurtosis value= 0.63	Skewness value=1.60 Kurtosis value=2.68	Skewness value=2.33 Kurtosis value=2.62
4. No outliers	No outlier (box plot)	No outlier (box plot)	No outlier (box plot)	No outlier (box plot)
5. Homogeneity of variance (Levene's test)	.041 Equal variances not assumed		.034 Equal variances not assumed	

APPENDIX I

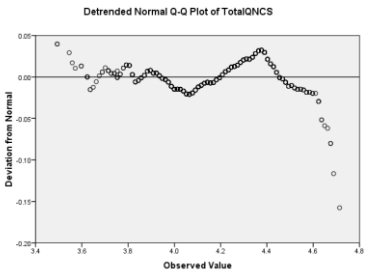
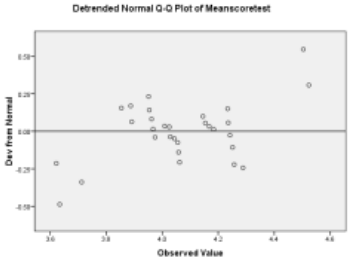
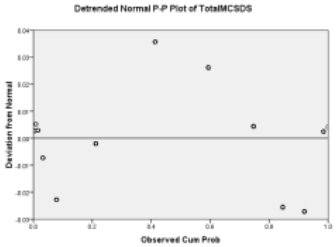
ASSUMPTIONS FOR SOCIAL DESIRABILITY TEST WITH QNCS-HARIC

Table 16

Summary of the Pearson Product-Moment Correlation Assumptions for Social Desirability Test with QNCS-HARIC

Assumptions testing	QNCS-HARIC 77 Items	QNCS-HARIC 37 Items	MCSDS 13 Items
1.The data should be interval or ratio level of measurement	√	√	√
2. Normality	Skewness value= 0.39 Kurtosis value= 1.98	Skewness value= 2.35 Kurtosis value= 1.57	Skewness value= 2.17 Kurtosis value= 0.44
3. Linear relationship between the two variables			

Tablel 16 (*Continued*)

Assumptions testing	QNCS-HARIC 77 Items	QNCS-HARIC 37 Items	MCSDS 13 Items
			
4. Outlier	No outlier (box plot)	No outlier (box plot)	No outlier (box plot)

APPENDIX J

LIST OF EXPERT PARTICIPANTS

Five Experts Participating on Content Validity of the Development and Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia:

1. Asst. Prof. Somchai Suntornlohanakul, MD
   Department of Pediatric, Prince of Songkla University, Thailand
2. Wisman Dirgantara Dalimunthe, MD
   Department of Pediatric, University of Sumatera Utara, Medan, Indonesia
3. Yeni Rustina, SKp., M. App.Sc, PhD
   Department of Pediatric Nursing, Faculty of Nursing, University of Indonesia
4. Nani Nurhaeni, SKp. MN, PhD (c)
   Department of Pediatric Nursing, Faculty of Nursing, University of Indonesia
5. Evry Susanti, S.Kep, Ns
   Pediatric Ward, Dr. Pirngadi Hospital, Indonesia

VITAE

Name	Dewi Elizadiani Suza
Student ID	5110430015

Educational Attainment

Degree	Name of Institution	Year of Graduation
Bachelor's Degree of Science Nursing (BSN)	Faculty of Nurning, University of Indonesia, Jakarta, Indonesia	1998
Master's Dergree of Science Nursing (MSN)	Faculty of Nursing, Prince of Songkla University, Hat Yai, Thailand	2003

Scholarship Awards during Enrolment

Project	Granting agency	Year
Directorate General Higher Education	Ministry of National Education Republic of Indonesia	2008-2010

Work-Position and Address

Nurse Lecturer, Faculty of Nursing, University of Sumatera Utara

Jln. Prof. Maas no. 3 Medan, Indonesia 20155

Mobile: +6281361769044

Email: elizadiani@hotmail.com

List of Published Paper and Proceeding

Suza, D. E., Punthmatharith, B., & Prateepchaikul, L. (2012, October 18-20). Development and Evaluation of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia: Preliminary Study. Oral presentation at *the 2012 Kunming International Nursing Conference "Modern Nursing Practice in Multicultural Societies*". Yijing Garden Resort & Spa *Hotel*, Kunming, China