

PENGEMBANGAN SKALA KUALITAS ASUHAN KEPERAWATAN UNTUK ANAK DI RUMAH SAKIT DENGAN INFEKSI SALURAN PERNAFASAN AKUT DI INDONESIA
(Development of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children in Indonesia)

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ABSTRAK

Pendahuluan: Instrumen QNCS-HARIC diharapkan menjadi alat yang potensial untuk memperoleh pengetahuan tentang kualitas asuhan keperawatan pada anak dengan infeksi saluran pernapasan akut (ISPA) dan dapat memberikan kontribusi untuk meningkatkan kualitas dalam praktek keperawatan dengan pendekatan partisipasi orang tua, terutama di Indonesia. **Metode:** Pengembangan QNCS-HARIC mengacu pada studi literatur, pertemuan pakar, telaah pakar, dan *pilot study*. **Hasil:** Empat dimensi dan 79 item yang dihasilkan: 1) kebutuhan fisik anak dengan ISPA (36 item), 2) kebutuhan psikologis anak dan keluarga dengan ISPA (26 item), 3) kebutuhan sosial budaya anak dan keluarga dengan ISPA (10 item), dan 4) kebutuhan rohani anak dan keluarga dengan ISPA (7 item). Hasil tersebut disetujui oleh lima orang pakar dan menghasilkan *indeks validitas* = 0.96. Setelah dilakukan CVI, QNCS-HARIC terdiri dari 78 item (2 item dihapus dari dimensi kebutuhan fisik pada anak dengan ISPA dan tambahan 1 item dari dimensi kebutuhan fisik pada anak dengan ISPA). Uji realibilitas 77 item QNCS_HARIC terhadap 30 perawat anak menghasilkan koefisien *alpha cronbach's* sebesar 0.94 dan masing-masing dimensi sebesar 0.94, 0.87, 0.79, dan 0.73. **Diskusi:** QNCS-HARIC dapat digunakan sebagai alat ukur untuk meningkatkan pemberian kualitas asuhan keperawatan pada anak, karena telah teruji secara psikometrik, sensitif, spesifik, akurat, obyektif, dan layak.

Kata kunci: skala kualitas asuhan keperawatan, infeksi saluran pernafasan akut, anak

ABSTRACT

Introduction: The QNCS-HARIC instrument is expected to be a potential tool for obtaining knowledge about quality of pediatric nursing care with acute respiratory infection (ARI) children and thereby contributing to improve quality in nursing practice with a more genuinely parental involvement approach, especially in Indonesia. **Methods:** Development of the QNCS-HARIC refers to literature review, expert panel meeting, experts' review, and pilot study. **Results:** Four dimensions and 79 items were generated: 1) the physical needs of ARI children (36 items), 2) the psychological needs of ARI children and family (26 items), 3) the socio-cultural needs of ARI children and family (10 items), and 4) the spiritual needs of ARI children and family (7 items). The validity was approved by five experts yielding the content validity index equals to .96. After performing the CVI, the QNCS-HARIC consisted of 78 items (deleting 2 items of the physical needs of ARI children dimension and additional 1 item of the physical needs of ARI children dimension). The reliability was tested with 30 pediatric nurses yielding alpha cronbach's coefficient of the overall QNCS-HARIC 77 items was .94 and each of dimension equal to .94, .87, .79, and .73, respectively. **Discussion:** 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.

Key words: Quality of Nursing Care Scale, Acute Respiratory Infection, Children

INTRODUCTION

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 sequelae, tendency of over-diagnosis, associated overuse and misuse of antibiotics, and its 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., 2012). 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; Yulianti, 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) lack of complete operational procedures for ARI (Hernani, Sudarti, Agustina, & Sariasih, 2009) and 2) 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 of the 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.

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.

MATERIAL AND METHOD

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. Development of the Quality of Nursing Care Scale for Hospitalized Acute Respiratory Infection Children consisted of 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, and 5) consider inclusion of validation items (DeVellis, 1991).

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.

The sample for the expert review consisted of two pediatrician who have provided care to ARI children for at least 6 years, one pediatric nurse who have provided nursing care to ARI children for at least 6 year, and two pediatric nurse lecturers who have taught nursing care of ARI children for at least 6 years.

Pilot study consisted of 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.

RESULTS

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).

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 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). 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 researcher 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.

The content validity of the QNCS-HARIC was performed by five experts. The acceptable Content Validity Index (CVI) of the QNCS-HARIC was .96. Two items of the QNCS-HARIC (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 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).

The back translation method was used to translate the original English version of the QNCS-HARIC into the Indonesian version (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 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 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.

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 Christian (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 ($M = 8.63$; $SD = 6.43$).

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.

DISCUSSION

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 & Vuoreneimo, 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.

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 Hausmann (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.

CONCLUSION AND RECOMMENDATION

Conclusion

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. The results of this study suggest that the newly-developed 77 items of QNCS-HARIC scale is reliable and valid. The reliability was tested with 30 pediatric nurses yielding alpha Cronbach's coefficient of the overall 77 items of the QNCS-HARIC was .94 and the physical, psychological, socio-cultural, and spiritual dimensions were .94, .87, .79, and .73, respectively. The QNCS-HARIC 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). There was not reported difficulty encountered during the process of collecting pilot testing data. The average time for a pediatric nurse to complete the pilot testing was approximately 45 to 60 minutes.

Recommendation

The results of pilot testing supported the readiness for constructing psychometric evaluation. 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.

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