An Analysis of Indonesian Rural Nurses' Competencies Across the Continuum of Care

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ABSTRACT

Background: In Indonesia, rural nurses provided continuum of care (CC) services to people with communicable diseases (CD) and noncommunicable diseases (NCD) including chronic lifelong conditions (CLC). Rural nurses' skills across the continuum of care are not fully developed. In addition, there is no inventory for rural nursing competencies across the continuum of care (RNCACC) that can be used to improve nursing education and to measure nurses' performance.

Purpose: The purpose of this study was to develop an inventory of RNCACC that is suited to nursing practice caring for people with CD, NCD, and CLC in rural Indonesia. The specific aims were: 1) to describe rural nurses' scope of practice, especially their roles and responsibilities in managing diseases and CLC, and understand their practice across the continuum of care; 2) to construct a pool of competency indicators across the continuum of care for people with CD, NCD, and CLC in rural areas covering knowledge, skills, and personal attributes; and, 3) to validate the RNCACC inventory.

Methods: This study used focus group discussions (FGD) with 16 rural nurses and nurse educators in a province to identify the scope of practice and areas essential for a RNCACC, followed by content analysis to create the RNCACC inventory. Face validity was done prior to Delphi rounds. Finally, 11 national rural nursing experts participated in two online Delphi rounds to determine the importance of each indicator on the RNCACC inventory, followed by quantitative analysis using content validity index (CVI) to evaluate consensus among the experts.

Results: Four themes were identified from the FGDs: 'care for individuals of all ages,' 'care for families,' 'care for communities,' and 'nursing practice unique to rural settings.' Caring for healthy and sick individuals across the lifespan in the form of wellness and episodic care appeared to be rural nurses' initial role in primary health care (PHC). Along with delivering care for families, rural nurses fostered long-term care that focused on involving a family's commitment to self-care, prompting family as the unit of care. Caring for family became a central role that paved their contribution across the continuum of care. Care for community enabled rural nurses to stretch their functions in disease prevention and health promotion to the population at large. The theme 'nursing practice unique to rural settings' covered advanced clinical and cultural nursing skills for practicing in rural settings, while balancing their role expansion in rural PHC facilities. The Delphi panelists were in agreement about 106 indicators across the seven domains on the RNCACC. These seven domains were episodic care, wellness care, long-term care, community care, communication and interpersonal, management and organizational, and caring. The 106 indicators mean ratings ranged from 3.090 to 4.00 (SD = 0.302 – 1.328) and most were highly connected with key aspects of continuum of care. The 106 indicators had a CVI ranging from 0.73 to 1.00 and the overall RNCACC inventory had a CVI of 0.954. The inventory development process is an important step to establish Indonesian rural nurse competencies across the continuum of care.

Final Examination Form

(The Dissertation Committee Members signed it)

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DEDICATION

This piece of work is lovingly dedicated to my late eldest sister, Maria Goretti Idah Luan, who suffered from diabetes and died from malaria falciparum on her 44th birthday in May 2004. Her case inspired me to give concern on nursing care in rural settings.

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CHAPTER ONE

Introduction

As a partial requirement to conclude of the Ph.D program, this dissertation report is submitted to the committee. In this document, the researcher presents six chapters. In Chapter one, the researcher provides a brief overview about dissertation's purpose and specific aims, three manuscripts, and conclusion. Chapter two presents the dissertation proposal, chapter three to chapter five presents the three manuscripts, and chapter six concludes this dissertation report.

In chapter two, the dissertation proposal "An Analysis of Indonesian Rural Nurses' Competencies Across the Continuum of Care" describes the research background and specific aims, research strategy that includes significance and conceptual framework, and approach including methods of data collection and analysis. Potential limitations and protection of human subjects were also included in this chapter. The dissertation proposal detailed the importance of doing this research project to help improve rural nursing practice. In Indonesia, rural nurses have dealt with the burden of communicable diseases (CD), noncommunicable diseases (NCD), and chronic lifelong conditions (CLC). The continuous high rate of chronic incurable diseases in rural areas implies that while there is a growing demand for services across the continuum of care, working in a health infrastructure with poor resources is very challenging for rural nurses. The challenge faced by rural nurses intensifies since they have received inadequate support to improve

their skills. With such limited support, under-skilled nurses serve rural areas, the quality of their performance and the health of rural people were at stake.

A program to improve and measure the quality of nurses' performance will assist rural nurses in providing high quality care to rural communities. However, to date no research data has explored the nature of rural nursing practice across the continuum of care. Measuring the quality of clinical performance requires standards and criteria, which begin with clearly identified competency indicators related to the continuum of care in a rural context. However, indicators for rural nursing continuum of care were not comprehensively captured in existing nursing competencies inventories. The purpose of this study was to develop rural nursing competencies across the continuum of care (RNCACC) inventory suited to nursing practice related to care of people with CD and NCD including CLC in rural Indonesia. This study's specific aims were: 1) to describe rural nurses' scope of practice, especially their roles and responsibilities in managing diseases and CLC, and understand their practice across the continuum of care; 2) to construct a pool of competency indicators across the continuum of care for people with CD, NCD, and CLC in rural areas covering knowledge, skills, and personal attributes; and, 3) to validate the RNCACC inventory, using Delphi method.

Chapter three, the first manuscript presents "Competency in Rural Nursing: An Evolutionary Concept Analysis." This manuscript provides a Rodgers' evolutionary concept analysis on competency in rural nursing practice. The concept analysis explores the concept of competence and competency, rural and rurality, attributes that most associated with competency in rural nursing, antecedents that precede the occurrence of

the concept of competency in rural nursing, consequences and empirical uses of the concept of competency, and model cases that were used to clarify the concept of competency in rural nursing. The definition of competency in rural nursing was described in the manuscript. The results of this concept analysis were used to develop the background, significance, and conceptual framework of this dissertation.

The second manuscript written in chapter four, "Rural Nurses' Roles and Responsibilities in Primary Care Facilities in Indonesia," describes rural nurses' scope of practice in managing diseases and chronic lifelong conditions. Specifically, it explores the roles and responsibilities of rural nurses across the continuum of care. This manuscript illustrates four themes that were identified from data gathered through focus group discussions: 'care for individuals of all ages,' 'care for families,' 'care for communities,' and 'nursing practice unique to rural settings.' Also, the findings that were derived from content analysis presented in this manuscript provide a landscape for developing pool of competency indicators to be used in Delphi study.

Chapter five presents the third manuscript, "Indicators for Rural Nurses' Competencies across the Continuum of Care (RNCACC)." This third manuscript presents the result from Delphi study that produced 106 indicators of RNCACC across the seven domains: episodic care, wellness care, long-term care, community care, communication and interpersonal, management and organizational, and caring.

In the conclusion chapter of this dissertation, the researcher described an overview of the most important findings from the first manuscript, the results of the

second manuscript that described rural nurses' scope of practice, and the results of the third manuscript regarding indicators related with RNCACC.

CHAPTER TWO

Research Proposal

An Analysis of Indonesian Rural Nurses' Competencies Across the Continuum of Care

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On my honor, as a student, I have neither given nor received unauthorized aid with this project.

- *Bernadethe Marheni Luan*

Abstract

The purpose of this study is to develop an inventory of Indonesian rural nurses' competencies across the continuum of care (RNCACC)--that is suited to nursing practice related to care of people with both communicable diseases (CD) and non-communicable diseases (NCD) including chronic lifelong conditions (CLC) in rural Indonesia. The increase of NCD is a serious problem, which is confounded by CD causing an increase of incurable and chronic conditions that requires lifelong treatment. Rural nurses are often the only healthcare providers their patients encounter. However, in low-resource settings nursing education is underdeveloped, there are no clear standards for what rural nurses need to know and do, and there is not a set of rural nursing competencies across the continuum of care for NCD and CD that have the propensity to develop to CLC. Having an inventory for competencies across the continuum of care for rural nursing will provide both a basis for improving nursing education and a standard for measuring nurses' performance. The study will use focus group discussions with local rural nurses to identify areas essential for an RNCACC, followed by content analysis to create the RNCACC inventory. Finally, a national expert panel will participate in 2-5 Delphi rounds to determine the importance of each indicator on the RNCACC inventory. The final RNCACC inventory will help nurses deliver high quality care to people with both CD and NCD in rural areas.

Keywords: rural nursing, chronic lifelong diseases, continuum of care, competency inventory, Delphi.

Introduction

Both communicable diseases (CD) and noncommunicable diseases (NCD) affect the mortality, morbidity, and disability rates in rural areas of Indonesia (Ng et al., 2006; WHO, 2011). Using the disability-adjusted life year (DALY), the World Health Organization (WHO) calculated that in low-income countries, both communicable diseases (*i.e.,* HIV/AIDS, TB, and malaria) and noncommunicable diseases (*i.e.,* ischemic heart diseases) become the largest source of burden of diseases (WHO, 2008). HIV/AIDS ranks third (42.9 million or 5.2 % of total DALYs), malaria ranks fourth (32.8 million or 4.0% of total DALYs), ischemic heart disease ranks ninth (26.0 millions or 3.1% of total DALYs), and TB ranks tenth (22.4 millions or 2.7% of total DALYs). The proportion of burden of NCD in low-income countries is estimated to increase from 31% in 2002 to be 45% in 2030 (Bygbjerg, 2012). WHO estimates that while HIV/AIDS, TB, and malaria contribute to the burden of CD in Indonesia, NCD are estimated to account for more that half of all deaths (WHO, 2012; WHO, 2011). In 2011, there were an estimated 1.3 million incident cases, 2.1 million prevalent cases, and 214,000 deaths caused by TB (WHO, 2012). The number of people living with HIV/AIDS increased dramatically from five cases in 1987 to 16,111 in 2008, and currently 32 out of 33 provinces have reported AIDS cases (WHO-SEARO, 2007).

With regard to malaria, more than 75% of 576 districts have been malaria endemic, most of which are in the eastern provinces where the majority of the population live in rural and remote areas (Firman, 2008). Most of these eastern provinces have been identified as having the highest annual parasite incidence (API). API refers to the number

of malaria parasites per 1,000 people, a malaria surveillance indicator for measuring the true incidence of malaria (Depkes R.I., 2010; Watt & Dye, 2000). With regard to NCD, while the prevalence of hypertension is 29.8%, the prevalence of cardiovascular diseases (CVD) is 7.2%. CVD has become the main cause of diseases since 1992. The Diabetes mellitus affected 8.4 million people in 2000 and is projected to be about 21.3 million in 2030 (Depkes R.I., 2008; Sari, Setyawati, & Primasari, 2006; Wild et al., 2004). The prevalence of NCD such as diabetes mellitus and CVD was reported to increase in rural and remote areas of Indonesia (Depkes R.I., 2008; Ng et al., 2006; Soegondo, Widyahening, Istiantho, & Yunir, 2011).

The dual burdens of CD and NCD become even more challenging with increase of drug resistance, coinfections among CD, and comorbidity between CD and NCD, which together result in worse outcome. The literature suggests that while HIV-TB coinfection is the most prevalent among low-income patients, HIV-malaria and HIV-TB-malaria coinfections are similar in both low and high-income patients (Mulumba et al., 2012). Due to the breakdown of the immune system, patients that have concurrent infections with more than one pathogen have a more severe form of disease (Mulumba et al., 2012). For example, HIV infection increases the risk of developing severe malaria and raises the mortality rates among malaria patients up to 2.5 fold (Valadas et al., 2013). HIV patients coinfected with TB are at risks for fatal adverse reactions to antituberculosis drugs and often develop multidrug resistance (Mulumba et al., 2012). Globally, It was reported that between 2000 and 2004, 10% of patients with multidrug resistance of TB (MDR-TB) were resistance to three of six classes of second line TB drugs (XDR-TB) (Mlambo et al., 2008). Several infectious agents (*i.e.*, human papilloma virus) cause

cancer, antiretroviral in HIV-infected patients increase the risk of heart diseases and cancer, and recurrent malaria with inadequate treatment leads to kidney diseases (Weiss & Goodnough, 2005; Yach, Hawkes, Gould, & Hofman, 2004). While several CD leads to chronic diseases, most NCD such as diabetes and cardiovascular diseases are chronic and incurable that require lifelong health services (Daar et al., 2007; El-Jawahri, Greer, & Temel, 2011; Janssens et al., 2007).

In Indonesia, the estimate of HIV-positive incidence TB cases was 46,000 (WHO, 2012), and most hospitalized AIDS patients had TB (Depkes R.I., 2003). The largest percentage of TB case referrals (41%) came from public health centers or community hospitals (Adrian et al., 2007). The emergence of TB strains resistant to multiple drugs (MDR-TB) in rural areas has been reported (Ahmad, 2011; Ardian et al., 2007; Depkes R.I., 2007; Depkes R.I., 2009; WHO, 2012; WHO, 2006a). Malaria multidrug resistance has been identified in all provinces largely because of self-treatment behavior and inadequate healthcare services in rural settings (Utarini, Winkvist, & Ulfa, 2003; WHO-SEARO, 2009). As a result, rural areas in the eastern provinces carry a heavier burden because they have less-developed healthcare infrastructure and services than the western provinces have. Further, the disease burden increases the tasks of health providers, including nurses, who work in low-resource healthcare setting (Husain, Hasanbasri, & Soetjipto, 2006; Oomman, Lule, Vazirani, & Chhabra, 2003).

As the largest group of healthcare providers, rural nurses have dealt with the burden of CD and NCD that have propensity to develop to chronic lifelong conditions (CLC). Researchers report that globally, the proportion of nurses in rural areas is higher

than that of other health professionals (WHO, 2010). In Indonesia, nurses comprise the majority of the health workforce (54%), and they work in a wide range of healthcare settings. Almost half the nurses work in public health settings, in health facilities with either inpatient or outpatient services (Depkes R.I., 2012; Husain et al., 2006). In the remote public health centers and their satellites (subcenters), nurses comprise 31-54% of the total number of healthcare providers (Husain et al., 2006). As the largest group of healthcare providers, rural nurses have managed CD, NCD, and CLC. Nurses identify persons at risk, assess and do diagnostic testing, diagnose and treat diseases with drug, and provide palliative care (Araoyinbo & Bateganya, 2008; Delobelle et al., 2009; Campbell, Merwin, & Yan, 2009; Indrati, 2004; Kyabayinze et al., 2010; Nyamathi et al., 2008; Rashid, 2010; Sanne, et al., 2010; Schellenberg et al., 2004; ; Sciortino, 1995; Strasser, London, & Kortenbout, 2005; Talashek et al., 2007; Vallema, Durheim, & Smith, 2008; Young, Kock, & Preston, 2007;).

While the function of rural nurses is important in combating diseases, rural nurses face many difficulties. The literature provides evidence that despite the effort to improve healthcare systems, many countries still face challenges to ensure the presence and distribution of sufficiently skilled health workers in rural areas (Chhea, Warren, & Manderson, 2010; Kruk & Freedman, 2008; Lehman, 2008; WHO-EURO, 2010; WHO-SEARO, 2011; WHO, 2006b; WHO, 2010). Further, many issues that hamper rural nurses have been identified in the literature. First, there are professional issues such as lack of career structure and professional isolation (Daffield & O'brien-Pallas, 2002; Wolfenden, Blanchard, & Probst, 1996). Second, there are organizational issues such as insufficient role models, limited opportunities for and access to continuing education, and

inadequate supervision in work settings (Hegney, McCarthy, Rogers-Clark, & Gorman, 2002; Hannessy, Hicks, Hilan, & Kawonal, 2006; Kerse, Luan, & Lawintono, 2008; Lea & Cruisckshank, 2007;).

In Indonesia, nurses face barriers to training, which becomes evident in nurses' level of educational attainment. Nationally, only 1% of 308,306 nurses have a master degree, 10 % of nurses have a baccalaureate degree, and 38% of nurses hold a diploma in nursing. By proportion of educational background, rural nurses lag behind compared to their urban counterparts. Only a slight majority of rural nurses (51%) have a high school degree (Hannessy et al., 2006; Pusdiknakes, 2002). These shortcomings likely hinder the rural nurses development of competency leading to low service performance. Even more serious is the notion that underskilled healthcare workers, including nurses in rural areas, may contribute to the persistence and re-emergence of CD and worsening of NCD (WHO-SEARO, 2011). This insufficiency of training requires an approach to improving the quality of performance by nurses. The most important step in successfully measuring rural nurses' performance related to CD and NCD that have propensity to develop CLC is the formulation of a clear definition of their competency.

Currently, there is no clear definition of competency in global rural nursing. Without a definition of competency, the instruments cannot assess comprehensively nursing competencies: skill, knowledge, and general aptitude (Takase & Teraoka, 2011; Zhang, Luk, Arthur, & Wong, 2001). A clear definition of competency is required to establish the components and indictors of competencies, the competency inventory. The competency inventory will serve as a basis for improving nurses' quality performance;

though training program enhancement, recruitment and placement process, and performance appraisal. However, existing inventories such as the Nurse Competence Scale (NCS) and Inventory for Critical Access Hospital (Hurme, 2009; Meretoja, Isoaho, & Leino-Klipi, 2004) were not designed to measure rural nursing competencies across the continuum of care for patients with CD, NCD, and CLC, so they are not comprehensive enough to cover all diseases process. The diseases process includes the prepathogenesis period (preclinical stage) and the period of pathogenesis (clinical stage). To cover the disease process requires an application of the three levels of prevention approaches, promotive-preventive, curative, and rehabilitative (Leavel & Clark, 1965; Neuman & Fawcett, 2002; Offord, 2000). In addition, an existing rural nursing inventory (Hurme, 2009) does not include indicators relevant to different stages of clinical competency in rural nursing practice, from novice to expertise. Thus, to fill this void, the proposed study is designed to develop a rural nursing competency inventory featuring fundamental categories related to nursing practice and care interventions in rural areas: the knowledge, skills, and personal attributes. Also, the inventory will cover five stages of clinical competency and three levels of prevention of CD, NCD, and CLC. This dissertation proposal presents details of the proposed study, "An Analysis of Indonesian Rural Nurses' Competencies Across the Continuum of Care".

Specific Aims

In rural Indonesia, double burden of communicable diseases (CD) and noncommunicable diseases (NCD) are a challenge to rural nurses because of the CD and NCD collective contributions to the increased number of people living with chronic

conditions (WHO, 2008). A trend toward increased cases of coinfections among CD (*i.e.,* HIV-TB-malaria) and comorbidity between CD and NCD (*i.e*., HIV-diabetes) have contributed to the double burden of diseases (Ardian et al, 2007; Ahmad, 2011; Janssens et al., 2007; UNAIDS, 2011; WHO, 2008). Several CD with recurrent infection and inadequate treatment (*i.e.,* severe malaria leading to chronic anemia and kidney diseases) or CD with slow disease progression (*i.e*., resistance to at least three anti-TB drugs that typically incurable) requires lifelong health services (Janssens et al. 2007; Mlambo et al., 2008; Siegel, 2002). Most NCD (*i.e*., cardiovascular and diabetes) affect people over an extensive period of time (Daar et al., 2007; Van Olmen et al., 2012). In fact most NCD are incurable chronic lifelong conditions, which results in decreased quality of life, often ending as a terminal illness that requires palliation (El-Jawahri, Greer, & Temel, 2011; Weiss & Goodnough, 2005). The double burden of continuous high rates of CD and the proliferation of chronic incurable diseases in rural areas implies that working in a health infrastructure with poor resource is very challenging for health workers, including rural nurses.

The challenge faced by rural nurses intensifies since they have received inadequate support to be able to care for their complex patients (WHO-EURO, 2010; WHO-SEAEO, 2011). Research across several nations indicates that rural nurses still have limited access to training, role models, and supervision in their work settings (Hannessy et al., 2006; Hegney et al., 2002; Kerse et al., 2008; Lea & Cruisckshank, 2007). With such limited support, underskilled rural nurses will contribute to healthcare error tenacity and the reemergence of CD and worsening of NCD diseases will seemingly be inevitable (Wakefield, 2002; WHO-SEARO, 2011). A program to improve and

measure the quality of nurses' performance will not only assist rural nurses in providing high quality care to rural communities but can also guide improvements in the rural health system as a whole (Koplan et al., 2009). Measuring the quality of clinical performance requires standards and criteria, which begin with clearly identified competency indicators related to the continuum of care for patients with CD and NCD that have propensity to develop to chronic lifelong conditions in a rural context.

Existing competency inventories were not designed to measure nursing competencies related to continuum of care in the context of rural nursing practice. The International Council of Nurses (ICN) has developed frameworks and core competencies for generalist nurses and nurse specialists (ICN, 2009). The first framework includes competencies expected for nurse generalists at the point of entry into professional practice. The second framework was designed for the nurses who practice as specialists with advanced expertise in a branch of nursing. The same template was used in both ICN's competencies frameworks, which assemble competencies under three groups. The first group consists of professional, ethical, and legal practice. The second group includes care provision and management. The third group comprises professional, personal and quality development. In developing the second framework, ICN compared some existing competency frameworks developed by specialty groups (*i.e.,* older adult nurse specialists). It appears that most areas of specialty emphasized the domain of care provision and management to portray their scope and standard of practices (ICN, 2009). Health promotion is subsumed under the domain of care provision and management. Researchers have used the ICN's framework to guide and develop additional competencies and inventories (ICN, 2009; Liu et al., 2007).

While some inventories were designed for urban hospital settings, only one inventory, competencies for rural nursing practice for critical access hospital, that was developed by Hurme was suited to the critical access hospital in rural setting (Hume, 2009; Meretoja et al., 2004; Schriwian, 1978; Takase & Teraoke, 2011). However, this rural nursing inventory was designed for curative and rehabilitative care with little information about competency indicators related to promotive-preventive care. Working in rural areas requires nurses to provide comprehensive health services covering levels of prevention, from promotive-preventive to curative and rehabilitative. Designing the overall level of prevention in a competency inventory is essential because rural nurses care for patients of all ages and across illness episodes. They also analyze health determinants and involve community participation aiming to protect and promote health collectively (Barnes, 1995; Howie, 2008b; Ross, 2008).

The purpose of this study was to develop an inventory of Indonesian rural nurses competencies across the continuum of care (RNCACC) for CD and NCD including chronic lifelong conditions. There are at least two reasons for addressing both CD and NCD. First, both CD and NCD have been leading cases of mortality and morbidity. Second, there is a trend toward increased multidrug resistance, coinfections among CD, and comorbidity between CD and NCD that causes an increase of incurable and chronic condition cases. The components of the RNCACC inventory will depict fundamental categories related to nursing practice and care interventions in rural areas across the continuum of care; the components will cover the three levels of prevention: preventive-promotive, curative, and rehabilitative (Leavel & Clark, 1965; Neuman & Fawcett, 2002). In addition, for the long run, this inventory will identify competency indicators

associated with rural nurses at five stages of clinical competency; novice, advanced beginner, competent, proficient, and expert (Benner, 1982). Thus, the indicators will evaluate both the performances of rural nurses across the three levels of prevention and their stage of clinical competency for each indicator. This study's specific aims are as follow:

1. To describe the role and scope of the practice of rural nurses related to the responsibilities of rural nurses in initiating and managing patients with CD, NCD, and chronic lifelong conditions in rural Indonesia across three levels of prevention to understand their practice across the continuum of care.
2. To construct a RNCACC inventory with a pool of competency indicators across the continuum of care, depicting indicators associated with the three levels of prevention and covering knowledge, skills, and personal attributes.
3. To validate the RNCACC inventory's relevance to rural nursing practice across the continuum of care.

Innovation

This study is innovative because it provides an initial development of a new inventory called RNCACC. This new inventory will reflect three important features necessary for rural nurses' professional performance and development. First, it will holistically capture the competency of rural nurses related to communicable diseases: knowledge, skills, and personal attributes. Second, it will depict five stages of rural nurses' stage of clinical competency; novice, advanced beginner, competent, proficient, and expert. Third, in particular, the development of the RNCACC inventory is designed

to provide indicators that are missing or overlooked in the existing nursing competency and rural nursing competency inventories. This third feature will reflect the context of rural nursing practice by representing levels of prevention; the promotion-preventive, curative, and rehabilitative aspects of nursing care. Many existing inventories cover either the first features (skills, knowledge, and attitudes) or the second features (stages of clinical competency). Adding the third feature is essential because rural nurses normally care for patients of all ages, provide a full range of primary healthcare, and analyze multiple health determinants (Howie, 2008b). Thus, while providing promotion-preventive, curative, and rehabilitative care to individuals and families, nurses mobilize people and provide services in communities beyond health education to address the health-related problems.

Additionally, the proposed study contributes to the construction of an innovative solution to a healthcare problem through its conceptual framework (Figure 1) for the RNCACC inventory and its methods of data collection. The conceptual framework combines two well-known conceptual models, the structure-process-outcome (SPO) model (Donabedian, 1978) and Benner's competency framework (Benner, 1984). This combination creates a unique framework to evaluate rural nurses' performance in the delivery of care. In the collection of data, the innovative features are the use of focus group discussion (FGD) and the Delphi method of validation. The panel of experts of the Delphi method will include national nursing experts to capture overall situations of rural nursing competencies in comprehensive manner.

Three different types of participants will engage in FGD to enrich the result from the literature review as a basis for formulating the initial pool of indicators of the core competencies. The idea of using FGD in this study is based on evidence from the literature. Generally, researchers who developed competency inventories used either one of the following activities to create a pool of indicators: (1) reviewing the existing competency instruments, nursing standards, and clinical nurse job descriptions or (2) observing nursing practice (Dunn et al., 2000; Fasan et al., 2012; Hume, 2009; Takase & Teraoke, 2011). Other researchers such as Meretoja, Eriksson, & Leino-Klipi (2002) used semi-structured questionnaires with expert groups. Akamine et al. (2012) used only an expert group discussion consisting of nurse administrators and managers. Using FGD with the nurses in the practical sites is important because it is a useful method for capturing the real-life characteristics of competency as a phenomenon (Liu et al., 2007). Through FGD the participants will describe their meaning of competency (Wilkinson, 1998), something that the previous studies (*i.e.,* the observation) failed to capture. Experts recommend that FGD is appropriate when knowledge about a pertinent phenomenon is incomplete (Cohen, Kahn, & Steeves, 2000; Kitzinger, 1994; Skulsmoski, Hartman, Krahn, 2007) and when the researcher needs information to inform a larger scale quantitative study (Krueger & Casey, 2009; Wilkinson, 1998).

In general, the RNCACC inventory will contribute to nursing in many ways. The RNCACC inventory will have several functions in nursing education and practice. First, it can enhance performance appraisals, job specifications, and recruitment judgments. For example, a nursing director can use information from the RNCACC inventory to develop components of rural nurses' performance appraisal. Second, it can improve evaluation of

training programs as well as development and revision of nursing curricula and teaching strategies. The third function is to identify nurses' educational needs. Lastly, the RNCACC inventory can be used to identify and refine policies for nursing education, clinical practice, and research (Liu et al., 2007; Meretoja et al., 2002; Takase & Teraoke, 2011).

Research Strategy

Significance

Globally, there have been serious efforts to improve rural healthcare systems and to assure that the rural poor receive quality healthcare, including efforts to increase skilled workers. There have been serious efforts to train and develop competent healthcare providers. Many countries have taken steps to have their healthcare policies resolve problems of distribution, retention, shortages, and the limited capacity of healthcare workers in rural areas (Chhea et al., 2010; Kruk & Freedman, 2008; Lehman, 2008; WHO, 2006b; WHO, 2010). However, many countries still face challenges to ensure the presence and distribution of sufficient skilled health workers in rural areas (WHO-EURO, 2010; WHO-SEARO, 2011). Rural nurses in many countries still face challenges both in the level of professional and organizational development. These challenges include lack of career structure, professional isolation, insufficient role models, inadequate support and supervision, and limited opportunities for and access to continuing education (Duffield & O'brien-Pallas, 2002; Hannessy et al., 2006; Hegney et al, 2002; Kerse et al., 2008; Lea & Cruisckshank, 2007; Wolfenden et al., 1996). Rural nurses suffer from these difficulties that lead to insufficient service which contributes to

the persistence of communicable diseases (WHO-SEARO, 2011). This inadequate performance of rural nurses needs a more systemic approach that can be derived from a competency inventory. A competency inventory will serve not only as a basis for measuring nurses' performance but also as a source for improving the rural healthcare system and the education of rural nurses. Thus, a valid and reliable competency inventory offers a long-term approach to tackle the disadvantages rural nurses have faced.

In existing competency inventories, there are several problems with regard to concept clarity, length and validity-reliability of an inventory, and components of rural nursing inventory. First, competency in rural nursing is not defined clearly. The lack of clarity has consequences. Some scientists have noticed that with no consensus on a definition of competency, agreement about appropriate indicators for competency is limited (Edcan, 2008; Takase & Teraoke, 2011). Further, without a definition of competency, incoherent instruments assess only a small area of nursing practice. For example, an instrument may cover only the knowledge or skill dimension of the competency while ignoring other important dimensions such as general aptitude. General aptitude is formed by personal traits that influence an individual's professional knowledge, skills, and attitudes. Critical thinking ability, compassion, commitment, and responsiveness are some aspects of the general aptitude (Takase & Teraoka, 2011; Zhang et al., 2001).

The second issue pertains to two basic concerns with competency inventories, length and reliability and validity. Existing inventories are either too long or too short to measure competency. On the one hand, 108 inventory items is considered too long and

cumbersome to be used in clinical settings. On the other hand, an eight-item inventory is too short to capture the multiple components of most competencies (Takase & Teraoke; 2011). McGrath et al. (2006) reported that the length of an inventory is important. Although they did not provide an exact number of indicators on an inventory, they highlighted two important aspects. First, the inventories that are simplest to complete become less reliable as they move closer to the real clinical settings. Second, standardized inventories are often considered to have a high level of credibility, but they may lack reliability and validity. Many inventories are still in the early phases of development with insufficient testing of validity and reliability (Meretoja & Leino-Kilpi, 2001). Reliability refers to the accuracy and consistency of information obtained in the study (*i.e.,* the consistency of scores for a particular person with respect to a particular competency). Validity means how well an instrument measures what it proposes to measure (*i.e.,* whether it truly measures the particular competency it intends to) (Kak, Burkhalter, & Cooper, 2001; Nunnally & Bernstein, 1994; Polit & Beck, 2008). At least two competency inventories are reliable and valid: the Nurse Competence Scale (NCS) and the Six-D Scale (6D) of Nursing Performance, but these inventories or scales have been tested only in the urban hospital setting. Researchers from Asia, such as Liu et al. (2007) and Takase and Teraoke (2011) also stated that many instruments, including the NCS, have been modified to suit their countries' contexts without a rigorous testing of their reliability and validity after adaptation. In Indonesia, Lock (2011) developed a competency inventory for new graduate nurses, but whether it has been pilot tested is unknown. This inventory consists of 12 indicators that determine the new graduate nurses' levels of safe practice.

The third issue is about the disadvantages of existing rural nursing inventories. Hurme (2009) developed the only competency inventory for nursing practice in rural hospital settings in the United States (US). This early stage inventory consisted of 103 competency indicators of rural nurses in critical access hospitals (CAHs). CAHs refer to small health facilities with no more than 25 beds located in rural and remote areas, that provide a 24-hour emergency service, and that have a length-of-stay for its patients of not more than 96 hours (Bushy & Bushy, 2001). While many of the indicators developed by Hurme (2009) were similar to that of urban nurses' competencies, this inventory underlined some competency indicators specific to the rural settings. Among these competency indicators were the knowledge and ability to assess patients across the life span, case management under limited resources, and clinical skills necessary to provide safe, effective care without pharmacy and respiratory therapy personnel. However, this inventory appeared to be most suited to curative and rehabilitative aspects of care with little information about competency indicators related to promotive-preventive aspects of care. These promotive-preventive aspects of care are essential to nursing practice in rural and remote settings. To address these concerns, this study proposes to develop a new inventory for rural nursing competencies across the continuum of care which encompasses all aspects of nursing care, preventive-promotive, curative, and rehabilitative in the context of rural settings.

Rural nursing. Many countries and government agencies have defined the term "rural" according to their unique contexts and policy purposes; therefore, there is no single universally preferred definition (Baernholdt et al., 2010; Coburn et al., 2007; Hewit, 1989; Isserman, 2005; Kulig et al., 2008). In most countries, rural areas are

defined as “what is not urban”, which means rural is considered a residual entity because rural areas were defined based on the population left over after urban areas were demarcated (Racher, Vollman, & Annis, 2004). Kulig et al, (2008) stated that traditional definitions of what it means for an area to be rural tend to include population’s size, density, and location. In addition, the authors also characterized rural communities in terms of the local economic/industrial base, such us agricultural or ranching/fishing. Sometimes, “rural” is defined as a place without urban features or infrastructures and with limited access to amenities. In the context of health and human resources, most rurality indexes emphasize geographic variables such as distance to a major medical center or the availability and accessibility of a health professional, particularly the accessibility of a physician (Kulig et al., 2008). This is apparent in the old definition of rural nursing provided by Thornton: the practice of nursing in a country community with a population of between 500 to 10,000 people who have access at most times to at least one medical practitioner living within the town (Hegney, 1996, p.3).

In contrast, rural nurses are concerned with different characteristics of rural communities. They emphasize the human aspect and recognize the commonality and diversity of rural people and rural places (Kulig et al., 2008). Rural nurses consider rural populations to have different work and health beliefs. They emphasize the existence of more personal interactions in rural settings than in urban ones. Thus, they recommend that any definition of rural must focus on rural populations and on the context of their rurality. These perceptions and notions further affected the way nurses define rural nursing practice.

Currently, there are three widely used definitions of rural nursing. Long and Wienert (1989) define rural nursing broadly as the provision of healthcare by professional nurses to persons living in sparsely populated areas. Mahnken, Nesbitt, and Keyzer stated that rural nursing is an autonomous caring activity which, in conjunction with other healthcare providers and lay and professionals caregivers, assists rural people to adapt to their specific health needs (Keyzer, 1998). On the other hand, Scharff (2010) defined rural nursing more specifically as a "special variety of nursing in which the nurse must have a wide range of advanced knowledge and ability, in combination with commitment, to practice proficiently in multiple clinical areas simultaneously along the career trajectory" (p. 267). The breadth of these three definitions indicates that there are diverse views of how rural nurses must be prepared, what their competencies should be, and how to develop and bridge education and research in rural nursing. A more detailed and comprehensive definition will enhance efforts to improve rural nursing development.

Rural nursing competency. In general, competence and competency – both have competencies as the plural form – are two different concepts. Competence is defined as job-related, referring to a person's capacity to meet a job's requirements by producing qualified outputs (Dubois, 1993; Woodruffe, 1993; Zhang et al., 2001). In contrast, competency is described as person-related, referring to the principal attributes of individuals that lead to effective and superior performance in a job (Dubois, 1993; Woodruffe, 1993; Zhang et al., 2001). The definition of competency focuses on the interaction between the individual and the job. It also considers the lived experience of work in which workers and their works are seen as an entity (Pate, Graeme, & Robertson,

2003). McMulan et al. (2003) affirmed that healthcare professionals have adopted this holistic approach to competencies that takes account of the context.

Further, from a performance standpoint, competency is defined as either observable performance, or the standard/quality of the outcome of a person's performance, or the underlying attributes of a person (Hoffman, 1999). Each definition delineates whether competency is seen as an input or an output. From an output standpoint, competency requires an observable performance or task to be completed therefore emphasizing both an observable and the standard or quality of the outcome. The evaluation of output is concerned more with whether or not workers are competent as described by written standards (Strebler, Robinson, & Heron, 1997). The level of the quality of a worker's performance indicates whether the standard needs to be improved or adapted. Output standards could refer to a minimum acceptable level of performance (core competence) or higher level of acceptable performance (specified). Alternatively, the evaluation of input addresses attributes of a person as a basis for producing a competent performance. This position begins with a need to design the content of training to produce competent performance. These different starting points of output and input lead to different definitions of the term competency used in different disciplines, including nursing.

In nursing, competency is defined as the ability to perform with desirable outcomes under the varied circumstances of the real world (Benner, 1984). Competency also reflects knowledge, understanding, and judgment; and a range of cognitive, technical or psychomotor, and interpersonal skills; and a range of personal attributes and attitudes

(ICN, 2009). Both ICN and Benner's definitions likely reflects both input and output perspective on competency. These two definitions focus on key attributes such as an ability to perform a task; integration of the learning process, interaction of interpersonal and technical skills; and integration of cognitive, affective and psychomotor domain of practice (Luan, 2011). Defining competency in rural nursing is a prerequisite for setting up the RNCACC inventory. For the purpose of this study, the following paragraph describes the major components of competency in rural nursing.

There are at least five major attributes or components of competency in rural nursing. These components were identified in an analysis of the concept of competency in rural nursing (Luan, 2011). The components were: confidence in ability (Banks, Gilmartin, & Fink, 2010; Winters & Lee, 2010), extensive range of skills (Kenny & Duckett, 2002; Litchfield & Ross, 2000; Long & Wienert, 1989), autonomy (Bigbee et al., 2010), meeting a variety of health needs (Howie, 2008b; Winters & Lee, 2010), and understanding the rural health context (Howie, 2008a; Winters & Lee, 2010). The identification of these attributes resulted in a definition of the concept of competency in rural nursing: the nurse's confidence in their ability to perform an extensive range of skills with autonomy to meet the variety of health needs within the context of rural health (Luan, 2011).

The domain of care provision and management. The absence of indicators that portray the levels of prevention in existing rural nursing competency inventories provided an opportunity for a literature review of the activities and roles of rural nurses across the continuum of care. These activities and roles depict the type of skills that rural nurses

need and perform. It was found in the literature that authors used a variety of terms to describe nurses' activities in order to initiate care and manage diseases in rural settings (Luan, 2010). Using ICN's competency framework, these activities are grouped under the second heading of the framework, care provision and management. In the following paragraphs, several activities are described under the domain of care provision and management: clinical/technical skills, advanced skills, community orientation skills, communication and interpersonal skills, and management/organization skills.

Clinical/technical skills cover the assessment, planning, and evaluation of care of all age groups throughout the lifespan. These clinical skills include basic nursing procedures, emergency procedure and triage, vaccination skills, and the referral or transfer of patients to more advanced healthcare providers (Bossyns & Lerberghe, 2004; Hurme, 2009; Nikula et al., 2009; Strasser et al., 2005). Advanced nursing skills focus on promotion of health as well as curing and restoring of diseases of individuals and families. Rural nurses have the ability to identify persons at risk, to effectively take medical histories, to do diagnostic testing, and to diagnose and treat diseases by dispensing and prescribing rational drugs (Araoyinbo & Bateganya, 2008; Delobelle, et al., 2009; Kyabayinze et al., 2010; Nyamathi et al., 2008; Rashid, 2010; Sanne, et al., 2010; Schellenberg et al., 2004; Strasser et al., 2005; Talashek et al., 2007; Vallema, Durheim, & Smith, 2008; Young, Koch, & Preston, 2007). These skills fall in the realm of primary healthcare services for individuals and families with direct contact, comprehensive care, and case management (Barnes et al., 1995; Price et al., 1992). In general, the four features of primary healthcare services include first-contact access for each new need, long-term person-focused care, comprehensive care for the most health

needs, and coordinated care when it must be sought elsewhere (Bodenheimer & Pham, 2010; Naylor & Kurtzman, 2010; Starfield, Shi, & Macinko, 2005).

Community oriented skills include the ability to link people to service, to mobilize community partnerships and collaborations, to enforce laws and regulations, and to research innovative solutions. To foster these skills, rural nurses need to develop cultural competency as well as policy and planning skills (Ajayi et al., 2009; Bigbee, Otterness, & Gehrke, 2010; Issel et al., 2006; Kalb et al., 2006). Kalb et al. also include skill in policy development/program planning such as epidemiological surveillance, screening, and case finding of diseases. Being able to recognize a disease outbreak in their community or nearby communities was of high importance in the work of nurses in public health settings (Alexander et al., 2008). These community-oriented skills emphasize rural nurses' roles and responsibilities in primary health care aiming at the health of the population. Primary health care services include the three levels of prevention targeting both health needs and inequalities. It involves community participation and links to the determinant of health aiming to protect and promote health and prevent diseases collectively (Barnes et al., 1995; Ross, 2008).

In the area of communication and interpersonal skills, nurses who work in rural areas must consider the common social and cultural aspects related to the rural context such as personal relationships, kinship, sense of belonging, and collective action for survival (Ross, 2008; Winters & Lee, 2010). The different cultures and health behaviors of people in rural environments requires nurses to develop cultural competency to help them build relationships with their patients (Kalb et al., 2006). Knowledge of rural

culture such as understanding local language and specific norms and beliefs helps nurses to establish rapport with their patients (Baernholdt et al., 2010). In the rural environments in which the nurses function, they need specific management and organizational skills in order to deliver services safely in isolation and in distant places (Speare et al., 2003; Winters & Lee, 2010). Community connectedness is perceived as important to rural people and it relates to the sense of belonging and collective action for survival. According to Baernholdt et al. (2010), a patient and nurse's relationship is familiar in nature, as everyone knows each other, and then creates a collaborative working atmosphere. This connectedness emphasizes that while working independently, rural nurses need to be flexible. They also need to coordinate with other team members and to collaborate multi-disciplinarily (Hurme, 2009). The following paragraphs will describe the conceptual framework of this study.

Continuum of care. Rural nursing continuum of care is described little in the literature. The continuum of care refers to a sequence of care events that begins when a patient finds provider(s) in at least one health facility within the healthcare system (McBryde-Foster & Allen, 2005). Findings from a literature review suggest that there are several key aspects with regards to continuum of care (Cameron et al, 2006; De Graft-Johnson et al, 2007; Evashwich, 2005; Haggerty et al, 2003; Holland & Harris, 2007; McBryde-Foster & Allen, 2005). First, continuum of care promotes a patient-centered approach to guiding and tracking patients through a comprehensive array of services across the health care system. In such, continuum of care promotes informational continuity to avoid duplicated and fragmented services as patients move from one care setting to another (CARNA, 2008). Second, continuum of care promotes the continuity

and sustainment of patient-nurse relationships, which facilitate the linkage of past, present, and future care (CARNA, 2008). Third, continuum of care emphasizes wellness and takes a holistic approach, considering a patient's cultural, psychosocial and spiritual dimensions in addition to physical health, ensuring that service is provided to match resources and the patient's condition. Fourth, continuum of care is made possible by case management and coordination of care, which help patients with chronic condition to navigate the complex healthcare system. Thus, in general the continuum of care promotes case management continuity so that services are connected consistently and efficiently (CARNA, 2008). The essence of these four aspects of the continuum of care suggests that strengthening connections between rural primary health care services and secondary and tertiary care given through hospital-based health services is crucial to improve the continuum of care. Additionally, the improvement of rural nurses' competencies in providing services across the continuum of care will strengthen the overall healthcare system. Systemic approaches to improve both care connections and rural nurses' competencies can be initiated through the development of a competency inventory.

Conceptual Framework

The conceptual framework (Figure 1) for the proposed research will combine two generally acknowledged conceptual models. It is grounded in the work of the quality of care model, best known as the structure-process-outcome (SPO) model (Donabedian, 1978) and Benner's competency framework (Benner, 1984). The SPO model illustrates the essentials of nurses' clinical competencies and their performance of quality of care. Structure denotes the elements of the healthcare settings (facilities, human resources, and

organizational structure). Process involves the delivery and receiving of healthcare services. Outcomes signify the changes in individuals and populations as a result of the healthcare services in the form of knowledge, attitude, behavior, and health status.

There are a few controversies related to the SPO model. First, the SPO does not account for patient, economic, or social factors outside of the care delivery system (Donabedian, 2000; Mangione-Smith & McGlynn, 1998; McDonald et al., 2007). For example, the education system is not under the control of the healthcare system and competency is dependent on the prior specification of a social organizational context. Thus, healthcare providers cannot be held responsible for functions for which they have no special training and in the areas over which they have no control. For this limitation, Donabedian (1980) suggested combining the SPO with a model that fits with the nature of the problem to evaluate activities other than clinical practice.

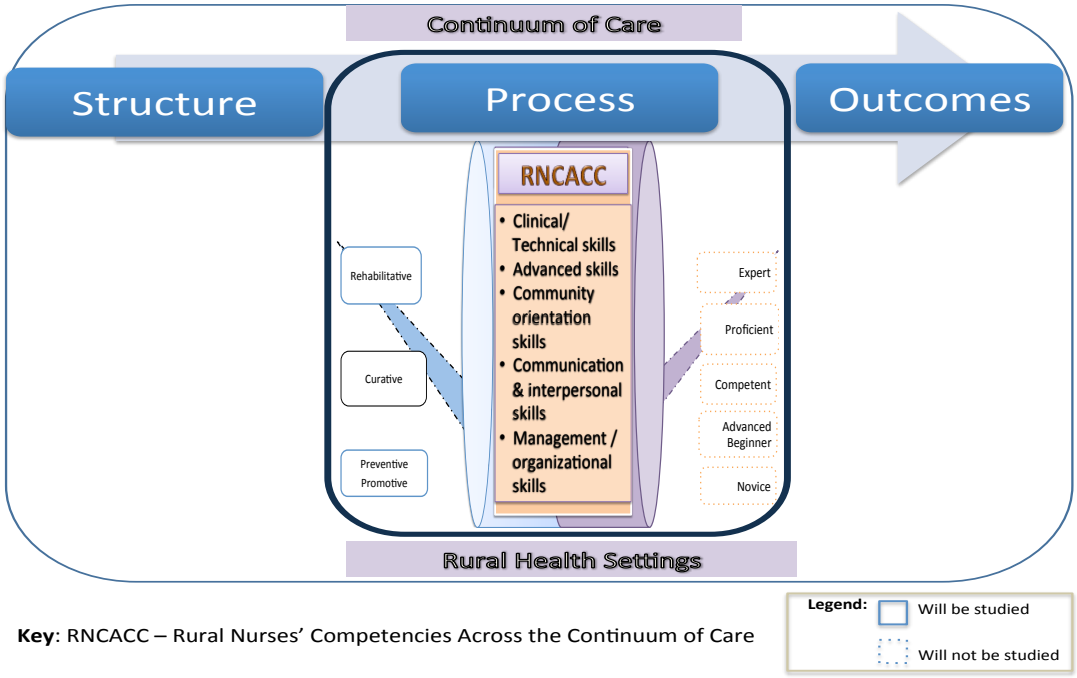

Figure 1. Research Conceptual Framework

The links between structures (*i.e.,* nursing workforce), process (*i.e.,* delivery of care), and outcomes (*i.e.,* health status) assure that evaluating structure and process are important to improving quality of care (Donabedian, 1988). The evaluation emphasizes the decisions and actions made by care providers in the care process. In evaluation, standards and performance criteria are used to determine minimum requirements for safe and competent practice (Donabedian, 1968). Since evaluation is a judgmental process of what is good practice, it is necessary to formulate a standard to be used in judging quality. Standard refers to a quantitative measure of magnitude or frequency that specifies what is good or less and serves to operationalize quality of care (Donabedian, 1980; Donabedian, 1968; Norcini, 2003).

Donabedian further suggested applying a performance criteria approach. Performance criteria prescribe the minimum requirements for safe and competent practice (Britton, Raper, & Wladen, 1995). Performance criteria are derived from competency indicators that describe knowledge, skills, and attitudes essential for functioning in a role. Competency indicators make explicit the components of competency. The components denote the cluster of characteristics that are most frequently associated with competency (Walker & Avant, 2005). This description clearly indicates that competency is a repertoire of indicators that measure capabilities, activities, and responses (Esrig-Tena & Bou-Llusar, 2005; Kurz & Bartram, 2002). Therefore, measuring competency is critical to ensuring that care providers are competent to perform their tasks and responsibilities.

Benner's competency framework. Benner developed her stage of clinical competency framework based on Dreyfus' model of skill acquisition from novice to

expert (Benner, 1984). Dreyfus investigated the process of human skill acquisition in airline pilots, chess players, and automobile drivers and came up with a five-phase model from novice to expert. In 2001, Dreyfus went further adding two other stages, mastery and practical knowledge (Dreyfus, 2009). Benner's framework shows how nurses attain skills and develop five levels of clinical competency, namely, novice, advanced beginner, competent, proficient, and expert (Benner, 1982). While at the lowest level novices are expected to perform and follow the rules, at the highest level experts are expected to be fluid and flexible and have a deep background understanding and intuitive grasp of situations (Benner, 1984). In the context of the proposed study, novice refers to rural nurses (RNs) who have no experience with the situations in rural settings and are starting to deal with communicable diseases (CD) and non-communicable diseases (NCD) including chronic lifelong conditions (CLC), they rely mostly on the rules and guidelines. Advanced beginner refers to RNs who are able to demonstrate marginally acceptable performance and note the meaningful situation of the aspect of CD, NCD, and CLC care. Competent refers to RNs who begin to understand aspects of CD, NCD, and CLC care and respond to the problems based on abstract analytical thinking, as part of long term goal strategies. Proficient refers to RNs who have a deep understanding of CD, NCD, and CLC care, they understand situations as a whole, recognize which aspect is most salient, and are able to respond accurately and specifically. Expert refers to RNs who are proficient with an intuitive understanding; they operate from a deep understanding of the situation of CD, NCD, and CLC care in rural settings.

As depicted in Figure 1, the rural nursing competency across the continuum of care (RNCACC) inventory diagramed in the process box, indicates that competency is

influenced by structure and other factors within the process itself (*i.e.,* family and other healthcare providers). Together they effect patient outcomes. Within the context of the study, rural nursing competency refers to the ability (knowledge, skills, and personal attributes) of rural nurses to perform an extensive range of skills across the continuum of care with autonomy to meet a variety of health needs within the context of rural health. RNCACC is an inventory that serves as a tool for the development of performance criteria of rural nurses' competencies across the continuum of care for CD, NCD, and CLC. The competency inventory is a set of indicators used as a model or framework of competency (Gander, 2006; Meretoja et al., 2004). The RNCACC inventory will contribute to the delivery of healthcare services through rural nurses' performance evaluations, which guide program development. In addition, the RNCACC inventory also will be beneficial for identifying rural nurses' educational needs, enriching program development, and refining policies for nursing practice and research (Liu et al., 2007; Meretoja et al., 2002; Takase & Teraoke, 2011).

Three levels of prevention. The RNCACC inventory covers three features. First, the RNCACC inventory comprises knowledge, skills, and personal attributes/attitudes that are necessary for rural nurses' professional performance related to CD, NCD, and CLC. Second, it captures the five stages of clinical competency, from novice to expert. Third, it includes the context of rural nursing practice by covering the three levels of prevention. Rural nurses need specific competencies to arrest the disease process at different points along the health-illness continuum as depicted, namely primary prevention (promotive-preventive), secondary prevention (curative), and tertiary prevention (rehabilitative). Primary prevention seeks to reduce the frequency of new

cases of diseases through health promotion and specific protection strategies for people in the stage of susceptibility (promotive-promotive aspect of care). Secondary prevention is designed for people in the early stages of clinical diseases. Through strategies of early case finding and prompt treatment of symptoms, secondary prevention tries to reduce the number of existing cases (curative aspect of care). The purpose of tertiary prevention is to improve functioning following disease or its complications through disability limitation and rehabilitation strategies (rehabilitative aspect of care). This last type of prevention is applicable during the late clinical stage of illness (Leavel & Clark, 1965; Neuman & Fawcett, 2002; Offord, 2000).

To summarize, the RNCACC inventory consists of rural nursing competency indicators (skills, knowledge, and personal attributes) related to care for patients with CD, NCD, and CLC, embedding the care provision of rural nurses covering three level of prevention across the continuum of care. It will also portray various indicators in each of five stages of rural nurses' clinical practice to evaluate their proficiency. However, this study does not cover the five stages of rural nurses' clinical practice.

Concerns on adopting Benner's framework in rural nursing practice. There are some major concerns related to Benner's framework. First, as the framework was based on a phenomenological approach, it challenges the use of quantitative experimental approaches (Gobet & Chassy, 2008). Benner defended this approach saying that examining care could not rely on purely quantitative and experimental approaches (Benner, 1984). However, current literature shows Benner's framework is used quantitatively (Meretoja et al., 2004). Second, the experts are considered a-theoretical

because they act without rules or formulas, rely on intuitive decisions that do not arise from rational thought, and do not apply research-based theories or evidence (Gardner, 2012). Further, because expert knowledge shares none of the characteristics of formal theory, it cannot be expressed in words nor be formally taught nor be theorized (Gardner, 2012). However, Benner suggests that expert practice is achieved through experience and that experience is gained when knowledge is refined, challenged, or disconfirmed by actual clinical evidence that enhances or runs counters to the theoretical understanding (Benner, 1984). This explanation infers that expertise is not an amalgamation of practical and theoretical knowledge, but it embodies the two as a hybrid (Dreyfus & Dreyfus, 1986; Garnder, 2013). The expertise is a hybrid of practical and theoretical knowledge, in which theoretical knowledge remains the basis for practice and continues to have a role in the development of expertise. As hybrid refers to a distinctive structure compared to its original forms, expert knowledge shares none of the characteristics of formal theory; it is holistic, concrete, and intuitive (Gardner, 2013). However, there are some aspects of competency in rural nursing that a researcher needs to consider when fitting Benner's model into rural nursing practice.

At least two aspects of competency in rural nursing, autonomy and rural nursing context, can be used to analyze whether or not Benner's model fit into rural nursing practice. These two aspects are derived from the concept of competency in rural nursing; the nurse's confidence in their ability to perform an extensive range of skills with autonomy to meet the variety of health needs within the context of rural health (Luan, 2011). First, in terms of autonomy, Benner's model seems to contradict the concept of autonomy (Cash, 1995). Cash, in her analysis of Benner's model stated that Benner's

criteria for expertise contain two elements: experience and recognition. However, Benner did not apply the two elements in the methodology of her study. Cash went on to question Benner's methodology, especially since she used non-experts and non-nurses, both without enough experience and recognition, to code her study. As a result, it was not the nurses, but individuals who posses some authority to decide about what expert practice and the domains of nursing should be. Cash concluded therefore that Benner's model serves as the foundation of a traditional, authoritarian discipline, rather than one of autonomous practitioners. Second, with regards to the context of rural nursing, Benner's model is questionable. In Benner's linear model, although linked to time and context, the stages of skill acquisition are not purely set in terms of context and experience in one particular setting (Hargreaves & Lane, 2001). In terms of length of time, Gobet and Chassy (2008) argued that the correlation of the number of years (at least 18 months) with expertise is not reliable. They went on to say that Benner did not study nurses longitudinally nor asked for time frames for developing a level of skill for a particular nurse (Benner, 1996). Nonetheless, Benner (1984) ensured that length of time in the practice cannot be applied to some nurses who struggle with interpersonal and problem-solving skills. These types of nurses do not progress to the upper level.

With regard to context, Benner (1984) suggested that the ability to perform as an expert is grounded in the context that the nurses experienced. This statement entails that although the general cognitive skills always operated in contextualized ways (Perkins & Solomon, 1989), a nurse will no longer function as an expert when she or he moves from a familiar to an unfamiliar environment (Hagreaves & Lane, 2001). This notion is relevant to a statement by Voss et al. (1983) that the non-experts in a related field are able

to solve problems compared to non-experts in an unrelated field. To emphasize this concept, Benner acknowledged that a nurse who developed expertise might be able to transfer at least some of her or his abilities to a novel situation (Hargreaves & Lane, 2001). Nevertheless, a novice has extremely limited experience, is inflexible, and has no experience in the situation she or he faces (Benner, 2004). This explanation suggests that there is a clear sense that nurses who trained in an urban context will struggle when they work in a rural context. Thus, nurses who acquired their expertise in CD, NCD, and CLC in urban hospitals and health centers will find their expertise from urban settings does not transfer to rural settings. When nurses are not at the higher stages of skills, they are unable to change their behavior according to the context, especially in the context of rural setting. The difference between practicing in rural settings and urban settings is that rural nurses need to have an extensive range of skills to address a variety of health needs when working in isolation. Within this range of skills and health needs, nurses will keep moving in a helical way, spiraling to the lower level in one field of nursing (*i.e.,* caring for a diabetic pregnant mother coinfected with malaria-HIV/AIDS-TB) in one day and moving back to a higher level (*i.e*., caring for children with malaria) another day.

Although Benner's model has been adopted in nursing education and practice (Hargreaves & Lane, 2001), her original studies were limited to urban hospital settings. Benner conducted three studies between 1978 and 1997 in the U.S. The first study includes newly graduated nurses and their preceptors in several private, community, and teaching hospitals. The second study involves critical-care nurses in hospitals. The third study includes other critical-care areas (emergency departments, flight nursing, home health, the operating room, and post anesthesia care units) and some advanced practice

nurses (Benner, 2004). Until now, even though Benner's model has been adopted in many countries outside the U.S. (Liu et al., 2007; Meretoja et al., 2004; Uys, et al., 2004), there is no evidence whether or not this model fits rural nursing practice related to CD, NCD, and CLC elsewhere. However, based on the three studies, Benner (2004) concluded that the model was predictive and descriptive of distinct stages of skill acquisition in nursing practice in general.

In summary, while Benner's model has been adopted worldwide and offered some benefits to improve nursing competency and professional development, researchers have some concerns with regard to the use of research methods to develop the model and in terms of the concept of expert that the model offered. In addition, there is not enough information that Benner's model fits rural nursing practice.

Approach

Research Design

A descriptive analytic design using first focus group discussion (FGD) and then the Delphi method will be used in this study. This descriptive analytic method is designed to systematically describe an issue as it occurs in its natural environment. The purpose of using the descriptive analytic method is to describe the identified phenomena with clarity and refinement and generate a relationship for further research or theory modification (Polit & Beck, 2008). The FGD aims to describe a phenomenon as it occurs in its natural environment and when there is incomplete knowledge about a problem or phenomenon

(Cohen et al., 2000; Skulmoski et al., 2007). The Delphi method is a multistage approach combining qualitative and quantitative methods using an expert panel located in different geographical places (Dalkey & Helmer, 1969; Hasson, Keeney, & McKenna, 2000; McKenna, 1994). There is no consensus on number of experts in Delphi approach, however, using 10-20 experts is considered appropriate for providing a sufficient level of control for agreement and for content validity determination (Hannessy & Hicks, 2003; Lyn, 1986). In composing the expert panel, heterogeneity and objectivity are considered essential elements (Lynn, Layman, & Englebardt, 1998). The experts on the panel worked individually on a set of questionnaires in several iterations or rounds. Rounds two through five will facilitate the expert panel in moving toward consensus. In most Delphi studies, panelists reached consensus in round three (McKenna, 1994). Expert consensus emphasizes sequential iterations with summary and feedback, anonymity, and statistical analysis to identify patterns of agreement (McKenna, 1994).

In addition to geographical proximity, there are some advantages of using the Delphi method. Delphi is less costly because it enables the researcher to obtain the opinions of many individuals through email and/or on-line. Delphi is considered better for collecting subjective judgment, allows more privacy in decision-making, and removes the dominant personalities in achieving consensus. It enhances validity – including the concurrent validity or validation by means of the criterion-related approach – through the iterations process (Chang et al., 2010; Hasson et al., 2000; McKenna, 1994; Polit & Beck, 2008). Also, Delphi is considered a reliable method because some researchers in nursing (*i.e*., Meretoja, Liu, and Hurme) have succeeded in using it to develop competency inventories (Hurme, 2009; Liu et al., 2007).

Sampling Method/Subjects

The purposive sampling method will be used to carefully choose the senior nurses who are experts in the area of study. This sampling method is chosen because it allows researchers to carefully select experts, both FGD and Delphi method's participants, based on their knowledge and expertise in this particular field of study (Dalkey & Helmer, 1969). With this method the researcher may select panel participants based on personal judgment about which one best informed (Polit & Beck, 2008); thus this purposive sampling method is best used in the Delphi method.

To ensure a diversity and a wide range of opinion (Kitzinger, 1994), the experts will be categorized into three groups: (1) senior clinicians/staff nurse in rural health centers (RHCs) who hold at least a diploma in nursing and have clinical experience caring for patients and families; (2) upper-level managers in RHCs and rural district health offices who hold at least a baccalaureate in nursing and have successfully managed a program; and (3) experienced nursing educators who hold at least a master in nursing degree and have taught CD, NCD, or CLC and public health nursing. These three groups of nurses need to have at least three years of experiences in their current positions. This cut-off for years of experience is based on the notion that three years constitutes proficiency in their areas and enables them to understand the scope of the tasks and responsibilities of rural nursing practice related to CD, NCD, and CLC (Benner, 1984). The participants in these three groups will be recruited for two different activities: for focus group discussions (FGDs) and for the expert panel iteration's work in Delphi.

The FGDs will be held in local settings in a province in Indonesia. A province will be chosen based on the information from the Department of Health, that publicly available, pertaining to the availability of a higher nursing educational institute, the distribution of nurses in public health centers, and the epidemiological data (incidence/prevalence) of CD, NCD, and CLC. The participants will be contacted through Indonesia's Department of Health (DOH), the Indonesia National Nurse Association (INNA), or the Association of Indonesia's Nursing Education Institute (AINE). This study will use one FGD for each type of participants (clinicians, managers, and educators) in which each FGD will consist of 5 to 8 participants. Generally, it is adequate group size is considered to be between 4 and 12 participants with the optimal size of between 5 and 10 individuals (Halcomb et al., 2007; Krueger & Casey, 2009).

The expert panel will work individually long-distance. The 10 to 20 members of this expert panel will consist of national experts who are chosen based on the same inclusion criteria as for the FGDs. The national experts refer to senior nurses outside the selected province and will be recruited with help from INNA. Involving national experts will be useful for assessing the clarity of the inventory in their original settings. Involving national experts will enable the study to comprehensively capture overall situations of rural nursing competencies that might be lacking from FGDs and the literature review.

Measures/Instruments

This study will use two kinds of data instruments: open-ended questions for the FGDs and questionnaires for expert panel rounds. Open-ended FGDs address the following issues: (1) the scope of activities/tasks of rural nurses in CD, NCD, and CLC

in RHCs, (2) the skills/competencies required of rural nurses in relation to these diseases, and (3) the way rural nurses develop their competencies to manage these diseases (See appendix C). The FGDs will be held in the Indonesian language. The questions will be in English and will be translated into Indonesian and translated back into English to maintain semantics and meaning (Masden & Wright, 2010). The expert panel will be asked to clarify the indicators and to provide their input on additional indicators they might consider. They also will validate the importance of each competency indicator. The expert panel questionnaires for validation will use a Likert's scale to identify the following: (1) the most important competency indicators that are needed by rural nurses using a 5-point Likert scale (not important…highly important); and (2) the most relevant indicators of Benner's stage of clinical competency using a 6-point Likert scale (no relevance…. relevance as expert). (See Appendix C.)

Methods/Data Collection Procedures

This study will be divided into three phases: (1) literature review, (2) focus group discussion with local expert nurses for item creation and refinement, and (3) a 2 to 5 round panel of experts for validating both the indicators and the inventory (DeVellis, 2003Liu et al., 2007; Lyn, 1986; Meretoja et al., 2002). In Phase I, the review of the literature includes the existing competency instruments or inventories; nursing standards (provincial, national, international); and clinical nursing job descriptions from health facilities in rural Indonesia. The findings from this literature review will be used to enrich findings from FGD in the next phase. Prior to starting Phase I, preliminary work has been done, in which the researcher defined competency in rural nursing. Defining competency

begins with findings its attributes – known also as domains or components – through the process of concept analysis (Rodgers, 1989; Schwirian, 1978; Walker & Avant, 2005).

Phase II, item creation and refinement. Indicator creation starts with activities to generate a pool of indicators of competency. In this phase, the researcher will lead the audio-recorded focus group discussions (FGDs) assisted by research staff, in the Indonesian language. The audio-recorded data will be transcribed. Participants will complete a demographic questionnaire, which captures participants' socio-demographic data (see Appendix C). Each discussion will last for approximately one and a half hours. The FGDs, including data analysis, will take approximately two months. Findings from this phase will be used to formulate an initial pool of indicators and categories of rural nursing core competencies across the continuum of care for CD, NCD, and CLC. This initial pool of indicators will be transformed into a questionnaire to be used in the succeeding phase. Face validity will be done in which 2-3 experts in rural nursing will be asked to clarify the questionnaire by carefully inspecting each indicator; 1) whether it is appropriate to the meaning of the domain or category and 2) whether it is easy to understand the wording for each indicator (Polit & Beck, 2008).

Phase III, the indicator and inventory validation. In this phase, using the Delphi method, several experts will evaluate and validate the competency indicators (Lyn, 1986; Meretoja et al., 2002). This step is also known as the judgment-quantification stage of content validity because in this phase experts declare that both the indicators and the entire inventory have content validity (Lyn, 1986). The expert panel will work for 2 to 5 rounds. In each round, panelists will receive an on-line questionnaire written in

English together with a letter of instructions. In the first round, the panelists will be asked to identify the logical consistency and judge as well as quantify the items of the competencies in three aspects: (1) the most important competency indicators that are needed by rural nurses and (2) the indicators most relevant to Benner's stages of clinical competency. In the first round, space will be provided for the panelists to write their comments and additional indicators that they might consider. Consensus among panelists will be based on the analysis of inter-rater agreement. Interrater signifies the degree to which raters or observers, operating independently, assign the same ratings or values to an attribute being measured or observed. An index of interrater (*i.e.*, content validity index – CVI – cut-off point) is set based on aggregated ratings of panel of experts to assist in making a decision whether an inventory has content validity (Polit & Beck, 2008). While indicators that meet the cut-off point set for this study will be kept, indicators that have inter-rater agreement lower than the cut-off point will be considered for revision and or will not be included in the final inventory (see data analysis).

In the second round and thereafter, consistent with the Delphi method, the indicators on which the experts do not reach consensus in the previous rounds will be presented along with the panelist's individual and group summary ratings. The additional indicators that suggested by expert panel will be added. The panelists will be asked to judge and quantify the revised indicators. The same cut-off points will be used for judging the revised indicators. The time spent for each round will depend on the speed of return while the number of rounds will be determined by the degree of consensus. Each panelist will need at least 30 to 45 minutes for each package of questionnaires in the initial round and will need less time in succeeding rounds. Each round will require

approximately 14 to 30 days including the analysis**.** The entire expert panel phase will require approximately 3 to 4 months to complete. This time estimate is based on other Delphi studies to identify important indicators of a specific field (Hurme, 2009; Liu et al., 2007; Okoli & Pawlowski, 2004). The multi-method approaches such as phone call, postcard, and email notification will be used to increase the attrition rate and to finish each round timely (Dillman, Smyth, & Christian, 2009).

To conclude, while the first two phases will result in a formulation of an initial pool of indicators and categories of rural nursing core competencies across the continuum of care for CD, NCD, and CLC, the objective of the third phase will be an inventory for rural nursing competencies across the continuum of care (RNCACC) for CD, NCD, and CLC.

Plan(s) for Data Analysis

Data from FGDs in phase II will be analyzed using content analysis (Cohen et al., 2000) to allow for the categories and themes to emerge from the text data (Guba & Lincoln, 1989). The directive method for categorizing the data will be performed, in which keywords/codes are identified before and during data analysis and derived from relevant research findings and frameworks (*i.e.,* Benner's and ICN's frameworks). The subjective interpretation of the content of text data will be done through the systematic classification process of coding and identification of themes and patterns (Hsieh & Shannon, 2005). The content analysis process will follow these steps: (1) read all the data from transcriptions and field notes to gain overall perspective, (2) identify strip/code, a little piece of the text that has meaning, (3) categorize the strips/codes based on their

similarities, and (4) organize the categories into themes based on their similarities. The process of re-reading all data will be done before proceeding to the next step of the analysis process.

Trustworthiness will be addressed in several ways. First, the researcher will use reflective journal field notes to enhance self-awareness and credibility. Second, the researcher will use a member checking approach throughout each FGD to ensure authentic reports of the participants' experiences. Third, the researcher will use an audit trajectory to establish conformability (consistency of the study process) and dependability (internal coherence of findings) (Lincoln & Guba, 1985; Zhang & Wildemuth, 2009).

Data from the expert panel in phase III will be analyzed quantitatively with the goal of reaching consensus for each indicator and the overall inventory. The continuous data will be analyzed as follows: (1) using central tendency of measurements (mean, median) as well as standard deviation (SD) as the measures of dispersion; (2) the indicators will be ranked by descending mean score from the most important to the least important. Inter-rater agreement will be analyzed using content validity index (CVI) for continuous data. The CVI as an index of inter-rater agreement will be used for evaluating Likert rating (Polit et al., 2007). The CVI values will be computed for each item *(i.e.*, competency indicator), known as CVI at item level or I-CVI, and for the overall inventory, known as the scale's content validity or S-CVI. While the S-CVI will be calculated at the final round, the I-CVI will be calculated after each round (Polit et al., 2007). The formula for the I-CVI is based on the recommendations that the number of raters giving a rating of the two highest points (*i.e.,* either 4 or 5 on a 5-point scale), is

divided by the number of raters (Lyn, 1986; Polit et al., 2007). Thus, in this study, using a 5-point Likert rating as an example, the proportion in agreement about 'relevance / importance' is the number of raters giving a rating of either 4 or 5 divided by the number of raters. For the Likert ratings, this study will use 0.78 as a cut-off point of CVI for judging each competency indicator. The cut-off point of 0.78 has been found to be accurate in eliminating chance agreement when it involves at least seven panelists (Polit et al., 2007; Lyn, 1986). Any indicator that has an I-CVI lower than 0.78 and the indictors with very low values (below 0.5) will not be included in the final inventory (Lyn, 1986; Polit et al., 2007; Waltz, Strickland, & Lenz, 2005). The overall inventory (S-CVI) will be evaluated at the final round, when only minor revisions of indicators are needed (Polit et al., 2007). This study will use a cut-off point of 0.80 as the minimum value of S-CVI (David, 1992; Polit et al., 2007).

Potential Limitation of the Study and Strategies to Overcome

This study has some potential limitations and difficulties. First, subjectivity, lack of accountability, and low completion rates are threats when using Delphi (McKenna, 1994). To remedy these limitations, the panelists will be informed openly about the study's aim, the inclusion criteria for choosing the expert panel will be set carefully and the number of experts will be set at between 10 and 20 (Hannessy & Hicks, 2003; Lynn, 1986). Several strategies to maintain the completion rate through different channels of communication also will be applied (*i.e.,* postcards, phone calls, and email notification) (Dillman et al., 2009). Second, the threat of not finding important aspects of the competencies from literature review will be overcome by adding FGD (Liu et al., 2007).

An additional strategy to cover important aspects lacking from FGD and literature review is to include international experts in rural nurses' tasks and responsibilities in the area of communicable diseases. These international experts might identify competencies that other experts have failed to identify until now.

Protection of Human Subjects

Human subject involvement. This study will involve adult nurses (clinicians, managers, and educators) who have been in their current jobs at least three years. The researcher will complete a secondary data review on distribution of nurses in a chosen province for FGDs. There is no available data pertaining to gender. However, in general, females are the majority of the population of nurses. In this study, male nurses will be included both in FGDs and Delphi rounds. The following table explains the planned enrollment according to gender. The total planned enrollment is 15-24 participants of FGDs and 10-20 expert panelists from provincial/nation level (Table 1).

Table 1
Targeted/Planned Enrollment: Number of Senior Nurses

Activities	Females	Males	Totals
FGDs in Province X			
- Clinicians (an FGD that involves 5-8 participants)	4-6	1-2	5-8
- Managers (an FGD that involves 5-8 participants)	4-6	1-2	5-8
- Educators (an FGD that involves 5-8 participants)	4-6	1-2	5-8
Total			15-24
Delphi rounds			
- Provincial/National	8-18	2-2	10-20
Total			10-20

Potential risks and protection against risks. Potential risks to participants include the loss of confidentiality and sensitive information. The strategies to avoid these

risks are outlined below. The senior or expert nurses who participate in the study will be assured of confidentiality through the consent process. The individually identifiable private information will be placed on the University's research server, which is protected by a joint-VPN firewall. The researcher will complete the Institutional Review Board (IRB) forms both in the University of Virginia and in her country on ethical research standards. The possibility of a violation of privacy is minimal. Potential participants have the option including not to participate in this study and they may voluntarily discontinue participation in the study at any time. A participant will be allowed not to answer any sensitive questions. Questions related to roles and responsibilities and the way nurses develop their competencies may trigger participants to describe their own difficulties and conflicts of interest. As a result, the participants may experience emotional discomfort. The researcher will make every attempt to ensure all group discussions are non-threatening. She also will be sensitive to and aware of possible emotional discomfort brought about by the type of questions/information asked for and the length of interviews or the length of each Delphi round. In any case, if the participant(s) feels emotional discomfort during the FGD, the researcher will discontinue the discussion. Thus, the possibility risk of losing confidentiality, triggering emotional discomfort, and withdrawing from participation to occur is minimal.

Recruitment and informed consent. Study approval will be obtained from the University of Virginia Review Board (IRB) and Indonesia Institutional Review Board (i.e., Ministry of Health of Indonesia and Local Provincial Government) (see Appendix C). A local research staff who has experience in doing FGD will be recruited and oriented. The implementation of the FGDs requires at least two experienced researchers

to be present at each group session. While the researcher will serve as facilitator for conducting the discussion, the local research staff member will assume the role of note-taker in each group session (Halcomb et al; 2007). All eligible participants for FGDs and for Delphi questionnaire rounds will be contacted or approached for inclusion in the study based on the list of senior nurses or nurse experts in the sampling plan. Informed consent will be obtained from all participants involved both in the FGDs and in the Delphi rounds. The consent form will be in English and will be translated into Indonesian and translated back into English to maintain semantics and meaning. Informed consent will include a discussion of the purpose of the research, duration of the research study, research procedures, risks and discomforts, potential benefits, alternatives to study participation, level of confidentiality, cost to participants, and the voluntary nature of research participation. Time for completing the FGDs and Delphi rounds as well as the completion rate will be used to estimate the feasibility of conducting this study. Previous studies that used the Delphi method reported at least an 86.5% completion rate and were interpreted as a positive, relevant professional experience, and therefore not a burden (Liu et al., 2007; Meretoja et al., 2004).

Potential benefits of the proposed research to human subjects and others.

This study has no potential direct benefit to individuals participating in the study. However, the primary result of this study will be the RNCACC inventory, which will be used to develop professional competencies and to evaluate the performance of rural nurses. The findings will serve as baseline for curriculum innovation, training enhancement program, and improved methods of assessing competency. These development and improvement programs will help rural nurses maintain and improve

competency, leading to a high quality of health services to rural populations. The previous studies in the area of competencies have contributed to the development and improvement of standard practice, training, and nurses' performance (Benner, 1984; Liu et al., 2007; Meretoja et al., 2004). Thus, the future benefit of this study appears to outweigh the possible risk to the participants.

Importance of knowledge to be gained. This study will initially describe the role and scope of the practice of rural nurses. Subsequently, this study will facilitate the construction of a pool of indicators of rural nursing competencies across the continuum of care in order to develop a RNCACC inventory for CD, NCD, and CLC that covers three levels of prevention. Further, this study will validate the importance of the indicators formatted in RNCACC inventory and ultimately their relevance to stages of clinical competency. While the majority of existing inventories were designed for urban hospital settings, only one inventory was developed to cover nursing care in rural hospital setting. However, this rural hospital inventory failed to cover all levels of prevention, from promotive-preventive to curative and to rehabilitative and competencies indicators across the continuum of care. The application of these existing inventories in the rural context is questionable value to help develop rural nurses' performance to arrest the diseases process at different points along the health-illness continuum. Thus, empirical knowledge gained from this study will highlight some important aspects of rural nursing competencies that reflect the context of their practice. The results of this study will in turn inform future research aimed at developing standards and criteria both for training development and performance evaluation.

Data safety and monitoring plan. This study does require a data safety and monitoring plan. The data to be collected include pertinent demographic data for inclusion criteria. The participants will not undergo an intervention. To minimize the possible accidental compromise of individually identifiable private information, each participant will be assigned an identification number. All written and audio-recorded data will be identified by this identification number only. The participants' identifying data and informed consent will be kept under lock in a separate location from all coded data collected.

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CHAPTER THREE

Manuscript One

Competency in Rural Nursing: An Evolutionary Concept Analysis

(Manuscript #1, to be submitted to *Journal of Advanced Nursing*)

Abstract

Aim. This paper aims to explore the use of the concept of competency in rural nursing practice and to clarify as well as define the concept of competency in rural nursing.

Background. Globally, nurses are the most common health workers in rural and remote areas. Yet, the broad range in practice of rural nursing and the vague meaning of competency in rural nursing can lead to serious consequences for patients' health and safety.

Method. Rodgers' evolutionary concept analysis was used. CINAHL, Medline, Eric, Web of Science database, and Google Scholar were used to search articles in English published from 1990 to 2014 that describe competency and rural nursing.

Results. Competency in rural nursing is described as the nurses' confidence in their ability to perform an extensive range of skills with autonomy to meet the variety of health needs within the context of rural health. Antecedents of competency are the education system, health system and workforce culture, professional regulation and standards of practice, and cultural and personal factors. The outcomes associated with competency in rural nursing include increasing clinical ability to make decisions for the safety of patients, empowering nurses to complete their duties successfully and reach high standards of patient care, and enabling personal motivation and professional commitment for continued learning.

Conclusion. The conceptualization of competency that results from this analysis offers a significant contribution to the development of a knowledge base concerning competency in rural nursing. Future studies in the area of competency assessment are recommended.

Keywords: competency, rural nursing, evolutionary method, concept analysis

Introduction

Globally, there have been serious efforts to improve rural health care systems to assure that the rural poor receive quality health care, including efforts to increase skilled workers. Many countries have taken steps to have their health care policies resolve problems of distribution, retention, shortages, and the limited capacity of health care workers in rural areas (Chhea, et al., 2010; Kruk & Freedman, 2008 Lehmann, 2008; WHO, 2006; WHO, 2010). However, rural nurses still face challenges at the level of both professional and organizational development: lack of career structure, professional isolation, insufficient role models, inadequate support and supervision, and limited opportunities for and access to continuing education (Baernholdt & Mark, 2009; Cruickshank, 2007; Duffield & O'Brien-Pallas, 2002; Hannessy, Hicks, Hilan, & Kawonal, 2006; Hegney, McCarthy, Rogers-Clark, & Gorman, 2002; Kerse, Luan, & Lawintono, 2008). These difficulties have led rural nurses to provide insufficient services and subsequently contribute to the persistence of diseases (WHO-EURO, 2010). This insufficiency of training and professional development can be overcome by an intervention that will improve rural nurses' performance. In order to improve rural nurses' performance, one must successfully measure their performance through clear definition of the competencies the nurses need.

Nursing experts have defined both competency and rural nursing distinctively, but none has clearly described competency related to rural nursing (Benner, 1984; ICN, 2009; Keyzer, 1998; Long & Wienert, 1989; Scharff, 2010). Compared to their urban counterparts, rural nurses may deliver very different care that requires different

competencies. Thus, the purpose of this evolutionary concept analysis article is two-fold, first to explore the use of the concept of competency in rural nursing practice and then to clarify as well as define the concept of competency in rural nursing.

Background

Currently, there are three definitions of rural nursing. Long and Wienert (1989) define rural nursing broadly as the provision of health care by professional nurses to persons living in sparsely populated areas. In particular, Mahnken, Nesbitt, and Keyzer state that rural nursing is an autonomous caring activity which, in conjunction with other healthcare providers and lay and professional caregivers, assists rural people to adapt to their specific health needs (Keyzer, 1998). On the other hand, Scharff (2010) defines rural nursing more specifically as a "special variety of nursing in which the nurse must have a wide range of advanced knowledge and ability, in combination with commitment, to practice proficiently in multiple clinical areas simultaneously along the career trajectory" (p. 267). The breadth of these three definitions indicates that there is a diverse view of how rural nurses must be prepared, how to develop and bridge education and research in rural nursing, and what rural nurses' competencies should be. However, although the definitions of rural nursing exist, a description and understanding of what competency in rural nursing is, remains inexplicit (Benner, 1984; ICN, 2009; Keyzer, 1998; Long & Wienert, 1989; Scharff, 2010).

Lack of clarity in the concept of rural nursing competency can lead to poor training program development for rural nurses. Limitations in training produces under-skilled rural nurses who in turn will contribute to poor quality health care, and the

reemergence or worsening of diseases will be inevitable (Wakefield, 2002; WHO-SEARO, 2011;). To improve the quality of care in rural areas, one must address the inadequacy of training and professional development. The most important step in successfully measuring rural nurses' performance is the formulation of a clear definition of their competency.

Competence and Competency

Competence and competency are terms that have been widely defined and used across many disciplines (Hoffmann, 1999; Sanberg & Pinnington, 2009) including in health care (Axley, 2008). First used in the sixteenth century, competency was derived from the middle French and Latin word *competens* as being able and allowed by law/regulation (Merriam-Webster On-line Dictionary, 2014; Mulder, 2007; Tilley 2009). It has been introduced by Taylor as the central for effective work performance (Sanberg, 2000), by Wittgenstein in philosophy (1953) and by Polanyi in philosophy of science (1967), by Schon in education (1983), by Giddens in sociology (1984), and in 1984 by Benner in nursing (Sanberg & Pinnigton, 2009).

Competence and competency, although commonly used interchangeably, are two different concepts (Pate, Graeme, & Robertson, 2003). Competence is defined as job-related, referring to a one's capacity to meet a job's requirements by producing qualified outputs. The main concern of competence is what a person is able to do in a job to satisfy specified standards (Trotter & Elison, 2003; Woodruffe, 1993). Thus, competence is about outputs to delineate whether or not workers are able to perform tasks as described by written standards (Strebler, Robinson, & Heron, 1997; Trotter & Elison, 2003). In

contrast, competency is described as person-related, referring to the principal attributes of individuals who contribute to effective and superior performance of a task (Dubois, 1993; Woodruffe, 1993; Zhang et al., 2001). Competency emphasizes the underlying successful performer and can include attributes such as skills, traits, abilities, attitudes, behaviors, or beliefs (Stoof et al., 2002; Woodruffee, 1993). Hence, competency is about input that addresses the attributes of a person as a basis for producing a competent performance (Strebler, Robinson, & Heron, 1997; Trotter & Elison, 2003). Moreover, these two definitions of competence and competency vary according to the epistemological assumptions underlying the use of each terms (Pate, Graeme, & Robertson, 2003).

Definition of competence as job-related focuses on tasks is derived from the behaviorists and cognitivists because they view workers as having no self-regulation and workers are seen as moldable objects to meet the requirements of job (Parker, 1998). In addition, job-related competence features the rationalist standpoint that underlies the objectivist epistemology because it distinguishes between work and the worker as a separate being. The behaviorist and rationalist methods have been criticized because they focus more on what workers can do to achieve an agreeable level of performance defined in each element of a job and therefore disregard other important components that contribute to a worker's ability in decision making and critical judgment (McMullan et al., 2003). The definition of competence also represents logical positivist's approach as it focuses on the output or task to be completed as an observable performance (Cruickshank, 2012; Pate, Graeme, & Robertson, 2003). The competency-based curriculum (CBE) method, although using the term competency that focuses on outcome classification, is an example of the logical positivist approach (Chapman, 1999).

On the other hand, the definition of competency as person-related leans toward both rationalism and constructivism. From a rationalist perspective competency is seen as person-related. It takes the attributes possessed by workers as central and typically presents them in terms of knowledge, skills, and attitudes (KSAs), and personal traits required for effective performance (Sanberg, 2000). However, rationalism focuses excessively on intellectual and knowledge skills, while overlooking experiential learning (Sanberg, 2000). To overcome the limitation of rationalists approaches, the constructivists offer an approach that is based on a subjectivist epistemology, which places a value high on subjectivity and motivation while focusing on the interaction between the individual worker and her/his work as well as the situation that she/he encounters (Boon & Klink, 2001; Parker, 1998; Pate, Graeme, & Robertson, 2003). Thus, the constructive approach considers the worker and work inseparable (Pate et al., 2003). Through the experience of performing work, the worker is changed; similarly the work is defined in part by the worker himself or herself. This constructive approach appears in the definition of competency used in nursing.

In nursing, both rationalist and constructivist approaches are found in a definition of competency described by the International Council of Nurses (ICN). Competency is the effective application of a combination of knowledge, skills, and judgment demonstrated by an individual in daily practice or job performance (ICN, 2009). First, the components of skill and knowledge reflect rationalist approaches. Furthermore, the definition also takes into account that the knowledge base is practical as it appears in daily practice and therefore reflects the nurse's subjective reality. This definition implies that workers actively develop their knowledge, understanding, and judgment through a

collective conception of all nursing experiences while interacting with their work environment. However, given that this definition takes into account the involvement of the affective domain in a judgmental process for producing competent performance, this definition reflects also a post-modernist standpoint (Boboc, 2012).

A postmodernism approach emphasizes the process of learning as a dynamic synthesis of knowledge skills, regardless of work settings, that allows for a constant communication while workers switch between their contextual reality and hyper-reality (Boboc, 2012; Parker, 1998). Convincingly, there are two principle aspects of post-modern approach found in Benner's definition of competency, that is, the ability to perform with desirable outcomes under the varied circumstances of the real world (Benner, 1984). First, it highlights the contextual aspect of nursing practice in which there is a strong link and social bond between knowledge and custom/culture. Second, there is constant communication between workers and his or her work/environment that allows him or her to work productively. As the communication continues, knowledge emerges in the journey of the interaction and dialogue. Although these two definitions of competency in nursing provide an understanding of epistemological assumptions corresponding to cognitivism, constructivism, and postmodernism, they have yet to be applied to the definition of nursing competency in a rural context. This concept of analysis will address the term competency, as opposed to competence, with a focus on rural nurses and their contextualized experience.

Methods of Concept Analysis

Concept analysis involves the formulation and clarification of a mental construct, systematizing relevant information in ways that serve both to advance theory and guide practice (Morse, Hupcey & Mitcham, 1996; Weaver & Mitcham, 2008). In particular, Rodgers' evolutionary method of analysis highlights rigorous systematic study, the heuristic value of the results, and an analysis based on interview data as well as a literature review (Rodgers & Knafl, 2000). Rodgers' evolutionary method emphasizes three district influences on concept development -- significance, use, and application -- as a cycle that dynamically and continually progresses through time. The significance of a concept indicates its importance in solving problems of interest to the disciplines and makes a substantial contribution and impact with its frequency and degree of use. A particular concept is employed in a way that fits in an actual context while presenting the attributes of the concept to help in solving an identifying problem (Rodgers, 1989; Rodgers & Knafl, 2000). Hence, significance is central to concept development because it is relevant to current practice. Significance requires that a concept serve a purposeful human goal in an actual case of praxis, contribute to solving problems, and reflect adequate characteristics of the concept's phenomena (Tofthagen & Fagersrom, 2010).

Rodgers' evolutionary concept analysis is appropriate for analysis of the concept of competency in rural nursing because competency and rural nursing share characteristics of Rodgers' analysis, in that they are dynamic in nature and influenced by time and context. The concept of competency is dynamic in nature as it has been defined and used in many ways across disciplines and by various practitioners. Additionally, the

use of the term competency in nursing can vary depending on the epistemological assumptions, whether from rationalism (behaviorist/cognitivists) or subjectivism (constructivist) to postmodernism and entails a contextual evolution over time. Furthermore, across nations, adjustments in rural nursing practice to situations and the populations' characteristics imply that the nature of rural nursing practice is dynamic and contextual (Francis, Bowman, & Regrave, 2001).

This concept analysis will be based on Rodgers' seven steps (Rodgers, 1989): 1) identify a concept of competency in rural nursing, 2) identify surrogate terms, 3) collect data, 4) analyze data, 5) identify the attributes of the concept of competency in rural nursing, 6) identify references, antecedents, and consequences, and 7) provide model cases as a mean of enhancing the degree of clarification. The method clarifies, describes, and explains central concepts in nursing science by analyzing how a chosen concept has been used in nursing and other health sciences (Tofthagen & Fagersrom, 2010). Originally, Rodgers proposed to use a single case chosen from a large collection of qualitative research data to analyze and develop the attributes of a concept. However, the use of a single model case can lead to the loss of comprehensive understanding of the attributes and can limit the generalizability (Rodgers, 1989; Weaver & Mitcham, 2008). For this reason, instead of using a single case, this concept analysis uses three model cases to better clarify the attributes of the concept of competency (Stoltz, Anderson, & Willman, 2007).

Data Source

Articles relevant to rural nursing practice and competence were searched from CINAHL, Medline, Eric, Web of Science database, and Google Scholar from 1990 to 2014. Key terms and phrases included “skills,” “competency,” “competency and nursing,” and “competency and rural nursing.” A search using only the term competency produced 9,863 different references. The number of articles was reduced to 104 when the research was limited to the key phrase “competency and rural nursing.” Twenty-eight articles and two books were gleaned from manual and hand search for a total of 134 abstracts that were retrieved. After the abstracts were screened for content related to the use, significance, and application of competency in rural nursing, 69 articles and two books remained, which included two articles on rural/rurality, 21 articles on competency of which three articles were on rural nursing competency, 23 articles about competency in nursing, and 25 articles and two books on rural nursing. The 71 sources were used to analyze the concept of competency in rural nursing. This number of sources is considered sufficient to analyze the concept of competency in nursing. Previous literature on concept analysis has shown that a sample of approximately 20% of the total population or at least 30 items generally is adequate to identify convergence in the data (Cowles & Rodgers, 1991; Rodgers, 1989).

Results

Attributes

Attributes are the primary characteristics of a concept in which they are commonly used in situations for application of the concept (Rodgers, 1989) and attributes help gain a broader insight into the concept (Walker & Avant, 2005). Five major attributes that are most frequently associated with competency in rural nursing: confidence in ability, autonomy, extensive range of skills, variety of health needs, and rural health context (Figure 1.).

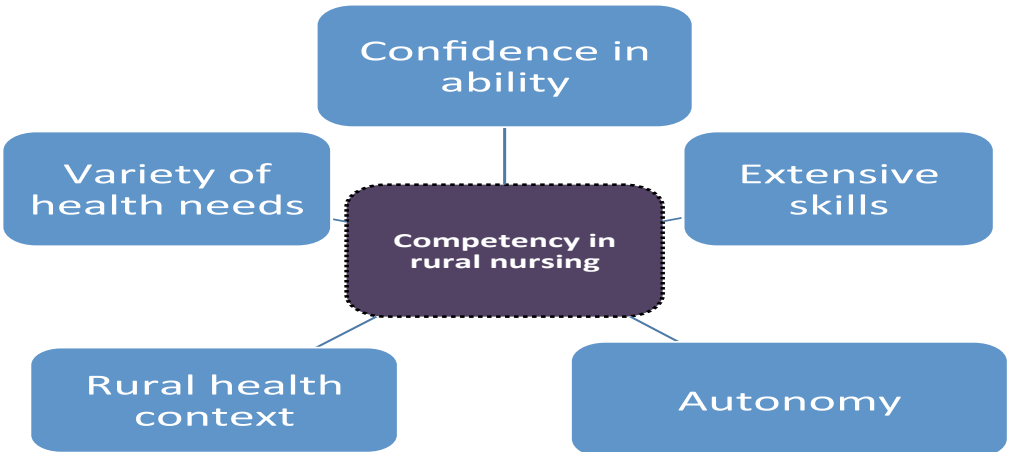

Figure 1. The Atributes of Competency in Rural Nursing.

Confidence in ability. Most of the literature used the words "ability" and "confidence" to explain a competent performance (Banks, Gilmartin, & Fink, 2010; Winters & Lee, 2010). Per definition ability means the quality of being able to doing a task physically, mentally, and legally (Merriam-Webster On-line Dictionary, 2014), which also implies that the ability or proficiency is acquired and developed over time.

This definition entails two essential meanings: authority and capability (Mulder, 2007). While authority refers to possessing the responsibility, license or right to decide, serve, or claim, capability means having the knowledge, skills, and experience to perform (Mulder, 2007). However, to perform efficiently and certainty, one needs not only to possess knowledge (ability) and responsibility (authority) but needs also to be in a state of certainty or confidence (Mulder, 2007). Being confident is vital because it embraces a feeling of or belief in being certain or conscious of one's power to succeed at something (Merriam-Webster On-line Dictionary, 2014). It indicates that confidence helps someone taking responsibility consciously for the possible risks that may arise in a particular circumstance while carrying out her/his job. Thus, a rural nurse's confidence in her/his ability means that the nurse is not only capable of but also confident in performing the tasks to provide effective care in rural settings (Skar, 2009). This notion is in line with the fact that rural nurses perceive that they needed one to two years in their roles in rural nursing practice in order to be confident and competent (Lichfield & Ross, 2000), hence effective care providers. Additionally, being confident is related to autonomy because it goes beyond knowing what and how to do the tasks (Skar, 2009).

Autonomy. Rural nurses considered autonomy as an important factor which is established through extensive clinical experience (Bigbee, Otterness, & Gehrke, 2010; Kenny & Duckett, 2002). Autonomy refers to the quality of being self-governing (Merriam-Webster On-line Dictionary, 2014). In other words, it is a quality of being able to function alone and make independent decisions and a freedom to choose between alternate actions (Skar, 2009). This autonomy requires rural nurses to have not only adequate knowledge but also an intellectual flexibility that enables them to critically

select a course of action benefiting rural people's needs (Benner, 1984; Skar, 2009; Wade, 1999). This intellectual flexibility directs rural nurses to develop their abilities beyond technical aspects of nursing skills in order to adapt themselves to different situations while working in isolation or in settings with limited resources (Jukkala, Henly & Lindeke, 2008; Nelson & Narens, 1990). Professional autonomy allows rural nurses to independently perform broad and complex skills.

Extensive range of skills. The literature describes rural nursing practice with some key terms and phrases such as unique (Francis, Bowman, Regrave, 2001; Jackman, Myrick, & Yonge, 2010), being a resourceful person, having a broader range of skills or being multiskilled (Hegney, 1996), sole practitioners who function as generalists or as multispecialists (Drury, Francis, & Dulhunty, 2005), and generalist specialists (O'Malley & Fearnley, 2007). These terms were related to the fact that nurses in rural hospitals consider themselves as a jack-of-all trades who often practice within the territory of numerous other health care disciplines including laboratory technology, dietetics, pharmacy, social work, psychology, and medicine (Hegney, McCarthy, & Pearson, 1999; Kenny & Duckett, 2002; Keyzer, 1998; Litchfield & Ross, 2000; Scharff, 2010). This expanded scope of practice requires that rural nurses must be multiskilled. This notion is supported by the fact that rural nurses perceived that they need to be advanced practice nurses (Conger & Plager, 2008) and competent in more than one clinical area to be an acceptable staff member in rural areas (Lichfield & Ross, 2000). The top four clinical areas considered to require the greatest competency are emergency, obstetrical, intensive care or coronary, and medical-surgical nursing (Lichfield & Ross, 2000). This is ironic because by providing diverse services, they emphasize their generalist practice.

Variety of health needs. The health challenges and disease patterns may vary from one rural environment to another and are different from those seen in urban areas (Bellamy, Bolin, & Gamm, 2011). Rural nurses normally provide care for patients of all ages, relieve patients, and support their community (Howie, 2008b). Thus, while in hospital settings nurses accommodate a mix of patients (Lea & Cruickshank, 2007), in the community nurses provide care that involves an analysis of health determinants, including a full range of primary health care practice (Howie, 2008b). Another important finding is that in order to meet rural people's health needs in limited resource settings and with a scarcity of health professional, rural nurses inevitably have to extend practice out side the limits of their competence or gain skills of other disciplines (Hegney, McCarthy, & Pearson, 1999; Kenny & Duckett, 2002; Keyzer, 1998; Litchfield & Ross, 2000;).

Rural health context. Mostly, rural areas are defined as "what is not urban," which is secondary because rural areas were defined after urban areas were demarcated (Coburn et al., 2007; Racher, Vollman, & Annis, 2004). Traditional definitions of what it means for an area to be rural tend to include population size, density, and location (Kulig et al., 2008). Sometimes, "rural" is defined as a place without urban features or infrastructures and with limited access to amenities (Kulig et al., 2008). In the context of health and human resources, most rurality indexes emphasize geographic variables such as distance to a major medical center or the availability and accessibility of health professionals, particularly the accessibility of a physician (Kulig et al., 2008). In contrast, rural nurses are concerned with different characteristics of rural communities. They emphasize the human aspect and recognize the commonality and diversity of rural people and rural places (Kulig et al., 2008). Rural nurses believe rural populations have different work

and health beliefs. They emphasize the existence of more personal interactions in rural settings than in urban ones. Thus, they recommend that any definition of rural must focus first on rural populations then on the context of their rurality. These perceptions and notions affect how nurses defined rural nursing practice.

The identification of these attributes resulted in the definition of the concept of competency in rural nursing, as the nurses' confidence in their ability to perform an extensive range of skills with autonomy to meet the variety of health needs within the context of rural health.

Antecedents

Antecedents are those events, situations, phenomena, or incidents that must precede the occurrence of a concept (Rodgers, 199; Walker & Avant, 2005). The vast majority of studies describe the education system, health system and workforce culture, professional regulation and standards of practice, and cultural and personal factors as antecedents of competency. With regard to the educational system, studies indicate the importance of the following factors: having clinical exposure to rural settings and prior educational experiences of nurses within rural context (Cadden, 2007; Kenny & Duckett, 2002), applying adult learning style and teaching methods such as case studies (Bank, Gilmartin, & Fink, 2010; Molinary, Monserud, & Hudzinski, 2008), and developing an undergraduate curriculum that is appropriate for rural nursing practice (Kenny & Duckett, 2002). Factors related to health system and workforce culture are clinical sites' adequacy to meet teaching standards (WHO-SEARO, 2012); sufficiency of funding for nursing education, robust policies on recruitment, retaining, and continuing education programs

(Bolin, Peck, & Moore, 2010; Ning, Kang, & Jiao, 2013); availability of standardized assessment of competency and performance (Bolin, Peack, & Moore, 2010); and adequacy of supervision and mentorship programs (Bigbee, Otterness, & Gehrke, 2010; Conger & Plager, 2008). With regard to professional regulations and standard of practice, the literature emphasizes that this antecedent provides clear guidelines for educational and health care institutions to maintain and improve rural nurses' competencies (Bolin, Peck, & Moore, 2010; Schroeter, 2008). Some important aspects related to rural nurses' cultural and personal factors that effectively influence competencies are strong motivation, ethical conduct, professional commitment, and cultural competences (Bank, Gilmartin, & Fink, 2010; Molinary, Monserud, & Hudzinski, 2008).

Consequences

Consequences refer to events, outcomes, or results of competency (Rodgers, 1991). The consequences associated with competency in rural nursing include increasing clinical ability to make decisions for the safety of patients and quality of care, empowering nurses to complete their duties successfully, allowing them to reach high standards of patient care, and enabling personal motivation and professional commitment for continued learning (Banks, Gilmartin, & Fink, 2010; Bolin, Peck, & Moore, 2010).

Empirical Use of the Concept of Competency

Empirical references are processes by which a concept can be measured (Walker & Avant, 2005). Although the literature provides little information about the empirical use of competency in rural nursing (Watson, Stimpson, Topping, & Porock, 2002), many

methods have emerged to measure clinical competency, which include portfolio, self-assessment, observation through simulated exercise, and group video testing such as objective structured clinical assessment (OSCA) (McMullan et al., 2003; Watson, et al., 2002). Given that each method has its limitation, many scientists have suggested combining methods in order to compensate for the disadvantages while augmenting the advantages of a method. For example, simulation and OSCA can be used in combination with self-assessment. The simulation and OSCA offer objectivity that is lacking in self-assessment (Watson at al., 2002). In addition, since 1970s the competency-based education (CBE) that focuses on outcome classification has been used as an educational method in the undergraduate nursing curriculum (Girot, 1993; Tilley, 2009; Watson, et al., 2002). However, as an outgrowth of positivism, CBE that accentuates technical procedures and the use of outcome classification is considered a reductionist approach (Chapman, 1999). As a result of using CBE, nursing curricula deemphasizes holistic and humanistic aspects of nursing; they limit aspiration for achievement, prevent flexibility, and overlook contents that are too difficult to define and assess.

In assessing competency in nursing, the reliability and validity of the instruments is always a concern. Many instruments are still in the early phases of development with insufficient testing of their validity and reliability (Meretoja & Leino-Kilpi, 2001). Reliability refers to the accuracy and consistency of information obtained in the study (*i.e.,* the consistency of scores for a particular person with respect to a particular competency). Validity means how well an instrument measures what it proposes to measure *(i.e.,* whether it truly measures the particular competency it intends to) (Polit & Beck, 2008; Kak et al., 2001; Nunnally & Bernstein, 1994). At least two competency

inventories have been found to be reliable and valid: the Nurse Competence scale (NCS) and the Six-D Scale (6D) of Nursing Performance. These instruments, however, have been tested only in urban hospital settings (Meretoja, Isoaho, & Leino-Klipi, 2004; Schwirian, 1978). The NCS was developed using a self-assessment method and consisted of seven categories ranging from helping role, teaching-coaching, diagnostic functions, managing situations, therapeutic intervention, ensuring quality and work role (Meretoja, Isoaho, & Leino-Klipi, 2004). The only competency instrument for nursing practice in critical access hospital located in rural areas was developed in the United States (US) by Hurme (2009). This competency was divided into four categories: clinical/technical, critical thinking, communication/interpersonal, and management/organization (Hurme, 2009). When developing this instrument, the author relied on existing nursing competency definitions such as Benner's definition, to come up with the list of categories or groups of competencies. As a consequence, the result might not suit the contextual aspects of nursing practice because this definition might be too general to apply in nursing practice in rural settings.

Model Cases

The model case clarifies the concept to be defined by providing an everyday example that includes the attributes of the concept (Rodgers, 1989). To enhance clarification, the literature suggests, more than one model case should be identified in qualitative studies (Stoltz, Andersson, & Willman, 2007). The following are some excerpts representing the roles and scope of rural nursing practice that assists in clarifying as well as defining the concept of competency in rural nursing.

"A rural nurse lives and breathes rural air. She/he does not sit in a city building gazing into electronic databases. There is dust and dirt and mud and grit in her work. She does not smell of polish" (Litchfield & Ross, 2000, p. 37). This model case highlights that rural nurses attach their lives to their locality and blend themselves into the rural context. It also tells that they work in limited resources and have limited opportunities to get promoted or have limited career improvement, and there was no a clear professional practice.

> As the only health professional the demands made on me as the district nurse were many and varied due to my autonomous role and the remoteness of the area. As a remote rural nurse I often had to make my own decisions about patients' health care. The nearest doctors were sole practitioners and on-call for long periods of time so were often not available for after-hours calls or referrals from me…. The town district nurses did not have the opportunity to respond to any of this type of primary health care and were quite envious of the variety of work I had. I did care for patients with 'ordinary' district nurse visits, for example, removal of sutures, wound care, palliative care, etc. …. I practiced independently. - I often did not know health care was being provided by either of the medical practices or vice versa. … I was isolated from them professionally as well as the other, mainly town-based, district nurses. I was too far away to go often to the monthly district nurses' meetings, which were not particularly relevant to me because of the hugely different type of work …. I couldn't afford to travel all that way - there was no travel reimbursement and I used my own car (Roulston, 2008, p.63-64).

This case touches on many of the key attributes of competency in rural nursing including autonomy, isolation and remoteness of the rural health context, and independent practice. It also highlights some barriers or antecedents in the health system and workforce culture in which rural nurses had not enough support from health system in terms of travel reimbursement and coaching.

> I practice as a generalist rural nurse as the rural context requires my scope of practice in these roles to be broad. I provide essential primary health care to remote, rural communities, caring for those patients across the whole life span who may require my nursing expertise. By utilizing my extensive clinical nursing experiences and personal knowledge from past experience I am able to treat everyone with respect while maintaining their privacy (Roulston, 2008, p.63).

This case reveals some key attributes of competency in rural nursing including serving people across the life span and an extensive range of skills. Rural nurses need to have a broad scope of practice beyond that of generalists to work in rural settings supported by their extensive range of skills and clinical experience in order to meet rural people's need on health care.

> My vision for the ideal advanced rural primary nurse of the future is of a highly trained generalist, multifaceted registered nurse, educated at the Masters level. She/he will have acquired the appropriate clinical and theoretical knowledge and skills for the specialty of rural primary health care. This nurse will use research-based evidence to develop and provide the progressive, futuristic and, above all,

> appropriate health care service for rural communities. She/he will do this working in collaboration with other members of the health care team (Ross, 1999, p.257).

This case demonstrates how rural nurses envision the advanced role of nursing practice in the area of primary health care so that they will be confident in making independent decisions and will be self-governed while working in collaboration with other health care providers. Rural nurses articulated this vision to overcome their difficulties while working in isolation without adequate support from other health professionals and other specialist practitioners in rural communities.

Discussions

This concept analysis is a significant contribution to developing the knowledge base about competency in rural nursing. It places the meaning of rural nursing competency in the larger epistemological context and knowledge base about competency while situating the concept within the unique contingencies of rural nursing practice. Specifically, although some of these important aspects of competency feature constructivism, together they lean toward the post-modernist approach that emphasizes context through local determination and dynamism. The constructivist approach to competency considers work and worker as an entity and also values some key attributes, such as motivation that contributes to the delivery of care by rural nurses. Meanwhile, post-modernist approach emphasizes dynamism and a constant communication between contexts. For example, rural nurses who were educated and prepared to work in hi-tech hospitals deal and confront with different situation in rural settings (Cant et al., 2011). These nurses constantly need to maintain a communication between the cultural context

where they work and live in the rural setting and other reality of the urban setting that offers more advanced nursing knowledge. Constant communication between urban and rural settings will enable nurses to perform care safely and productively. Consequently, these two approaches, constructivism and post-modernism, are relevant to education for rural nurses and to the assessment of nursing practice in rural settings (Boboc, 2012).

The result of this concept analysis should not be an end but should be a starting point (Rodgers, 2000). There are three important features of this concept analysis. First, the analysis is done by identifying important attributes that result in a definition of competency in rural nursing as follows: the nurses' confidence in their ability to perform an extensive range of skills with autonomy to meet the variety of health needs within the context of rural health. Second, the concept analysis displays a connection among antecedents, attributes, and consequences and suggests a feasible structure of middle-range explanatory theory of competency in rural nursing. A middle-range explanatory theory specifies two or more concepts with a suggested relationship among the concepts (Fawcett, 2005; Smith & Liehr, 2010). Third, this concept analysis indicates that there are different views of standards for educational preparation that are associated with definitions of rural nursing and competency in rural nursing (Keyzer, 1998; Long & Wienert, 1989); hence, rural nurses' scope of practice and professional competencies are determined by the standards of their educational preparation. However, standards for educational preparation vary among countries. For example, some countries have introduced advanced practice nursing programs or certificates at the postgraduate level to prepare nurses for independent practice in rural settings; still, many countries deployed undergraduate prepared nurses to rural settings (McCoy, 2009). Many rural nurses have

graduated from urban nursing schools that offer an unsuitable curriculum related to nursing practice in rural settings (Kenny & Duckett, 2002). This difference in educational preparation could be in part because of an absence of a more suitable definition of competency in rural nursing.

The definition of competency in rural nursing derived from this concept analysis suggests a new approach to educational preparation for rural nurses. This definition of competency in rural nursing instructs nursing professionals to help rural nurses to develop a broad range of skills to practice independently while working in limited-resource settings. Therefore, a contextual educational preparation to suit rural health care settings is a key recommendation. Given that each country has different levels of nursing professional development and varies in standards of educational preparation, the application of this definition should be contextual. For example, for countries whose nursing profession is still evolving, a generalist education with a short-term enrichment program suiting rural health needs might be the best answer. For other countries, incorporating rural health curricula in advanced practice educational preparation will help nurses be competent in rural settings. However, the best solution is to incorporate rural content in both undergraduate and graduate programs. Thus, a clear statement of competency in rural nursing communicates the importance of the link between nursing education and nursing practice in rural settings.

The lack of clarity related to competency in rural nursing has other consequences. Some scientists have noticed that with no consensus on the definition of competency, agreement about appropriate indicators for competency is limited (Takase & Teraoke,

2011). Further, without a clear definition of competency, incoherent instruments assess only a small area of nursing competency. For example, an instrument may not cover the contextual aspect of care in rural settings, or an instrument may cover only the knowledge or skill dimension of the competency while ignoring other important dimensions such as attitudes (Takase & Teraoka, 2011; Zhang et al., 2001).

This concept analysis has a limitation in that very few studies addressed rural nursing competency. Therefore, the empirical research used in the analysis was not limited to studies of rural nurses' competency. As a result, some important aspects related to competency in rural nursing, such as attitudes of rural nurses, might not be covered.

Conclusion

The evolutionary approach of concept analysis was used to clarify the concept of competency, resulting in the identification of major attributes to define competency in rural nursing. A well-defined concept of competency in rural nursing will assist in the development of rural nursing practice, education, and research. In terms of the assessment of competency, there is a lack of reliable and valid instruments to assess competency and the level of performance that indicates competency. The development and improvement of methods of assessing competency will assist rural nurses in maintaining and improving their competencies, which in turn will lead them to provide safer care and greater protection for the public. Future studies in the area of competency assessment are recommended.

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CHAPTER FOUR

Manuscript Two

Rural Nurses' Roles and Responsibilities in Primary Health Care Facilities in Indonesia

(Manuscript #2, to be submitted to *Online Journal of Rural Nursing and Health Care*)

Abstract

The purpose of this study was to describe rural nurses' scope of practice in managing diseases and chronic lifelong conditions with respect to continuum of care in Indonesia. The increase of noncommunicable diseases is a serious problem, which is confounded by communicable diseases causing an increase of chronic conditions that require lifelong treatment. Rural nurses are often the only healthcare providers their patients encounter suggesting that they have different scope of practice than their urban counterparts. To gain insight about their scope of practice, focus group discussions were conducted with rural nurses in a province in Indonesia in January 2014. Data were analyzed using directive content analysis. Four themes were identified: "care for individuals of all ages," "care for families," "care for communities," and "nursing practice unique to rural settings." Rural nurses' initial role in primary health care (PHC) was caring for healthy and sick individuals across the lifespan in the form of wellness and episodic cares. Along with delivering care for families, rural nurses fostered long-term care focused on involving family's commitment to self-care promoting the family as the unit of care. Caring for family was a central role exemplifying their contribution in continuum of care. The nursing role of care for community enabled rural nurses to practice to their fullest potential regarding disease prevention and health promotion to the population at large. The theme of nursing practice unique to rural settings emphasized that advanced nursing skills, such as clinical and culturally-based skills, are necessary in the role expansion for nurses in rural PHC facilities. However, their advanced skills were not fully developed, lowering the quality of their performance. To conclude, while rural nurses developed

numerous roles strengthening their function as PHC providers, their skill inadequacy will pose challenges for delivering high quality care. This study provides a blueprint for developing competency indicators for assessing rural nurses' performance.

***Keywords*:** rural nursing, primary health care providers, continuum of care

Background

Globally, there have been serious efforts to improve rural healthcare systems to assure that the rural poor receive quality care, including efforts to increase skilled workers. Many countries have taken steps to have their healthcare policies resolve problems of distribution, retention, shortages, and the limited capacity of healthcare workers in rural areas (Chhea et al., 2010; Kruk & Freedman, 2008; Lehman, 2008; WHO, 2006b; WHO, 2010). However, some countries such as Indonesia are challenged to ensure the presence and distribution of sufficient skilled health workers in rural areas (WHO-EURO, 2010; WHO-SEARO, 2011). Rural nurses such as in Indonesia face challenges in their professional and organizational development, lack of career structure, professional isolation, insufficient role models, inadequate support and supervision, and limited access to continuing education (Duffield & O'brien-Pallas, 2002; Hannessy, Hicks, Hilan, & Kawonal, 2006; Hegney, McCarthy, Rogers-Clark, Gorman, 2002; Husain, Hasanbri, Soetjipto, 2006; Indrati, 2004; Kerse, Luan, Lawintono, 2008; Lea & Cruisckshank, 2007; Wolfenden, Blanchard, & Probst, 1996). These difficulties have led to insufficient service provision by rural nurses and contributed to the persistence of diseases (WHO-SEARO, 2011). The challenge faced by Indonesian rural nurses is intensified since they have to deal with the proliferation of diseases in rural areas where access to health infrastructure is limited.

In rural Indonesia, the double burden of communicable disease (CD) and noncommunicable disease (NCD) is a challenge to rural nurses because of the collective contributions of CD and NCD to the increased number of people living with chronic

conditions (WHO, 2008). A trend toward increased cases of coinfections among CD (*i.e*., HIV-TB-malaria) and comorbidity between CD and NCD (*i.e.,* HIV-diabetes) have contributed to the double burden of diseases (Ahmad, 2011; Ardian et al, 2007; Janssens et al., 2007; UNAIDS, 2011; WHO, 2008). Several CDs with recurrent infection and inadequate treatment *(i.e.,* severe malaria leading to chronic anemia and kidney diseases) or CDs with slow diseases progression (*i.e.,* resistance to at least three anti-TB drugs that typically incurable) require lifelong health services (Janssens et al. 2007; Mlambo et al., 2008; Siegel, 2002). Most NCDs (*i.e.,* cardiovascular and diabetes) affect people over an extensive period of time (Daar et al., 2007; Van Olmen et al., 2012). In fact most NCDs are incurable chronic lifelong conditions, which result in decreased quality of life, often ending as a terminal illness that requires palliation (El-Jawahri, Greer, & Temel, 2011; Weiss & Goodnough, 2005). The double burden of continuous high rates of CD and the increase of chronic incurable diseases in rural areas implies that there is a growing demand for continuity of care. However, to date there is no research that has explored the nature of rural nursing practice related to continuum of care. Exploring rural nurses' role and scope of practice, specifically their responsibilities in managing CD, NCD, and chronic lifelong conditions over time will help in understanding rural nurses' practice across the continuum of care. Thus, this understanding serves as a basis to measure and improve rural nurses' performance in managing CD and NCD including lifelong conditions. Measuring the quality of clinical performance requires standards and criteria, which begin with identified competency indicators. Consequently, there is a need for specific research examining rural nurses' roles and responsibilities across the continuum

of care for patients with CD and NCD, who may develop chronic lifelong conditions (CLC).

Methods

A descriptive analytic design using focused group discussion (FGD) was used in this study. The purpose of using the descriptive analytic method was to describe a phenomenon with clarity and refinement and to generate directions for further research or theory modification regarding rural nurses' competencies across the continuum of care (Polit & Beck, 2008). The FGD aims to describe a phenomenon as it occurs in its natural environment and when there is incomplete knowledge about a problem or phenomenon (Cohen, Kahn, & Steeves, 2000; Skulmoski, Hartman, & Krahn, 2007). The purposive sampling method was used to choose informed participants based on personal judgment of the researcher (Polit & Beck, 2008).

Participants and Data collection

This study was conducted in a province in Indonesia. Sixteen participants were purposively chosen based on inclusion criteria to participate in FGD for clinicians, managers, or educators. The inclusion criteria were: (1) senior clinicians/staff nurses who hold at least a diploma in nursing and have clinical experience caring for patients and families in rural health centers (RHCs) and rural health facilities; (2) upper-level managers in RHCs and rural health facilities who hold at least a baccalaureate in nursing and have successfully managed a program; and (3) experienced nursing educators who

hold at least a master in nursing degree and have taught communicable, noncommunicable, or chronic diseases and public health nursing.

Data from four FGDs were collected over a one-month period during January 2014. First, the investigator approached the provincial health official, who identified three district health offices who the investigator then approached. Then, district officials were contacted to facilitate recruitment of participants among their rural public healthcare centers. Initially, the district health official identified many possible candidates from their district health offices to take part in the FGD at the provincial capital city. However, the candidates expressed concern about travelling great distances, *i.e.,* 1-3 hours, in unpredictable and stormy weather. Eight candidates from one of the three districts, which represented four public health centers in that district, agreed to participate. On the day of the FGDs only seven participants attended and they were divided into two different focus groups. A third FGD was held in the provincial capital city and included four nurses with management responsibilities who practiced independently in rural areas. These four nurses were recruited using a local branch of the Indonesian National Nursing Association (Community Health Nursing Association) and participation was voluntary. The other FGD was held in the provincial capital city with five nursing educators. These nursing educators were recruited from four schools of nursing in the area.

All FGDs were led by the researcher and were conducted in the Indonesian language. To ensure the semantics and meanings of the questions would withstand the translation to and from Indonesian, before the FGD the questions were translated from English to Indonesian, then back-translated to English by a different person. The back-

translated questions were then compared to the original questions in English (Marsden & Wright, 2010). Before participating in the FGD, participants were asked to complete a demographic information sheet. Open-ended questions were used in all FGDs to address the following issues: (1) the scope of activities/tasks of rural nurses in managing CD, NCD, and chronic lifelong conditions in rural health facilitates, (2) the skills/competencies required of rural nurses in relation to these diseases, and (3) the way rural nurses develop competencies to manage these diseases. In each FGD, probing questions related to participants' perceptions about rural nursing practice across the continuum of care were also asked as needed to clarify answers and seek further information. On average, each FGD lasted for 50 minutes.

Ethical consideration

This study was conducted after obtaining approval from University of Virginia Institutional Review Board (IRB) (project number 2013-0392-00) and from health department's review board in Indonesia (project number LB.02.01/5.2/KE648/2013). In addition, permission to conduct the study was obtained from National Department of Home Affairs and from local government offices in provincial and district levels. All participants signed a consent form and completed a demographic information sheet; no identifying information was included.

Data analysis

Transcripts from the FGDs were translated to English. The translated transcribed data were analyzed using content analysis to allow for categories and themes to emerge

(Cohen et al., 2000, Guba & Lincoln, 1989; Hsieh & Shannon, 2005). The directive method for categorizing the data was used in which keywords/codes were identified before and during data analysis and derived from relevant research findings and frameworks such as International Council of Nurses (ICN's) framework for the generalist nurse (date). Initially, data were imported into the NVIVO 10 before codes, categories, and themes were exported to word documents. Data were analyzed in sequence based on the time the FGD was held. Data from each group were read several times to gain overall perspective before codes were identified. Data that could not be coded and categorized under an existing code were then analyzed and formed to represent a new category (Hsieh & Shannon, 2005). Codes that had similar meaning were clustered into categories and similar categories were then grouped into themes.

Rigor

Research rigor was maintained in several ways. First, the researcher used a member checking approach throughout each FGD to validate and ensure authentic reports of the participant's experiences (Patton, 2002). In addition, the researcher made an effort to clarify issues that were considered controversial by discussing them with participants from succeeding FGD for validation. Second, the researcher read the transcripts several times to fully comprehend the data. The researcher documented all notes throughout the analysis and used them as an audit trail to establish conformability (consistency of the study process) and dependability or internal coherence of findings (Lincoln & Guba, 1985; Zhang & Wildemuth, 2009). Third, the researcher sought reactions and comments about the findings from her adviser and two PhD students who had international

experiences working in rural areas in developing countries. They considered the findings sound and reasonable for nursing practice in rural settings.

Results

Participant characteristics are described in Table 1. Current positions of participants from the four FGDs included staff nurse, nurse manager, or nurse educator. The average age of participants was 40 years; they had more than eight years of experience; and the majority of them were female (56%). A majority of nurses work in PHC at sub-district (60%) and most of nurse educators taught public health nursing (PHN) (80%).

Table 1
Participant Characteristics

	Staff nurses (*n*=6)	**Nurse managers (*n*=5)**	**Nurse educators (*n*=5)**
Age in years (mean ± SD)	38.50±12.61	44.40±5.32	37.60±7.65
Years in current job (mean ±SD)	8.67±7.94	9.40±5.03	13.80±9.07
Gender *n (%)*			
Female	3 (50%)	3 (60%)	3 (60%)
Male	3 (50%)	2 (40%)	2 (40%)
Practice Sites *n (%)*			
PHC at sub-district	5 (83%)	2 (40%)	0
Independent practice/clinic	1 (17%)	3 (60%)	0
Course of Instruction *n (%)*			
Public health nursing	0	0	4 (80%)
Chronic diseases	0	0	1 (20%)

A total of 817 codes were identified, which were collapsed into 13 categories that are detailed below. The 13 categories were then grouped into four themes. Four themes

that were identified from the FGD categories are: “care for individuals of all ages,” “care for families,” “care for communities,” and “nursing practice unique to rural settings.”

Theme 1: Care for Individual of All Ages

The first theme stressed rural nurses’ roles in caring for both healthy and sick individuals, predominantly covering health promotion, health prevention, and curative aspect of care. The rural nurses provided cared for infant, children, adolescent, adult, and older persons across their lifespan. They provided common primary procedures such as preventive measures, early detection procedures, basic nursing care, and emergency procedures. They acknowledged an insufficient knowledge in emergency procedures related skills.

Category 1: Healthy Individuals

Rural nurses provided care for healthy individuals who belong to groups at high risk for various diseases, such as women, adolescent, and children to promote healthy lifestyle and prevent disease outbreaks. For example, rural nurses assessed and provided guidance to a woman “about family planning” (FI_155). This type of care can be considered wellness care and is provided at primary health care facilities, either through outpatient service or as part of outreach programs to reach entire populations. Another example is vaccination care given to a healthy child. Participants explained that they assessed a healthy child and analyzed factors that affected the child’s growth, nutritional status, and immunization status. While a healthy child received a vaccination, a sick child was referred for further treatment. Participants stated that if a child failed to revisit the

health center or an integrated health post where an outreach program was held, they decided to visit these children "at their houses so that these children get the shots/immunization" (FM_226-227). An integrated health post, nationally known as "pos pelayanan terpadu, in short 'posyandu'," was a community level health station that covered 100 children under five years of age, managed by community health workers (CHWs), and supervised by public health center. In this health station, primary health care providers (*i.e.*, nurses) delivered care that included maternal and child health, family planning, and immunization. Providing wellness care required rural nurses to have skills on how to "maintain cold chain and how to carry and manage a vaccine" and "provide post-vaccination care' based on existing standards / procedures" (FM_122-124). Rural nurses noted that based on their observations and experiences, parents needed health education and counseling so that they would know "about what to do after their child got vaccinated" (FM_128), for example, how "to provide warm compresses" (FM_131). Caring for healthy individuals therefore involved both health promotion and disease prevention.

Category 2: Short-term Care for Common Illnesses and Emergency Cases

Rural nurses also provided short-term care to individuals with common illnesses and emergency conditions. Participants explained how acute illness and emergency cases, such as head trauma, convulsion, cardiac attack, stroke, rabies, tetanus, and diphtheria, could lead to chronic conditions if not treated correctly. Participants also noted that they managed communicable diseases and some new emerging diseases that could lead to outbreak, such as diarrhea, dengue, tuberculosis, and avian flu. As primary health care

providers, rural nurses stated that in providing short-term care "they rarely provided advanced nursing procedures" but focused more on "providing basic nursing care, emergency procedures, and doing early detection before referring the patients to a hospital" (FM_178-179). Some important basic nursing care and primary health care procedures that rural nurses frequently performed were: suturing and plastering, wound debridement, vital sign monitoring, specimen collection for laboratory or diagnostic test such as sputum for Acid-fast Bacillus (AFB) smear, oxygen administration, medication administration (oral, injection, and infusion), skin test, and cold and warm compresses. With regards to diagnostic testing participants said, "we also do a simple laboratory test, for example, we do stick test to DM patients for blood sugar, sputum test (AFB) to TB patients" (FS_90-91). Participants explained that they learned "how to sterilize medical equipment in limited resources [setting] and using simple instruments" (FS_145-146).

Participants noted that they observe safety in their daily activities. One of the participants commented that "using two/double gloves" (FM_176-177) while helping patient with massive bleeding was one way to apply universal precaution for a safe practice. Participants mentioned that rural nurses performed some emergency procedures and care that commonly needed in primary health care facilities such as bandages/splitting, basic life support, hemorrhagic or anaphylactic shock, and delivering and care of newborn. However, these skills were not fully developed by healthcare providers in rural settings and therefore they were not ready when handling emergency cases. Participants cautiously articulated that "midwives panicked when handling an emergency patient" (FS_168), "a nurse colleague did not know how to handle an emergency case" (FI_216), "a dentist got confused with a collapsed patient" (FM_141),

and “doctors have different opinion on doing treatments” (FS_128). Participants recommended that “these skills must be enriched and updated regularly” (FS_193) because handling emergency cases were part of daily activities.

Theme 2: Care for Family

The second theme reflected rural nurses’ roles in educating families about how to care for diseased family members and being involved in curing and restoring health. This nursing care was provided in the form of long-term home care in the light of a continuum of care. The main idea of providing long-term care at home was to reduce family’s health spending. Since caring for a family member served as an entry point to reach out to the family, this role was considered as part of community health nursing area of practice. Also, rural nurses believed that in order to provide long-term care across the continuum of care they need to enrich some advanced nursing skills such as case management to practice independently while promoting interprofessional collaboration.

Category 1: Family’s Involvement and Self-care

Promoting family function and involvement to self-care for restoring a family member heath status was part of rural nurses’ tasks. Rural nurses perceived that involving family in nursing care activities was very important particularly in providing care to patients with chronic conditions and/or patients with diseases leading to chronic conditions. The main purpose of involving family was that gradually family would take over responsibility for care and help its sick member to “return to their previous health status” (FS_94). Family’s independence was the main outcome as rural nurses stated, “in

this service, it is how we take care of our chronically ill patients [and their families] to help them to be independent" (FM_14-15). To be able to work closely with family, rural nurses were required to adjust their time and services based on a patient's preferences. One of the examples expressed by participants was when caring for elderly patients, they stated: "to take care of elderly people if we visit them in the morning it is not effective because in the morning, member of family is working, so the ideal is to visit them in the afternoon" (FF_245-247).

Category 2: Long-term Care in the Light of Services Across the Continuum of Care

Participants illustrated that providing rehabilitative care to "patients with chronic conditions or patients with diseases leading to chronic conditions took a long time" (FS_93). They identified chronic cases commonly suffered by their adult patients such as hypertension, stroke, DM, cancer, rheumatoid arthritis, and osteoporosis. They also recognized some common communicable diseases that could lead to chronic conditions such as TBC and MDR-TB, HIV/AIDS, and dengue or malaria. In addition, participants thought that malnourishment was also to be considered as a chronic condition that required "follow-up treatment." Participants frequently used the terms "a follow-up visit" and "a follow-up home visit" to describe how they provided long-term care, in which, either patients regularly visited a health center or it was rural nurses made a home visit. To describe what long-term efforts a patient with a chronic condition needed, participants used a post-stroke patient as an example. They stated, "it is impossible to be in a hospital forever" (FI_172). Although, how frequent visits should be was not mentioned

specifically, a group described how a TBC patient required “home visits for six months” (FM_102).

Participants expressed that their roles in long-term care reflect nurses’ contribution to promoting the continuum of care within their health system. When discussing how they would describe the continuum of care in their everyday practice, participants mentioned phrases such as “an extension of care,” and “continuous health care of patients” (FM_12; FS_12). For participants, a continuous health care of patients denotes health service linkages that signify “a connection between health care providers” in primary health services and those in secondary health services, such as hospitals (FF_238-239). This connection would only happen if nurses were involved in discharge planning to prepare for a post-hospital care. Further the nurses stated, “nurses in primary health care services should be involved when a patient is referred back [to primary health care] by the hospital” (FM_99-100). With the increased number of elderly and people with chronic conditions in rural settings, the concept of continuum of care can benefit rural populations in several ways. First, rural nurses would reinforce family’s function and responsibility to restore its member health status by involving them in the delivery of care at home. Second, rural nurses would strengthen community involvement in maintaining people’s health status, as the participants said, “continuum of care in rural areas means that the community becomes able to take care of themselves” (FM_13-14). Third, rural nurses believed that this service would reduce economic burdens on healthcare as they said, “these people if they call us, we provide an on-call service; they will get an affordable service that can reduce their burdens. The service that we provide can save their time and money” (FI_48-50).

Category 3: A two-face of a Coin: Independent Practice and Interdisciplinary Efforts

Rural nurses believed that working independently was already part of their daily practice. For them it is important to independently making clinical reasoning and judgment prior to manage patients. The nurses said, *"* I always do an independent analysis" (FI_385-386) and "to do simple diagnostic test to help in making a decision or diagnose" (FS_145-146). Through these statements participants illuminated that rural nurses independently analyzed a case for ruling out symptoms. Participants also affirmed that rural nurses were very analytical in terms of treatment's options as they expounded: " Sometimes when we need a particular drug, that drug is not available we then do either to replace that drug or to just do the health education" (FS_199-200). While working independently was routine, participants also highlighted that it was impossible to work alone in rural settings. Participants believed that rural nurses needed to work collaboratively with other health care providers including with physicians as one of them said, "to me that is professionalism all about …. to communicate with other health profession, aside from with [the] physicians" (FI-405-410). Nonetheless, if they compared with nurses who worked in hospital in urban settings, they acknowledged that "a collaborative role in a hospital was more prominent" (FF_180). Participants were able to explicate that interdisciplinary teamwork could be enhanced in rural health care settings and it should be learned in school. One group stated that "we prepare the nurses to be independently to practice nursing care" (FF_69-70) but "we also teach them on how to consult and communicate with doctors if need be" (FF_51). These statements imply that providing long-term care in the light of continuum of care for family members required nurses to exercise their communication skill to promote interdisciplinary

teamwork while maintaining their independent nursing practice. Thus, embedding and connecting these two aspects, independency and interdependency, is important in rural nursing practice.

Category 4: Home Care as a Community Health Nursing Domain

Participants associated the continuum of care with home care services as one group expressed directly in their discussion, "Continuum means home care service, a service that is continued and done in patient's home" (FS_12). As they focused on the role of nurses in home care, participants emphasized that "when patient is discharged from a hospital, this patient is in the area of community health nursing" (FF-237-238). However, some participants acknowledged that although rural nurses did home care, their role across the continuum of care was not yet fully developed. Participants expressed that "home visit is a classical problem in [public] health centers" (FF_242-243) and they pinpointed several problem areas. The first area related to communications among health care facilities, as "there is no link yet between nurses in health centers and [nurses] in hospitals" (FF_238-239). The second area was about the limited number of nurses: "this problem is related to the number of health care providers or professionals in health centers" (FF_242-244). Finally, some participants were concerned about the extra cost should a nurse work overtime and visit their patients after office hours: "the problem is related to who will provide us money for transport … if we use motorbikes that belong to the health center, we need gas and also [meals]" (FF_244-245).

This concern of extra cost was related to the fact that "nursing services were not covered under the national health plan" (FF_248) and that "community health nursing

services was not considered one of the primary health care program's priority anymore, it [was] only an attachment, thus it [was] not done well and only done in a nurse's spare time" (FF_200-202). As a result, nurses in health centers "did not [engage in] community health nursing practice" to the fullest. Instead nurses "just sit in the clinic section or outpatient section of health centers and provide medical treatment to their patients" (FF_109-110).

Category 5: Case Management and Advanced Nursing Skills

Participants described rural nurses' responsibilities as case managers with advanced nursing skills. First, rural nurses were responsible for identifying what patients were in need of case management. Participants stated that rural nurses examined the health history comprehensively to find root causes of a health problem. They said, "she/he would go to the family, would do assessment and analyze people or family's health problem" (FF_151-152). Health history taking included obtaining data through "physical and psychosocial assessments," "family functions and dynamics," and "community resources." (FM_151-154; FI_368; FF_151) Further, rural nurses would integrate and interpret data from different resources, including data from "diagnostic tests" and data regarding social determinants of health" (FM_216; FS_145). Culture was regarded as a social determinant of health, which participants mentioned repeatedly. Therefore, analyzing cultural aspects was considered crucial for rural nurses so they could understand peoples' health awareness and reasons behind their patient's behaviors. It also helps the nurses to expect the likely response of their patients toward their treatment regiments. The following are participants' statements:

> …cultural aspects can influence the health status of a person. If a sick person, for example, after taking the pill [drug, tablet] etc., [she/he] still does not feel well [she/he did not get cured and], we need to think about that person's cultural / spiritual aspects (FI_69-71).

Participants acknowledged that assessment and analysis of peoples' health was part of nursing care activities to come up with "a nursing care plan" that incorporated a case management plan before "carrying out some [nursing] activities to resolve the problems" (FF_151-154).

Second, rural nurses were responsible for preventing fragmented care. The rural nurses did so by developing skills associated with decision making, coordinating, and managing. These skills were important to help them "[to] reach their goal" (FM_56-57) stated in nursing care plans. For example, participants stated that "we do work in teams. A team is settled based on a type of activity" (FS_104-105). This statement implies that coordination was part of their daily working in health centers. As one aspect of managing is task delegation, participants also acknowledged the importance of having the skills to maintain "patient records" and how to "monitor and report" (FI_212; FM_59). The participants said, "Based on the patient's medical record, for the follow-up visit on patient, the nurses or midwives who are delegated a task can prescribe /dispense" (FM_189-190).

Third, rural nurses were responsible to be advanced in nursing procedure and treatment that commonly needed by rural patients with chronic conditions. Participants mentioned about procedures and treatments such as physiotherapy, wound care,

nutritional therapy, and therapy modalities or complementary therapy, and palliative and end-of-life care. Participants in all groups explicated some complementary therapies such as acupuncture, acupressure, and *giok therapy* that they provided to their patients. With regards therapy modalities, participants mentioned that these therapies should match with cultural context and local resources so that they are relatively available at any time, must be cheap and affordable, and should be related with rural people's needs. Participants mentioned about "anything that is related with local dietary" (FS_17-20) to explain about nutritional therapy / treatment. Participants were able to illustrate how the use of complimentary therapy could have helped improving patients' "blood circulation" (FI_101-104) and activate "neurological functions" (FI_390-392).

Theme 3: Care for Communities

The third theme reflected rural nurses' roles in linking people to health services and in mobilizing community partnership to prevent disease outbreak and the spread of communicable diseases leading to chronic conditions. Rural nurses must simultaneously assist in improving the community's healthy lifestyle and environment. Additionally, rural nurses also believed that the enforcement of health care practice laws was part of their role in advocating for rural people.

Category 1: Linking People to Health Services

Participants expressed that part of their role in the community was to help individuals and families to get access to health services. They emphasized the importance of an outreach program such as posyandu in rural villages, in this endeavor. To help

people who hesitated to get health care services in health centers, these rural nurses visited the families, as they said: “We need to visit them and motivate them to get health care / treatment or to motivate them…. We tell them on so many reasons for them to get health service/treatment/immunization” (FM_223-227).

Participants considered that “in rural villages, the problems are complex and many people do not want to visit health centers” (FM_222). The nurses explained how they needed to “work with village leaders” to link people with health care services (FM_52-53). They mentioned an example of how “[they worked] with village leaders so that the patients will get the access to a social safety program under a new health program initiative or new welfare program that is introduced by central government” (FM_219; FM_52-53). Carrying out this role was considered a tough task because often, “a new program initiate is handed over directly to the community” while nurses are not fully informed about the program. (FM_55-58). As a result, the rural nurses were “forced to confront people in the community” about general issues and concerns around these new programs, such as requiring paperwork for a procedure. Participants recommended that rural nurses needed to “learn about so many things” and to improve their skills with regards negotiation and advocacy to successfully deal with the communities (FM_222).

Category 2: Mobilizing Community Partnerships and Collaboration

Participants stated that rural nurses became partners of local leaders in founding and maintaining community development activities. Working collaboratively with leaders in the village, rural nurses helped community members to identify health problems. Participants reiterated some health problems they had dealt with in partnership with the

rural communities such as “[maintaining] healthy environments”, “dengue fever outbreaks”, and “malnutrition” (FI_160; FS_217; FM_220). In conjunction with a “village assembly” (FM_106), a group of assigned leaders, rural nurses developed plans, mobilized resources, and implemented strategies for reaching established goals collectively. Rural nurses worked closely with “health cadres, [as community health workers], whom they trained to carry out some activities in health posts and in home visit to motivate members of community” (FS_96-97). Participants also explicated that not all rural nurses had the chance to perform this role comprehensively especially if they worked in public health centers that located in sub-district level. Rural nurses who were assigned as health program coordinators had more chances to exercise their role in community development. Some sections in sub-district health centers allowed nurses to exercise this role to the full. Sections in health centers located in sub-district such as mother and child health, nutrition, immunizations, TB program, or health promotion program was where nurses had more chance to work collaboratively with local leaders in the community. Nurses who were assigned in health promotion section had the responsibility to train community leaders because “health cadres’ activities and development programs are under the care of health promotion section/program” (FS_101-102).

Participants also expounded that maintaining communication between health care programs was very important because many programs were interrelated, saying, “programs such as KIA [abbreviation for Kesehatan Ibu dan Anak or maternal and child health], nutrition, and immunization are interconnected and are our program’s priority” (FM_51-53). Multiple health care professionals were involved in this collaborative

communication. For example, nurses employed in the sub-district belonged to a specific health care program. So a sub-district senior nurse who was assigned as health program coordinator had to maintain communication with other health program coordinators and with health care providers in villages. Nurses were some of these health care providers and frequently had the chance to work collaboratively with local leaders. Participants said,

> Nurses are invited by the chief of a village, and [it is] usually [those] nurses who reside in the same village, or nurse or midwife who runs a PUSTU or PUSKESMAS pembantu' [a satellite health center located in village level][who are invited] (FS_210-212).

But participants explicated a concern that although both nurses and midwives were assigned in villages and in fact, the number of midwives who worked in villages outweighed the number of nurses. "These village nurses or midwives worked together to carry out health programs that were designed / planned by a health program coordinator in a sub-district health center" (FM_53-55). All of the programs run in sub-district health centers and in villages were the responsibility of the chief of sub-district health centers, who could be either a doctor or nurse.

Category 3: Promotive and Preventive Measures for the Community

Participants expressed the importance of providing both promotive and preventive measures to the communities. With regards to promotive measures, participants reiterated programs such as health education and campaigning to motivate and encourage rural

people to maintain a healthy lifestyle and a healthy environment. They also thought that they needed to improve traditional healers' knowledge on health, as the role of the traditional healer was still influential in the rural areas but healers were not formally educated. They stated that "being sick or healthy can be seen from different perspective" (FI_73-81) by rural people, implying a need for a holistic approach to health care that covers social cultural aspects. The participants assumed that the promotive programs were very important to improve rural peoples' awareness, as most rural people still believed that "the reason they get the disease is because of [genetics] or because of their destiny and fate" (FF_101-104). Further they stated that, "[they] noticed that patients' knowledge of a disease and disease therapy is a problematic, [so] they go to visit a shaman/healer" (FI_130-132).

With regards to preventive measures, participants mentioned immunization programs, early detection of any health problems, and improvements to healthy environment program. Participants mentioned activities to "eradicate breeding place of Aedes Agypty and other mosquitos," to free rural people from the cause of malaria and dengue fever (FS_80). They believed that working collaboratively with the communities could help "prevent outbreak of diseases," including preventing the spread of any new emerging disease (FM_212; FI_160).

Theme 4: Nursing Practice Unique to Rural Settings

The fourth theme reflected views expressed by rural nurses with regards to nursing practice in rural settings. Rural nurses deal with different belief and health demands in their locality, so rural nurses need to possess personal characteristics and

attitudes and to develop particular skills suited to nursing practice in rural settings. Participants highlighted commonalities and differences between urban and rural nurses.

Category 1: Rural versus Urban People

Participants noted that the social culture of a community affects the community's attitude towards care. In rural areas, "the community is more homogeneous, where everyone has a familial relationship, unlike in the city [urban] where the community is more heterogeneous" (FM_167-168). Further, participants stated that in rural areas, "the [social interaction] between people in the community is higher" (FM_155-158). Unlike in urban settings, in rural areas, "if one person gets sick, all are involved"(FM_158) — "if one person gets sick, the whole family will accompany the patient [to a health facility] and their neighbors will join" (FM_156-157). The depth of familial relationships and social interactions in rural areas also affected how rural people interacted with rural nurses. Participants noted that the patient-nurse relationships persist for years in rural settings and "appreciation for health care providers from rural communities is higher than in urban settings" (FM_161-162). However, this social interaction was not without challenges, as participants mentioned "…working in rural settings means a 24/7 job, although we are not on duty, people continuously seek our help, even when we meet them in a local market" (FM_238-240). Therefore, rural nurses need "to be ready at any time" (FM_240). As for practicing in urban settings, they noted that the emotional and social bond was not visible between patients and nurses in the hospital, as they said "after discharging then [the relationship] is done". (FM_235).

Additionally, participants made a strong suggestion that rural nurses need to use different approaches when dealing with rural people, "especially in how to communicate with [rural people]" (FM_160). They mentioned the importance of being kind and providing "compassionate care" (FI_89) because in rural areas "patients have a 'belief/faith' that they will not be abandoned by family or the community when they need help" (FI_93-94). This cultural reality in rural areas differed from the reality in urban areas. The nurses stated "…patients [in urban areas] have money and have materials [that they exchange in compensation for care]" (FI_91-93). This description implies that nursing services deal with different expectations for care. In urban environments, people take comfort in the fact that they can pay for care. In rural environments, the lack of material resources forces people to draw strength from immaterial resources—their connections with other people. The influence of social culture and low economic status suggest that rural people demanded "caring and compassionate care from someone who will take care of them kindly" (FI_90). Participants emphasized, "people come to us to get service from our heart" (FI_94). These rural patients do not have the resources to access advanced medical care so "the patients have accepted their conditions" (FI_95-96) and "will live with their illness to the end of their lives" (FI_94-95). Thus, "being friendly and hospitable" (FM_163) was considered to be necessary attitudes for rural nurses to possess in order to provide compassionate care.

Participants further elaborated "…caring, especially good communication skills and a gentle touch is of advantageous value to nurses who work in rural settings" (FI_85). With regards to communication skills, participants also stated: "In rural area, the important thing is to be smart in communicating something, which means that a person

need to understand the local culture/tradition, understand people's characters, and how to present one's self in front of others" (FS_160-162). However, effective communication with rural patients is also challenging, as participants also stated that "differences in culturally-based attitudes/ practices are very apparent among people from one village to another village". They acknowledged, "this particular culture/tradition, found in each village, is the important thing for [rural nurses] to learn (FS_47-48) so that they could "avoid any problems when dealing with patients and be accepted by rural people" (FM_164-166). Communication is also established with a patient during first contact. As a result, the participants also viewed the first contact as especially important, as this contact "will encourage patients develop closeness to the nurse and serve as the first medication to cure their illness" (FI_88-89). Rural nurses learn this skill in school and improve it along their career trajectory.

Category 2: Multitasking

Working in a primary healthcare facility in rural setting with limited resources demanded rural nurses to work beyond typical nursing domains. The nurses spoke about role shifting and multitasking. All groups reiterated that they usually perform the following activities in the absence of other health care providers or when number of staff was limited: diagnostic testing, prescribing, drug dispensary, household and medical equipment maintenance. With regards this multitasking participants stated:

> O my God, nurses in health center, were ok [good] with administration. If we had problem with light/bulb or we had black out we were there to resolve. If we had problem with water – leakage, it was us whom people would call, all aspects. If

> the nebulizer was broken we repaired it. We had to know many things (FS_218-280).

Rural nurses considered that these additional tasks dragged them away from their original task, as one of the participants stated:

> All the jobs are important. Actually, as a nurse, what I wanted was to run a program in line with my own profession, the nursing profession, but because they needed someone who has a special attitude; careful, accurate, and conscientious to manage drug dispensary, for example, and because they had difficulty to find someone else, they assigned me to that post/job; so I took that job (FM_74-77).

Yet, participants believed that functioning beyond the nursing domain was very contextual and dependent on the needs, as they said, "When they work in a place or a work field, they would be asked to do some additional roles/ functions; it depends on the needs of that work place/field" (FF_178-180). Further, participants reported an example, "We prepared the nurses with different focus … we did not teach them about how to cure but when they work in a health center they learn [and improve their skills] on how to cure" (FF-119-123).

Category 3: Rural versus Urban Nursing Practice

Participants distinguished between nursing practices in rural and urban settings and referred to rural nursing practice as nursing practice in primary health care facilities. On the other hand, participants indicated that the majority of nurses in urban setting practiced in the secondary or tertiary care facilities such as in district hospitals. While

underlining some distinctions, they agreed to one another that "the role of nurses in rural and urban areas are alike" (FM_159) and "basically it's the same" (FS_63) in which both took care of patients and were prepared with "the same purpose to be [general and] vocational nurses" (FF_178). However, they identified some differences in terms of the type of patients that nurses served and in terms of the nurses' roles. Participants noted that "patients with advanced illnesses usually go directly to the hospitals" (FM_106) which are located in urban areas where urban nurses worked. On the other hand, in rural areas, nurses treated "some not-complicated cases and not-so advanced cases" (FM_103-105) in primary health care facilities. Participants further elaborated that in the hospitals, "curative and rehabilitative cares were more prominent" (FM_103-104) and nurse in the hospitals "usually do his/her job based on the doctor's instructions" (FS_117-118). Therefore, "the collaborative role in the hospital was more noticeable" (FF_180*)*. In contrast, participants noted that in primary health care facilities while "giving concern to preventive and promotive cares" (FI_151), "most of the time nurses must work independently" to provide curative care (FS_118-119). Further, participants stated that compared to urban hospital nurses, rural nurses "understood about drug of choices" (FF_186) to treat cases that commonly occurred in primary health care facilities, such as hypertension, respiratory infection, diarrhea, and TBC. Participants explained that rural nurses "use a protocol or guidebook to treat cases because they are involved in medical treatment in rural health centers" (FF_188-189).

Participants admitted that because of limited number of health care providers, nurses were forced /obliged to "not purely do nursing practice" (FF_196). They acknowledged that nurse-run curative care was not a new emerging role in primary health

care. A long time ago ‘mantri’, an old era nurse, provided curative care to the rural community. One of participants stated, “they were called ‘mantri’ because of their age and the type of their practice [at that time] … and these mantri graduated from a high school level of education” (FI_338-340). However, participants considered that mantri practiced in an era where diseases were fewer and only “needed simple treatment [drugs] to cure” which is different to nursing practice in present days where there are “so many drugs that could lead to allergies” (FI_340-342), let alone drug resistant cases.

Rural nurses provided curative care that required them to prescribe, treat, and medicate conditions because they were “the only health care provider”, when “only one physician is available”, or when “there was no physician around” (FS_88-90). This curative role was very prominent, when they worked in remote area, as they said,

> When a nurse is working alone in a rural /remote area or in a Pustu [a satellite health center] located in a village, the important aspect of his/her job is to give medication / therapy to cure his/her patients because of the immediate need of the people in that place (FS_111-113).

Participants considered that rural nurses are nurses who work fulltime as public health nurses in public health facilities in rural areas (FS_27; FM_43). However, rural nurses can also be fulltime urban hospital or public health nurses who run an independent practice in rural areas as their side job (FF_113; FI_50; FI_456). Understanding the need for health care facilities in rural areas forced urban hospital nurses to run “an independent practice” in rural or sub-urban areas as their side job as one group mentioned, “I run this practice because of the social economical factor of my patient [affordability]” (FI_39).

Participants also believed that running an independent practice could give people more access to primary health services, as they said, “the first reason to run an independent practice is because so many people who have no access [limited access] to primary health service” (FI_122-123). Participants described an independent practice when nurses “accept patients who come to their residents for a curative aspect [medical therapy]” (FF_113). Independent practice also could be in a form where nurses “provide care in a patient’s home” (FI_174) on their own, in response to a patient’s calls (FI_267). These nurses usually provided homecare independently as a side job without any affiliation with health facilities where they were employed. Participants reported that there was “a new emerging independent practice in which nurses run their practice in their own clinics” (FI_245) and providing care on a “regular basis” that allowed patients to “visit during office hours” (FI_253).

Discussions

The results of group discussions on rural nursing roles and responsibilities showed that rural nurses are primary health care providers for individuals, families, and the community at large. As primary health care providers rural nurses provided nursing care that is very contextual tailored to the needs of people in rural settings. The following sections are organized logically to describe significant rural nursing roles and competencies in the themes related to care of individuals, families, and communities. From this analysis and discussion rural nurses’ competencies across the continuum of care emerged.

Rural Nurses' Roles and Advanced Skills

The findings of this study emphasize the different role of rural nurses. Rural nurses clearly identified that caring for individuals of all ages throughout their lifespan is their 'initial role' in primary health care (PHC) settings because individuals were the patients they encountered frequently first. As the peripheral service delivery, a PHC facility is the first place rural people go when they need care or treatment of illness (Heywood & Choi, 2010; Sangster-Gomley, Martin-Misener, & Burge, 2013). The initial role focuses on providing wellness care and episodic care to individuals, from infants to the elderly. This wellness and episodic care can be provided as outpatients in PHC facilities or in the community as part of outreach programs. Their roles in wellness care for individuals emphasize preventing disease outbreak and promoting a healthy lifestyle. Wellness care includes care for healthy individuals, such as for children receiving immunization and for women receiving contraceptive and family planning services. Their roles in episodic care mainly involve providing short-term nursing care to individuals with health problems and illnesses that PHC providers commonly deal with. These common health problems include acute illnesses or emergency cases, non-communicable and communicable diseases, and new emerging diseases. These diseases that can lead to outbreak of the disease or chronic conditions have become public health concern globally (Ahmad, 2011; WHO, 2008).

To support their roles in caring for individuals of all ages rural nurses frequently perform some clinical/technical procedures and skills that cover the assessment, planning, and evaluation of care of all age groups throughout the lifespan. These clinical skills

include basic nursing procedures and primary health care procedures that contain emergency procedures and triage, the referral or transfer of patients to more advanced healthcare facilities, vaccination and cold chain procedures, health education and counseling, suturing, debridement, vital sign monitoring, specimen collection for laboratory tests, oxygen administration, medication administration, skin tests, and the application of warm/cold compresses. Working in rural areas with limited resources has navigated nurses to creatively and wisely observe universal precautions, patient safety, and infection control. The importance of these skills to rural nurses has been identified in other studies (Bossyns & Lerberghe, 2004; Hurme, 2009; Nikula et al., 2009; Strasser, London, & Kortenbout, 2005).

The second theme of caring for family was deemed central to nurses in rural PHC facilities. This finding supports the fact that family-centered care has been an integral part of PHC in Indonesia, especially as an approach to care for children and their families (Shield & Hartati, 2006). However, this study revealed that nurses also play an important role in caring for not only children and their families but individuals of all ages and their families in rural settings. Rural nurses cover numerous families whose member(s) belong to high-risk groups and suffered from illness leading to chronic conditions, or live with chronic illnesses. In doing so, rural nurses ensure that care is planned and provided around the whole families such as family with malnourished children and family whose member(s) live with HIV/AIDS, contract TBC, or suffer from stroke and cardiovascular diseases. Findings from this study also implied that caring for family with chronic illness involves caring for their caregivers who often became burnt out and at risk for poor health status (Kipp, Tindyebwa, Jaranagi, & Rubaale, 2007). In particular, this study

revealed rural nurses' recognition that family involvement in caring for individuals with chronic conditions as a key success in long-term care. This long-term care fosters continuous efforts through recurrent follow-up visits that required both patients and family to frequently and actively engage in care either at home or in PHC facilities. Previous studies identified that providing long-term care in rural areas not only improved patients' health status but also caregivers' psychosocial well-being (Skovdal & Ogutu, 2009). Thus, caring for family becomes 'central role' to rural nurses because it focuses on providing long-term care to promote family, as the unit of care, to be self-supporting for its member.

Findings from this study also revealed that, despite the fact that rural nurses' competency in long-term care is not fully developed; rural nurses believed they promoted continuum of care in their local health system. As primary health care providers, rural nurses foster a sequence of care events that may begin in PHC facilities or at home during home visits (McBryde-Foster & Allen, 2005). Further, long-term care enables them to maintain communications not only with patients and families but also with other nurses and healthcare professionals from different levels of healthcare facilities. For these nurses, being involved in discharge planning was considered strategic for promoting a linkage, such that continuation of care will be upheld. As noted in existing literature, an effective continuum of care strengthens the links among health facilities assuring the appropriate care and intervention is delivered by each health facilities (Graft-Johnosn et al., 2007).

Findings from this study revealed that to provide long-term care effectively and therefore foster services across the continuum of care, rural nurses must combine two aspects in their practice—working independently and in collaboration with other health care providers. In addition, working in the rural health environment required rural nurses to apply the case management approach to prevent the fragmentation of care delivery and to foster collaboration with others, demanding them to enhance their ability to communicate openly and effectively (Bridges, 2013). In this study, the researcher found that rural nurses have the ability to identify persons at risk, to effectively take medical histories, and to conduct diagnostic testing. Also, rural nurses do diagnose and treat diseases by dispensing and prescribing rational drugs from a list of items based on PHC standing orders or prescribing interventions such as wound care or complimentary therapy. They also became involved in palliative and end-of-life care. These findings were similar to those of a previous study—rural nurses assess, diagnose, and treat their patients' illness independently, and prescribed rational drugs, medical products or interventions either independently or collaboratively with medical advice (Cant, Birks, Porteer, Jacob, & Cooper, 2011). As a consequence, rural nurses need to be self-confident and competent in health history taking and analytical skills to aid them in making an effective clinical decision (Hagbaghery, Salsali, & Ahmadi, 2014). Comprehensive skills in patient assessment were essential to advanced nursing practice (Carryer et al., 2007). Previous studies identified the above skills as features of rural nursing advanced practice (Araoyinbo & Bateganya, 2008; Delobelle, et al., 2009; Kyabayinze et al., 2010; Nyamathi et al., 2008; Rashid, 2010; Sanne, et al., 2010; Schellenberg et al., 2004; Strasser et al., 2005; Talashek et al., 2007; Vallema, Durheim, & Smith, 2008; Young,

Koch, & Preston, 2007). These advanced nursing skills fall in the realm of primary health care services for individuals and families with direct contact, comprehensive care, and case management (Barnes et al., 1995; Price et al., 1992).

The protraction of practice in rural PHC facilities was seen as essential in the third theme of caring for communities. The protraction of practice refers to rural nurses' efforts, using case-finding route, to enable them to stretch their function to the fullest regarding health promotion and diseases prevention within the community and population at large. Treating individual patients in PHC facilities assisted rural nurses in discovering new cases in patients' families and allowed rural nurses to reach out to groups at risk in the community. This 'protraction role' required rural nurses to be critical in raising awareness of public health issues. This community-oriented care is designed to prevent the spread of communicable diseases leading to chronic diseases, modify lifestyles leading to non-communicable diseases, promote a healthy environment, and strengthen the community's resources and capability to support long-term care.

Findings from this study emphasized the importance of developing community-oriented skills beneficial to rural nurses' roles as community organizers and case finders. Being able to recognize a disease outbreak in their community or nearby communities was of high importance in the work of nurses in public health settings (Alexander et al., 2008). Community-oriented skills include the ability to link people to service, to mobilize community partnerships and collaborations, to enforce laws and regulations, and to research for innovative solutions. Findings from this study support results in other studies—to foster these skills, rural nurses need to develop cultural competency, policy

and planning skills, and public health related skills, such as epidemiological surveillance and screening (Ajayi et al., 2009; Bigbee, Otterness, & Gehrke, 2010; Issel, Baldwin, Lyons, & Madamala, 2006; Kalb et al., 2006;). These community-oriented skills emphasize rural nurses' roles and responsibilities in PHC, focused on the health of the population. PHC services include the three levels of prevention targeting both health needs and inequalities. PHC involves community participation and links to the determinant of health aiming to protect and promote health and prevent diseases collectively (Barnes et al., 1995; Ross, 2008). To conclude, this study highlights four features of primary health care services that include first-contact access for each new need, long-term person-focused care, comprehensive care for the greatest number of people, and coordinated care when it must be sought elsewhere (Bodenheimer & Pham, 2010; Naylor & Kurtzman, 2010; Starfield, Shi, & Macinko, 2005).

Importance of Rural-oriented Approaches

The fourth theme underlines some important findings with regards to nursing practice unique to rural settings. Rural nurses work in settings with limited resources and must interact differently with people based on their cultural background. Rural people, while having limited access to primary health care facilities are strongly connected to their culture. This cultural aspect shapes their health belief and often navigates their judgments on whether or not to access to health care services. Rural people's strong cultural traditional practice and their low economic status force them to accept their destiny if rural health care facilities have no more to offer to cure them. Findings from this study reveal that rural nurses were able to interpret this uniqueness and transform

their practice to suit rural peoples' health care needs by providing compassionate care. In this way, they touch rural peoples' core values and beliefs through good communication and interpersonal skills. Nurses who work in rural areas must consider the common social and cultural aspects related to the rural context such as personal relationships, kinship, sense of belonging, and collective action for survival (Ross, 2008; Winters & Lee, 2010).

The difference in cultures and health behaviors of people in rural environments requires nurses to develop cultural competency to help them build relationships with their patients (Kalb et al., 2006). Knowledge of rural culture such as understanding local language and specific norms and beliefs helps nurses to establish rapport with their patients (Baernholdt, Jennings, Merwin, & Thornlow, 2010). Through a caring approach, rural nurses demonstrate their sincerity by accommodating emotional and social bonds offered by rural people. This sincerity enhances the patient-nurse relationship by complying with the values of familial relationships and social interactions embraced by rural people. Existing studies have revealed the importance of culturally-based approaches by showing how knowledge of rural health beliefs is important and serves as a pre-requisite for nurses to work effectively in rural areas (Baernholdt et, 2010). In the rural environments in which the nurses function, they need specific management and organizational skills in order to deliver services safely in isolation and in distant places (Speare et al., 2003; Winters & Lee, 2010). Community connectedness is perceived as important to rural people and it relates to the sense of belonging and collective action for survival. In rural areas, the patient and nurse's relationship is familiar in nature, as everyone knows each other, which creates a collaborative working atmosphere (Baernholdt et al., 2010). This connectedness emphasizes that they need to coordinate

with other team members and to collaborate multidisciplinary (Hurme, 2009). Also, it is important that while working independently, rural nurses need to be flexible.

Multitasking and Role Expansion

Multitasking as a feature of nursing function is unique to rural PHC facilities. Findings from this study revealed that rural nurses described themselves as multitaskers and many of their tasks fall beyond nursing care domains. Nurses performed some of the tasks that belong to other healthcare professionals such as diagnostic testing, drug dispensary, and household and medical equipment maintenance. By providing these tasks, rural nurses extended their roles in the absence of other healthcare professional (Daly & Carnwell, 2003). In addition, nurses performed the curative aspect of care in the form of treatment regiment and prescription. Providing these tasks encompassed role expansion and role development because they involved a higher level of clinical autonomy, greater responsibility, and a broader aspect of the management. This role form of expansion required advanced skills (Cant et al, 2011; Daly & Carnwell, 2003). This finding was similar to previous studies in which the rural nurse is considered a "jack of all trades" (Schafft, 2010). From an organizational point of view, this multitasking was helpful in rural settings where numbers of healthcare providers were limited. These adjunct roles were delegated to nurses to carry out and could boost the performance of the PHC facilities. However, nurses perceived that by performing these tasks they sacrificed a mandate from their profession that compelled nursing care be fully implemented.

Out of so many additional tasks rural nurses performed, the curative aspect of care became a tough issue and is considered as a dilemma. The idea that it is a dilemma appeared to be related to the fact that the nursing curriculum does not fully prepare nurses to perform this expanded scope of practice in general, including rural areas. In reality, many rural nurses who work in PHC facilities owned by local government developed this expanded skill in diagnosing and the curative aspect of care through their experiences and performed this expanded scope of practice based on PHC's guidebook on the treatments for diseases. This curative aspect of care was performed for decades by mantri, an old era nurse (Sciortino, 1995). This finding provided an indication that role expansion and role development were context-dependent; rural nurses expanded their scope of practice in response to the demands of the rural environment (Cant et al., 2011; Daly & Carnwell, 2003; ICN, 2010).

This role expansion and role development were curative aspect of care provided by a nurse-run home care or a nurse-run clinic as 'independent practice' has evolved. These nurses ran their own 'independent practice' without any affiliation with healthcare facilities where they worked fulltime. In 2010, Department of Health released a decree that allowed a certified independent practice nurse to run a 'praktik mandiri', [literately means an independent practice] in which nurses are allowed to provide services within nursing domain (Permenkes No. 148, 2010). The decree was ratified in 2013 (Permenkes No. 17, 2013). The scope of practice includes nursing care that covers promotive, preventive, curative, and rehabilitative aspect of care. Nurses are allowed to provide complementary therapy and administer/prescribe limited number of drugs that are labeled as green-circle drugs, best known as over-the-counter drugs, and blue-circle labeled drugs

such as paracetamol, mefenamic acid, and theophylline. In September 2014, House of Representative passed a Nursing Act that provided more opportunities for nurses who work in low resources settings such as in rural and remote areas. These opportunities included running an independent practice that covers more aspects of curative care than is stated in the existing decrees. However, nurses need to wait for a new governmental/ministerial regulation before the Nursing Act is ready to be implemented ("Perawat Bisa Buka Praktik," 2014; "RUU Keperawatan Disahkan DPR,", 2014; UURI No. 38, 2014)

Study Limitations

The results of this study may not portray all rural areas in the country even though this study took place in a province located centrally in Indonesia, connecting eastern and western provinces. In addition, trustworthiness of the finding was established in this study because researcher identified uniformity across group discussions. The researcher as investigator and interpreter may have been a limitation in establishing the internal coherence of this study. In addition, the researcher was unable to do member checking with participants after data analysis was done. However, credibility of this study was established during data collection. The researcher validated the participants' experiences throughout each FGD and clarified as well as discussed controversial issues with participants in subsequent FGD. Nevertheless, findings from this study should be used cautiously. Additionally, the last focus group included both staff nurses and managers. Combining staff and managers may have caused the staff to be less open about the issues discussed.

Conclusion

Exploring rural nurses' roles and responsibilities increased our understanding about the roles of the nurses in caring for patients in rural areas. This study reveals that rural nurses were PHC providers who delivered care ranging from wellness care and episodic care at the individual level, to long-term care for the whole family, and community care at the population level. In this study, rural nurses perceived essential functions in strengthening the family's ability to take over care for a sick member and in linking series of treatments to safeguard the continuum of care. This study revealed that there is a difference between practicing in rural settings and practicing in urban settings—rural nurses need to have an extensive range of skills to address a variety of health needs when working in an isolated environment. In addition, this study demonstrates that as rural nurses established role expansion, they developed several skills suited for practice in rural settings, magnifying culturally-based approaches and advanced nursing practice. However, while culturally-based approaches were developed purposefully from their training, rural nurses' clinical role expansion and advanced practice were without proper training that posted a challenge for patient's safety. Like urban nurses, rural nurses were uniformly trained as generalist and vocational nurses. This insufficiency of training requires an approach to improving rural nurses' quality care. Existing studies have identified that proper educational preparation through rural advanced PHC-tailored training enabled nurses to work independently to impact healthcare outcomes in rural and remote settings (Cant et al., 2011).

Participants from this study provided a glimpse that rural nurses in another provinces faced the same challenges and issues discussed. In fact, existing national and international studies reported similar issues and concerns faced by rural nurses (Husain et al, 2006; Indrati, 2004; Kerse et al., 2008; Sciortino, 1995). Hence, knowledge from this study creates a platform for two aspects; clinical performance assessment and competency development, both of which require an effort to identify competency indicators. Rural nursing competency indicators that feature fundamental aspects of nursing practice and care interventions in rural areas—the knowledge, skills, and personal attributes—are needed. Future research should include development of a competency inventory to ensure that rural nurses are able to perform their tasks and responsibilities safely and correctly. This should improve the quality of health care for rural people in light of rural nurses' new roles.

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CHAPTER FIVE

Manuscript Three

Indicators for Rural Nurses' Competencies Across the Continuum of Care

(Manuscript #3, to be submitted to *International Nursing Review*)

Abstract

Background: Studies suggested that as primary care providers, rural nurses deliver care in the form of wellness, episodic, and long-term care to people with communicable diseases (CD), noncommunicable diseases (NCD), and chronic lifelong conditions (CLC). Rural nurses also actively engaged in community care to assist rural people to get access to primary care while facilitating linkages of community-based health services with advanced healthcare facilities. However, while rural nurses' roles have evolved, their skills across the continuum of care are not well developed. In addition, information on rural nursing competencies across the continuum of care is limited and indicators for rural nursing competencies across the continuum of care are not comprehensively captured in the existing nursing competencies inventories.

Purpose: The purpose of this study was to construct and validate a competency inventory featuring indicators for Indonesian rural nurses' competencies across the continuum of care (RNCACC) including knowledge, skills, and personal attributes.

Methods: An on-line Delphi method was utilized including 11 experts, who were purposively recruited from nine provinces in Indonesia.

Findings: Two Delphi rounds (response rates of 73% and 100%) produced 106 indicators of RNCACC across the seven domains; episodic care, wellness care, long-term care, community care, communication and interpersonal, management and organizational and caring. The 106 indicators mean ratings were from 3.090 to 4.00 (SD = 0.302 – 1.328) (on a scale of 0-4); the majority of indicators were highly connected with key aspects of the continuum of care. Whereas the 106 indicators had content validity index (CVI) ranging from 0.73 to 1.00, the overall RNCACC had CVI of 0.954. Consequently,

the result of this study suggests that the next steps of an inventory development process are imperative.

Conclusion: This study serves as a basis for improving rural nurses' performance across the continuum of care.

Keywords**:** continuum of care, competency indicator, rural nurses, primary care providers, episodic care, wellness care, long-term care, caring, Delphi.

Introduction

In Indonesia, the levels of health care provided in rural and urban settings differ. In a rural setting, only primary health care (PHC) can be provided because hospitals are not established in these areas (Luan, 2014). Therefore any nurse that serves in a rural setting is a primary care nurse. In fact, the majority of Indonesian nurses work in primary health care both in rural and urban settings and rural nurses comprise 31to 54% of the total number of healthcare providers (Husain et al., 2006). Additionally, more instances of communicable diseases (CD) and noncommunicable diseases (NCD) that often develop into chronic lifelong conditions (CLC) are reported in rural areas (Indrati, 2004; Luan, 2014; Rashid, 2010; Sanne et al., 2010). As a result, rural nurses are more exposed to CD, NCD, and CLC. Findings from a current study in Indonesia revealed that these primary care nurses provided short-term care and long-term care for patients with CD, NCD, and CLC, covering community-based approaches. Functioning as case managers in

long-term care, rural nurses perceived the importance of their role for the improvement of the continuum of care within the local health system. The continuum of care refers to a sequence of care events that begins when a patient finds providers in at least one health facility within the healthcare system (McBryde-Foster & Allen, 2005). Rural nurses ensured that each individual had access to the appropriate service by facilitating the links between community-based and hospital-based health services (Luan, 2014). However, the study also revealed that rural nurses lacked the advanced skills to provide high quality care across the continuum, such as case management.

The absence of these necessary skills suggests the need for a program that measures and improves rural nurses' performance. A program to measure and improve the quality of nurses' performance will not only assist rural nurses in providing high quality care to rural communities but can also guide improvements in the rural health system as a whole by revealing the shortcomings of rural nurses (Koplan et al., 2009). Measuring the quality of care across the continuum requires standards and criteria, which begin with clearly identify indicators for rural nursing competencies across the continuum of care for patients with CD, NCD, and CLC in a rural context. This study aims to establish a competency inventory that consists of indicators within established domains of rural nurses' competencies across the continuum of care.

Background

Findings from literature review suggest that there are several key aspects with regards to continuum of care (Cameron et al, 2006; De Graft-Johnson et al, 2007; Evashwich, 2005; Haggerty et al, 2003; Holland & Harris, 2007; McBryde-Foster &

Allen, 2005). First, continuum of care promotes a patient-centered approach to guiding and tracking patients through a comprehensive array of services across the healthcare system. In such, continuum of care promotes informational continuity to avoid duplicated and fragmented services as patients move from one care setting to another (CARNA, 2008). Second, continuum of care promotes the continuity and sustainment of patient-nurse relationships, which facilitate the linkage of past, present, and future care (CARNA, 2008). Third, continuum of care emphasizes wellness and takes a holistic approach, considering a patient's cultural, psychosocial and spiritual dimensions in addition to physical health, ensuring that service is provided to match resources and the patient's condition. Fourth, service provision across the continuum of care is made possible by case management and coordination of care, which help patients with chronic condition to navigate the complex healthcare system. Thus, in general the continuum of care promotes case management continuity so that services are connected consistently and efficiently (CARNA, 2008).

The essence of these four aspects of the continuum of care suggests that strengthening connections between rural primary care services and secondary and tertiary care given through hospital-based health services is crucial to improve care across the continuum. Additionally, the improvement of rural nurses' competencies in providing services across the continuum of care will strengthen the overall healthcare system. Systemic approaches to improve both care connections and rural nurses' competencies can be initiated through the development of a competency inventory. Only a valid and reliable competency inventory offers a long-term approach to improve rural nurses' clinical performance.

In general, there are several problems in existing competency inventories. First, competency in rural nursing is not clearly defined. Some scientists have noticed that without consensus on a definition of competency, agreement about appropriate competency indicators is limited. Without a definition of competency, inventories assess only a small area of nursing practice (Edcan, 2008; Takase & Teraoke, 2011). For example, an inventory may cover only the knowledge or skill dimension of the competency while ignoring other important dimensions such as general aptitude. General aptitude, such as compassion and critical thinking, is formed by personal traits that influence an individual's professional knowledge, skills, and attitudes (Takase & Teraoka, 2011; Zhang, Luk, Arthur, & Wong, 2001).

Second, existing inventories' length, reliability, and validity are problematic. Inventories are either too long (108 items) to be used in clinical settings or too short (eight items) to capture the multiple components of most competencies (Takase & Teraoke, 2011). While the shorter inventories are easiest to complete, they are less reliable in clinical settings due to the complexity of healthcare conditions compared to the simplicity of the inventory. Alternatively, standardized inventories are often considered to have a high level of credibility but they may lack reliability and validity because they are still in the early phases of development (McGrath et al., 2006; Meretoja & Leino-Kilpi, 2001). Reliability refers to the accuracy and consistency of information obtained in the study (*i.e.,* the consistency of scores for a particular person with respect to a particular competency). Validity means how well an inventory measures what it proposes to measure (*i.e.,* whether it truly measures the particular competency it intends to) (Kak, Burkhalter, & Cooper, 2001; Nunnally & Bernstein, 1994; Polit & Beck, 2008).

Two reliable and valid competency inventories were found: the Nurse Competence scale (NCS) and the Six-D Scale (6D) of Nursing Performance. However, these inventories have been tested only in the urban hospital setting. In Asia, many inventories, including the NCS, have been modified to suit their countries' contexts without rigorous testing of their reliability and validity after adaptation (Liu et al., 2007; Takase & Teraoke, 2011). In Indonesia, Lock's 12 indicator competency inventory is used to determine new graduate nurses' levels of safe practice (Lock, 2011). However, it is unknown whether Lock's 12 has been pilot tested for reliability and validity.

Third, there are some disadvantages to existing rural nursing inventories. Hurme (2009) developed the only competency inventory for nursing practice in rural hospital settings in the United States (U.S.). This early stage inventory consisted of 103 competency indicators of rural nurses in critical access hospitals (CAHs) but contained little information about continuum of care. CAHs refer to small health facilities with no more than 25 beds located in rural and remote areas, that provide a 24-hour emergency service, and that have a length-of-stay for its patients of not more than 96 hours (Bushy & Bushy, 2001). While many indicators were similar to that of urban nurses' competencies, Hurme's inventory underlined some competency indicators specific to the rural settings. However, this inventory appeared to be most suited to curative and rehabilitative aspects of care with little information about competency indicators related to promotive-preventive aspects of care. Considering of the role of rural nurses as primary care providers, these promotive-preventive aspects of care are essential to nursing practice in rural and remote settings (Luan, 2014). Additionally, having information about these four aspects of care ensures a more comprehensive health service and an integration of

services delivery along the continuum of care. Thus, to fill this void, the purpose of this study was to construct and validate a competency inventory featuring indicators for rural nurses' competencies across the continuum of care (RNCACC) covering knowledge, skills, and personal attributes.

Methods

An internet-based Delphi method was used in this study. The Delphi method is a multistage approach combining qualitative and quantitative methods using an expert panel located in different geographical places (Dalkey & Helmer, 1969; Hasson, Keeney, & McKenna, 2000; McKenna, 1994). The experts work individually on a set of questionnaires in two to five iterations or rounds to facilitate them in moving toward consensus (McKenna, 1994). Expert consensus emphasizes sequential iterations with summary feedback, anonymity, and statistical analysis to identify patterns of agreement (McKenna, 1994). In composing the expert panel, heterogeneity and objectivity are considered essential elements (Lynn, Layman, & Englebardt, 1998); and using 10-20 experts is considered appropriate for providing a sufficient level of control for agreement and for content validity determination (Hannessy & Hicks, 2003; Lynn, 1986). The purposive sampling method was used because it allows researchers to carefully select experts based on their knowledge and expertise in this particular field of study (Dalkey & Helmer, 1969; Polit & Beck, 2008).

Participants

This study was conducted after obtaining approvals from University review board and from the health department's review board in Indonesia. The experts were

purposively identified, through the Indonesia National Nurse Association (INNA)'s network and through local schools of nursing. The inclusion criteria were: (1) senior clinicians/staff nurses in rural health centers (RHCs) or rural health facilities who hold at least a diploma in nursing and have clinical experience caring for patients and families; (2) upper-level managers in RHCs and rural health facilities who hold at least a baccalaureate in nursing and have successfully managed a program; and (3) experienced nursing educators who hold at least a masters in nursing degree and have taught communicable, noncommunicable, chronic diseases, and/or public health nursing. In March 2014, 22 experts' contact information was received and phone calls were made to each candidate. Nineteen experts were sent an email explaining the study, a consent form, and a link to a form for demographic information. Of these 19 experts, 15 filled in their demographic information online and agreed to participate. No identifying information, such as name, was given. Ultimately, 11 of the 15 recruited Delphi experts completed two rounds of Delphi questionnaires. Four did not respond after agreeing to participate. The experts included staff nurse (1), nurse managers (2), and nurse educators (8), from nine provinces scattered from the western to the eastern part of Indonesia. Out of the eight nurse educators, four had experiences working in public health centers, one worked as community health nurse at private clinic, and three had experiences working in the district hospitals.

Indicator Creation and Data collection Procedure

Before starting Delphi rounds, the researcher conducted a literature review to define competency in rural nursing and to identify descriptors related to rural nursing

competency. Following the literature review, the researcher conducted focus group discussion (FGD) to describe roles and responsibilities of rural nurses (Luan, 2014). Findings from literature review and FGD assisted the researcher in generating a pool of indicators for the continuum of care competency inventory. The idea of using FGD to enrich the results from the literature review was based on evidence from the literature. Using FGD with the rural nurses in the practical sites was important because it is a useful method for capturing the real-life characteristics of competency as a phenomenon (Liu et al., 2007). Through FGD, the participants describe their meaning of competency (Wilkinson, 1998), something that the previous studies in competency development, which used literature review, observation, or semi-structured questionnaire methods, failed to capture (Liu et al., 2007). In addition, FGD was used to gain knowledge of rural nursing practice across the continuum of care because such information is incomplete (Cohen, Kahn, & Steeves, 2000; Kitzinger, 1994; Skulsmoski, Hartman, Krahn, 2007). Using a FGD to generate a pool of indicators is especially useful when the researcher needs information to inform a larger scale quantitative study (Krueger & Casey, 2009; Wilkinson, 1998).

The pool of indicators was then transformed into a questionnaire to be reviewed by two expert nurses for face validity. Face validity is a review and validation process in which experts are asked to clarify the content of the questionnaire by carefully inspecting each indicator; 1) whether it fits appropriately within the domain and 2) whether it is easy to understand the wording for each indicator (Polit & Beck, 2008). After that, the questionnaire was then revised and sent to Delhi experts. Using the SurveyMonkey website, the experts concluded two rounds of Delphi, after consensus was reached about

the indicators. In the first round, the experts were asked to confirm the placement of indicators within domains and rate the competency indicators. The experts were asked to identify the importance/relevance of the indicators for rural nurses' competencies across the continuum of care practice using a-5 point Likert scales (0 = not important/relevant and 4 = highly important/relevant). The experts were provided space to write their comments, as well as additional indicators that they felt to be important but were not included.

In the second round, using the same 5-point Likert scale, indicators that the experts did not reach consensus on in the first round were presented. The experts were asked to judge and quantify the revised indicators. Each panelist was given two weeks to complete each round and did not have to complete the questionnaire in one sitting. The multi-method approaches such as phone calls and email notification were used to increase the attrition rate and to finish each round in a timely manner (Dillman, Smyth, & Christian, 2009). On average, each panelist took 70 minutes to complete the round one questionnaire and 22 minutes to complete round two.

Data Analysis

Data from the experts were analyzed quantitatively with the goal of reaching consensus for each indicator and the overall inventory. The continuous data from the Likert scale were analyzed as follows: (1) using central tendency of measurements (mean, median) and standard deviation (SD) as the measures of dispersion; (2) the indicators were ranked by descending mean score from the most important to the least important. Consensus among experts was examined based on the analysis of inter-rater

agreement using the content validity index (CVI) cut-off point of 0.78. Inter-rater agreement refers to the degree to which the experts operate independently and/or assign the same ratings or values to an attribute being measured or observed. An index of inter-rater (*i.e.*, content validity index or CVI cut-off point) is set based on aggregated ratings of panel of experts to assist in making a decision (Polit & Beck, 2008). The cut-off point of 0.78 is acceptable to use when the study involves at least seven experts. Indicators that met the cut-off points were kept, other indicators were considered for revision and/or were included in the final inventory (Lyn, 1986; Polit, Beck, & Owen, 2007; Waltz, Strickland, & Lenz, 2005). In round two, the overall inventory was evaluated by using a cut-off point of 0.70 as the minimum value of overall inventory (David, 1992; Polit et al., 2007).

Results

Constructing a Pool of Indicators

The researcher identified seven domains to assist in the formation of a complete statement of each competency indicator (Table 1). The first pool of indicators contained 124 statements of competency indicators. After rechecking for overlaps, the researcher constructed the final pool of indicators, in which 106 indicators were listed across the seven domains. These 106 indicators were transformed into a set of questions, which were posted on the SurveyMonkey website. Minor edits were made after two nurse experts reviewed the domains for face validity. A total of 106 indicators across the seven domains were consolidated (Figure 1). The first four domains contained indicators related to types of rural nursing care; episodic care (23 indicators), wellness care (8

indicators), long-term care (22 indicators), and community care (19 indicators). The other three domains contain indicators concerning communication and interpersonal (8 indicators), management and organizational (13 indicators), and caring (13 indicators).

Table 1
Definitions of the Seven Domains

Domains (number of indicators)	**Definitions**
Episodic care (23)	A rural primary care nurse's ability to provide a short-term care to individuals with common acute illnesses or individuals experience emergency situations that include illness or cases of communicable diseases and new emerging diseases leading to outbreak.
Wellness care (8)	A rural primary care nurse's ability to provide care that targeting healthy individuals who belong to high-risks group to promote healthy lifestyle and prevent diseases outbreak.
Long-term care (22)	A rural primary care nurse's ability to provide case management to member of family who suffered from chronic conditions and/or diseases leading to chronic conditions; to focus in promotion of family function and involvement in self-care to restore family member's health status, utilizing available community resources.
Community care (19)	A rural primary care nurse's ability to provide care to the community, particularly to groups at risks in order to prevent the spread of communicable diseases, manage chronic diseases, modify lifestyles leading to chronic diseases, improve healthy environment, and strengthen community resources and capabilities to support long-term care with emphasis on community collaboration and partnership.
Communication and interpersonal (8)	A rural primary care nurse's ability to establish interpersonal relationship with patient and colleague through the use of appropriate language and cultural-based communication approach with an intention to understand people's spoken and unspoken needs, concerns, and feelings.
Management and organizational (13)	A rural primary care nurse's ability to prevent gaps/overlaps in the provision of care, strengthening the health care providers' capacity, and managing health program efficiently.
Caring (13)	A rural primary care nurse's ability, attitudes, and personal characteristics to ensure that care is delivered in a conducive environment, in which teamwork is strengthened and professional development is promoted, aiding individuals to gain confidence for the recovery and restoration of their health status.

Round One

Fifteen experts who agreed to participate were invited to rate the importance / relevance of the 106 indicators. Eleven experts completed the questionnaire with a return rate of 73%. The 106 indicators mean ratings were from 2.45 to 4.00 (SD = 0.0 – 1.695). Eighty-five indicators had at least 0.82 of CVI indicating that consensus among the experts was reached; hence these 85 indicators were retained. The experts provided comments that stressed the importance of the indicators, but did not suggest new indicator. The remaining 21 indicators, with CVI ranging from 0.55 to 0.73, comprised the round two.

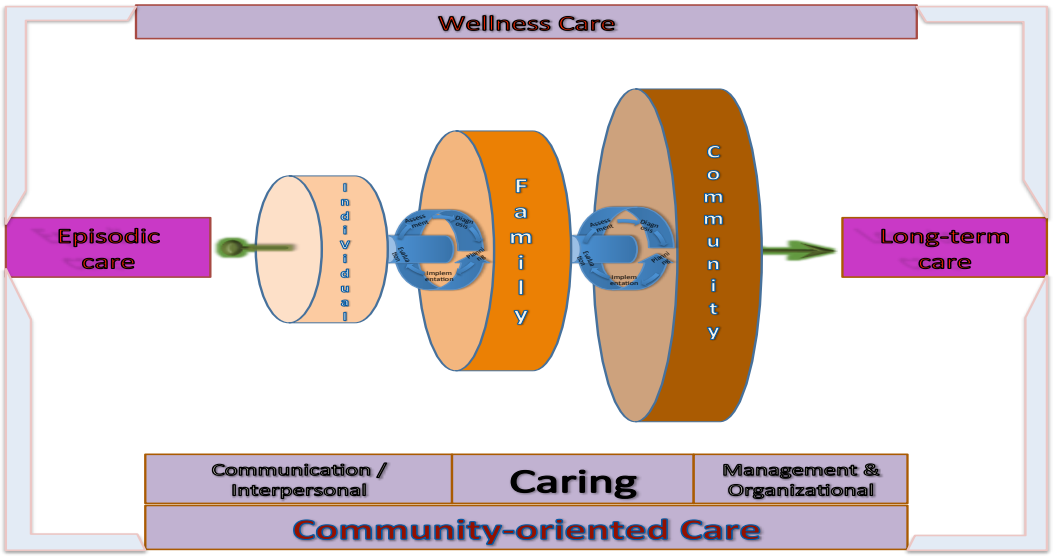

Figure 1. Rural Nurses' Competencies Across the Continuum of Care Framework

Round Two

Using the same five rating points as in round one, the 11 experts completed the questionnaire with a return rate of 100%. The 21 indicators mean ratings were from 3.091

to 3.909 (SD=0.301 – 1.168). The 11 experts reached consensus for all 21 indicators with CVIs at least of 0.73; these 21 indicators were retained. Comments were similar to round one and there were no new indicators. The results from round one and round two confirmed 106 indicators. This final list of 106 indicators was then arrayed and ranked by descending CVI scores from the highest importance / relevance to the lowest importance / relevance. In ranking the indicators, tied CVI scores were ranked by ascending mean rating scores and tied mean rating scores were ranked by ascending standard deviation scores. The 106 indicators mean ratings were from 3.090 to 4.00 (SD = 0.302 – 1.328) and had CVIs from 0.73 to 1.00). The majority of indicators had CVI of 1.00 (57.55 %) followed by CVI of 0.91 (34.91 %) and CVI of 0.82 (6.60 %). Only one indicator had CVI of 0.73 (4 %), which belongs to episodic care domain (See Table 2). Communication and interpersonal domain had highest average of mean ratings and CVI (Mean ± SD = 3.752 ±0.448 and CVI = 0.989) while wellness care domain had the lowest average of mean ratings and CVI (Mean ± SD = 305 ± 1.090 and CVI =0.888). Overall inventory had CVI of 0.954. Table 2 presents rating summary of the seven domains.

Table 2
Rating Summary of RNCACC

Domains (n)	**Agreements based on CVI (n;%)**				**Average**	
	0.73	**0.82**	**0.91**	**1.00**	**Mean ± SD**	**CVI**
Episodic care (23)	1 (4%)	3 (13%)	9 (39%)	10 (45%)	3.563 ±0.656	0.930
Wellness care (8)	0	2(25%)	6 (75%)	0	3.305 ±1.090	0.888
Long-term care (22)	0	2 (9%)	8 (36%)	12 (55%)	3.617 ±0.596	0.951
Community care (19)	0	0	5 (26%)	14 (76%)	3.608 ±0.371	0.976
Communication & interpersonal (8)	0	0	1 (13%)	7 (87%)	3.752 ±0.448	0.989
Management & organization (13)	0	0	6 (46%)	7 (54%)	3.561 ±0.536	0.958
Caring (13)	0	0	2 (15%)	11 (85%)	3.736 ±0.540	0.986
RNCACC (106)	1 (1%)	7 (7%)	37 (35%)	61 (57%)	3.598±0.580	0.954

Episodic Care

Episodic care includes 23 indicators that reflect rural nurses' technical/clinical skills that highlight the use of the nursing process (assessment, planning, intervention, and evaluation) to care for sick individuals of all ages throughout their lifespan (Table 3). These 23 indicators had mean ratings from 3.180 to 4.00 (SD= 0—1.192; CVI= 0.73—1.00), indicating that the experts considered these 23 indicators as either substantially or highly important to rural nursing practice related to episodic care. Ten of 23 indicators had a CVI of 1.00 suggesting that all experts were equally in agreement about the importance of these 10 indicators of episodic care (Mean = 3.550 —4.00; SD = 0—0.522). These 10 indicators include 'health history assessment', 'emergency and triage nursing assessment', 'recognizes signs and symptoms', 'develops nursing care plan (NCP)', 'performs basic nursing care and primary care treatments', 'evaluates and monitors nursing interventions', 'consults and does collaborative works with other health care providers', 'evacuates and transferees patients', 'provides health education', and 'documents assessment and NCP'. Four of these 10 indicators; 'performs basic nursing care and primary care treatments', 'evaluates and monitors nursing interventions', 'provides health education', and 'documents assessment and NCP' were ranked among five top indicators across the seven domains.

Table **3**
Means, Standard Deviations, and CVIs of Indicators for Episodic Care

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Assessment of Health Status				
Collects information and appropriately document a relevant health history for individual patients of all ages to include: physical, psychological, social economic status, cultural aspect, and spiritual dimension necessary for episodic nursing care	3.730	0.467	1.00	6
Performs symptom-focused physical examinations and screen for mental health on patients of all ages, such as substance abuse and violence (HRSA-AACN, 2002)	3.182	1.168	0.91	28
Performs emergency and triage nursing assessment	3.550	0.522	1.00	10
Diagnosis				
Plans diagnostic strategies: orders, performs, and interprets results of laboratory tests, clinical procedures, and/or other screening tests used in diagnosis and management of diseases that commonly occur in primary health care facilities.	3.550	0.820	0.82	35
Operates equipment to perform simple laboratory tests, in the absence of the laboratory technician / analyst, such as, hemoglobin, hematocrit, lead level, tuberculosis testing/AFB, parasites, blood sugar, cholesterol, and pregnancy tests.	3.273	0.905	0.73	40
Recognizes signs and symptoms, indicting a new health problem, remission, and / or aggravation of previously diagnosed health problem (*HRSA-AACN, 2002*)	3.550	0.522	1.00	10
Diagnoses commonly acute and emergent problems for patients of all ages, including common mental health problems occur in primary health facilities, while taking into consideration of a potential for long-term care.	3.270	1.191	0.91	27
Develops differential diagnoses for further investigation or referral.	3.180	0.603	0.91	29
Plan of care, implementation, and evaluation				
Develops episodic nursing care plans for a short-term management of common health problems of all ages, such as, acute illness and emergency cases, common communicable diseases and new emerging diseases leading to outbreak	3.636	0.510	1.00	8
Performs common basic nursing procedures / treatments and primary care procedures, such as suturing, wound debridement, vital sign monitoring, specimen collection for laboratory test, oxygen administration, medication administration (oral, injection, intravenous infusion), skin tests, and cold and warm compresses).	3.910	0.302	1.00	2
Performs emergency procedures commonly needed in	3.730	0.6	0.91	16

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
primary care facilities, such as, bandages/splinting, basic life support, hemorrhagic or anaphylactic shock, and delivering and care of newborn.		47		
Prescribes, dispenses, and / or administers medication based on primary health care standards / protocols with knowledge of drug mechanisms and processes (pharmacodynamics and pharmacokinetic) in all ages, while taking into consideration side effects or potential for adverse drug outcomes in children, pregnant women, and older adults.(HRSA-AACN, 2002)	3.455	0.934	0.91	22
Evaluates and monitors nursing interventions to update or modify patient's care plan and to improve outcomes	4.000	0	1.00	1
Institutes monitoring of medication effectiveness.	3.000	1.183	0.82	39
Consults and/or collaborates with other health care providers, such as physician or senior nurses, when the problem exceeds the rural nurse's scope of practice or expertise.	3.640	0.505	1.00	8
Carries out nursing care and physician's instructions while taking into consideration of clarity and urgency upon implementation.	3.640	0.674	0.91	17
Initiates, prepares, and evacuates / transfers patients to a more advanced health care facility (i.e. to a hospital).	3.730	0.467	1.00	6
Facilitates access to services that are provided for special populations such as, services for children, women, elderly people, and refugees	3.550	0.820	0.91	20
Performs and observes policies, standards, and procedures related to infection control, universal precaution, safety, and emergency preparedness	3.360	0.674	0.91	26
Operates equipment utilized to maintain and improve universal precautions in limited resources settings, such as, sterilizing (medical) instruments and purifying water	3.550	0.820	0.82	35
Provides health education to individual patients, family members, and/or caregivers with focus on disease prevention, healthy behaviors, and self-care promotion	3.910	0.302	1.00	2
Documentation and nursing record				
Documents assessments, diagnoses, nursing plans, interventions, and evaluations using standardized nursing record forms.	3.820	0.405	1.00	4
Maintain patient records accurately and completely.	3.730	0.647	0.91	16

Note: Unless otherwise, noted indicator(s) were developed from FGD

Wellness Care

Wellness care consists of eight indicators that reflect rural nurses' clinical/technical skills and the use of the nursing process to care for healthy individuals, giving emphasis on health promotion and disease prevention aspects of care. The eight indicators mean ratings ranged from 3.09 to 3.64 (SD = 0.674—1.328; CVI= 0.82—0.91), indicating that most of the experts strongly considered these indicators as substantially important/relevant to rural nursing practice (Table 4).

Table **4**
Means, Standard Deviations, and CVIs of Indicators for Wellness Care

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Assessment of health status and diagnosis				
Assesses and/or screens healthy individual's health status, focusing on high-risk groups such as children and women. This includes but is not limited to: factors that affect children's development status, behavioral evaluations, breastfeeding issues, nutritional conditions, immunization status, substance abuse, domestic violence, contraception, pregnancy and other issues related to sexuality and reproductive health.	3.360	1.286	0.82	37
Diagnoses common conditions and/or health problems, such as nutrition deficiency and malnutrition, post-immunization reactions, domestic violence, and reproductive/gynecologic health (i.e., pregnancy and sexual transmitted infection).	3.450	1.214	0.91	25
Plan of care, implementation, and evaluation				
Develops nursing care plans which promote wellness addressing high-risk groups, such as, vaccination of healthy children, nutritional deficits in adolescents, and family planning for women including contraception and other common conditions with gynecologic/reproductive health.	3.636	0.674	0.91	17
Manages and maintains cold chain to preserve potency of vaccines, based on protocols and guidelines	3.180	1.328	0.91	31
Prescribes and/ or administers immunizations / vaccinations based on standards / protocols while taking into consideration the high potential for adverse vaccine outcomes in children.	3.090	1.136	0.91	33
Performs post-vaccination care (i.e., soreness, high fever,	3.180	1.168	0.91	30

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
seizures, convulsions, and allergic reactions).				
Provides health education, anticipatory guidance, and counseling to the families and/or caregivers with regards childcare (post-vaccination care, healthy nutritional practice, breastfeeding, and nutritional intake); to women (and partners) with regards to reproductive/gynecologic care (contraceptive and family planning, pregnancy, sexual transmitted infections, and menopause).	3.450	1.214	0.91	25
Prescribes and administers oral or injectable contraceptives, considering pregnancy, lactation, sociocultural background, and financial resources.	3.091	0.701	0.82	38

Note: Unless otherwise, noted indicator(s) were developed from FGD

Long-term Care

Long-term care consists of 22 indicators that highlighted rural nurses' advanced practice and the use of both nursing process and case management to care for rural families focusing on family involvement to self-care. The 22 indicators mean ratings were from 3.180 to 3.910 (SD= 0.302-1.168; CVI=0.82-1.00) indicating that these 22 indicators were important / relevant to long-term nursing care in rural settings (Table 5). Twelve indicators had CVI of 1.00 (Mean rating= 3.450—3.910; SD= 0.302—0.522) suggesting that most of the experts were unanimously agreed and strongly considered these 12 indicators were highly important/relevant to long-term care in rural primary care facilities. These 12 indicators include 'applies and / uses of standardized assessment tool', 'assesses family system', 'identifies the impact of determinant of health', 'acts as liaison', 'attends to special needs with regards socio-cultural and spiritual aspects', 'prescribes, performs, and monitors advanced nursing procedures', 'provides health education etc', 'follow-up visits', 'patient referrals and consultation', 'evaluates patient's response to NCP', and 'modifies NCP'. Three of these 12 indicators; 'standardized

assessment tool', 'assesses family system' and 'health education' were ranked among five top indicators across the seven domains.

Table **5**
Means, Standard Deviations, and CVIs of Indicators for Long-term Care

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Assessment of health status				
Collects comprehensive information and appropriately documents relevant information on physiological, environmental, and psychosocial characteristics for individual patient of all ages in the context of family functions and dynamics emphasizing long-term care needs.	3.640	0.674	0.91	17
Applies and / or uses of standardized assessment tool/instrument. (ICN, 2009)	3.820	0.405	1.00	4
Assesses family systems and its support systems such as, occupation, education, values, spiritual beliefs, differing health beliefs and behaviors, care preferences and traditional practices, stress and coping mechanisms, for indicating family members' acceptance and readiness in taking care of and dealing with patient's chronic conditions.	3.820	0.405	1.00	4
Assesses and identifies families' need for case management within the context of the rural community assessment *(HRSA-AACN, 2002)*	3.640	0.809	0.82	34
Identifies the impact of determinants of health on families' well being and members' health status	3.640	0.505	1.00	8
Obtains information on community resources.	3.640	0.505	1.00	8
Diagnosis				
Diagnoses commonly occurring chronic conditions of all ages, including common mental health problems needing a long-term and continuum of care.	3.640	0.674	0.91	17
Helps patients and families to identify problems, including health related problems and alternative solutions	3.546	0.688	0.91	19
Plan of care, implementation, and evaluation				
Develops a nursing care plan for long-term care for chronic diseases and/ or diseases leading to chronic conditions with an emphasis on cultural context, family function, and case management.	3.640	0.674	0.91	17
Acts as liaison between patients and health providers in an advanced health facility with regards to discharge planning identifying patients' needs in case management and continuum of care	3.450	0.522	1.00	12
Consults and/ or works interdisciplinary with senior nurses, physicians, social workers, and other health care providers, about options for long-term care throughout the continuum of care	3.180	1.168	0.91	30

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Delivers accurate, comprehensive, and effective nursing care in accordance with plan of care.	3.360	0.809	0.82	36
Attends to special needs of patients and families with regards social-cultural and spiritual aspects of care.	3.640	0.505	1.00	8
Prescribes, performs, and monitors advanced nursing procedures/treatments commonly needed by patients with chronic condition in primary health care and/or at home (i.e., wound care, physiotherapy/ physical therapy, nutritional, as well as and complementary modalities).	3.730	0.467	1.00	6
Provides health education, anticipatory guidance, and counseling to individuals and families and/or caregivers with focus on long-term care to promote patient/family self-care	3.910	0.302	1.00	2
Promotes and facilitates family involvement and control over their health care.	3.550	0.688	0.91	19
Prepares, facilitates, and follows-up to ensure continuity of care of individuals and family members who undergo a period of transition between health care facilities or from a health care facility to resident/home.	3.640	0.505	1.00	8
Arranges, facilitates, and follows-up on patient referrals and consultation to other health care professionals and/or community resources.	3.636	0.505	1.00	8
Assists patients and family members to cope with end of life issues	3.450	0.688	0.91	24
Evaluates patient, caregiver, and family's response to plan of care and interventions.	3.730	0.467	1.00	6
Modifies the plan of care to meet the complex needs of patients with chronic conditions arising from multiple system diseases, psychosocial factors, and limited access to health care	3.730	0.467	1.00	6
Uses standardized tools/instruments to evaluate outcome of care.	3.550	0.688	0.91	19

Note: Unless otherwise, noted indicator(s) were developed from FGD

Community Care

The 19 indicators in the community care domain reflect rural nurses' ability in community-oriented and public health skills for serving as community organizer and case finder. These 19 indicators mean ratings were from 3.364 to 3.390 (SD = 0.164—0.674; CVI=0.91—1.00) indicating that these 19 indicators were important/relevant to rural

nursing practice (Table 6). Fourteen indicators had CVI of 1.00 (Mean ratings = 3.450—3.390; SD=0.164—0.522) suggesting that all experts were collectively agreed and strongly considered that these 14 indicators were highly important/relevant to community care. Among these 14 indicators, five indicators were ranked among five top indicators across the seven domains; 'collaborate with community', 'apply community assessment strategies', 'participates in the implementation and modification', 'devices and/or provides health promotion strategies', and 'negotiates lifestyle changes.'

Table **6**
Means, Standard Deviations, and CVIs of Indicators for Community Care

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Assessment of health status and diagnosis				
Collaborates with community members to collect comprehensive data in order to identify health issues of the population: determinants of health and illness, social-cultural and behavior factors influencing the use of health services, and the availability of community assets and available resources	3.910	0.302	1.00	2
Applies community assessment strategies, such as, the windshield survey to identify health related issues (Clark, 2003)	3.820	0.405	1.00	4
Identifies groups at risks, new diseases cases, and other important health issues by using reports from surveillance, screening, or vital registry methods	3.727	0.467	1.00	6
Works in collaboration with other health professional to collect biological or environmental samples in order to recognize health problems (i.e., waterborne diseases and harmful air pollutants)	3.364	0.674	0.91	26
Assists community members in the analysis of data to identify potential cases of disease and determine and prioritize diagnosis of the population / community.	3.730	0.467	1.00	6
Plan of care, implementation, and evaluation				
Assists and/or collaborates with community members in the design and development of community-based health programs, identifying achievable goals, best practices strategies, action plans and potential intervention, evaluation methods, and expected health outcomes	3.730	0.418	0.91	14
Provides referral and follow-up care to identified cases and group at risks	3.640	0.255	1.00	7
Serves as a resource person in providing consultation to	3.450	0.273	1.00	11

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
community leaders that enables and strengthens community-based program interventions and modifications				
Participates in the Implementation and modification of plans to achieve expected goals	3.820	0.164	1.00	3
Mobilizes community members and other resources to reach expected outcomes/goals.	3.364	0.674	0.91	26
Coordinates health services and programs to promote and implement health promotion and preventive strategies, which requires interdisciplinary teamwork.	3.550	0.273	1.00	9
Devices and/ or provides various health promotion strategies / measures, such as, health education and health campaigns to promote public policy, ensure a safe and healthy environments, and maintain/improve healthy lifestyles.	3.820	0.164	1.00	3
Derives and/or provides various preventive strategies / measures, such as, screening and surveillance, prevention and management of diseases outbreak, as well as mass immunization	3.455	0.522	1.00	12
Develops, promotes, and fosters alliances/coalitions with the community and other organizations to build linkages and partnership, resolve problems, and enhance local leadership in order to address health concerns.	3.450	0.473	0.91	23
Trains and assists community health workers (CHWs) to mobilize the community, carry out program activities, and collect data for assessment and evaluation	3.550	0.273	1.00	9
Assists and/or collaborates with CHWs to monitor and evaluate program activities and outcomes by using standardized tool/instrument.	3.550	0.473	0.91	18
Negotiates lifestyle changes with community members and supports adoption of health lifestyles and promoting of healthy environmental	3.730	0.218	1.00	5
Calls on community causes and/or acts on behalf of the community for health related policies, such as, policies to reduce environment health risks and improve access to health care.	3.450	0.273	1.00	11
Disseminates information and educates community members on health related policies and regulations.	3.450	0.273	1.00	11

Note: Unless otherwise, noted indicator(s) were developed from FGD

Communication and Interpersonal

Communication and interpersonal domain consists of eight indicators that represent rural nurses' ability in using culturally based communication approach to establish interpersonal relationship with patients and other health care providers. These eight indicators mean ratings were from 3.550—3.910 (SD=0.302—0.674; CVI=0.91—1.00) (Table 7). Seven indicators had CVI 0f 1.00 (Mean ratings = 3.550-3.640; SD=0.302—0.522) indicating that all experts were universally agreed and strongly considered that these seven indicators were highly important/relevant to rural nursing practice. Four out of the seven indicators were ranked among five top indicators across the seven domains; 'uses appropriate terminology', 'communicates effectively with other healthcare providers', 'provides health education and presents health information effectively', and 'builds trust and establishes rapport'.

Table **7**
Means, Standard Deviations, and CVIs of Indicators for Communication and Interpersonal

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Communicates effectively with patients throughout the life span, family, and community members in addressing sensitive topics related to cultural and local tradition	3.640	0.674	0.91	17
Uses appropriate terminology in discussing the patient's health status, considering his or her socio-economic background, such as educational attainment, social status, and cultural background	3.818	0.405	1.00	4
Communicates effectively with other health care providers; presenting facts and ideas verbally, expressing facts and thoughts through cleared concise writing, and taking and transcribing orders correctly.	3.820	0.405	1.00	4
Provides health education and presents health information effectively using accurate facts, appropriate literature, and demographic or statistical data to community	3.910	0.302	1.00	2

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
members, local leaders, or policy makers.				
Expresses thoughts and / or feelings of disagreement or contention constructively and in professional manner	3.640	0.505	1.00	8
Demonstrates the desire to understand other people's needs through the observation and interpretation of unspoken behaviors, feelings, thoughts, and/ or concern	3.727	0.467	1.00	6
Modifies relationships with individuals, families, groups, or communities based on an analysis of the patient's psychosocial development, family function and dynamics, as well as community dynamics	3.550	0.522	1.00	10
Builds trust and establishes rapport by keeping promises and maintaining commitments and using cultural-based approaches to make a positive first impressing	3.910	0.302	1.00	2

Note: Unless otherwise, noted indicator(s) were developed from FGD

Management and Organizational

Management and organizational domain consists of 13 indicators that reflect rural nurses' ability to prevent overlaps in the provision of care and in managing health program efficiently while strengthening other health care provider's capacity. These 13 indicators mean ratings were from 3.091 to 3.910 (SD=0.302—0.688; CVI=0.91—1.00) (Table 8). Six indicators had CVI of 1.00 (mean ratings= 3.455—3.910; SD=0.302—0.522) indicating that all experts were strongly considered that these six indicators were highly important to rural nursing practice. These six indicators include 'demonstrates knowledge on case management and nursing process', 'uses evidence-based information', 'manages the provision of care and health programs', 'demonstrates knowledge of relevant policies', 'articulates nursing perspective of the program or tasks', and 'acts as mentor, coach, and/or peer adviser'. Two out of these six indicators, 'case management' and 'evidence-based', were ranked among five top indicators across the seven domains.

Table **8**

Means, Standard Deviations, and CVIs of Indicators for Management and Organizational

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Demonstrates knowledge on case management and nursing process: diagnostic reasoning, planning, decision-making, teamwork, the monitoring and evaluation process, as well as the use of information technology for recording and reporting in managing care for individual, family, and community	3.910	0.302	1.00	2
Uses evidence-based information to make decisions and /or to participate in unit/organizational decision making processes in order to improve health services and nursing practice	3.820	0.405	1.00	4
Manages the provision of care and health programs in public health care facilities by efficiently using available resources while taking into consideration some aspects, such as, budget priority and allocation guidelines, policies to increase access to health care, the use of interdisciplinary approaches, and cost-effective care and evidence-based quality of services' policies.	3.455	0.522	1.00	12
Provides input to budget with priorities on health program development and implementation.	3.273	0.467	1.00	13
Demonstrates knowledge of relevant policies (i.e., patient's rights, social security services, reimbursement of service, legal regulations for nursing practice in the rural setting and public health center, as well as the roles and responsibilities of nurses in independent practice or case management)	3.550	0.522	1.00	10
Articulates nursing perspective of the program or task when working with multidisciplinary teams	3.550	0.522	1.00	10
Delegates and guides nursing staff and students to tasks which suites their level of expertise on the clinical ladder.	3.550	0.688	0.91	19
Oversees implementation of care by others	3.091	0.539	0.91	32
Acts as mentor, coach, and/or peer adviser to assist in mastering rapidly changing situations	3.550	0.522	1.00	10
Develops and sustains teamwork in order to provide holistic care	3.730	0.647	0.91	16
Coordinates care delivery, preventing overlaps/gaps in addressing nursing and/or health care needs	3.450	0.688	0.91	24
Collaborates with community members and other community-based organizations to maintain and promote population health in rural settings	3.730	0.467	0.91	15
Collaborates with health-related sectors to address determinants of health	3.640	0.674	0.91	17

Note: Unless otherwise, noted indicator(s) were developed from FGD

Caring

Thirteen indicators that reflect rural nurses' caring ability had mean ratings from 3.550 to 3.910 (SD=0.302—1.214; CVI=0.91—1.00) (Table 9). Eleven indicators had CVI of 1.00 (Mean=3.555—3.910; SD=0.302—0.522) indicating that all experts were universally agreed that these eleven indicators were highly important to caring domain for rural nursing practice. Six out of these 11 indicators were ranked among five top indicators across the seven domains; 'demonstrates calmness and composure when dealing with life-threatening condition', 'demonstrates discernment, cautiousness, and wisdom when assessing conflicting priorities', 'demonstrates seriousness, urgency, and sincerity in motivating', 'demonstrates sincerity when encouraging patients', 'demonstrates dedication and enthusiasm to participate in knowledge sharing and lifelong learning', and 'demonstrates an intention and enthusiasm to supervise and assist nursing staff'.

Table **9**
Means, Standard Deviations, and CVIs of Indicators for Caring

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
Demonstrates kindness and tolerance while placing patients, colleagues, and other health care providers' needs and concerns as a priority	3.550	1.214	0.91	21
Demonstrates sensitivity in understanding the misfortunes of others through the alleviation of patient's suffering	3.636	0.505	1.00	8
Demonstrates readiness in responding and attending to patients, colleagues, and other health care providers' inquiries, needs, and problems.	3.550	1.214	0.91	21
Demonstrates eagerness to seek assistance when facing with problems, which may exceed the nurse's scope of practice and/or expertise	3.730	0.467	1.00	6
Demonstrates calmness and composure when dealing with life-threatening conditions and other unpredicted	3.910	0.302	1.00	2

Indicators	Mean	SD	CVI	Reviewer Ranking (1 high Mean, SD, CVI -- 40 low)
or challenging situations.				
Demonstrates discernment, cautiousness, and wisdom when assessing conflicting priorities and needs, integrating and interpreting various data, and evidence-based decision-making process.	3.820	0.405	1.00	4
Demonstrates an innovative approach to managing care in settings with minimal or limited resources settings	3.730	0.467	1.00	6
Demonstrates seriousness, urgency, and sincerity in motivating, persuading, and/or obtaining cooperation and synergy with others by using appropriate language and gestures while considering cultural context	3.910	0.302	1.00	2
Demonstrates sincerity when encouraging patients and family members to express their feeling, health beliefs, and traditional practices while paying close attention to their response	3.909	0.302	1.00	2
Demonstrates desire and persistence to compel Individuals, families, and communities in helping them complying with the laws, regulations, and policies created to improve access to health care delivery	3.550	0.522	1.00	10
Demonstrates a sense of responsibility to perform tasks by showing passion and effort to reach care delivery goals and accomplishments beyond requirements	3.636	0.505	1.00	8
Demonstrates dedication and enthusiasm to participate actively in knowledge sharing, lifelong learning, and professional development	3.820	0.405	1.00	4
Demonstrates an intention and enthusiasm to encourage, supervise, as well as assist nursing staff, students, and CHWs throughout the coaching, mentoring, and/or teaching process	3.820	0.405	1.00	4

Note: Unless otherwise, noted indicator(s) were developed from FGD

Discussions and Implications

The findings from this study show that the 106 indicators were considered important / relevant to the RNCACC inventory. The majority of indicators that had CVIs at least of 0.91 found in each domain indicating that these seven domains were considered very important and relevant to rural nursing practice. The experts validated indicators corresponding to each domain of competency across the continuum of care.

The RNCACC inventory included four core domains of rural primary nursing care (episodic, wellness, long-term, and community care) and three essential domains concerning communication and interpersonal, management and organizational, and caring.

Core Domains of Rural Primary Nursing Practice Across the Continuum of Care

Community care, episodic care, and long-term care were considered highly important among core domains of rural primary nursing care, but wellness care was substantially important. Community care had the highest average of mean ratings and CVI among four core domains. Five of 14 indicators that were rated as highly important were ranked among five top indicators across the seven domains. These five indicators signified rural nurses' role that focus on empowering collaborative works and partnership with rural community to strengthen rural people capability in promoting healthy lifestyle and prevent the spread of diseases (Alexander et al., 2008; Barnes et al., 1995; Ross, 2008). In addition, these indicators signified the importance of holistic approach and wellness care in population level as key aspects of the continuum of care (Evashwich, 2005).

The importance of wellness care along the continuum of care was reaffirmed in individual level. This study also revealed that, even though wellness care in individual level had the lowest average of mean rating and CVI among four core domains, it was considered as substantially important. This finding supports the idea that although primary health care focuses on promotive and preventive strategies; the wellness care dimension may not be as widely acknowledged and implemented among rural nurses. In

addition, this finding implies that rural nurses were more concerned with tasks that represented their role expansion such as the curative aspect of care. This likelihood of lack of knowledge and low-volume in the implementation of wellness care could be gleaned from the result of the following indicators. Two indicators for wellness care had lower CVI; 'assesses and/or screens healthy individual's healthy status' (CVI=0.82; Mean ± SD = 3.360 ±1.286) and 'prescribes and administers oral or injectable contraception' (CVI=0.82; Mean ± SD = 3.091 ±0.701). While most of the experts universally rated the second of those as substantially relevant, there was less unified agreement among them with regards to the first. This finding may be related to the fact that not all rural nurses may perform a screening of an individual's health status, while the provision of contraceptives is already part of rural nurses' daily activities (Husain at al., 2006; Luan, 2014; Sciortino, 1995). Considering rural nurses' low-level of education, screening activities that required skills in research and evidence-based analytical thinking have been lacking among them. This finding implies that wellness care is a target area to improve.

Among 23 indicators for episodic care, 10 indicators that were equally rated by the experts as highly important were applicable because findings from FGD also indicated that most rural primary care nurses routinely performed nursing activities that were described in these 10 indicators (Luan, 2014). The importance of these indicators of episodic care is consistent with results from other studies concerning health care in low-resources settings and primary health care (HRSA, 2002, 2002; Hurme, 2009; Wilson et al; 2012). The fact that 'evaluates and monitors nursing interventions' was rated as the highest indicator in this domain and among all 106 indicators (CVI=1.00; Mean ± SD =

4.00 ±0.000) can be attributed to two factors. First, it may be attributed to the importance of an evaluation component in nursing care. Second, it may be attributed to the actual situations in which there was both insufficient supervision and insufficient mentorship, resulting in lower competency (Ahmad, 2006; Hannessy, Hicks, Hilan, & Kawonal, 2006; Kerse et al., 2008). Only one indicator, 'operates equipment to perform simple laboratory test', was rated very low and also ranked the lowest among 106 indicators (CVI=0.73; Mean ± SD = 3.273 ±0.905). This result was similar to finding from other studies, in which nurses considered doing laboratory test related activity was as part of their extended role in the absence of other health care providers (Cant, Birks, Porteer, Jacob, & Cooper, 2011; Luan, 2014; Schaff, 2010).

Finding from this study also revealed that, unlike other indicators for episodic care that had very low SD, four indicators had high SDs, which indicates a dispersed agreement among experts (SD =0.93--1.19; Mean=3.000—3.455; CVI=0.82—0.91). These four indicators include 'performs symptom-focused physical examination and screen', 'diagnoses commonly acute and emergent problems', 'institutes monitoring of medication effectiveness', and 'prescribes, dispenses and administers medications'. This dispersion in agreement may be attributed to several factors. First, there has been a dispute among nurses in Indonesia about whether or not the role implied in the indicator 'prescription' falls within the nursing domain and in what situations nurses are permitted to carry out this role (Husain at al., 2006; Luan, 2014; Sciortino, 1995). Second, even though rural nurses did not perform cares related to these four indicators to the fullest extent and were not trained well in these skills (Luan, 2014), some experts recognized these indicators as being defining aspects of rural nursing practice.

With regard long-term care, 12 indicators were considered highly important. This finding is vital because the 12 indicators feature some aspects of services across the continuum of care; promoting family-centered approach through a holistic assessment, fostering connection between health facilities through referral and interdisciplinary work, and ensuring that nursing service are rendered progressively by applying advanced skills (Cameron et al, 2006; De Graft-Johnson et al, 2007; Evashwich, 2005; Haggerty et al, 2003; Holland & Harris, 2007; McBryde-Foster & Allen, 2005). However, findings from this study indicated that the experts were not universally thought that 'interdisciplinary work about options for long-term care throughout the continuum of care' was highly important / relevant to long-term care (CVI=0.91; Mean ± SD = 3.180 ±1.168). This result may be attributed to the fact that rural nurses often worked independently when treated their patients at home (Luan, 2014). In addition, this diverse in agreement about long-term care across the continuum of care indicated that although rural nurses might not fully perform it, some experts recognized this indicator as an important aspect of rural nursing practice. To conclude, while the majority of indicators for core domains were rated as highly important, the experts were in a diverse agreement about some indicators related to advanced skills suggesting a lack of skills and poor performance among rural nurses. Hence, training for rural nurses' advanced skills improvement across the continuum of care is urgent.

Three Essential Domains of Rural Primary Nursing Care

Communication and interpersonal domain had tight average of mean ratings and CVI with caring domain indicated that these two domains are highly interconnected.

Interpersonal sensitivity is key aspect in caring activities because it focuses on patient's emotions and concern while considering patients' cultural background (Finfgeld-Connett, 2008). Nurses who work in rural areas must consider the strong social and cultural aspects related to the rural context such as personal relationships and kinship (Ross, 2008; Winters & Lee, 2010). Building interpersonal understanding and thrust is necessary for nurses to establish effective communication with the patients and families. Four indicators for communication and interpersonal domain that were rated as highly important were ranked among five top indicators across the seven domains signified the importance of promoting interpersonal continuity through strengthening patient-nurse relationship in providing services across the continuum of care (Cameron et al, 2006; Evashwich, 2005).

In addition, six indicators for caring that were rated as highly important were ranked among five top indicators across the seven domains indicated that this finding is important to the provision of service across the continuum of care because caring flourishes relational and interpersonal continuity (Evashwich, 2005; Finfgeld-Connett, 2008; Holland & Harris, 2007). Additionally, this findings emphasized that caring is an interpersonal process that serves as prerequisite in providing a holistic care because patient-nurse relationship is the spirit of caring (Winsor, Douglas, & Harvey, 2012). As a result, caring-derived intervention is provided not only in the form of advocating and motivating but also empowering the patients and families to take care for themselves as well as encouraging other healthcare providers to be able to continue learning and growing.

Another important finding with regard to management and organizational domain suggested that case management and evidenced-based decision making were important to ensure for the provision of high quality care across the continuum of care. Case management is a key approach to prevent the fragmentation of care delivery and to foster collaboration with others (Bridges, 2013). Lack of communication among healthcare providers and health services results in a discontinuity in the transition of services across setting of care. For example, discontinuity happens when patient from a hospital was transferred back to the primary health care without proper discharge planning and collaboration between healthcare providers in the two settings. Through case management approach a case manager serves as pivotal role that links all stakeholders across the continuum of care (Kaasalainen et al., 2014; Leonard & Miller, 2012; McBryde-Foster & Allen, 2005).

Implication for Nursing Education, Practice, and Research

The RNCACC inventory has several functions in education and health care practice. Information from RNCACC inventory is useful for performance appraisal and job specification that in turns will give impact on rural nurses understanding of their need on professional development and on their improvement in care delivery. Also, each indicator and domain will inform nursing educational institutions to evaluate their training programs as well as develop and revise nursing curricula and teaching strategies to suit nursing practice in rural settings. Findings from this study revealed that having advanced nursing skills are very important for rural primary health care nurses to provide a high quality of care across the continuum of care. These skills fall in the realm of

primary health care services for individual, family, and community; such as skills to treat and manage acute emergency health problems, to do screening epidemiological surveillance, to analyze diagnosis testing, to prescribe rational drugs, to provide complementary therapy, to advocate, and to perform case management. These skills are associated with advanced practice that requires role extension across the continuum of care while working in an isolated environment.

While advanced nursing practice was delivered in several ways in rural settings, the majority of rural nurses were graduated from a three-year nursing course; a vocational level of education (Husain et al., 2006; Luan, 2014; Sciortino, 1995). Recently graduated nurses were deployed to rural areas without proper preparation relying on their knowledge and skills based on nursing curriculum that is developed during their training in urban and hospital-based settings (Effendi, 2012; Luan et al., 2009). This phenomenon of recruiting recent graduates without proper training on rural nursing care was also recognized in some other countries (Cant et al., 2011; WHO, 2010). Consequently, nursing education in Indonesia needs to reevaluate the nursing curriculum to suit rural nursing practice across the continuum of care, and to design nursing course, such as an advanced practice educational preparation, post graduate clinical training, or a certificate course on case management.

Another approach to improve rural nursing practice is to invite experienced rural nurses to take part in the curriculum enrichment and in teaching. Additionally, there is a need to develop and enhance continuing education tailored to rural nursing practice across the continuum of care to help rural nurses to maintain their clinical competency.

For example, this continuing education includes various advance nursing skills so that rural nurses are ready to respond to acute emergency problems and be well informed about pharmacology and medication administrative. A continuing education program on wellness care will improve rural nurses' skills and performance in providing health promotion and diseases prevention both at individual and population levels. Also, as rural nurses have limited access to continuing education and education supervision and mentoring, providing continuing education materials such as journals and online databases as well as internet and audio/video conferencing approaches, will improve rural nurses' competencies and performance (Cant et al., 2011; CARNA, 2008; Hannessy, Hicks, Hilan, & Kawonal, 2006; Kerse, Luan, & Lawintono, 2008; Lea & Cruisckshank, 2007; WHO, 2010).

Findings from this study add to the body of knowledge of rural nursing competencies across the continuum of care. However, research related to rural nursing practice across the continuum of care nursing is limited; hence the need for more research is apparent (McBryde-Foster & Allen, 2005). Findings from this study suggested that indicators for a RNCACC inventory are important to primary health care rural nurses in Indonesia. However, indicators for RNCACC inventory might be meaningful to primary healthcare nurses in urban areas of Indonesia and to primary health care nurses in countries that have similar healthcare delivery system. Consequently, further studies for validation of the RNCACC inventory are needed. For example, a randomized control trial testing a novel rural nurses' training program to analyze the effect of training on practice outcomes would provide important information on rural nurses' competencies.

Study Limitation

This study had two limitations; English written questionnaire and Internet access. First, the questionnaires used in both Delphi rounds were written in English and completed by 11 experts, five among which were not using English as their second language. However, these five experts were graduated from a reputable university that requires English proficiency as an entrance requirement. Additionally, students from this university usually read student's textbooks and articles written in English providing and reinforcing them to be proficient in reading comprehension and be passively proficient in English. In such, these five experts would be very familiar with health-related and nursing terminologies used in the questionnaires. Second, Internet access was problematic in rural areas. For example, one of the candidates after attempting several times decided not to participate because Internet mobile service was available only once a week in her place. Some experts reported problems about the low-speed of Internet service. These two limitations affected the length of time the experts spent to complete the questionnaires, suggesting that other data collection methods should be considered in the future study.

Conclusion

Information from the literature review and data from FGD were used to identify descriptors of competency and to generate a pool of indicators for the RNCACC inventory. As a result, this study captured seven domains of RNCACC that contained rich

competency indicators. Using two rounds of Delphi, this study validated 106 important indicators to rural nurses' competencies across the continuum of care. Each domain contained several indicators that were highly associated with key aspects of continuum of care; patient-center approach, patient-nurse relationship, wellness and holistic approaches, case management, and care coordination. The RNCACC inventory has the potential to inform nursing education to design courses, such as an advanced practice educational preparation or a certificate course. Also, the RNCACC inventory may lead to the improvement of rural nurses' performance through promotion of the results by healthcare organizations. Findings from this study serve as an initial step in the development of the RNCACC inventory. Hence, future studies will be needed to evaluate both the appropriateness of the RNCACC inventory in terms of its clarity, comprehensiveness, and difficulties as well as feasibility of data collection and psychometric properties. The use of the inventory of indicators of competency will improve the quality of nursing performance and care in rural settings.

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CHAPTER SIX

Conclusion

The development of this dissertation began with a concept analysis to explore and define rural nursing competency. The reason of doing a concept analysis was that despite serious efforts to improve the rural health care system and rural nurses performance (WHO, 2010), there was no clear definition of competency in global rural nursing. Without a definition of rural nursing competency, agreement about appropriate indicators for competency is limited; hence rural nurses' performance cannot be comprehensively assessed (Takase & Teraoka, 2011; Zhang, Luk, Arthur, & Wong, 2001). A clear definition of competency is required to establish the components and indictors of competencies, i.e., the competency inventory. The evolutionally concept analysis that was used to clarify the concept of competency resulted in the identification of major attributes to define competency in rural nursing: the nurses' confidence in their ability to perform a range of skills with autonomy to meet the variety of health needs within the context of rural health. The result of this concept analysis is a significant contribution to the development of a knowledge base concerning competency in rural nursing; it provided a recommendation for future studies in the area of competency assessment, particularly in the development of inventory for rural nursing competencies across the continuum of care competency (RNCACC).

Developing an RNCACC inventory required an understanding about the scope of rural nursing practice across the continuum of care. However, there was incomplete

knowledge about rural nursing practice and the continuum of care. Given that the increase in communicable diseases (CD) and noncommunicable diseases (CCD) that are often chronic incurable conditions (WHO, 2008) was linked with continuity of care, exploring rural nurses' scope of practice in managing these diseases assisted in finding indicators that depicted rural nursing practice across the continuum of care. Content analysis of focus group discussions with senior rural nurses and nursing educators resulted in the identification of four themes or rural nurses' roles and responsibilities: 'care for individuals of all ages,' 'care for families,' 'care for communities,' and 'nursing practice that unique to rural settings'. This study revealed that rural nurses were primary health care (PHC) providers who worked fulltime in PHC facilities, fulltime urban hospital nurses who also had a second job as an independent practitioner in rural or sub-urban areas, or fulltime in any type of health facilities while part time owning/running independent practice in rural areas.

The rural nurses who worked fulltime performed the following roles: 1) The initial role in PHC to care for healthy individual through wellness care and for sick individuals through episodic care; 2) The central role in PHC to care for families through long-term care that exemplifies their contribution across the continuum of care; and 3) The protraction role through community cares that enables rural nurses to stretch their function in diseases prevention and health promotion to population at large. Rural nurses perceived an essential function in strengthening family's self-cares and in linking series of cares safeguarding the continuum of care. Additionally, this study also revealed that rural nurses' role expansion was very apparent in rural PHC facilities demanding them to develop advanced nursing practice. However, the lack of advanced skills such as case

management prevented them from providing high quality continuum of care. This study provided a landscape for developing indicators for rural nursing competencies across the continuum of care to be used for assessing rural nurses' performance and for assisting in providing high quality of care.

The subsequent study that used Delphi method was done to construct and validate competency inventory indicators related to rural nursing practice across the continuum of care (RNCACC). Two Delphi rounds (response rates of 73% and 100%) produced 106 indicators of RNCACC across the seven domains; episodic care, wellness care, long-term care, community care, communication and interpersonal, management and organizational, and caring. The 106 indicators mean ratings were from 3.090 to 4.00 (SD = 0.302 – 1.328), majority of which were highly connected with key aspects of continuum of care. Whereas the 106 indicators had CVI ranging from 0.73 to 1.00, the overall RNCACC had CVI of 0.954. Consequently, the result of this study is imperative for the next steps of an inventory development process.

This dissertation research covered the initial steps of inventory or instrument development (DeVellis, 2003; Lyn, 1986, Meretoja et al., 2004; Takase & Teroke, 2011). Several further steps are needed for a new inventory to be in place: 1) Pilot testing with 20-30 rural nurses that aims to check for the feasibility of the data collection and to assess the appropriateness of the RNCACC inventory in terms of its clarity, comprehensiveness, and potential difficulties; 2) Field-testing with a sample of at least 300 rural nurses. Field-testing will examine the distribution and correlation of the indicators of competencies (descriptive statistics) and to analyze the psychometric properties of the inventory

(factorial analysis, internal consistency, and criterion-related validity). In general the final RNCACC inventory has several functions in health care practice and education. First, it may be used for performance appraisals, job specifications, and recruitment judgments. The second function is for evaluating training programs as well as developing and revising nursing curricula and teaching strategies. The third function is for identifying nurses' educational needs. Lastly, it is used for identifying and refining policies for nursing education, clinical practice, and research (Liu et al., 2007; Meretoja et al., 2002; Takase & Teraoke, 2011).

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Appendix A

List of Acronyms and Abbreviations

API	Annual Parasite Incidence
AFB	Acid-fast Bacillus smear, a sputum smear / examination to TB patients
AINE	Association of Indonesia's Nursing Education Institute
CAH	Critical Access Hospital
CBE	The competency-based Education / Curriculum
CC	Continuum of Care
CD	Communicable Diseases
CHW	Community Health Worker
CLC	Chronic Lifelong Conditions
CVD	Cardiovascular Disease
CVI	Content Validity Index
6D Scale	The Six-D Scale of Nursing Performance
DALY	The disability-adjusted Life Year
DOH	Department of Health
DM	Diabetes Mellitus
FGD	Focus Group Discussion
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
ICN	International Council of Nurses
INNA	Indonesia National Nurse Association
KIA / MCH	Kesehatan Ibu dan Anak or Maternal and Child Health
KSA	Knowledge, Skills, and Attitudes
MDR-TB	Multidrug Resistance of TB
NCD	Noncommunicable Diseases
NCP	Nursing Care Plan
NCS	Nurse Competence Scale
OSCA	Objective Structured Clinical Assessment
PHC	Primary HealthCare
PUSTU	Puskesmas Pembantu (Satellites of Health Center) located in villages
PUSKESMAS	Pusat Kesehatan Masyarakat (Public/Community Health Center)
POSYANDU	Pos Pelayanan Terpadu, (a community level health station that covered 100 children under five years of age, managed by community health workers (CHWs), and supervised by public health center.
RHC	Rural Health Center (Public Health Center in Rural Areas)
RN	Rural Nurse
RNCACC	Rural Nurses' Competencies Across the Continuum of Care
SD	Standard Deviation
SPO	Structure-Process-Outcome (see Donabedian's model)
TB/TBC	Tuberculosis
XDR-TB	Resistance to Three of Six Classes of Second Line TB Drugs

Appendix B

Journal Names and Author Guidelines

A. Journal of Advanced Nursing

Detailed Guidelines and Paper Types
Every paper submitted should be structured and written in accordance with *JAN* requirements and guidelines. This is to ensure completeness of content and clear structure. Papers that do not comply with *JAN*'s essential requirements will be immediately returned.

Contents: 1. International Relevance, 2. English language, 3. Currency of data, 4. Length, 5. More than one paper, 6. Supplementary web-based information, 7. Search Engine Optimisation, 8. Title Page, 9. Authorship, 10. Structure and format, 11. References, 12. Figures and tables, 13. Preparation of electronic figures for publication, 14. Permissions, 15. Colour charges, 16. Statistical guidelines, 17. Publication ethics, 18. Conflict of interest, 19. Funding, 20. Summary Statements

International Relevance Papers submitted should be relevant to the Aims & Scope of *JAN* and written in a way that makes the relevance of content clear for *JAN*'s international readership. Points to consider are:

• whether a reader in a region or country very different from your own will be able to make sense of everything in your paper • whether you have clearly outlined the relevance of your paper to the subject field internationally and also its transferability into other care settings, cultures or nursing specialities • if your paper explores focussed cultural or other specific issues, have you clearly placed the discussions within an international context?

Editor-in-Chief Roger Watson and Editor Mark Hayter have written an editorial about making papers relevant to an international audience.

English language A high standard of written English language is important for easy understanding internationally. Authors who are not fluent English language writers are strongly recommended to ensure that their manuscript is copy-edited by a native English speaker prior to submission. Visit our site to learn about the options. Please note that using the Wiley English Language Editing Service does not guarantee that your paper will be accepted by this journal.

The European Association of Science Editors (EASE) provides Guidelines for Authors and Translators of Scientific Articles to be Published in English, which are available in more than 20 languages. However, please ensure that you follow *JAN*'s own guidelines for specific requirements such as formatting, title, and author contributions.

Currency of data The period of data collection should be specified in an empirical research report, both in the abstract and in the body of the paper, in the form of a

statement such as 'the data were collected during 2008' or 'data were collected over a 18 months in 2006-2007'. Timely publication of results is regarded as good research practice: therefore, if the data are more than five years old by the time you are ready to submit your paper, or in the case of new analysis of older data sets, the contemporary relevance of the data should be clearly (and explicitly) explained in the text of the paper and commented on briefly in the abstract. A review paper should include, both in the text and the abstract, the inclusive dates of the literature searched and normally the search should have been completed no longer than three years before you submit the paper. Papers in the form of a protocol should mention in the text and the abstract the date (month and year) of its ethical approval and/or funding, and must be submitted in sufficient time to allow publication before the study is reported.

Length Papers must not exceed 5000 words. The word count includes quotations, but excludes the abstract, keywords, summary statement, references, figures and tables. There is a facility that allows lengthy or supplementary material to be published online in addition to the paper. Papers shorter than 5000 words are welcome. In exceptional circumstances and only for high quality reviews, authors can request to exceed the 5000 word limit.

More than one paper If more than one paper from the same study is being prepared for *JAN* they should be submitted as separate papers. When more than one paper is prepared from the same study there should be minimal duplication and no ‘cut and paste’ of material across the papers. It might be appropriate, for example, to describe the research methods fully in one paper and give a summary of these in a second paper, with reference to the fuller description in the first paper. However done, there must always be direct referencing to any other paper/s from the same study that has/have been published (or ‘in press’). We may ask you to provide copies of other such papers to check overlap. Note that the rules that apply to plagiarism are equally applicable to one's own work. Authors also should be aware that *JAN* does not support the practice of publishing small sections of a study in several separate papers when a well-crafted single paper would suffice. If more than one paper is produced from the same study, each must address, in-depth, different aspects of the study, or reporting that study in distinctly different ways for different readerships; ‘salami slicing’ is discouraged. Mixed methods studies that are reported in one paper may be particularly rich and meaningful when triangulation of qualitative and quantitative data is evident and findings from both types of data amplify and clarify the study topic.

Supplementary web-based information Note that Supplementary Information can be put online alongside a published paper: for example, in the form of additional tables or other types of data or further details about methods and measures.

Search Engine Optimisation Many students and researchers looking for information online will use search engines such as Google, Yahoo or similar. By optimising your article for search engines, you will increase the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in another work.

Please see the Tips Sheet for optimising the discoverability of your article and promoting

it post-publication, and this Wiley Exchanges blog post for advice on choosing keywords for your article.

Title Page Your title page should include the following information: • Full title (maximum 25 words) • Running head • Author details: names (please put last names in CAPITALS), job titles and affiliations (maximum of 3 per author), qualifications (maximum of 3 per author, including RN/RM where appropriate) • Contact details for the corresponding author (including Twitter username if you would like this published) • Acknowledgements (if applicable) • Conflict of Interest statement • Funding Statement

Authorship All authors must have agreed on the final version of the paper and must meet at least one of the following criteria (based on those recommended by the ICMJE): 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data 2) drafting the article or revising it critically for important intellectual content.

The JAN Editors have written this editorial about authorship which you may find useful.

Structure and format To ensure completeness of content there is a recommended structure and format for different types of papers. We also ask that you include all information required by the reporting guidelines relevant to your study. Please consult the EQUATOR Network for details.

Please click below on the type of paper you are planning to submit, and follow the guidance provided.

JAN also welcomes other types of paper that do not fit into the below categories. Please contact the editorial office in the first instance (jan@wiley.com).

Evidence Synthesis: • Systematic review or other type of review • Concept analysis • Guidelines and consensus statements • Discussion Paper

Research Papers: Original Research: • Empirical research - quantitative • Empirical research - qualitative • Empirical research - mixed methods • Clinical trial • Pilot Study

Protocols: • Protocols for a research study or systematic review Research Methodology: • Instrument Development • Discussion Paper - Methodology • Empirical Research - Methodology

Commentaries (formerly *JAN* Forum)**:** • *JAN* interactive

Case Reports *JAN* does not accept case reports for publication. Authors of case reports are encouraged to submit to the Wiley Open Access journal, Clinical Case Reports, which aims to directly improve health outcomes by identifying and disseminating examples of best clinical practice.

References References follow the **Harvard** style, i.e. parenthetical in the text and listed in alphabetical order of first authors' names in the reference list.

The editor and publisher recommend that citation of online published papers and other material should be done via a DOI (digital object identifier), which all reputable online published material should have – see www.doi.org for more information. If an author cites anything which does not have a DOI they run the risk of the cited material not being traceable.

We recommend the use of a tool such as EndNote or Reference Manager for reference management and formatting.

References within the text should cite the authors' names followed by the date of publication, in chronological date order, e.g. (Lewis 1975, Barnett 1992, Chalmers 1994). Where there are more than two authors, the first author's name followed by '*et al*.' will suffice, e.g. (Barder *et al*. 1994), but all authors should be cited in the reference list. '*et al*.' should be presented in italics followed by a full stop only. Page numbers should be given in the text for all quotations, e.g. (Chalmers 1994, p. 7). All references should be cited from primary sources.

Where more than one reference is being cited in the same pair of brackets the reference should be separated by a comma; authors and dates should not be separated by a comma, thus (Smith 1970, Jones 1980). Where there are two authors being cited in brackets - but not in the main text - then they should be joined by an '&', thus (Smith & Jones 1975).

When a paper is cited, the reference list should include authors' surnames and initials, date of publication, title of paper, name of journal in full (not abbreviated), volume number, and first and last page numbers. Example: Watson R, Hoogbruin AL, Rumeu C, Beunza M, Barbarin B, MacDonald J & McReady T (2003) Differences and similarities in the perception of caring between Spanish and United Kingdom nurses. *Journal of Clinical Nursing* 12, 85-92.

When a book is cited, the title should be stated, followed by the publisher and town/county/state (and country if necessary) of publication. Example: Smith GD & Watson R (2004) *Gastroenterology for Nurses*. Blackwell Science, Oxford.

Where the reference relates to a chapter in an edited book, details of author and editors should be given as well as publisher, place of publication, and first and last page numbers. Example: Chalmers KI (1994) Searching for health needs: the work of health visiting. In *Research and its Application* (Smith JP ed.), Blackwell Science, Oxford, pp. 143-165.

The edition (where appropriate) of all books should be identified, e.g. 2nd edn. References stated as being 'in press' must have been accepted for publication and a letter of proof from the relevant journal must accompany the final accepted manuscript. Please provide access details for online references where possible: Example: Lynaugh JE (1997) *The International Council of Nurses is Almost 100 years old*. University of Pennsylvania, PA. Available at: http://www.nursing.upenn.edu/history/Chronicle/F97/icn.htm (accessed

12 December 2002). The reference list should be prepared on a separate sheet and be in alphabetical order and chronological order by first authors' surnames.

We encourage you to refer to existing literature published in *JAN* where relevant.

Figures and tables Include a citation in the text for each figure and table. Artwork should be submitted online in electronic form. Detailed information on our digital illustration standards is available from: http://authorservices.wiley.com/bauthor/journal.asp.

Abbreviations used in figures and tables should be defined in a footnote.

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For scanned images, the scanning resolution (at final image size) should be as follows to ensure good reproduction: line art: >600 dpi; halftones (including gel photographs): >300 dpi; figures containing both halftone and line images: >600 dpi.

Always include a citation in the text for each figure and table. Artwork should be submitted online in electronic form. Detailed information on our digital illustration standards is available on the Wiley-Blackwell website.

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Publication ethics For information about publication ethics, please see Wiley's Best Practice Guidelines on Publishing Ethics, which were newly updated in March 2014.

If you have any questions that are not answered by the information provided, please email the Editorial Office at jan@wiley.com.

Conflict of interest Authors are required to disclose any possible conflict of interest when submitting a paper. These can include financial conflicts of interest e.g. patent ownership, stock ownership, consultancies, speaker's fee. All conflict of interest (or information specifying the absence of conflict of interest) should be included at the end of the article under 'Conflicts of Interest'. This information will be included in the published article.

If the author does not have any conflict of interest the following statement should be included: 'No conflict of interest has been declared by the author(s).'

Editors of *JAN* are encouraged to publish in *JAN*. To avoid conflicts of interest, editors do not process their own papers. If a member of the editorial team is submitting to *JAN*, then the ScholarOne system prevents them from viewing any details related to their paper and also prevents the manuscript from being allocated to them for review, regardless of their place in the authorship of the paper. If the Editor-in-Chief is submitting a paper then the Editorial Assistant is informed and the paper allocated to one of the editors for processing. Editors are also urged to be aware of other potential conflicts of interest such as processing papers by collaborators and colleagues. Such situations are unavoidable but editors are expected to exercise discretion and fairness regardless of any proximity to submitting authors.

Funding *JAN* requires authors to specify any sources of funding (institutional, private and corporate financial support) for the work reported in their paper. This information, in the form of the name of the funding organisation/s and the grant number should be included at the end of the article under the heading 'Funding', and provided at the time of submitting the paper. If there was no funding, the following wording should be used: 'This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.' Any suppliers of materials should be named and their location (town, state/county, country) included if appropriate. This information will be included in the published article.

Summary Statements All manuscripts must include a Summary Statement. Please refer to the Summary Statement guidelines.

Last updated: October 2014.

http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2648/homepage/jan_essentials.htm

B. Online Journal of Rural Nursing and Health Care

Online Journal of Rural Nursing and Health Care Author Guidelines

The mission of the *Online Journal of Rural Nursing and Health Care* (OJRNHC) is to be a leading source of information on rural health care practice, education and research, supporting the health of rural populations. The OJRNHC is the official journal of the Rural Nurse Organization (RNO). The journal is peer-reviewed and addresses US and global rural nursing and health care. At least one author of each manuscript must be a member of the RNO at the time of review and publication. RNO members can be nurses or those that support rural nursing and health care. Details on RNO membership can be found at http://www.rno.org/index.htm .

This journal does use an online submission process. All manuscripts need to be submitted electronically. In order to submit a manuscript for review you must first be registered as a user at the journal URL. This is a separate process from joining the RNO. To Register please go to the following website
http://rnojournal.binghamton.edu/index.php/RNO

On the line of light green tabs that begins with HOME go to the 4th over to **REGISTER**. You will be asked to fill in your profile. At the bottom of this page make sure you click on the role of AUTHOR

Style

The *Online Journal of Rural Nursing and Health Care* uses the American Psychological Association (APA) style. Manuscripts not in APA style will not be accepted for review. One alteration in style is that we encourage authors to submit manuscripts with single vs. double spacing. Each manuscript requires an abstract limited to 300 words. Research manuscripts should be 18 pages single spaced, not including title page, abstract and references. Manuscripts that are not research should be limited to 10 pages single spaced. We do accept literature reviews.
Please prepare your manuscript in a word document with Times New Roman 12 font for the majority of the manuscript. Tables should be single spaced, in Times New Roman 11 font and included within the document. References should be submitted with a hanging indent of 5 spaces. Please do not use a hard return (enter) at the end of a line of the first line of references; instead use the ruler feature in Word to set your margins. An example of a reference in APA style would be

References

Yonge, Myrick, and Ferguson (2011). The challenge of evaluation in rural preceptorship. *Online Journal of Rural Nursing and Health Care, 11*(2), 3-15.

To cite this reference in text, the first time use the following... in describing the evaluation process (Younge, Myrick & Ferguson, 2011) noted… or The authors Younge, Myrick and Ferguson (2011) noted … Subsequent references would be cited as (Younge et al., 2011) or Younge et al. (2011).

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Special Notes

Please make sure you identify how you defined "rural" in your study or work. To be of interest to this journal your work needs to address the rural aspect of the work throughout the paper, having the word rural in the title is not sufficient. You will also need to note in the manuscript how you protected the rights of subjects, at a minimum you should note whether you received permission to conduct research from an Institutional Review Board (IRB) and include your protocol number. This information usually goes into the section on sample. This information is not pertinent to non-research papers. Please make sure you have addressed how this work relates to rural nursing, health care or policy. Lack of information as specified in these special notes are often reasons for declining submissions of manuscripts.

Preparing for Submission

In preparing for electronic submission you will need to create 2 files.

File One

File one will include information for the title page and abstract. This should include all author names, email addresses, affiliation (university or employer), and bio information including credentials, position and department / school or site names. You should have the title of the paper (which you can type or cut and paste into the designated box) and the abstract followed by Key Words. You will be instructed to cut and paste the body of the abstract and Key Words into the designate box. Abstracts should include a Purpose, Sample, Method, Findings, and Conclusions as appropriate to the type of article and be no more than 300 words.

File Two

File two should be your word document that includes the body of your paper, tables, figures, and references. There should be no author identifying information in this file, to allow for blind review. You should have a short running head in the header along with the page number.

Online Submission

When you are ready to submit go to USER HOME and here you will see your name and on the right side will be a SUBMISSION tab**, click on this tab**. There is a drop down box where you have to stipulate that it is an Article. You will be asked to input author information, you can cut and paste from file one. Remember each author must have an email address in the system or the system will not recognize that author. One author should be noted as the primary contact. If this is not the first author, you may designate another author with a click of the circle below the correct contact author name. After you have put in the information for the first author, at the bottom you can "add author" as needed. Next you will be asked to upload your file, this should be the body of

the manuscript without identifying information, noted as file two above. The file can have any file name, but will show on the system as a number. Finally you will be asked to put in the title of the paper (cut and paste from file one) and the abstract (cut and paste from file two). Key Words should also be inserted at the bottom of the abstract box. There is a box to identify any funding agencies, you may also cut and paste acknowledgements into this box. Click on SAVE at the bottom of the page to actually submit your manuscript. You will be asked if you wish to upload other data files. Most authors do not need to use this part of the system unless you are sharing your raw data or have a table that is exceedingly long. If you do use this file upload for extra data, there should be no identifying information in the file.

If you have any questions please email me the editor, Dr. Pamela Stewart Fahs at psfahs@binghamton.edu

Submission Preparation Checklist

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

1. The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
2. The submission file is in Microsoft Word file format. There is no identifying information on the mansucript itself. Abstract with Key Words at bottom is submitted seperately in the Metadata file when requestted
3. Where available, doi for references have been provided.
4. The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.
5. The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines, which is found in About the Journal.
6. If submitting to a peer-reviewed section of the journal, the instructions in Ensuring a Blind Review have been followed.
7. Title information and abstract with key words are to be submitted seperately by typeing in or copy and paste into appropriate areas. Manuscript should not have identifying information for blind review. Manuscript may be uploaded in a word document.

Privacy Statement

The names and email addresses entered in this journal site will be used exclusively for the stated purposes of this journal and the Rural Nurse Organization will not be made available for any other purpose or to any other party.

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C. International Nursing Review

Author Guidelines

1. AIM AND SCOPE

International Nursing Review (*INR*) is the official journal of the International Council of Nurses (ICN). It is a quarterly, peer-reviewed journal that focuses predominantly on nursing and health policy issues of relevance to nurses. *INR* welcomes original articles that help to forward ICN's global mission by representing nursing, advancing the profession and shaping health policy. ICN also contributes to the ongoing development of nursing internationally with its regular section on International Perspectives. The diverse international readership of *INR* is located in more than 130 countries. Published both in hard copy and on-line, *INR* is a key resource for nurses and health policy makers worldwide.

INR encourages unsolicited original manuscripts where nurses describe the policy relevance of their work and document their experience and research. Authors are encouraged to develop a 'global intelligence' on nursing and to address *INR*'s diverse audience by exploring beyond local or national interests to the more general, global application of the principles underlying their work. Background information on the local arrangements for nursing and health care in a country also provides useful context for this global readership. Policy concerns of this journal are as follows: regulation of the profession, workplace issues, innovations in practice, patient safety, quality improvement education, ethics, nurses' and midwives' work-life experiences, and the impact of globalization and technology on nursing and health and social policy.

Authors reporting studies conducted in countries other than their own should, wherever possible, involve local authors when writing their articles. All contributed assistance should be acknowledged, including financial support and any conflicts of interest. For those interested in the Wiley-Blackwell policy on the NIH Public Access Mandate, please visit our policy statement

Please read the instructions below carefully for details on the submission of manuscripts, the journal's requirements and standards as well as information concerning the procedure after a manuscript has been accepted for publication in *International Nursing Review*.

Authors are encouraged to visit Wiley-Blackwell Author Services for further information on the preparation and submission of articles and figures.

Given our rapid review process, **we do not accept pre-submission enquiries for original research papers**. For guidance on "fit" to the Journal, authors should read our Guidelines and examine recent published issues before making a decision about whether or not to submit

2. GENERAL

In keeping with INR's aim and scope above, preference is given to manuscripts that address nursing and health policy and related topics.

We accept empirical and non-empirical research studies, literature reviews and short communications. In these authors need to address the implications of their work for nursing and health policy in the abstract, literature review, discussion and conclusions/recommendations sections.

Authors reporting studies conducted in countries other than their own should, wherever possible, involve local authors when writing their articles. All contributed assistance should be acknowledged, including financial support and any conflicts of interest.

For those interested in the Wiley-Blackwell policy on the NIH Public Access Mandate, please visit our policy statement.

Please read the instructions below carefully for details on the submission of manuscripts, the journal's requirements and standards as well as information concerning the procedure after a manuscript has been accepted for publication in International Nursing Review.

Authors are encouraged to visit Wiley-Blackwell Author Services for further information on the preparation and submission of articles and figures.

3. ETHICAL GUIDELINES

International Nursing Review adheres to the below ethical guidelines for publication and research.

3.1. Authorship and Acknowledgements

Authorship: Authors submitting a paper do so on the understanding that the manuscript has been read and approved by all authors and that all authors agree to the submission of the manuscript to the Journal. All authors must have agreed on the final version of the paper and must meet at least one of the following criteria (based on those recommended by the ICMJE): 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data 2) drafting the article or revising it critically for important intellectual content. Contributors who do not qualify as authors should be mentioned under Acknowledgements.

3.2 Source of Funding statement

Authors are required to specify any sources of funding (institutional, private and corporate financial support) for the work reported in their paper. This information, in the form of the name of the funding organisation/s and the grant number -or should be included in the title page under the heading ‘Funding’, and provided at the time of submitting the paper. If there was no funding, the following wording should be used: “This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.” Any suppliers of materials should be named and their location (town, state/county, country) included if appropriate. This information will

be included in the published article.

3.3 Conflict of Interest statement

Authors are required to disclose any possible conflict of interest when submitting a paper. These can include financial conflicts of interest e.g. patent ownership, stock ownership, consultancies, speaker's fee. All conflict of interest (or information specifying the absence of conflict of interest) should be included in the title page under 'Conflicts of Interest'. This information will be included in the published article. If the author does not have any conflict of interest the following statement should be included: "No conflict of interest has been declared by the author(s)."

Editors of *INR* are encouraged to publish in the journal. To avoid conflicts of interest, editors do not process their own papers. If a member of the editorial team is submitting to *INR*, then the ScholarOne system prevents them from viewing any details related to their paper and also prevents the Editor-in-Chief from allocating the paper to them for review, regardless of their place in the authorship of the paper. If the Editor-in-Chief is submitting a paper then the Editorial Assistant is informed and the paper allocated to another editor for processing. Editors are also urged to be aware of other potential conflicts of interest such as processing papers by collaborators and colleagues. Such situations are unavoidable but editors are expected to exercise discretion and fairness regardless of any proximity to submitting authors.

3.4 Ethical Approvals

Experimental Subjects: experimentation involving human subjects will only be published if such research has been conducted in full accordance with ethical principles, including the World Medical Association Declaration of Helsinki (2008) and the additional requirements, if any, of the country where the research has been carried out. Manuscripts must be accompanied by a statement that the experiments were undertaken with the understanding and written consent of each subject and according to the above mentioned principles. A statement regarding the fact that the study has been independently reviewed and approved by an ethical board should also be included. Editors reserve the right to reject papers if there are doubts as to whether appropriate procedures have been used.

3.5 Appeal of Decision

Authors who wish to appeal the decision on their submitted paper may do so by e-mailing the editorial office with a detailed explanation for why they find reasons to appeal the decision.

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4. SUBMISSION OF MANUSCRIPT

International Nursing Review prefers to receive all manuscript submissions electronically using ScholarOne Manuscripts. To submit a manuscript, please follow the instructions below.

4.1 Getting Started

1.Launch your web browser and go to the *International Nursing Review*'s ScholarOne Manuscripts homepage (http://mc.manuscriptcentral.com/inr). 2. Log-in or click the "Create Account" option if you are a first-time user of Manuscript Central. 3. After clicking on "Create Account", enter your name and e-mail information and click "Next". Your e-mail information is very important. Enter your institution and address information as appropriate, and then click "Next." Enter a user ID and password of your choice (we recommend using your e-mail address as your user ID), and then select your area of expertise. Click "Finish".

If you have an account but have forgotten your log in details, go to "Password Help" on the homepage and enter your email address. The system will send you an automatic user ID and password reminder.

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After you have logged in, enter your Author Centre and click the "Submit a Manuscript" link. Enter data and answer questions as appropriate. Click the "Next" button on each screen to save your work and advance to the next screen. You are required to upload your files. Click on the "Browse" button and locate the file on your computer. Select the designation of each file in the drop down next to the Browse button. When you have selected all files you wish to upload, click the "Upload Files" button. Review your submission (in both PDF and HTML formats) before sending to the Journal. Click the "Submit" button when you are finished reviewing.

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4.4 Blinded Review

All manuscripts submitted to *International Nursing Review* will be reviewed by two

experts in the field. *International Nursing Review* uses double-blinded review. The names of the reviewers will thus not be disclosed to the author submitting a paper and the name(s) of the author(s) will not be disclosed to the reviewers. To allow double-blinded review, please submit your main manuscript and title page as separate files.

5. MANUSCRIPT TYPES ACCEPTED

All manuscripts submitted to *International Nursing Review* should include:

Title Page: The title page must be a separate file; do not include it in the manuscript file. It must include a title of no more than 10 words; names, credentials (nursing qualifications, followed by academic, and then honours), job title, department and institution for each author; the name, address, telephone, fax and e-mail for the corresponding author; the source of funding statement; the conflict of interest statement; and any acknowledgements. NOTE: The author's name should appear only on the title page, not in the abstract or manuscript.

Main Text of Articles: Manuscripts must be in English, between 3000 and 6000 words in length inclusive of a 250-300 word abstract and no more than 40 references. Wherever possible and appropriate, references used should be within the last 5 years.

Authors should indicate the data sources for their articles. For example:

5.1. Empirical research study

An empirical research study consists of an article on original research that has not been previously published in its current format. • Abstracts for reports of empirical studies should be between 250-300 words structured under appropriate headings and include the Aim, Background, Introduction, Methods, Results or Findings, Discussion, Conclusion and Implications for Nursing and/or Health Policy. It helps the 'flow' of the article if the abstract headings are used to structure the main text, where appropriate references in support of research methods should be cited. Dates of data collection should be given and should not be more than 4 years old. • Up to 3 tables and/or figures may be included. • Up to ten keywords in alphabetical order should follow the abstract including, if appropriate, the countries that are the subject of the article. • Articles involving statistical methods should state the source of research subjects, selection methods, sample size, response rate and main results with confidence intervals and actual P values. • The Discussion should consider the policy implications of the research, where appropriate, for governments, management, education and/or practice; including the global dimensions of the study.

5.2 Literature review

• Abstracts for literature reviews should follow the guidelines for empirical research studies. It helps the 'flow' of the article if the abstract headings are used to structure the main text. • Reviews are normally published in a structured format and presented in a systematic way with aims, parameters (e.g. inclusion and exclusion criteria for articles, including dates), databases searched, key words used, a methodological critique of the papers included, and conclusions and suggestions for further research based on the

findings. • The findings included in literature reviews are normally summarized by means of a table, or tables, that demonstrate the key variables considered.

5.3 Other non-empirical research

Other non-empirical research manuscripts may be considered from the following sources:

• a description of innovative practice based on ICN or other guidelines; • an audit of best practice; • a theoretical critique; • an opinion piece of international interest.

These manuscripts are subject to the normal peer review process and should be structured under appropriate headings. The abstract should normally include the article's Aim, Background, Sources of evidence, Discussion, Conclusion and Implications for Nursing and Health Policy. It helps the 'flow' of the article if the abstract headings are used to structure the main text.

5.4 Short Communications

A Short Communication consists of a report up to 2000 words of which there are two categories: - reports on research which is in progress or part of a larger project. The research should have ethical approval. - reports and service innovations that do not aim to be comprehensive or necessarily research-oriented, which would not require ethical committee approval.

The authors are entirely responsible for the content which needs to be of interest to our international readership. All reports are subject to the normal peer review process and need to show the context, circumstances, situation, what happened and what needs to be done to address the problem, expressed as up to five key policy messages. A short abstract of up to 100 words is required and up to 10 references may be given. Subjects may include single case studies and Experiences from the Field.

5.5 Letters to the Editor

Letters commenting on recently published papers will be considered for publication and the authors of the original paper will be invited to respond. Submissions should be sent to the Editor at inredoffice@wiley.com.

6. MANUSCRIPT FORMAT AND STRUCTURE

6.1 Format

Language: The language of publication is English.

Units, Spelling and Measurement: System International (SI) units should be used. Spelling should conform to The Concise Oxford Dictionary.

Optimizing Your Abstract for Search Engines: Many students and researchers looking for information online will use search engines such as Google, Yahoo or similar. By

optimizing your article for search engines, you will increase the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in another work. We have compiled these guidelines to enable you to maximize the web-friendliness of the most public part of your article.

6.2 References

Harvard style must be used. Information on the Harvard style can be found here. References are cited in the text using the author names followed by year of publication, e.g. (Berry 2011). When there are three or more authors, the first author's name followed by et al. should be used, e.g. (Andrew et al. 2009). If there is more than one reference per year from an author, distinguish with a letter, e.g. (Cowin 2008a), (Cowin 2008b). A reference list including all citations must be supplied on a separate page. References are listed in alphabetical order by first author names. References must include sufficient information to retrieve source material. When a web page is cited, please provide the date it was last accessed. The following are examples of style:

Benner, P., Sutphen, M., Leonard, V. & Day, L. (2009) *Educating Nurses: A Call for Radical Transformation*. Carnegie Foundation, Washington, DC. Demirtaş, B. (2012)

Breastfeeding support received by Turkish first-time mothers. *International Nursing Review*, doi: 10.1111/j.1466-7657.2012.00977.x.

ANA – American Nurses Association (2010) *National Database of Nursing Quality Indicators*. Available at: https://www.nursingquality.org (accessed 14 March 2011).

Journal articles with **four authors or less** should be referenced with the names of all the authors listed. Where there are **five or more authors** in a reference, the article should be listed with the name of the first author, followed by 'et al.'.

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We recommend the use of a tool such as EndNote or Reference Manager for reference management and formatting. EndNote reference styles can be searched for here: www.endnote.com/support/enstyles.asp. Reference Manager reference styles can be searched for here: www.refman.com/support/rmstyles.asp

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Tables: Charts, figures and tables should be on separate pages. Tables containing only essential data should be double-spaced and numbered separately e.g. Table 1, Table 2, and a caption for each should be provided. Only horizontal lines should be used, one above and one below the column headings and one at the table foot. All abbreviations must be defined in a footnote.

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Appendix C

Institutional Review Board (IRB)

The University of Virginia Institutional Review Board for the Social and Behavioral Sciences and Indonesia Institutional Review Board (The Committee on Health Research Ethics of the National Institute of Health Research and Development, Ministry of Health of Indonesia) approved form, consent form, and measures/instrument.

Measures/Instrument (Information Form, FGD Guides, Delphi Template)

(English Version)

A.1 Participation Information Form (Demographic data for inclusion criteria checklist)

Rural Nurses' Continuum of Care Competencies in Indonesia
Principal Investigator: Bernadethe Marheni Luan, MA, RN

Participation Information Form

Please provide some background information about yourself by checking (√) your response or write your response. If you do not care to answer a question, leave it blank.

1. Birthday
   _____ *Month* *Day* *Year* *1*

2. What is your gender? ____0) Female ____ 1) Male *2*

3. What is your highest educational background? *3*
   ____ 0) High school
   ____ 1) Diploma
   ____ 2) BSN (Bachelors Degree in Nursing)
   ____ 3) Masters (Masters degree in Nursing
   ____ 4) Other: _____

4. What is your current position? *4*
   ____ 1) Nurse clinician
   ____ 2) Nurse manager / supervisor
   ____ 3) Nurse educator

If your answer is 1 or 2 please proceed to item 5 and 6. If your answer is 3, please proceed to item 5 and 7.

5. When was your starting date for this position?
   _____ *Month* *Day* *Year* *5*

6. What type of unit are you currently working on? *6*
   ____ 1) Primary health center (PHC) with inpatient ward at sub-district leve
   ____ 2) PHC without inpatient ward at sub-district level
   ____ 3) PHC at village level
   ____ 4) Other: _____

7. A. What kind of nursing education do you teach? *7A*
   ___ 1) Diploma III in nursing
   ___ 2) BSN (Bachelor in nursing)
   ___ 3) MSN (Master in nursing)

B. What subject do you teach? ☐ *7B*
_____1) Public health nursing
_____2) Communicable diseases
_____3) Noncommunicable diseases
_____4) Chronic diseases
_____3) Other _____

Page 1 of 1
ID #: ____
Date: ____

A.2 Focus Group Discussion (FGD) Guide Questions

This guide questions are prepared for three different groups (clinicians, managers, and educators). In each group, the guide will consist of the following items:

A. Purpose
B. Introduction
C. Questions about rural nurses' continuum of care competencies for communicable disease (CD), non-communicable diseases (NCD), and chronic lifelong diseases.
D. Closing questions

1. Guide questions for clinicians (senior rural nurses)

Purpose:
You have been asked to be in this discussion group because as a senior rural nurse you have worked directly with individuals, families, groups, and/or communities that suffer from CD, NCD, and chronic diseases. We want to talk to you today about your work and your opinions about your roles, tasks, and responsibilities in providing continuum of care to fight against CD, NCD, and chronic diseases and to find out from you how you developed your skills to be effective rural nurses in these fields.

Introduction
1) Describe the reasons that led you to work in your current unit in a rural setting.

   Probe:
   (a) What characteristics (personal, cultural, and professional) should nurse possess to adapt to working in rural setting?

Questions about roles and tasks of rural nurses
1) Now, as you think back to when you were assigned to rural setting, what were the tasks or roles related to CD, NCD, and chronic lifelong diseases that you performed (in line with the continuum of care)?
   Probe:
   (a) How would you describe the continuum of care
   (b) Name at least three tasks or roles that your think are important.
   (c) Which tasks or roles are best suited to promotive-preventive, curative, and rehabilitative care?

(d) Why do you think that particular knowledge, skill, or task is important?
(e) What is the best way to develop that skill?

2) Tell me a story about a challenging day in your current work related to CD, NCD, and chronic lifelong diseases.
Probe:
(a) How did you and your colleagues (if any) deal with that case?
(b) What knowledge, skills, and attitudes did you and your colleagues (if any) need the most when dealing with the case?
(c) Do you think a new rural nurse can deal with it, or is it a responsibility of a higher level nurse? Why?
(d) How did you develop that particular skill?
(e) How many years of experiences do you think you need to have that particular skill?

3) How did you improve your expertise related to CD, NCD, and chronic lifelong diseases to work effectively in a rural setting?
Probe:
(a) What training or education really helped you to improve your knowledge, skills, and attitudes?
(b) What training or education did you need but did not have?

4) If you were talking with new graduates or nurses working in rural settings, what would you say to them about the knowledge, skills, and attitudes that they will need to prepare them for work in rural settings?

Closing Questions
1) Is there anything else that you would like to tell us about your work?
2) Is there anything else you would like to say about the education or training you need to help you to do your work?
3) Is there anything that we have not asked that you think is important for us to know?

2. Guide questions for upper level nurse managers

Purpose:
You have been asked to be in this discussion group because as nurse managers you have supervised and mentored nurses who work with individuals, families, groups, and communities that suffer from CD, NCD, and chronic lifelong diseases in rural areas. We want to talk to you today about your work and your opinions about their roles and tasks in the fight against these diseases and to find out how you develop or help them develop the skills to be effective rural nurses in these fields.

Introduction
1) Describe the work that you do at the rural primary health centers/ facilities or at the Health District Office that related to the role and tasks of the continuum care of CD, NCD, and chronic lifelong diseases in rural areas.
Probe:
(a) Why do you think that the work is important?

Questions about roles and tasks of the rural nurses

1) Now, as you think back when you planned, supervised, and mentored your nursing staffs (who were assigned to rural settings), what were their tasks or roles related to CD, NCD, and chronic lifelong diseases (in line with the continuum of care)?
   Probe:
   (a) How would you describe the continuum of care
   (b) Please identify which tasks or roles are best suited for use with promotive-preventive, curative, and rehabilitative care.
   (c) Why do you think that particular knowledge, skill, or task is important?
   (d) What is the best way to develop that skill?

2) Tell me a story about a challenging day in your work when you supervised or mentored nurses in health centers who worked with CD, NCD, and chronic lifelong cases in rural areas.
   Probe:
   a. How did you and your nursing staff deal with that case?
   b. What knowledge, skills, and attitudes did you and your nursing staff expect most from rural nurses when dealing with the case?
   c. Why do you think that particular knowledge, skill, attitude is important?
   d. Do you think only nurses with particular level of expertise can deal with it? Why?
   e. How many years of experience you need to have to develop that particular skill, knowledge, or attitude? Why?

3) In your observation, what are the differences between the tasks, roles, responsibilities, and attitudes of nurses related to the continuum care of chronic diseases when they work in the city and in the rural areas?
   Probe: Do you think the tasks, roles, responsibilities, and the attitudes are different? Why?

4) What training or education has really helped your nurses in rural areas to improve their knowledge and skills related to chronic diseases to work effectively in the rural settings?
   Probe:
   (a) What did the training help them do? What were the topics?
   (b) What training or education did they need but did not have?

5) If you were talking with new supervisors or mentors, what would you say to them about the knowledge, skills, and attitudes that nurses in rural health centers need?

Closing Questions

1) Is there anything else that you would like to tell us about your work?
2) Is there anything else you would like to say about the education or training you need to help you to do your work?
3) Is there anything that we have not asked that you think is important for us to know?

3. Guide questions for nurse educators

Purpose:
You have been asked to be in this discussion group because as nurse educators you have prepared graduates who work with individuals, families, groups, and communities that suffer from CD, NCD, and chronic lifelong diseases in rural areas. We want to talk to you today about your work to prepare graduates and your opinions about their roles, tasks, or responsibilities in the fight against these diseases and to find out from you what additional education or training will help prepare rural nurses in these fields.

Introduction

1) Describe the subject or course that you teach as a nursing educator in your institution that relates to CD, NCD, and chronic lifelong diseases.

   Probe:
   a. What do you think is best suited about your subject or course to rural health?
   b. What makes you think that the subject or course is important to rural nurses?
   c. What do you think are the most important aspects of your subject or course that helped develop graduates' knowledge and skills in the area of CD, NCD, and chronic lifelong diseases in rural settings?

Questions about roles and tasks of the graduates

1) Now, as you think back when you brought your students to the field, what were the tasks, roles, or responsibilities related to CD, NCD, and chronic lifelong diseases (in line with the continuum of care), performed by rural nurses that your students need to learn?
   Probe:
   (a). Name at least three tasks or roles of rural nurses that you think are important?
   (b). Why do you think that task or role is important?
   (c). How would you describe the continuum of care

2) In your observation, what are the differences between the tasks or roles of nurses related to CD, NCD, and chronic lifelong diseases when they work in the city and in the rural areas?
   Probe: Do you think the tasks or roles are different or the same? Why?

3) If you were talking with a junior lecturer or faculty members, what would you say to them about the knowledge, skills, and attitudes that their students need in order to prepare them to take care of patients that suffer from CD, NCD, and chronic lifelong diseases in rural settings?

Closing Questions

1) Is there anything else that you would like to tell us about your work?
2) Is there anything else you would like to say about the education or training you need to help you to do your work?
3) Is there anything that we have not asked that you think is important for us to know?

A.3 The Questionnaire's Template for Delphi Rounds

Delphi Round Questionnaire

Instructions: Check the column below that best reflects the importance of each criteria.

1. In column C, check the column that reflects continuum of care competency indicators most suited or important in nursing practice related to communicable disease (CD), noncommunicable diseases (NCD), and chronic lifelong diseases

   0 = No importance or relevance,
   1 = Low importance or relevance,
   2 = Moderate importance or relevance,
   3 = Substantial importance or relevance,
   4 = High importance or relevance.

2. In column D, provide comments or additional indicators that you might consider.

A No	B Domains and indicators	C Importance					D Comments
		0	1	2	3	4	
1	**Domain A**						
1.1	Indicator A.1						
2	**Domain B**						
2.1	Indicator B.1						
3	**Domain C**						
3.1	Indicator C.1						
4	**Domain D**						
4.1	Indicator D.1						
5	**Domain E**						
5.1	Indicator E.1						
6	**Domain F**						
6.1	Indicator F.1						
7	**Domain G**						
7.1	Indicator G.1						

ID #: _____
Date: _____