Leadership and Management Competencies of Nurse Managers: A Cross-sectional Study in Northern and Central Vietnam

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KEYWORDS

Nurse managers, Leadership and management competencies, Chase Nurse Manager Competency Instrument.

ABSTRACT

Objective: The competence of nurse managers is essential to ensure outstanding patient care and the key contributors to the healthcare organization's success. This study aimed to adapt the Chase Nurse Manager Competency Instrument (CNMCI) to Vietnamese situations and then to examine the leadership, management, and related characteristics of nurse managers. **Material and Methods:** A cross-sectional study was conducted in 17 Children and Obstetric and Pediatric hospitals in northern and central area of Vietnam using the CNMCI. Nurse managers (n=227) who were working in these hospitals participated in this study. Data were collected from July 2022 to August 2022. **Results:** Nurse managers had 3.51 ± 0.42 level of knowledge and 2.95 ± 0.48 level of ability to apply leadership and management competencies. However, only level of hospital and number of employees were significant related factors of leadership and management competencies of nurse manager. Conclusion: This study was the first in Vietnam which we examined the leadership competencies of nurse managers in Obstetric and Pediatric Hospitals. The results suggested that Vietnamese version of CNMCI was a reliable, valid instrument to assess competencies of nurse managers. It is necessary to have an effective leadership and manager training program to improve the competencies of nurse managers.

1. Introduction

Nurse managers play crucial roles in any health-care organization. They are responsible for managing human and other resources; ensuring patient and staff satisfaction, maintaining a safe environment for staff and patients, and ensuring standards and quality of care. Their management and leadership competencies are important to ensure the quality of hospital services and significantly contribute to the hospital's operational success[1,2]. Thus, it is necessary to assess the nurse managers' competencies for improving their skills and hospital performance[3,4].

The management and leadership competencies of nurse managers encompass various aspects of knowledge and skills. According to Chase, there are technical skills, human skills, conceptual skills, leadership, and financial management[5]. Studies on assessing nurse managers' competencies have identified the most important knowledge and skills including communication, decision-making, problem-solving, time management, and effective people management[5-7].

Previous studies have also identified factors related to nurse managers' competencies, including gender, education, training, work experience, working conditions, leadership style, time management, workload and job stress, research capabilities, and the ability to complete hospital projects[8-11]. Additionally, studies have highlighted that training plays a decisive role in enhancing nurse managers' competencies[1,2].

In Vietnam, nurse managers are responsible for managing resources, organizing and implementing department activities. Therefore, the quality of patient care and services in departments, as well as the effective use of resources, depend on the nurse managers. There are studies assessing nurse managers' competencies in different hospitals in Vietnam have shown that, in general, management competencies of nurses are still low, especially the financial management skill [13-16].

Nursing managers in Obstetric and Pediatric Hospitals in Vietnam do not have leadership

competencies assessed and measured. Hence, this study aimed at adapting Chase Nurse Manager Competency Instrument (CNMCI) to the Vietnam context, emphasizing the adaptation and psychometric evaluation of the tool, as well as assessing nurse managers' leadership and management capabilities, as well as related factors.

2. Material and Methods

Study Design

We conducted a cross-sectional study to assess nurse managers' leadership and management competence in 17 Public Obstetric and Pediatric Hospitals in Vietnam.

Sample size

This study focused on 227 nurse managers from 17 Obstetric and Pediatric Hospitals. Nurse managers were defined as nurses appointed to lead a ward or unit, responsible for supervising, directing, organizing, and coordinating nursing staff.

Study tools

The study utilized the Chase Nurse Manager Competency Instrument, which is based on the AONE competency model. The instrument consists of 53 items rated on a scale of 1-4 (0 = minimal contribution, 1 = moderate contribution, 2 = significant contribution, 3 = essential contribution) across two subscales: "Knowledge and Understanding" and "Ability to Implement and/or Use." The competencies are divided into five major areas: Technical Competencies (11 items), Communication and Relationship Management (13 items), Professional (8 items), Leadership (14 items), and Business Skills and Principles (7 items) within each subscale[17].

To use this instrument in Vietnam, we conducted a process of adaptation of the instrument. The process was described in the figure 1 basing on the guidelines proposed by Beaton approach[18]. The translation and back translation of the English language version was implemented by four bilingual experts. A panel of experts in questionnaire development and validation, nursing managers, nurses, and lay people evaluated the Vietnamese version of the questionnaire. These people were asked to finish the questionnaire and comment about the understandability, feasibility and the suitability of the instrument. The second version of the questionnaire was produced.

A group of 57 nurse managers from National Children's Hospital will test CNMCI's cognitive abilities, as well as take psychometric tests. In the cognitive testing, nurses completed the pilot-testing version of CNMCI and provided feedback regarding clarity and understandability.

After being edited for the second time, the second Vietnamese version of the instrument was then sent for psychometric testing

Data collection

After being tested the validity and reliability, the questionnaire was sent to the nurse managers to assess the competencies. Managers were notified of the survey via email explaining the purpose, the confidentiality, and the ease with which data could be collected. The Vietnamese version of CNMCI was transferred into Kobo toolbox and then was sent to participants through email from July 2022 to August 2022.

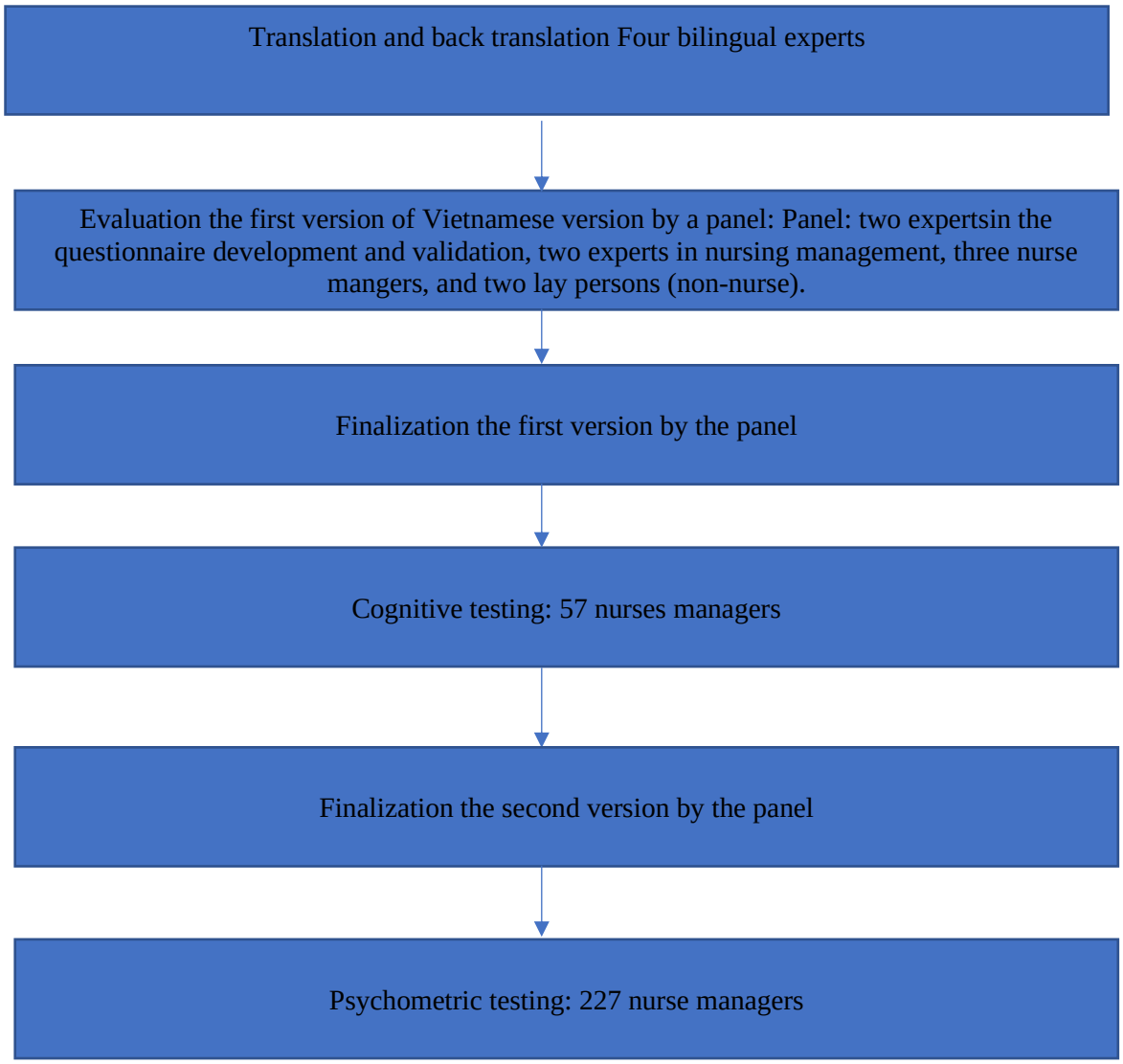

Figure 1: Process of adaptation of CNMCI to Vietnamese

Statistical Analysis

Nurse managers were analyzed on the basis of their demographic characteristics and work-related characteristics by means, with standard deviations, medians with interquartile ranges, and percentages.

A Cronbach's alpha test was conducted to determine the internal consistency of the CNMCI. Cronbach's alpha is a general indicator of homogeneity between two items. Depending on the coefficient, there can be values between 0 (no internal consistency) and 1 (perfect internal consistency). It is considered moderate when coefficients exceed 0.75, good when coefficients exceed 0.75, and excellent when coefficients exceed 0.9[19].

An intraclass correlation coefficient (ICC) was calculated using a one-way random effects model to assess test–retest reliability. An ICC value was reported averaged across raters, and the interpretation of the ICC value was based upon the rater's interpretation[20].

ICC values were averaged across raters, and the interpretation of the ICC values was based on the interpretation of each rater. For the purpose of determining how participant characteristics affect competency scores (hospital level, gender, age, ethic, family status, years as nurses, years as

managers, education, training in hospital management, nursing management, number of employees, work satisfaction), a simple and multiple linear regression model was conducted.

Ethics statement

The study was approved by the Ethical Committee of National Children's Hospital in Vietnam (Number 1284/BVNTW-HĐĐĐ).

3. Results and Discussion

Participant Characteristics

There were 227 nurse managers who participated in the study. The characteristic of participants were presented in the table 1. Of the total respondents, 74,9% nurse managers came from National and Level I hospitals. The participants were predominantly female (85%) and Kinh ethnicity (99.1%). Most of the nurse managers had an undergraduate degree (73,6%) and had more than 5 years of experience as a manager (61,7%). The percentage of participants participated the "Hospital management" training accounted for 68.3%. In addition, 64,3% of the participants had less than 15 employees under their management. Participants showed great satisfaction with their current work, reaching about 90.3% of the total participants.

Table 1: Characteristic of respondents

Characteristics		**Number (n=227)**	**Percentage (%)**
Hospital level	National and Level I	170	74.9
	Level II	57	25.1
Gender	Female	193	85.0
	Male	34	15.0
Age	<40 years old	107	47.1
	>=40 years	120	52.9
Ethic	Kinh	225	99.1
	Others	2	0.9
Family status	Married	217	95.6
	Single/ Divorced/ Separated	10	4.4
Yearsas a nurse	<15 years	67	29.5
	>=15 years	160	70.5
Years as a manager	<5 years	87	38.3
	>=5 years	140	61.7
Highest Education	Undergraduate	167	73.6
	Postgraduate	60	26.4
Hospitalmanagement training course	Yes	155	68.3
	No	72	31.7
Number of employees	<= 15	146	64.3
	> 15	81	35.7
Job satisfaction	Yes	205	90.3
	No	22	9.7

The adaptation ofthe instrument

In the first step, the panel found no significant problems in finding consensus on the translation of the CNMCI regarding meaning and style. The first version of Vietnamese CNMCI was then evaluated by 5 people, 2 nurse managers and 2 lay persons, reported the problem in answering the same question in two subscales in two columns. Moreover, they suggested the component "business skills and

principles", especially the item "operational and capital budget forecasting and generation", should be wording carefully since roles and responsibilities in financial resource of nurse managers in managers in public hospitals in Vietnam are different compared to nurse mangers in other countries. Therefore, the panel decided to add a short paragraph in the part two of the questionnaire to emphasize the difference between two subscales and a term definition file for the participants that would send to participants along with the questionnaire. After all the version of CNMCI- Vietnamese was approved for psychometric testing.

Reliability of the instrument

As part of the internal consistency test, Cronbach's alpha was used to determine how consistently items within categories and subscales measure the same value. An alpha value of higher than 0.5 indicates that there is an underlying construct being measured by the items. According to Cronbach's alphas, there is an acceptable level of reliability between 0.86 and 0.98. (21). As shown in Table 2, the Cronbach's alphas of both subscales and factors within subscales.

Table 2: Internalconsistency reliability of nurse management competency instrument (n=227)

Cronch's Alpha	Sub-scales	
	Knowledge and understanding	Ability to implement and/or use
Cronch's alpha of subscales	0.97	0.97
Cronch's alpha of factors		
Knowledge of Healthcare Environment	0.91	0.91
Communication and Relationship Management	0.93	0.92
Professional	0.89	0.89
Leadership	0.94	0.94
Business Skills and Principles	0.92	0.91

In Table 2, Cronbach's alpha is presented for two subscales, 'Knowledge and Understanding' and 'Ability to Implement and/or Use', and five factors are listed for each subscale. Both subscales achieved Cronbach's alpha coefficients of 0.97. The values for the factors in the "Knowledge and understanding" subscale were 0.91 for healthcare environment, 0.93 for communication and relationship management, 0.89 for professional skills, 0.94 for leadership, and 0.92 for business skills. In the "Ability to implement and/or use" subscale, the values were 0.91 for healthcare environment, 0.92 for communication and relationship management, 0.89 for professional skills, 0.94 for leadership, and 0.91 for business skills.

Test-retest reliability of the instrument

The reliability of questions between the previous test and posterior test were high for both "Knowledge and understanding" component (ICC = 0.88, 95% CI: 0.41 – 1.00) and "Ability to implement and/or use" component (ICC = 0.96, 0.80 – 1.00) (Table 3). For sub-scale analysis, while the reliabilities between the two mentioned components were high for most subscales, the ICC values was negative in "Professional and Leadership" subscale for "Knowledge and understanding" components and in "Knowledge of Healthcare Environment" subscale for "Ability to implement and/or use components".

Table 3: Test-retest reliability of the instrument

Test-retest reliability	Knowledge and understanding	Ability to implement and/or use
Factors in sub-scales	0.88 (0.41 – 1.00)	0.96 (0.80 – 1.00)
Knowledge of Healthcare Environment	0.81 (0.03 – 1.00)	-13.14 (-70.20 – 0.99)

Communication and Relationship Management	0.88 (0.41 – 1.00)	0.83 (0.13 – 1.00)
Professional	-2.69 (-17.58 – 1.00)	0.87 (0.33 – 1.00)
Leadership	-1.59 (-12.01 – 1.00)	0.92 (0.62 – 1.00)
Business Skills and Principles	0.57 (-1.15 – 1.00)	0.84 (0.18 – 1.00)

Competencies of nurse managers

As shown in table 4, nurse managers have high levels of leadership and management competencies. Knowledge and understanding of leadership competencies averaged 3.51 (standard deviation = 0.42), and application of these competencies was 2.95 (standard deviation = 0.48). There were the highest scores in both knowledge and ability to apply in "Knowledge of Healthcare Environment", 3.57 and 3.05 respectively. Among the knowledge and ability to apply scores, "Knowledge of business skills and principles" scored 3.36 and 2.73 respectively.

Table 4: Competencies of nurse managers

Competencies		**Knowledge and understanding**		**Ability to implement/or use**	
	n	**Mean**	**S.D.**	**Mean**	**S.D.**
Knowledge of Healthcare Environment	227	3.57	0.42	3.05	0.50
Communication and Relationship Management	227	3.48	0.47	2.9	0.5
Professional	227	3.51	0.45	2.93	0.50
Leadership	227	3.54	0.45	3.0	0.51
Business skills and Principles	227	3.36	0.57	2.73	0.60
Total	**227**	**3.51**	**0.42**	**2.95**	**0.48**

S.D.= standard deviation

Relatedfactors of nurse managers' competencies

Results from the regression model for the knowledge and apply to use of nurse mangers' competences are presented in the table 5. The level of hospital displayed statistically significant association with knowledge of leadership and management competency of nurse managers. Working in level 2 hospital was associated with the greater level of knowledge of leadership and management competence (0.15; 95% CI: 0.01; 0.29, p-value<0.05) compared to working in level 1 hospital. The number of employees was statistically significant association with ability to apply of nurse managers. Having number of employees greater than 15 was associated with the higher average score of ability to apply (95% CI: 0.05; 0.33 p-value<0.01).

Table 5: Factors related to knowledge of competency and ability to implement competency

Characteristics		**Knowledge and understanding of**				**Ability to implement/or use**			
		Unadjusted Regression Coefficient (95% CI)	p-value	Adjusted Regression Coefficient (95% CI)	p-value	Unadjusted Regression Coefficient (95% CI)	p-value	Adjusted Regression Coefficient (95% CI)	p-value
Hospital level	National and Level I	Ref		Ref		Ref		Ref	
	Level II	0.12 (-0.00;0.25)	0.06	0.15 (0.01;0.29)	**0.034**	0.00 (-0.14;0.15)	0.94	0.04 (-0.11; 0.19)	0.58
Gender	Male	Ref		Ref		Ref		Ref	
	Female	-.087 (-0.24; 0.07)	0.27	-0.14 (-0.30;0.02)	0.09	0.08 (-0.09;0.26)	0.37	0.01 (-0.16;0.20)	0.85
Age	<40 years old	Ref		Ref		Ref		Ref	

	>=40 years	-0.02 (-0.14;0.08)	0.67	0.03 (-0.14;0.19)	0.75	-0.03 (-0.16;0.09)	0.6	-0.02 (-0.20;0.15)	0.78
Ethic	Others	Ref				Ref		Ref	
	Kinh	0.19 (-0.40;0.79)	0.5	0.09 (-0.53 0.72	0.77	-0.24 (-0.91;0.43)	0.5	-0.43 (-1.13 0.27)	0.23
Family status	Single/ Divorced/ Separated	Ref		Ref		Ref		Ref	
	Marriage	0.07 (-0.19;0.34)	0.6	0.13 (-0.142; 0.40)	0.34	0.11 (-0.19; 0.42)	0.5	0 .10 (-0.19 0.41)	0.49
Yearsas a nurse	<15 years	Ref		Ref		Ref		Ref	
	>=15 years	-0.04 (-0.15; 0.07)	0.47	-0.08 (-0.24;0.08)	0.34	-0.03 (-0.16;0.095)	0.61	-0.04 (-0.22;0.14)	0.66
Years as a manager	<5 years	Ref		Ref		Ref		Ref	
	>=5 years	-0.041 (-0.15;0.07)	0.46	-0.06 (-0.189;0.06)	0.31	0.05 (-0.16;0.09)	0.63	-0.07 (-0.21;0.06)	0.29
Highest Education	Undergraduate	Ref		Ref		Ref		Ref	
	Postgraduate	-0.11 (-0.24; 0.001)	0.06	-0.08 (-0.20; 0.03)	0.15	-0.09 (-0.24; 0.04)	0.17	-0.11 (-0.24; 0.02)	0.09
Hospital management training	No	Ref		Ref		Ref		Ref	
	Yes	0.02 (-0.10; 0.14)	0.75	0.03 (-0.09; 0.15)	0.66	0.06 (-0.07; 0.19)	0.35	0.086 (-0.05; 0.23)	0.23
Nursing management training	No	Ref		Ref		Ref		Ref	
	Yes	0.210 (-0.08; 0.49)	0.15	0.27 (-0.03; 0.57)	0.08	0.25 (-0.07; 0.57)	0.13	0.27 (-0.063; 0.612)	0.11
Number of employees	<15	Ref		Ref		Ref		Ref	
	>=15	-.003 (-0.12; 0.1)	0.95	0.04 (-0.07; 0.16)	0.49	0.16 (0.03; 0.28)	0.017	0.19 (0.05; 0.33)	**<0.01**
Job Satisfaction	No	Ref		Ref		Ref		Ref	
	Yes	0.11 (-0.07; 0.30)	0.231	0.14 (-0.05; 0.33)	0.14	0.19 (-0.09; 0.40)	0.07	0.21 (-0.00; 0.42)	0.05

p-value obtained from linear regression analysis, CI=confidence interval, Ref= reference group

The management and leadership competencies of nurse managers play a crucial role in the operation's success of any healthcare organization. This is the first study to apply the CNMCI tool for assessing the management and leadership competencies of nurse managers of Obstetric and Pediatric hospitals in northern and central Vietnam. Our results suggest that Vietnamese version of CNMIC is a reliable, valid instrument to assess competencies of nurse managers. Although nurse managers made no suggestions for the adaptation of the instrument, another concern for the use of CNMCI in Vietnam hospital was the structure and the length of the instrument. The interviewee was not familiar with the format of the instrument, same questions for both sub-scales, and the length of fifty-three items. However, the original instrument based on the AONE framework which capture the diverse aspects of the competencies of the nurse manger; therefore, using this instrument could provide a fast and comprehensive overview about the competencies of nurse mangers in Vietnam. Yet, a short form of this instrument might be a good suggestion for another adaptation. This study had a total Cronbach's alpha of 0.97 when considering the measurements used in the evaluation. Cronbach's alpha is merely a tool for detecting weak items, however, changes in the questions are left to the researcher's discretion. With the Cronbach's alpha of the scale being so high (up to 0.97), there are probably many items with similar structure [21]. There is more testing to be done before determining whether some of the items can be removed.

This study has provided some important evidence regarding the leadership and management competencies of nurse managers. Firstly, it is apparent from the literature and from our own finding that the average score of leadership and management competency of nurse manager in Vietnam including knowledge and ability to apply was low[13-16,22]. Secondly, among the aspects of management and leadership and management competency, the lowest self-rated score was business skills and principles, 3.51 and 2.95 respectively. This result is likely to reflect two reasons. Firstly, we collected data from public hospitals, where business skills such as financial planning are carried out in a top-down manner. This means that financial planning activities are implemented according to the plans of board of director of hospitals. Therefore, nurse managers have limited opportunities to engage in these activities. Secondly, the training on financial management for nurse managers could not been adequately emphasized in Vietnam.

While findings of the previous studies conducted in hospitals in Vietnam showed that gender, education, training, work experience, leadership style were the related factors of competencies of nurse managers[8-11], our study found that only level of hospital and number of employees related to knowledge of competency and ability to use competency, respectively. This information is consistent with the work of Hien Pham (2021)[14] in which level of hospital and type of hospital were related factors with nurse manager's competencies. This finding also means that the most crucial factor affecting the knowledge and ability to use competency of nurse managers is workload. Since Vietnam's public healthcare system is divided into four administrative levels: the central or national level; the first level (the provincial level); the second level is district level (Level II), and the third level is the communal level (Level III). In the higher-level hospital, where often have the overcrowded situation, the workload and the number of employees of nurse managers could be higher than these in lower- level hospital.

Strengths and Limitations

This new study is a first important step for the future studies to evaluate competencies of nurse managers in Vietnam. The limitation included that the study only conducted in Children and Obstetric and Pediatric hospitals in northern and central area of Vietnam, whereas the working and cultural context are varied from hospital to hospital, which might not reflect competencies of nurse managers in other hospital across all of Vietnam.

4. Conclusion

This study adapted the CNMCI to investigated the leadership and management competencies of nurse manager in Obstetric and Pediatric Hospitals in Northern and Central of Vietnam. The findings

showed that the self-rated leadership and management competencies was low, level of hospital and number of employees were related factors of the leadership and management competencies of nurse managers.

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Conflict of Interest

The authors have no conflicts of interest to declare for this study

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