A STUDY OF LEADERSHIP COMPETENCIES OF FIRST-LINE NURSE MANAGERS IN SHANGHAI, CHINA USING DELPHI TECHNIQUE

Wenqin Li, Suvinee Wivatvanit*

Faculty of Nursing, Chulalongkorn University, Bangkok 10330 Thailand

ABSTRACT:

Background: Shanghai is one of the pilot cities which are carrying out health reform in China. It is imperative that nurse managers in Shanghai demonstrate leadership competency. This study aimed to explore leadership competencies needed by first-line nurse managers in Shanghai, China, using the Delphi technique. The researchers synthesized 8 components from the international leadership competency models with suggestions by nursing experts in Shanghai. These components include personal mastery, systems thinking, communication and relationship building, change management, human resource management, financial management, information technology, and knowledge of the healthcare environment.

Methods: This study combined snowball sampling with purposive sampling to recruit participants. The required sample size of the Delphi is at least 17. A total of 20 experts who met the inclusion criteria participated in this study. Three rounds of questionnaires consisted of 1) semi-open-ended form questionnaire 2) second and 3) third round questionnaires with a 5-point Likert rating scale. A total of 20 questionnaires were returned during the three rounds, representing a response rate of 100%. Content analysis and descriptive statistics including median and interquartile range were used to analyze the data.

Results: The results show that 60 items under the 8 components achieved consensus among the 20 experts. Forty-three items kept the highest scores of consensus level (Md=5.00, IR=0.00).

Conclusions: These competencies which achieved the highest levels of consensus can serve as a guideline for the design of leadership development programs in Shanghai, China. Nurse administrators can use these competencies as criteria to recruit and prepare first-line nurse managers in Shanghai, China.

Keywords: Leadership competencies, First-line nurse managers, China

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INTRODUCTION

It is recognized that leadership is important and necessary for nurse managers due to their essential role in today's complex and changing healthcare environment. Leadership competency of nurse managers influences all aspects of the nursing environment which indirectly impacts on the quality of patient care [1]. The International Council of Nursing (ICN) has developed many programs to develop leadership competency of nurse managers. In addition, in response to healthcare challenges, articles on many leadership competency models for nurse managers have been published [1-4]. In the USA, [2] leadership competencies consist of foundational thinking skills, personal journey disciplines, systems thinking, succession planning, and change management [1] developed a leadership competency model for first-line nurse managers which encompasses six components. These components include personal mastery, interpersonal effectiveness, caring, systems thinking, human resource management, and financial management. In the UK, the National Health Service (NHS)

* *Correspondence to: Suvinee Wivatvanit*
E-mail: suvinee_n@yahoo.com

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leadership Qualities Framework grouped leadership qualities into three clusters: personal qualities, setting direction and delivering the service [4]. The Irish Competency Model encompasses evidence-based decision-making, relationship building, communication and influencing, initiation and innovation, resilience and composure, integrity and ethical stance, and sustained personal commitment. [5], director of nursing in Shanghai, described the qualities of qualified nurse managers in China. She indicated that nurse managers should have a global mindset, vision, policy astuteness, communication and relationship-building skills and ability to manage change.

Shanghai is one of the biggest cities in China, located on the east coast. Shanghai is one of the pilot cities which are carrying out health reform. One of the components of health reform is to pilot public hospital reforms. Public hospitals are a critical part of the health system, accounting for 89% of total beds and 92% of total admissions. Public hospitals are charged with providing safe, high quality, cost-effective, efficient services through improving internal management, implementing policies of human resource management, cost analysis and pay-for-performance. In addition, public hospital reform aims at promoting innovations in the public hospital system and mechanisms to form a more scientific and regulated management system [6]. Meanwhile, health reform strives to strengthen nursing as a profession and mobilize the enthusiasm of staff nurses [7].

In addition to dealing with changes derived from health reform, a shortage of staff nurses and a heavy workload in Shanghai pose a great challenge to nurse managers. Staff retention therefore is a major concern for nurse managers in Shanghai [8]. With a population of 24 million, public hospitals are responding to a heavy workload [9]. In particular, these facilities are not only for local residents, but for patients with difficult and complex diseases from all over the country. There are only 38,700 nursing staff in Shanghai, or 2.15 per 1,000 population [8]. Studies found that younger nurses were dissatisfied with their job and had the intention of leaving the nursing profession [10, 11]. While the average age of nurses in Shanghai is 26 years old, it is apparent that the younger generation is the determinant of stability of the nursing team [11] have highlighted leadership as one of the managerial interventions for nurse managers to improve the level of nurses' job satisfaction and retention in Shanghai.

Current first-line nurse managers in Shanghai are charged with the responsibility to prepare work plans according to the goal of the hospital, lead staff to provide high-quality of care, initiate new programs, build collaborative relationships with multidisciplinary teams, and promote the development of the nursing profession. These responsibilities involve the components of leadership, such as systems thinking, communication and influencing behaviors. In addition to these responsibilities, the redesign of the hospital nursing administration system and the new quality imperatives have brought about a need for nurse managers in Shanghai to learn new roles and develop new skills, such as skills of staff motivation and the ability to manage change. Leadership is essential to provide guidance for solving complex problems related to staff job satisfaction, quality of care and coping with change.

The importance of leadership competency of first-line nurse managers is recognized in international reports. First-line nurse managers are the vital link between upper-level administrators and staff nurses, as well as a link to the organizational vision and strategic plan with clinical practice at the unit level [1]. They are the key to translating vision into reality [12]. Leadership of first-line nurse managers influences staff nurses' professional practice behaviors and sense of self-efficacy [13], and relates to job satisfaction and a creative work climate [14, 15]. The attainment of quality outcomes requires sophisticated leadership skills of first-line nurse managers [12, 16].

In sum, the current complex and changing health environment, the shortage of staff nurses and responsibilities of first-line nurse managers require nurse managers in Shanghai to demonstrate leadership competency. In addition, Shanghai, as one of the most advanced areas of China, needs to catch up with international standards. However, there has been little research conducted regarding leadership competency of nurse managers in Shanghai, China. Therefore, it is necessary to explore leadership competencies needed by nurse managers in Shanghai. In this study, the term "nurse managers" refers to nurses who are in first-line management positions.

METHODS

The e-Delphi approach was used to address the aim of the study. The experts in this study preferred to use e-mail to respond to each round of questionnaire.

Sample

According to Bunaorn [17], the required sample size of the Delphi is at least 17. The expert panel in this study consists of 20 experts including director of nursing, supervisor or head nurse, senior nurse and nursing educator. All experts in this study met the inclusion criteria as follows: 1) a bachelor's degree or higher in nursing and more than 5 years' experience in nursing administration; 2) publications or having received formal training related to nursing administration and leadership; and 3) willingness to contribute to the study. The publications of these 20 experts are related to areas such as human resource management, evidence-based practice, and quality control. In addition, they have participated in training programs related to administration and leadership in Shanghai Nursing Association, Singapore and Taiwan.

This study combined snowball with purposive sampling to recruit participants. The researchers contacted with the Director of Nursing and the Dean of the Faculty of Nursing in Shanghai. Both of them helped identify the potential participants who met the inclusion criteria. A total of 20 experts were identified in Shanghai including 5 directors of nursing, 12 head nurses, 2 senior nurses, and 1 nursing educator.

Round 1

The Round 1 questionnaire consisted of two sections. The first section asked for demographic information. The second section was a semi-open-ended form of questionnaire. The researchers synthesized 8 components of leadership competency for first-line nurse managers in Shanghai from international leadership competency models with suggestions by nursing experts in Shanghai as follows: personal mastery, systems thinking, communication and relationship building, change management, human resource management, financial management, information technology, and knowledge of the healthcare environment. These components form 8 questions for the first round questionnaire.

The letter of invitation and Round 1 pack including cover letter, instructions, and Round 1 questionnaire were e-mailed to the 20 experts in June 2015. The questionnaire asked the experts to describe details in each component of leadership competency freely based on their knowledge and experience. Panel members were given a 2-week deadline to return the completed questionnaire, and a reminder was e-mailed 1 week before the cut-off date. In addition, another reminder was sent to those who had still not responded 2 weeks later. This follow-up strategy for non-respondents was also used in the subsequent two rounds.

The qualitative data from Round 1 was analyzed using content analysis. The results showed that a total of 60 items were generated from Round 1.

Round 2

The 60 items generated from Round 1 were used to design a second questionnaire which was again e-mailed to those experts who participated in the first round in July 2015. The experts were asked to rate the importance on a 5-point Likert scale (5, very important; 4, fairly important; 3, neither important or not important; 2, not very important; 1, not at all important). The above follow-up strategy for non-respondents was employed. The experts were given a 2-week deadline to return the completed questionnaire.

Descriptive statistics including median and interquartile range were used to analyze the second round data. The acceptable criteria of each item suggested by Punpataracheevin [18] were median equal to or greater than 3.50 and interquartile range equal to or less than 1.50.

The results showed that a total of 60 items met the criteria of consensus (Md=4.00-5.00, IR=0.00-1.00).

Round 3

Sixty items of leadership competency which have achieved consensus during Round 2 were included in a third-round questionnaire. The individual response, the overall group response as described by median, and the spread of the responses as described by interquartile range were presented in the Round 3 questionnaire.

The Round 3 pack, including cover letter, instructions for completion and Round 3 questionnaire, was e-mailed to the experts in August 2015. The experts were asked to re-rate the items in the light of the overall group response using the same Likert scale from the second round.

Median and interquartile range were again used to determine which item achieved consensus. The same acceptable criteria as the second round were applied. In addition, the acceptable criterion of percentage of changes across Round 2 and Round 3 is less than 15% [19].

The results of the third round show that a total of 60 items achieved consensus (Md=4.00-5.00, IR=0.00-1.00). The percentage of changes across Round 2 and Round 3 is 8%, which is less than the

acceptable criterion of 15%, indicating that there were no great changes regarding the results. Therefore, the Delphi process stopped at the third round.

Validity and reliability

In this study, Delphi study results provide evidence of content and face validity. First, the development of questionnaires was based on expert opinion from the real clinical setting. Second, the open qualitative round allowed experts to generate scale items. Reliability was enhanced in two ways. First, the participants did not need to meet face-to-face, avoiding group bias, and quasi-anonymity was ensured in this study, contributing to the equivalence of the research conditions. Second, the third round provided opportunity for experts to confirm and reconsider their responses from Round 2. The analysis of changes showed that there were no great changes regarding Round 2 and Round 3 responses, indicating reliability regarding the results.

Ethical consideration

Full ethical approval was obtained from the Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University, Thailand (ECCU) (Code No. 129/2015). Before data collection, the participant information sheet was e-mailed to the participants explaining the nature of the study, as well as providing assurance regarding the anonymity, voluntary and confidential nature of the response. In addition, the concept of quasi-anonymity was fully explained to the experts, and that experts were asked not to discuss responses with each other as the study progressed. The researcher was obligated to ensure that the respondents' identities and their responses are not disclosed to any other panel member. Although participants' identities and their responses were not anonymous to the researcher, they were anonymous to each other.

RESULTS

The results of this study show that consensus was achieved on 60 items under the 8 components. Table 1 presents the details of items achieving consensus during the Delphi study.

DISCUSSION

The results show that 7 items achieved consensus at the most significant level with the highest scores under the component of personal mastery (Md=5.00, IR=0.00), indicating that the experts prioritize the personal mastery of nurse managers. The attributes include possessing self-confidence, optimism, trustworthiness and fairness, being a role model, having a high morality, engaging in lifelong learning, and pursuing innovation. The experts reported that it is important for nurse managers to know how to cope with stress and complex situations since the work environment is more complex and stressful in Shanghai than elsewhere. In the experts' opinions, subordinates will not trust a manager who lacks self-confidence in dealing with complex problems. The experts emphasize innovation in nursing and the value of lifelong learning as a result of the constent change in health care in terms of the administration system, technology and nursing workforce.

Seven items of systems thinking achieved a consensus at the most significant level as indicated by the highest scores (Md=5.00, IR=0.00). These items include patient-centered managerial behaviors, sensitivity, organizational commitment, organizational goals, staying updated about new trends and developments in nursing, staying updated about new knowledge and skills in nursing, and catching up with the development of the hospital. The nursing care delivery model in China is in transition from disease-centered care to patient-centered holistic care. Therefore, nurse managers need to make decisions that are patient-centered, as well as build concern for the hospital and staff. The experts reported that nurse managers need to be sensitive to the complex environment and diseases, and have a keen understanding of how the unit is functioning at any given time [1] stated that managers should be alert for the cues in an environment when things are not going well. The redesign of the hospital system requires nurse managers to look at new initiatives, analyze changes surrounding nursing and make work plans according to the requirements of health reform.

Nine items in the component of communication and relationship building achieved a consensus at the most significant level as indicated by the highest scores (Md=5.00, IR=0.00). Similar to previous studies, nurse managers in this study consider communication as the key to leadership success [1, 20]. The experts indicated that selecting the appropriate communication mode according to the situation will facilitate effective communication. In addition, younger nurses would like to be treated as individuals, and they hope their voice can be heard.

Table 1 Items of leadership competencies which achieved consensus

Items	Md	IR	Significance level
1. Personal mastery			
1) Demonstrate self-confidence, emotional stability and maturity	5.00	0.00	Most
2) Stay calm and remain optimistic under pressure and when facing misunderstanding			
3) Be trustworthy and fair	5.00	0.00	Most
4) Serve as a role model for staff	5.00	0.00	Most
5) Have a high level of moral and treat others politely	5.00	0.00	Most
6) Demonstrate the value of lifelong learning	5.00	0.00	Most
7) Be innovative and creative	5.00	0.00	Most
8) Establish a good image that is spirited, amiable and elegant temperate	5.00	1.00	Most
9) Model a healthy lifestyle to patients and subordinates	5.00	1.00	Most
10) Demonstrate the spirit of devotion and passion to the nursing profession for reasons that go beyond money or status	5.00	1.00	Most
11) Display appropriate sense of humor	4.50	1.00	Most
2. Systems thinking			
1) Demonstrate managerial behaviors that are patient-centered and build concern for the organization and staff	5.00	0.00	Most
2) Maintain sensitivity about patient issues and demonstrate pro-activity before a problem arises	5.00	0.00	Most
3) Build organizational commitment and make nurses feel goal-directed	5.00	0.00	Most
4) Focus on organizational goals and take responsibility for the hospital	5.00	0.00	Most
5) Stay updated about new trends and developments in nursing	5.00	0.00	Most
6) Stay updated about new knowledge and skills in nursing, as well as new solutions to complicated diseases	5.00	0.00	Most
7) Catch up with the development of the hospital and understand the direction of the top leader	5.00	0.00	Most
8) Provide visionary thinking on new initiatives in nursing	5.00	1.00	Most
9) Collect and analyze data regarding input, process and outcome indicators	5.00	1.00	Most
3. Communication and relationship building			
1) Determine the appropriate communication mode according to the situation	5.00	0.00	Most
2) Assess the internal climate, including the values, feelings, and temperament prior to communication	5.00	0.00	Most
3) Demonstrate listenning skills and empathic understanding	5.00	0.00	Most
4) Build trust and collaborative relationships with the members of the multidisciplinary team	5.00	0.00	Most
5) Develop rapport with a variety of people and make friends with subordinates	5.00	0.00	Most
6) Care about nurses as individuals	5.00	0.00	Most
7) Treat subordinates with respect in terms of their interests and achievements, and create an environment which recognize and value differences in others	5.00	0.00	Most
8) Manage conflict professionally and actively	5.00	0.00	Most
9) Build academic relationships with nursing experts, and actively attend nursing programs	5.00	0.00	Most
10) Engage staff in decision making	5.00	1.00	Most
11) Understand and respect culture diversity	5.00	1.00	Most

Table 1 Items of leadership competencies which achieved consensus (Cont.)

Items	Md	IR	Significance level
4. Change management			
1) Adapt to change according to the new policies and trends	5.00	0.00	Most
2) Create a management model that empowers all subordinates to participate in management duties	5.00	0.00	Most
3) Recognize the benefits of empowerment and empower staff according to their abilities	5.00	0.00	Most
4) Create a learning environment	5.00	0.00	Most
5) Serve as a change agent and keep staff informed of change	5.00	0.00	Most
6) Identify the level of resistance to change and involve staff in building consensus on issues	5.00	0.00	Most
7) Cooperate with change promoters in the ward	5.00	0.00	Most
5. Human resource management			
1) Provide new staff with systematic orientation and training	5.00	0.00	Most
2) Implement a hierarchical management approach	5.00	0.00	Most
3) Provide sufficient staffing and ensure patient safety and make flexible staffing plans according to the situation	5.00	0.00	Most
4) Assign tasks and delegate responsibilities to staff based on their abilities	5.00	0.00	Most
5) Demonstrate a servant leadership style	5.00	0.00	Most
6) Provide mentorship, training and counseling to staff and encourage staff to achieve progress	5.00	0.00	Most
7) Provide a professional career ladder to staff	5.00	0.00	Most
8) Set the compensation and welfare for staff by performance appraisal	5.00	0.00	Most
9) Establish core values of the nursing team and develop the concept of teamwork	5.00	0.00	Most
6. Financial management			
1) Improve the reputation of the hospital and protect the benefit of patients by avoiding disorderly collection of fees	5.00	0.00	Most
2) Demonstrate awareness of cost and utilize resources in a judicious manner, and imporve the cost awareness of staff	5.00	1.00	Most
3) Add evaluation of cost-benefit outcomes to nursing performance	4.00	0.75	More
4) Understand healthcare economics knowledge, such as unit-cost analysis and cost-benefit analysis	4.00	1.00	More
5) Understand cost analysis and cost control of the ward	4.00	1.00	More
7. Information technology			
1) Use a computerized management system to record and analyze nursing data	5.00	0.00	Most
2) Demonstrate basic competency in statistics and Microsoft Office software	5.00	1.00	Most
3) Commmunicate and share the latest nursing information with staff by information technology	5.00	1.00	Most
4) Provide staff with access to databases to search research articles	4.00	1.00	More
8. Knowledge of the healthcare environment			
1) Understand clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement, healthcare policy and patient care delivery models	5.00	0.00	Most
2) Understand the concept of Magnet Hospitals and how to create a safe and healthy work environment	5.00	0.00	Most
3) Learn the knowledge that can foster the development of nursing, such as research, ethics and law	5.00	1.00	Most
4) Show concern about the trending topics of nursing research and incorporate research findings into practice	5.00	1.00	Most

The experts reported that understanding the uniqueness of subordinates will help managers to understand their motivations and use the unique talents of all individuals in the nursing team. Likewise, respecting diversity and individualized consideration are also emphasized by [1, 2]. The experts indicated that collaboration with the multidiciplinary team is necessary as nurses become important partners in the multidiciplinary team. In addition, the nursing workforce in Shanghai will be characterized by highly educated members with the development of advanced practice nurses and clinical nurse specialists.

Seven items under the component of change management achieved a consensus at the most significant level as indicated by the highest scores (Md=5.00, IR=0.00). Nurse managers in Shanghai should accept change as well as manage change effectively in the context of health reform [5]. The redesign of the hospital system as well as the nursing administration system have brought about changes in nurses' roles and responsibilities. Items related to empowerment are different from previous studies in terms of importance and focus. The experts noted that the current hospital nursing administration system in China is different from those of Western countries in terms of nursing educational background, social status, managerial behavior, job content, human resource allocation, and connotation of the service. Given these differences and development trends, the experts addressed the importance and necessity of creating a new management model which can meet the demands of high-quality care. They also suggested that first-line nurse managers need more resources, information, and opportunities provided by top-level administrators so that they can fully empower their subordinates.

Nine items in human resource management achieved consensus at the most significant level (Md=5.00, IR=0.00). The experts reported that scientific nursing administration and staff motivation can be realized through human resource management. In particular, hierarchical management is emphasized by the experts, which hasn't been mentioned by previous studies. This may be because nursing administration in Shanghai is still in the process of development and transition. In the traditional system, nurses with different educational levels undertook the same task with unclear job descriptions. In addition, nurses' compensation is mainly linked to the income of their departments [21]. Therefore, it is imperative to implement a hierarchical management approach to reflect the value of different educational prepared nurses.

Two items in the component of financial management achieved a consensus at the most significant level (Md=5.00, IR=0.00-1.00). These items are reputation of the hospital and cost awareness. The experts reported that the current patient-centered holistic care model requires nurse managers to monitor cost, thereby improving the reputation of the hosptial. However, the experts indicated that the development of financial management in China is still at the preliminary stage. In addition, they didn't consider it as imperative for them due to lack of computerized system to support cost analysis in the current hospital system. Similar to the Mathena's study [20], the experts reported that they lack systematic training in financial subjects. Current public hospital reforms focus on cost analysis. Therefore, it is necessary for nurse managers to acquire knowledge of health economics and cost analysis.

Three items in the component of information technology achieved consensus at the most significant level (Md=5.00, IR=0.00-1.00). These items are nursing data, Microsoft Office software and statistics, and sharing nursing information. The experts reported that information technology can improve job efficiency. Since public hospital reform will support hospital information system development, some experts argued that nurse managers need sufficient training in information technology. Similarly to Mathena's study [20], found that nurse managers perceive data analysis as one of the most important educational needs. In addition, the experts [12] reported that sharing the lastest information with subordinates contributes to building a cohesive team. Perra [12] also stated that rusting relationships can be built through sharing information.

Four items in the component of knowledge of the healthcare environment achieved a consensus at the most significant level (Md=5.00, IR=0.00-1.00). Clinical practice knowledge, patient safety, and quality control are currently major concerns of nurse managers in Shanghai. In addition, the experts reported that nurse managers should have policy austutenness, be able to assess their learning needs, and be prepared to respond proactively according to the new initiatives in nursing. The item related to Magnet Hospital achieved a consensus at the most

significant level (Md=5.00, IR=0.00). The experts indicated that it is necessary to create a good environment for staff nurses by applying the Magnet Hospital concept since Shanghai is suffering from a shortage of nurses. The experts reported that nurse managers should stand at the forefront of nursing knowledge and concern about trending research topics. Evidence-based practice is a new trend, with key universities integrating research into education and practice in Shanghai.

CONCLUSION

The 60 items of leadership competency on which consensus was gained can serve as a guideline for the design of leadership development programs in Shanghai, China. Nurse administrators can use these competencies as criteria to recruit and prepare first-line nurse managers in Shanghai, China.

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