ORIGINAL RESEARCH

The Role of Competent Leaders in Nursing Staff Empowerment: A Cross-Sectional Study

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Background: Nursing leadership competency is important for staff empowerment, quality improvement, and patient safety, yet inadequate investment in its development hinders its development. This highlights the urgent need for strategic leadership competency building in nursing management.

Purpose: This study aims to examine the importance of self-assessing leadership competency in guiding Nursing Directors' leadership development and the relationship between nursing directors' leadership quality and nursing staff empowerment.

Methods: The cross-sectional quantitative study included two online surveys completed by 21 Nursing Directors and 260 nursing staff from two hospitals with >90% response rate. Two surveys were conducted: Survey for Nursing Directors adapting items from Management Competency Assessment Project to self-assess competency on leadership and professionalism; Survey for nursing staff using Leadership Behavioral Scales to reflect on Nursing Directors' leadership behaviors as observed by nursing staff. Descriptive statistical analysis (mean, frequencies and percentages) of the 21 behavioral items self-assessed by Nursing Directors and 19 leadership behaviors assessed by nursing staff were performed and reported Pearson correlation test was performed to test corrections of different variables.

Results: Nursing Directors' self-assessment on competencies of leadership and professionalism yielded a combined mean score of 4.63 and 4.85 respectively. Between 35% and 60% of staff recognized Nursing Directors' positive leadership behavior which were significantly and positively correlated with four dimensions of psychological empowerment scale used. The study also found consistent differences in the results of the assessment by Nursing Directors and nursing staff between two targeted hospitals.

Conclusion: The study confirmed that leadership demonstrated by Nursing Directors are important to empower nursing staff and organizational context plays an important role in developing nursing leadership and improving nursing management effectiveness. The study supports the value of management competency self-assessment in identifying competency gaps and competency development needs amongst Nursing Directors.

Keywords: leadership, self-assessment, nurse managers, nursing staff, empowerment

Introduction

The critical role of leadership for staff empowerment, quality care improvement and contribution to organization success has been well recognized in the international literature.[1–3] Since the commencement of methodical study of leadership in the late 1930s, leadership concept and theories have been transformed remarkably. More recently, in the 9th edition of Leadership: theory and practice, Northouse (2021) defined leadership as "a process whereby an individual influences a group of individuals to achieve a common goal".[4] In the recent nursing leadership and management studies, effective leadership behaviors demonstrated by nursing managers have been found making nursing staff feel that they are working in a supportive and healthy work environment[5] This would inspire staff's commitment to their work and the organization, and improve staff job satisfaction and performance.[6–8] Moreover, by building trust and enhancing relationships between leader and nursing staff, nursing staff are empowered to provide optimal care for patients,[9,10] ultimately leading to the development of a patient safety culture that supports continuous improvement of care quality and prevents patient adverse outcomes.

The concepts of leader verses manager and leadership verses management could be confusing to some. Leaders can emerge across the organization without a formal title, authority or management responsibilities. Their roles are to influence and build relationship, knowledge and expertise.[11] The demonstration of leadership across teams and organization is important to organizational success. For example, in clinical settings, clinical leadership has been proven crucial at every career stage of clinicians. Clinical leaders are important to provide direction and support to patients and coordinate health care teams for effective care delivery.[12] Managers are also leaders, but usually with staff and financial management responsibilities. International literature has reinforced the existence of core competencies for managers across levels and sectors with leadership being one of the core management competencies.[13] The American Organization for Nursing Leadership (AONL) identified five core domains of competencies for nursing managers: Business Skills and Principles; Communication and Relationship Building; Knowledge of the Health Care Environment; Professionalism; and Leadership.[14] The Leadership domain is placed at the center of the core domains and plays the role of facilitating the interconnectedness of essential knowledge, skills, and abilities within and across the core domains.

Leadership competencies and practices among nursing managers can be affected by many different factors, one of which is the organizational context.[15] The complex and continuously evolving context of healthcare has challenged nursing managers to adapt and demonstrate different leadership approaches to suit situation and organizational goals.[16,17] Therefore, for effective nursing management and empowerment, developing nursing manager's leadership and management competencies and enhancing nursing managers' capability in demonstrating leadership quality are both important as it can motivate nursing staff and achieve positive outcomes in different situations.[6,18] Previous studies have found the value of examining leadership quality and behaviors, from the perspective of both nursing leaders and nursing staff, to develop a more objective understanding of leadership effectiveness across the organization.[19,20] The study conducted by Castillo (2021) found that the supervisor-supervisee discrepancies in rating of leadership practices was associated with greater dissatisfaction amongst nursing staff, which emphasized the significance of congruence between nursing managers and nursing staff in agreement of leadership practices.

In the hospital settings, nursing managers often carry dual management and clinical roles making their position more challenging. Nursing managers were not well-prepared for their management roles.[21,22] It was common for nursing staff to be promoted to management positions based on their clinical excellence without prior management training or prior management experiences.[23] The practices and development of nursing leadership were inhibited by inadequate organizational support and the lack of time and resources for leadership development programs.[24] It is worthwhile for organizations to invest in supporting and developing leadership competency of nursing managers.

Evidence from nursing leadership studies mentioned above strongly support Potter and Brough (2004)'s organization capacity building model consisting of tools, skills, staff and infrastructure, and system and roles.[25] The model indicates that staff's capability development, organization's structure and processes, mechanism in supporting staff throughout the organization are equally important to improve staff and organization's performance. Guided by such understanding, the current study, conducted between June and September 2023 at a regional health district in China, aims at providing useful evidence for the district health planning and enriching the understanding of nursing managers' leadership competency development and the roles of effective leadership and organizational support in nursing staff empowerment. The study answered the following two research questions:

1. What's the value of leadership and management competency self-assessment in identifying leadership competency gaps amongst Nursing Directors?
2. What's the effect of leadership behaviors demonstrated by Nursing Directors on nursing staff's psychological empowerment?

Material
Study Setting

This cross-sectional study was conducted at two regional hospitals (Hospital A and Hospital B) that provide primary and secondary care to a population of 374,700 at a regional health district, located in the southern central part of Guangdong province, China. Hospital A is a general hospital providing western medical care with 245 beds and Hospital B is

a general hospital integrating traditional Chinese medicine and western medicine with 210 beds. In China, diagnostic and treatment approaches and procedures differ between healthcare facilities that mainly provide western medicine and health facilities that provide integrated traditional Chinese medicine and western medicine.[26] Therefore, the educational requirements of clinical staff are also different.

Target Population

The primary target population of this study were all Nursing Directors (n = 12 at Hospital A and n = 9 at Hospital B) and nursing staff (n = 173 from Hospital A and n = 87 from Hospital B) working in both Hospital A and B. For Nursing Directors, a 100% of response rate was aimed for consideration of the small population size. For nursing staff, with a total population of 288, a confidence level of 95%, acceptable margin of error = 0.05, and the assumption that 50% of nursing staff perceived their Nursing Directors as competent, the minimum required sample size of nursing staff is 162. However, considering the potential non-responses, the study invited all nursing staff to participate in the online survey.

Study Design

The cross-sectional quantitative study included two online surveys targeting nursing directors and nursing staff separately. The first survey on nursing directors focused on understanding their self-perceived competency as a leader. The second survey focused on understanding the Nursing Directors' leadership behaviors as observed by nursing staff and psychological empowerment amongst nursing staff.

Online Survey Instrument for Nursing Directors

The online survey for Nursing Directors is adapted from the Management Competency Assessment Project (MCAP) survey instrument,[27] which was originally developed in Australia and then translated into Chinese and applied in the several management competency studies in China.[21,28,29] The instrument includes the following three components which took approximately 15 mins to complete:

1. Demography, educational background, previous and current work experience, past and current management-related training;
2. Twenty-one behavioral items (supplementary Table 1) associating with the competencies of leadership (n=13) and professionalism (n=8) from the validated MCAP Tool.

The validated MCAP 7-point descriptive scale (supplementary Table 2) was used for participants to assess their own competency levels. Scores less than five are considered less than fully competent. Scores five or greater are considered fully competent.

Online Survey Instrument for Nursing Staff

The online survey for nursing staff includes the 12-item Spreitzer Psychological Empowerment[30] and 19-item Leadership behavioral Scale (supplementary Table 3) validated by Leggat et al[31] which are individually assessed by a 5-point Likert agreement scale. The English version of leadership items was translated into Chinese following a back translation process by a group of researchers who are native Chinese speakers with good English proficiency. The original and translated English versions of the questionnaire were compared by an independent collaborator who is a native English speaker. To maximize accuracy and ensure its suitability within the Chinese hospital context, nine managers and clinicians in a tertiary hospital in another city of Guangdong province were invited to pilot test the survey instrument and provide feedback on whether the language used and expression were appropriate and easy to understand. All concerns were addressed by researchers prior to the commencement of data collection for this study.

Nine out of the 21 selected MCAP behavioral items self-assessed by Nursing Directors and 12 out of 19 items from the Leadership Behavioral Scale completed by nursing staff are related to staff empowerment and professionalism. These items are detailed in Table 1.

Table 1 Two Dimensions of Leadership Practices Assessed by Leader Behavioral Scale Items and the Relevant MCAP Items

Dimensions	Items of Leadership Behavioral Scale (for Nursing Staff Survey)	Relevant MCAP Items (for Nursing Director Self-Assessment)
Empowerment	**L2** He/she encourages employees to look at problems and come up with their own solutions and suggestions. **L4** He/she expresses their confidence that the unit will achieve its goals. **L5** He/she encourages employees to express their ideas and opinions. **L6** He/she provides employees with continuous encouragement. **L7** He/she provides me with motivation. **L19** I have excellent working relationship with my immediate manager.	**C4.1** Show trust and respect for the opinions and actions of others. **C4.2** Provide appropriate support to others in the workplace. **C4.8** Actively question, listen, respond and provide feedback as a basis for effective communication. C5.7 Empower others to achieve goals. **C5.12** Encourage ideas and identifies opportunities.
Professional behaviors and conducts	**L8** He/she deserves trust, can be believed and relied upon for his/her word. L10 He/she acts according to what is right or fair. **L11** He/she makes sure that his/her actions are always ethical. **L12** He/she speaks and acts truthfully. **L14** He/she would bail me out even at his or her own expense, when I really need it. **L15** He/she understands my problems and needs.	**C4.2** Provide appropriate support to others in the workplace. **C4.17** Show awareness of, and sensitivity to, the feelings of others. **C4.19** Promote and adhere to high standards for personal and organizational integrity, honesty, transparency and respect for people. **C5.5** Recognize and balance personal, professional and organizational values and priorities.

Notes: He/she means My immediate manager.
Abbreviation: MCAP, Management Competency Assessment Project.

The nursing staff survey instrument which took approximately 10 minutes to complete also collected information on nursing staff's demographic and hospital and department data and educational background.

Data Collection

The two online surveys were conducted on the WJX survey platform (https://www.wjx.cn/) - a survey platform commonly used by research institutions in China. The "quick response" (QR) codes for each of the surveys were distributed to all Nursing Directors and nursing staff by the Directors of Human Services of each of the hospitals through WeChat – a commonly used communication app in China. The survey was open to Nursing Directors for a two-week period in August, 2023, and Nursing Staff for a three-week period between November and December, 2023. Survey data were then downloaded from the WJX website into MS excel format for error checking before being imported into IBM SPSS Statistics version 27.0 for analysis.

Data Analysis

Demographic and education data were presented as frequencies and percentages. Descriptive statistical analysis (mean, frequencies and percentages) of the 21 behavioral items self-assessed by Nursing Directors, 19 leadership behaviors assessed by nursing staff as being demonstrated by Nursing Directors and four dimensions of Psychological Empowerment (Meaning, Competence, Determination and Impact) were performed and reported. Pearson correlation test was conducted to test the correlation between Nursing Directors' competency on leadership and professionalism and tenure, and the correlation between scores of four dimensions of Psychological Empowerment and every behavioral item of Leadership Behaviors Scale. Since the study only aimed at testing the relationship of Nursing Directors' competency with the following three individual variables: tenure, staff-assessed leadership behaviors, and psychological empowerment, the Pearson correlation test which provides a measure of the strength of direct linear association between the variables is most suitable for its straightforward interpretation.[32] *T*-test was used to compare tenure between Nursing

Directors with different education levels. Data analysis was performed using IBM SPSS version 27.0. A value of p < 0.05 was considered statistically significant.

Results

Characteristics of Participants

All of the Nursing Directors (12 from Hospital A and 9 from Hospital B) completed the survey. The mean age of Nursing Directors was 44.58 years and 41.33 for Hospital A and B, respectively. All of the Nursing Directors were female who either possessed an associate degree or lower (57.1%) or a bachelor's degree (42.9%).

A total number of 288 nursing staff were invited to complete the survey and 260 participants (173 from Hospital A and 87 from Hospital B) completed the survey for nursing staff, with a response rate of 90.28%. The participants' mean age was 32.76 and 30.38 for nursing staff from Hospital A and B, respectively. Nearly 97% of them were female (96.9%). Overall, 56.2% of all nursing staff possessed an associate degree or lower and the remaining 43.8% had obtained a bachelor's degree.

Nursing Directors' Self-Assessed Management Competency on Leadership and Professionalism

The combined mean score for leadership competency (13 behavioral items) and professionalism (8 behavioral items) is 4.63 and 4.85 respectively. Sixteen of the 21 behavioral items received a mean score between 4 and <5. Only behavioral item C5.3 "Engage effectively in organizational decision-making", received a mean score lower than 4.

The following four behavioral items received a mean score of 5 or higher:

- C4.1 Show trust and respect for the opinions and actions of others.
- C4.3 Listen and empathize with others.
- C5.7 Empower others to achieve goals.
- C5.11 Demonstrate confidence, energy, commitment and enthusiasm.

Mean score from Hospital A is lower than mean score from Hospital B in every behavioral item. The differences in the mean scores between the two hospitals were larger than 0.5 for 6/13 leadership associating behavioral items and 7/8 professionalism associating behavioral items. Mean score for each of the behavioral items from each of the hospitals are included in Figure 1.

Combined mean score for Leadership competency and Professionalism competency were higher for Nursing Directors with associate degree or lower compared to those with a bachelor's degree. For the Professionalism competency, Nursing Directors with associate degree or lower scored themselves higher than those with bachelor's degree in 6 out of 8 behavioral items, as demonstrated in Figure 2. The possession of the types of degree appeared to have an impact on the mean score for individual behavioral items of Leadership competency.

Correlation Between Nursing Directors' Competency and Tenure

To explain the reason why Nursing Directors with lower education levels scored themselves higher than those with higher education levels, further comparison about tenure of Nursing Directors with different education levels was performed using t-test. Nursing Directors with associate degree had statistically significant longer years working at hospitals (25.67 years versus 18.78 years, p = 0.026), as managers (12.75 years versus 5.22 years, p = 0.026) and in current management positions (9.75 years versus 2.56 years, p = 0.026) than those with bachelor's degree.

Thus, the correlations between tenure and Nursing Directors' self-assessed competency on leadership and professionalism were tested by performing Pearson correlation tests. Though Years in current position, years as manager and years working at hospitals were positively correlated with leadership competency and professionalism competency (r ranged from 0.10 to 0.24), all the correlation coefficients between tenure and mean scores of self-assessed competency on leadership and professionalism showed no statistical significance ($p > 0.05$).
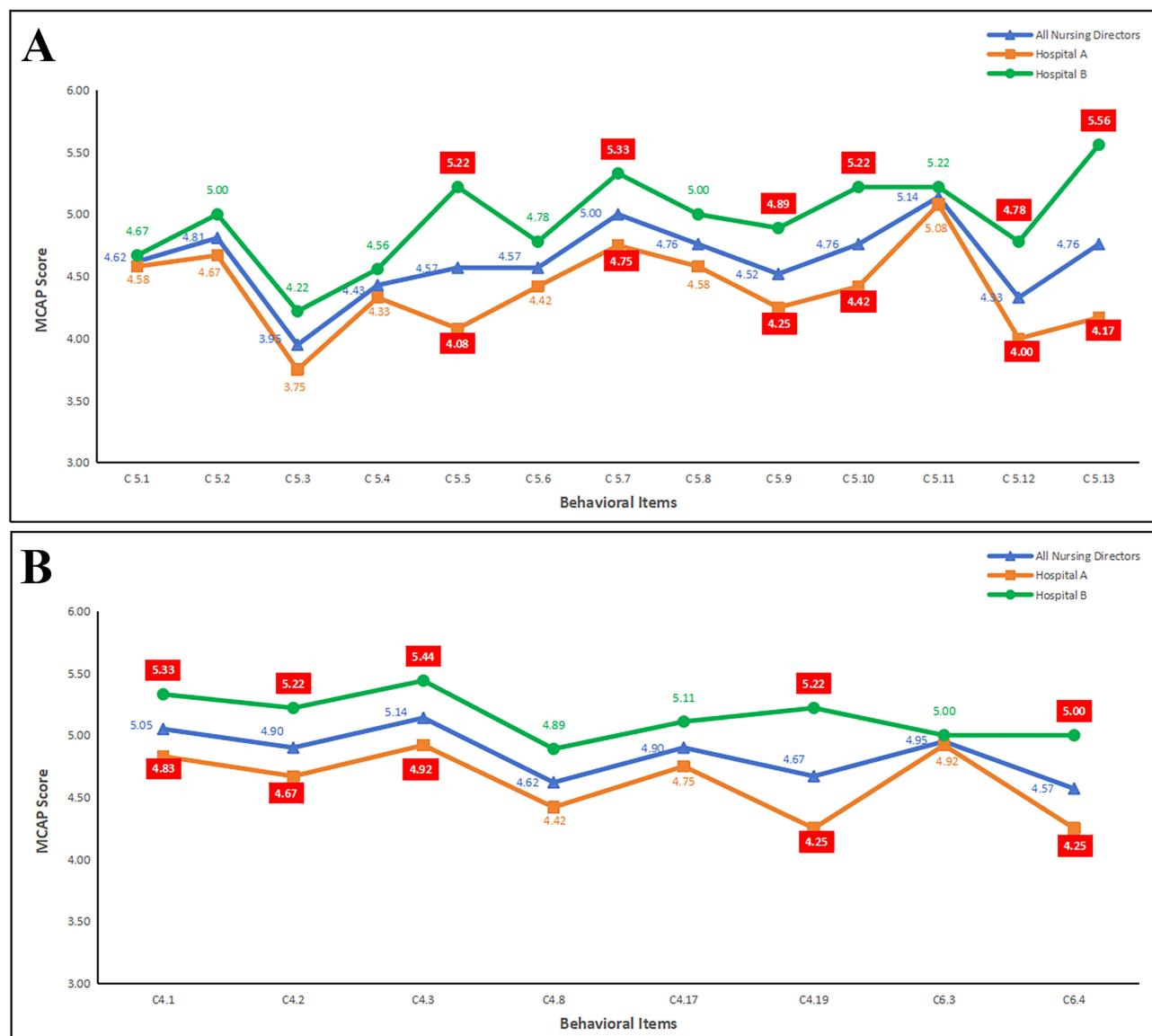
Figure 1 Mean score of self-assessed management competency on leadership and professionalism of Nursing Directors from Hospital A and B. (**A**) Leadership competency. (**B**) Professionalism competency.
Note: Numbers highlighted in red indicate that the differences of mean scores were larger than 0.5.
Abbreviation: MCAP, Management Competency Assessment Project.

For behavioral items, seven out of 13 leadership items (r range from −0.003 to −0.356) and 7/8 professionalism items (r range from −0.039 to −0.307) were negatively correlated to years in current management positions. Ten out of 13 leadership items (*r* range from 0.070 to 0.351) and 7/8 professionalism items (*r* range from 0.059 to 0.326) were positively correlated to years as manager. Twelve out of 13 leadership items (r range from 0.075 to 0.363) and all professionalism items (r range from 0.099 to 0.291) were positively correlated to years working at hospitals. However, all the correlation coefficients between tenure and behavioral items of self-assessed competency on leadership and professionalism showed no statistical significance ($p > 0.05$). Although not statistically significant, the study has established a positive correlation between tenure and competency.
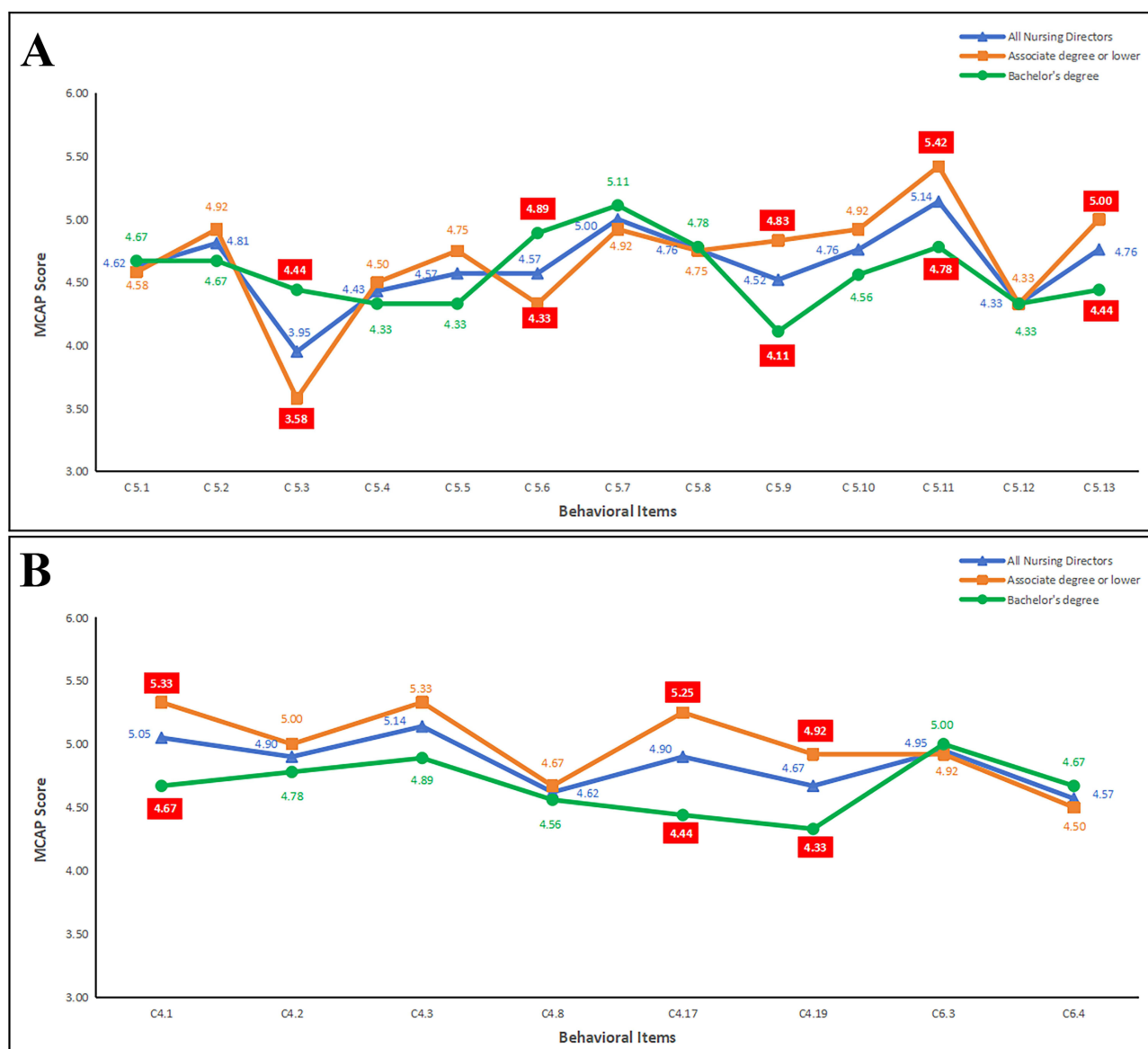
Figure 2 Mean score of self-assessed management competency on leadership and professionalism of Nursing Directors with different education levels. (**A**) Leadership competency. (**B**) Professionalism competency.
Note: Numbers highlighted in red indicate that the differences of mean scores were larger than 0.5.
Abbreviation: MCAP, Management Competency Assessment Project.

Nursing Directors' Leadership Behavior as Assessed by Nursing Staff

Overall, the proportion of nursing staff choosing the score of 4 (Agree) or 5 (strongly agree) for the 19 Leadership Behavioral Scale items range between 34.6% and 60%. The following four items received a score of 4 or 5 from less than 45% of nursing staff:

- L10 He/she acts according to what is right or fair.
- L14 He/she would bail me out even at his or her own expense, when I really need it.
- L16 He/she recognizes my potential.
- L17 He/she has enough confidence in me that he/she would defend and justify my decisions if I were not present.

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The item L19 "I have excellent working relationship with my immediate manager." received a score of 4 or 5 from more than 60% of nursing staff. The rest of the 14 items ranged between 45% and 55%.

The proportion of nursing staff from hospital B who scored their directors 4 or 5 were larger than those from hospital A for every behavioral item, and the differences were larger than 5% in 11/19 items.

The proportion of nursing staff with bachelor's degree who score their directors 4 or 5 in every behavioral item was higher than those with associate degree or lower. The differences were larger than 10% in the following four items:

- L3 He/she acts according to what is right or fair.
- L11 He/she makes sure that his/her actions are always ethical.
- L14 He/she would bail me out even at his or her own expense, when I really need it.
- L18 I usually know where I stand with my immediate manager.

Correlation Between Leadership Behavioral and Psychological Empowerment

Correlation between Nursing Directors' leadership behavior observed by nursing staff and nursing staff's self-assessed psychological empowerment was tested using Pearson correlation test.

Among the four dimensions of psychological empowerment, Competence got the highest score (3.87 ± 0.59), followed by Meaning (3.72 ± 0.65), Determination (3.55 ± 0.70) and Impact (2.89 ± 0.80). Leadership behaviors had a mean score of 3.43 ± 0.62.

Among the four dimensions of psychological empowerment, Meaning was moderately correlated with Competence ($r = 0.653$) and Determination ($r = 0.547$), Competence was moderately correlated with Determination ($r = 0.550$), and Determination was moderately correlated with Impact ($r = 0.541$). Impact was weakly correlated with Meaning ($r = 0.247$) and Determination ($r = 0.182$). All the correlations were statistically significant ($p < 0.05$).

Leadership behaviors were significantly positively correlated with all the four dimensions of Psychological Empowerment ($p < 0.001$): Meaning ($r = 0.432$), Competence ($r = 0.281$), Determination ($r = 0.503$) and Impact ($r = 0.343$).

Correction between nursing staff (with associate degree or lower or with bachelor's degree)'s self-assessed psychological empowerment (four dimensions) and Nursing Directors' leadership behavior as observed by nursing staff was tested using Pearson correlation test. Results are shown in Table 2. For nursing staff with associate degree or lower, Meaning was significantly positively correlated with all behavioral items (r ranged from 0.286 to 0.625). Competence

Table 2 Correlation of Four Dimensions of Psychological Empowerment and Behavioral Items of Leadership Behavior Scale in Nursing Staff with Different Education Levels

	Meaning		Competence		Determination		Impact	
	AD	**BD**	**AD**	**BD**	**AD**	**BD**	**AD**	**BD**
L1	0.550**	0.304**	0.291**	0.154	0.372**	0.369**	0.218**	0.285**
L2	0.523**	0.287**	0.317**	0.163	0.385**	0.393**	0.231**	0.238*
L3	0.486**	0.191*	0.253**	0.068	0.385**	0.412**	0.232**	0.234*
L4	0.482**	0.264**	0.253**	0.202*	0.459**	0.451**	0.226**	0.288**
L5	0.464**	0.248**	0.248**	0.211*	0.371**	0.485**	0.201*	0.260**
L6	0.490**	0.244**	0.277**	0.203*	0.483**	0.464**	0.245**	0.266**
L7	0.456**	0.197*	0.253**	0.176	0.437**	0.422**	0.281**	0.270**
L8	0.485**	0.103	0.261**	0.171	0.428**	0.454**	0.297**	0.334**
L9	0.487**	0.040	0.295**	0.106	0.405**	0.360**	0.252**	0.127

(*Continued*)

Table 2 (Continued).

	Meaning		Competence		Determination		Impact	
	AD	BD	AD	BD	AD	BD	AD	BD
L10	0.445**	0.175	0.236**	0.101	0.400**	0.400**	0.271**	0.399**
L11	0.345**	0.292**	0.158	0.144	0.228**	0.342**	0.066	0.230*
L12	0.382**	0.188*	0.291**	0.042	0.398**	0.335**	0.247**	0.329**
L13	0.398**	0.152	0.246**	0.218*	0.452**	0.437**	0.306**	0.263**
L14	0.286**	0.269**	0.118	0.194*	0.335**	0.448**	0.390**	0.434**
L15	0.493**	0.140	0.261**	0.196*	0.360**	0.480**	0.262**	0.392**
L16	0.500**	0.294**	0.296**	0.299**	0.459**	0.449**	0.383**	0.427**
L17	0.473**	0.227*	0.262**	0.213*	0.353**	0.433**	0.436**	0.404**
L18	0.389**	0.263**	0.237**	0.207*	0.322**	0.359**	0.340**	0.324**
L19	0.625**	0.297**	0.471**	0.395**	0.454**	0.553**	0.302**	0.342**

Notes: L1 – L19 were 19 behavioral items of Leadership Behavioral Scale. *$p < 0.05$, **$p < 0.01$.
Abbreviations: AD, associate degree or lower (n = 146); BD, bachelor's degree (n = 114).

was significantly positively correlated with 17/19 behavioral items (r ranged from 0.236 to 0.471). Determination was significantly positively correlated with all behavioral items of (r ranged from 0.228 to 0.459). Impact was significantly positively correlated with 18/19 behavioral items (r ranged from 0.201 to 0.436).

For nursing staff with bachelor's degree, Meaning was significantly positively correlated with 14/19 behavioral items (r ranged from 0.191 to 0.304). Competence was significantly positively correlated with 10/19 behavioral items (r ranged from 0.194 to 0.395). Determination was significantly positively correlated with all behavioral items (r ranged from 0.335 to 0.485). Impact was significantly positively correlated with 18/19 behavioral items (r ranged from 0.230 to 0.434).

Consistency in Self-Assessed Management Competency and Nursing Staff's Perception on Leadership of Nursing Directors

As mentioned earlier, some management competency behavioral items that Nursing Directors used to self-assess and leadership items used by nursing staff in assessing their Nursing Directors are related to two dimensions of leadership practices: "empowerment" or "professional behaviors and conducts". Figure 3 shows the mean proportion of participants giving a high score (no less than 5 for MCAP and 4 or 5 for Leadership Behavioral Scale) on "empowerment" or "professional behaviors and conducts". The scores were consistently higher on "empowerment" than "professional behaviors and conducts" from both Nursing Directors and nursing staff in two hospitals separately.

Discussion

The study supports the concept of "leadership and management competency is context sensitive".[33] Both hospitals under the study are governed by the same Health District and provide medical services to the same population in the district. They adopted the same qualification and training requirements for nursing staff and Nursing Directors working in these hospitals. However, the study confirms the consistent differences in competency level as self-perceived by Nursing Directors and demonstrated leadership behaviors of Nursing Directors as observed by nursing staff between these two hospitals (scores were higher for Hospital B than Hospital A). This confirms the influence of hospital settings on leadership competency development and demonstration. The finding implies that organizational context such as culture, structure and strategic visions must be taken into consideration when formulating strategies to develop nursing
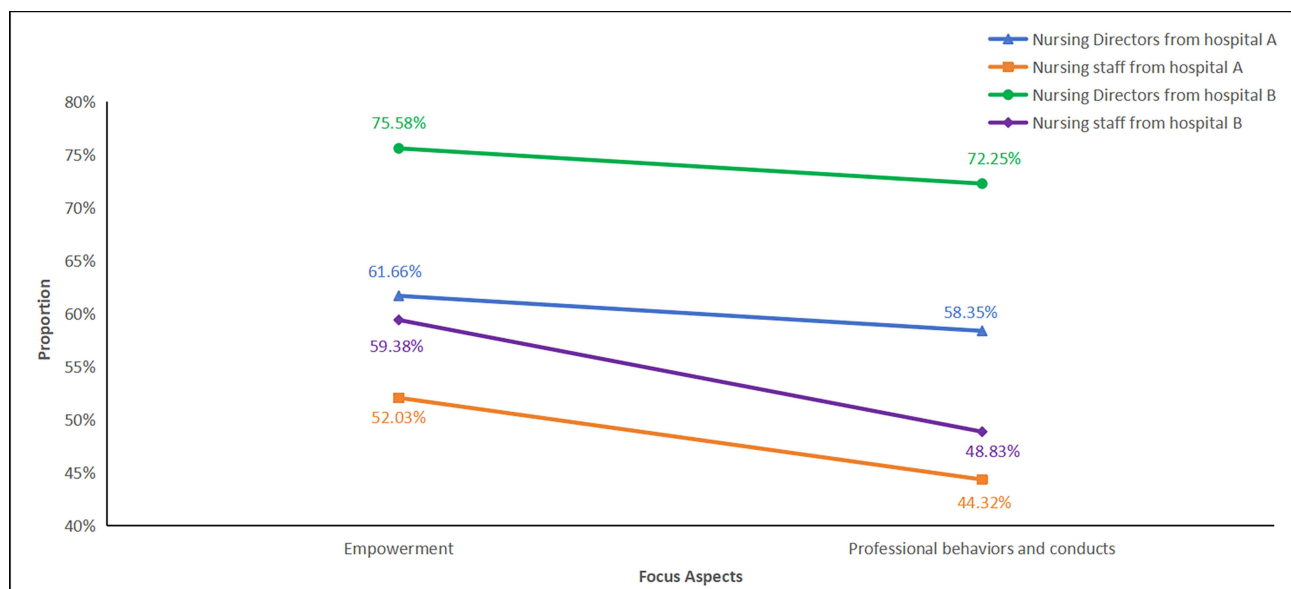
Figure 3 Comparison of mean proportions of participants giving high score on items grouped in "empowerment" or "professional behaviors and conducts".
Note: High score refers to no less than 5 for MCAP and 4 or 5 for Leadership Behavioral Scale.
Abbreviation: MCAP, Management Competency Assessment Project.

leadership.[34] For example, organizational culture is well-known to be one of the important factors influencing leadership competency, which has been proven to affect both Nursing Directors' self-perceived leadership behaviours and nursing staff perception of their immediate supervisor's leadership behaviors.[35,36] The potential differences on organizational culture between the two hospitals might lead to the consistent differences on the mean scores of self-perceived and staff-perceived leadership. Lack of support to develop leadership is also an important factor influencing leadership competency, which is often the case in China where Nursing Directors from secondary hospitals receive less opportunities and support for leadership capability development comparing to those who are working at tertiary hospitals.[29,37] The differing results of the two targeted secondary hospitals in the same health district may indicate that the investment and support for leadership development might also be varied between hospitals adopted different diagnostic and treatment approaches and procedures. Good understanding of the current strengths and weaknesses of nursing leaders is required to develop strategies in building their leadership and management capability.[38] Such evidence-based strategies development process can ensure the applicability and appropriateness of the strategies to the context in which such strategies may apply.

The study found consistent trend in assessing the specific empowerment and professional behavioral items by Nursing Directors and nursing staff (as shown in Figure 3). In addition, the leadership competency self-assessment performed by Nursing Directors also confirmed their competency strengths and weaknesses. These support the value of competency self-assessment in identifying managers/leaders' competency gaps and development needs. Such findings are consistent with similar studies using the MCAP tool conducted on medical directors in tertiary hospital in Australia and China[21,27,29] and on managers working at community health services in Australia.[39] This adds to the research evidence that self-rating on skills and abilities is a self-reflection and self-education process. The self-rating process can enhance individual's ability to learn and improve.[40]

Worth noting, the meta-analysis conducted by Lee & Carpenter (2018) found that the type of leadership dimensions was vital for the convergence between self- and staff perceptions of leadership practices.[41] For example, staff tended to rate leaders lower on transformational leadership compared to leaders' self-ratings, while higher for servant leadership. In the health context, Alharbi et al (2021) in their study assessing transformational leadership practices of clinical nurse managers, also found that managers rated their transformational leadership performance higher than that reported by nursing staff.[19] However, Liang et al (2016) using the 360° MCAP tool to assess the management competency of Health Services Managers did not find significant difference between self- and staff assessment on leadership competency.[39] The

consistency in self- and staff assessment of leadership competency, evidenced in this study, confirms the ability of self-assessed leadership competency to reflect actual leadership practices.

The study found that Nursing Director's confidence in their leadership and professionalism competency level are affected by the length of management experience and education level. The longer that they have been working in management roles or the lower level of the degree (such as associate degree or lower vs bachelor's degree) that they have obtained, the higher the competency scores that they have given themselves. The latter is inconsistent with previous research that found positive correlation[42,43] or no correlation[44,45] between leadership competency and degree level. Considering that Nursing Directors with lower level of qualifications have been in management positions significantly longer than those with higher qualifications, the study findings may support evidences that managerial experience is one of the positive influencing factors of leadership capability.[46,47]

On the other hand, education level also affects how nursing staff interpret the leadership behaviors demonstrated by Nursing Directors. Nursing staff with higher education level tended to give higher scores for leadership behavior demonstrated by Nursing Directors, which was consistent with Cao et al (2015)'s study,[48] in which nurses' perception of supportive leadership was found to be positively correlated with the nurses' education level. These findings indicate that nursing staff with higher education level are more capable of understanding and appreciating the value of leadership practices. Besides, the correlations between perception of leadership behaviors and dimensions of psychological empowerment also varied between nursing staff with different education. These findings provide useful data to hospitals to develop mechanisms to tailor support to nursing staff, with or without management responsibilities, based on their education and experience. One-size-fit-all strategies in nursing staff support may not be effective, strengthened communication and interaction between nursing leaders and staff are required to ensure support and development tailored to the needs of nursing staff are appropriate and effective.

The research team noticed that 30%–50% nursing staff chose the midpoint choice of 3 – "neither agree nor disagree" in the assessing the leader behavior using 5-point Likert Agreement. It was unclear to the team whether the nursing staff interpreted the midpoint choice of 3 as midpoint between strongly disagree and strongly agree or if they simply did not want to answer their level of agreement to the particular leadership behavior statement. The concerns of its potential effects on the reliability of the results promoted the research team not to use mean scores as the basis for analysis. Instead, this study analyzed the proportion of nursing staff who chose agreement score 4 or 5 to rate leadership behavior of Nursing Directors in order to correctly interpret the study findings. Previous studies have raised similar concerns about how the existence of midpoint in subjective measurements might have resulted inaccurate responses, increasing random measurement error and reducing precision, due to reasons such as social desirability bias and misinterpretation to the neutral response option.[49] Nadler et al (2015) conducted a study comparing the response distribution of three different scales: 1) a 4-point scale (forced choice); 2) a 5-point scale with "neither agree nor disagree" as midpoint; 3) a 4-point scale with an option of "no opinion" presented after the item, and they also explored how participants interpreted the meaning of midpoint.[50] They found that participants interpreted the midpoint mostly as "unsure", "no opinion" or "neutral", which added evidence to the fact that simply using "neither agree nor disagree" as midpoint might lead to misunderstanding of participants' attitudes, resulting in more measurement errors.

To ensure that data is accurately understood and correctly interpreted, instead of using mean scores, the current study analyzed the proportion of nursing staff who chose agreement score 4 or 5. For similar studies in the future, two options can be considered. Option one: using 1–5 Likert Scale only adding description for 1 as strongly disagree and 5 as strongly agree. Option two: keeping "neither agree nor disagree" in the scale without allocating a point and at the same time adding another answer of "Unsure": strongly disagree (1); disagree (2), Agree (3) and Strongly Disagree (4), unsure (5) when unsure is not included in the calculation of mean. However, such option will need to be further tested for its reliability in identifying the views of raters. In addition, there have been an increasing number of research suggesting the replacement of the 5-point scale by a 7-point scale.[51,52] For a 7-point Likert scale, the 7 points include the following: Strongly disagree, Disagree, Somewhat disagree, Neutral, Somewhat agree, Agree and Strongly agree. Increasing the reliability was the reasons that the MCAP assessment scale has chosen a 7-point descriptive scale to measure competency level.[27]

There are strengths and limitations of this study. First of all, the MCAP tool used to assess the self-perceived management competency of health services managers was validated in both developed and developing countries with different health care systems. The Chinese version of MCAP was also validated in previous studies, proving its feasibility in realizing the competency level of health services managers in China.[21,29] The Leadership Behavioral Scale was adapted from different widely used scales[53–55] and was also validated in the previous study.[31] The Chinese version of the Leadership Behavioral Scale went through the standard back translation process and was pilot tested for adaptation to the Chinese context to ensure content validity. The very high response rate for the two surveys demonstrated a high level of engagement and interest from the target population, indirectly implying the provision of reliable data and valuable insights into the leadership practices of Nursing Directors from the two hospitals in the study.

The study has several limitations. First, although the demonstrated leadership behaviors of Nursing Directors were assessed from two dimensions, self-perceived and staff-perceived, both were assessed subjectively, which might have led to biased findings. Future study may consider triangulating with qualitative data to provide richer insights. Second, due to the relatively small sample size of Nursing Directors, the study was unable to adequately test how other organizational contextual factors may impact on the development of leadership competency amongst Nursing Directors. This study aimed at providing supportive evidence for the health planning of a specific health district. Hence findings of this study may not be applicable to other health context without external validation. Third, although the cross-sectional design of this study provides a view of the current situation, it is insufficient for causal inferences and assessment of temporal dynamics, which calls for a longitudinal study on the relationship between self-assessment and staff-assessment leadership competency.

Conclusion

The study confirmed that leadership demonstrated by Nursing Directors are important to empower nursing staff and organizational context plays an important role in developing nursing leadership and improving nursing management effectiveness. The study supports the value of management competency self-assessment in identifying competency gaps and competency development needs amongst Nursing Directors. The positive correlation between leadership behavior observed by nursing staff and nursing staff empowerment and the effects of education level on the such correlation confirm the necessity of tailoring support to the actual needs of nursing staff rather than adopting a one-size-fit-all approach. The study also calls for careful consideration of adopting a 5-point Likert Scale in self-assessment. Precaution should be taken as the mid-point of the scale might not be consistently interpreted by study participants hence may affect the reliability of the study findings.

Data Sharing Statement

The datasets used in the current study are available from the corresponding author upon reasonable request.

Ethical Approval and Informed Consent

This study was approved by the Institutional Review Board of School of Public Health, Sun Yat-Sen University (No. 202370). Approval of the implementation of the study was also obtained from both of the hospitals. Consent of participants was obtained online: The first part of the online survey was the informed consent form. Respondents were informed about the purpose of the surveys, the anonymity of data from their responses, confidentiality, autonomy of participation, and their right to refuse completing the surveys without penalty at the first page of the online survey. Only those respondents who chose "Agree" on the consent form would proceed with the online survey. If respondent chose "Disagree", the online survey would close immediately.

Consent for Publication

All authors accepted the publication of the manuscript.

Acknowledgments

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

Disclosure

The authors report no conflicts of interest in this work.

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