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Perceptions of nurses' professional practice environments in mainland China: a cross-sectional study

Abstract

Aim & Objective: To describe nurses' perceptions concerning their professional practice environment in mainland China and identify factors associated with these views.

Background: Globally, the environments in which nurses work influence the quality of nursing practice and health care.

Design: A cross-sectional descriptive survey using both paper- and online-based delivery modes was used.

Method: A convenience sampling method was used. The survey questionnaire was composed of sociodemographic items and the 38-item Chinese version of Professional Practice Environment (CPPE-38) survey. The content of the paper-based questionnaire was identical to the online survey. Pearson Chi-square test was conducted to compare the demographic characteristics of these two datasets. Descriptive statistics analysis included frequency, percentage, mean and standard deviation. Multiple linear regression analysis using the backwards method was applied to identify independent predictors of each subscale of CPPE-38.

Results: A total of 573 questionnaires were analysed. The mean score of each subscale of the CPPE-38 in this study ranged from 2.66 to 3.05. All subscales except work motivation (3.05, SD: 0.44) scored less than 3.0. Areas rated as most in need of improvement included *control over practice, interpersonal interaction, supportive leadership and handling conflict, and staff relationships with physicians and autonomy*.

Conclusion: This study has identified nurses' perspectives regarding their workplaces in contemporary China. These data have provided an important baseline for developing and implementing culturally appropriate strategies to improve the working environment of Chinese

nurses.

Relevance to Clinical Practice:

A supportive and enabling work environment promotes professional development and the safety and quality of health care. Addressing these factors is important in optimizing work place environments.

Key words: mainland China; nursing; professional practice environment

Summary Box

What does this paper contribute to the wider global clinical community?

- A subset of nurse respondents in Mainland China perceived needs for increased control over practice, supportive leadership, and improved interpersonal interactions with staff in their workplace.
- Improving nurses' work environments is likely to contribute to the quality and safety of health care, as well as work satisfaction and nurse retention.
- The findings are potentially applicable to health institutions in other developing countries, as well as for Asian nurses who migrate to Western countries with similar cultural beliefs and educational backgrounds.

INTRODUCTION

In recent decades, the nursing practice environment has become a central premise in terms of providing quality, safe, ethical health care (Erickson 2010). The Magnet Recognition Program initiated by the American Nurses Credentialing Centre (ANCC) has found positive practice environments exert great impact on attracting and retaining nurses and provide an environment for the promotion of nursing and high quality health care (McClure *et al.* 2002). There are fewer studies in mainland China focusing on nursing practice environment especially from the view point of nurses. This description of the practice environment has identified factors that are supportive and enabling of the work of nurses as part of the health care team. The study findings can help to develop tailored strategies to promote nurses' professional practice.

BACKGROUND

In contemporary mainland China, evaluating and addressing issues concerning nursing practice environments has been underscored as a concern in the context of a challenged health care system (Hu *et al.* 2008, Cao *et al.* 2009, Qin *et al.* 2013). Challenges in China involve the transition from the infectious to chronic diseases, the ageing population, and the increasing burden of chronic conditions (Cao *et al.* 2009). Internationally, many of the initiatives designed to increase awareness, prevention, and secondary prevention of chronic diseases, such as cardiovascular disease, have been led by nurses (Dracup *et al.* 2006, Davidson *et al.* 2008). These achievements are dependent on supportive environments that facilitate nursing leadership (Charalambous *et al.* 2010, Erickson 2010, Halcomb *et al.* 2010). Wang *et al.* (2013) have argued that in mainland China, nursing has long been subordinate to clinical medicine and nurses are in a challenging situation in meeting their increasingly important role as part of achieving the millennium development goals and health care reform. Barriers that impede nursing development in China include lower education levels, limited training opportunities, and insufficient economic investment in nursing education (Cao *et al.* 2009, Wang *et al.* 2013, You *et al.* 2014).

Along with social and economic development, nursing in mainland China has increasingly

become independent from medicine. A study conducted in Shanghai by Wang et al (2012) described the professional practice environment in Chinese hospitals, especially in hospitals with lower inpatient capacity and fewer services provided, as a powerful predictor of nurses' intentions to leave. Nurse retention is a global problem, but a particular concern in China (Wang *et al.* 2013). This study describes nurses' perceptions concerning their professional practice environment in mainland China and factors associated with these results. For the purposes of this study, the professional practice environment was defined as the organizational characteristics of the work setting that facilitate or constrain professional nursing practice (Erickson 2004).

METHOD

Study design

This study used a cross-sectional descriptive survey design using a simultaneous paper-based and an online survey method. A commercial online platform (Survey Monkey) was used to capture data from a large geographic region. A paper-based questionnaire was used as an auxiliary method to recruit nurse respondents who were unable to access the internet. China is a vast country. The East and South have a very developed social economy while the West and North are less well developed. The majority of hospitals have been classified as levels 1, 2, or 3, indicating incremental increases in inpatient capacity, more advanced health technology equipment, and more comprehensive health services provided.

A convenience sampling method was used. Initially, nursing colleagues, directors of nursing departments, physicians, and other health professionals working in mainland hospitals known to the investigators (YC & BH) were invited to participate and/or distribute the questionnaire. They were asked to invite any of their nursing colleagues who may be interested in participating. The potential respondents were told not to participate in the paper-based version if they had or were willing to participate in the online survey. Five hundred paper-based questionnaires were distributed to nurses in eight hospitals around mainland China. Between 30 and 100 questionnaires were distributed to each hospital. The number of questionnaires sent depended on the classification of the hospital and the number of nurses who expressed willingness to participate. At

the same time, the survey questionnaire was administered online via the commercial survey website from June to August 2010. The content of the paper-based questionnaire was identical to the online survey which was comprised of general demographic items and the 38-item Chinese version of Professional Practice Environment (CPPE-38). Recent studies have clarified the impact of demographic variables such as gender, age, and highest nursing qualification, on nurses' intent to stay in the profession (Wang *et al.* 2012, Wang *et al.* 2012, Engeda *et al.* 2014). Engeda *et al.* (2014) found that age, having a bachelor degree, and commitment to the nursing profession predicted nurses' intentions to remain in the nursing profession. Age has been depicted as one of the most significant factors related to nurses' job satisfaction, occupational commitment, and intent to stay (Wang *et al.* 2012, Wang *et al.* 2012).

Professional Practice Environment scale (PPE)

The 38-item PPE was first developed by Erickson and colleagues (Erickson *et al.* 2004) to identify elements that constitute an enabling practice environment. Eight components resulted, namely handling disagreement and conflict, internal work motivation, control over practice, leadership and autonomy in clinical practice, staff relationship with physicians, teamwork, cultural sensitivity, and communication about patients. Since then, further studies have used this instrument (Chang 2009, Halcomb *et al.* 2010, Charalambous *et al.* 2010). In 2009, Dr Chia-Chuan Chang translated it into Chinese in her doctoral dissertation (Chang 2009). In her study, two items were deleted because they did not load logically. The remaining 36 items (CPPE-36) were validated among nurses in Taiwan (Chang 2009). Permission to use CPPE-36 in the current study was granted by Dr Chang who holds the copyright. The two omitted items were translated by two bilingual nursing PhD students for the current study and then back translated by a bilingual Master's graduate who majored in Chinese language. The translators reached consensus of the translated version. The total CPPE-38 was used in this study to investigate nurses' perceptions of their workplaces.

There is another widely used scale measuring nursing practice environments entitled Practice Environment Scale of the Nursing Work Index (PES-NWI). It is an instrument derived from the

same theoretical underpinnings and the first Magnet study by McClure et al (McClure *et al.* 1983). A literature review on the application of the PES-NWI, demonstrated the average Magnet hospital subscale scores of 2.99 and 3.00 which provided a benchmark level for later studies (Warshawsky and Havens 2011). Therefore, a subscale score of 3.0 was chosen in this study to depict the current status of nursing perceptions towards professional practice environments. This benchmark of 3.0 indicates there is agreement, but not the theoretically ideal strong agreement depicting that the items accurately characterised their professional practice environments (Warshawsky and Havens 2011).

Ethical consideration

Ethical approval was obtained from the Human Research Ethics Committee of Shandong University, People's Republic of China (2009022) and Curtin University in Australia (SON&M22-2009).

Data analysis

The paper-based data were entered and online data was downloaded into SPSS 17.0 software package for statistical analysis. Accuracy of data entry was checked by systematic audits, as well as by examining the data to identify outliers and missing data. Pearson Chi-square test was used to compare demographic characteristics from these two datasets. Descriptive statistics analysis included frequency, percentage, mean and standard deviation. Binomial and Pearson Chi-square tests were used to compare the study data with the available national data from the nursing workforce in mainland China (NHFPC 2013) given the categorical variables. Multiple linear regression analysis using the backwards method was used to identify independent predictors of each subscale of the CPPE-38. The independent variables included in the regression were participants' demographic characteristics such as gender, age, the highest nursing qualification, other non-nursing qualifications, geographic location of workplace, duration of clinical work, and employment status.

RESULTS

Participants' demographic characteristics

Of the 500 paper-based questionnaires, 435 were returned and 25 discarded due to the incomplete data, rendering a response rate of 82%. A total of 257 participants responded to the online-based survey and 163 were found valid and complete. Among the excluded data, 72 had incomplete data and 22 respondents were not currently working as a registered nurse in mainland China.

Approximately 45% of the participants were aged 25 years or younger. The majority of the participants had a nursing diploma or associate degree in nursing. As expected, there was much more geographic diversity in respondents of the web-based survey and the largest proportion of participants (74.2%) was from eastern China. Table 1 shows the demographic characteristics of participants from paper-based and online surveys. The main difference between the two modes of data administration was the predominance of female responders to the paper-based survey (97.2%), and male nurses (71.2%) from broader geographical locations to the web-based survey. When the binomial test was conducted to compare the available national nursing workforce data (NHFPC, 2013), there was no statistically significant differences between the national data and the paper-based participants according to gender (one-tailed $p = 0.12$). The online survey data was statistically different from the national dataset in gender (one-tailed $p = 0.00$). The Pearson Chi-square test revealed that participants held higher educational degrees than the national average ($\chi^2 1663.0, p = 0.00$). Comparisons of other characteristics, such as age, length of time as a RN, and working experience in a nursing school/faculty were not conducted due to unmatched data.

Nurses' perceived practice environment

The CPPE-38 items were evaluated on a 4-point Likert-type scale anchored with 1 (strongly disagree) to 4 (strongly agree). Seven items (No. 14, 18, 19, 20, 21, 22, 27) were reversed scored to ensure the high scores on the subscales represented high amounts of the construct measured. The mean scores of each subscale in this study ranged from 2.66 to 3.05. All subscales except work motivation (3.05, SD: 0.44) scored less than 3.0. Table 2 shows the mean score of each

subscale and their predictive factors resultant of multiple linear regression analysis. In addition to factors mentioned above (Wang *et al.* 2012, Wang *et al.* 2012, Engeda *et al.* 2014), Table 2 depicts that nurses' clinical work duration and geographic location of workplace also impacted on their perception of work environments. Table 3 illustrates the participants' responses to each item of the CPPE-38. In the subscale of *work motivation*, the majority of respondents (89.5%) felt a great sense of personal satisfaction for the work they do. Approximately 17% of respondents did not agree with the statement that all staff members contribute expertise to effect high-quality solutions. In the subscale of *control over practice*, almost four in ten participants disagreed or strongly disagreed with the statement about nurses having freedom to make important patient care and work decisions. Approximately half did not think they had enough time or staff to provide quality patient care at the workplace. Meanwhile, nurses perceived interpersonal interactions amongst health staff as less than satisfactory (Table 3). When asked about supportive leadership, almost a quarter of the participants did not agree with the statement that their managers support staff in decision making, even in conflicts with medical practitioners. When the participants responded to the statement, 'My discipline (nursing) controls its own practice', approximately one in five disagreed.

DISCUSSION

In this study, 4 out of 5 subscales (with the exception of work motivation) scored less than 3.0. The areas that need to be addressed are *control over practice*, *interpersonal interaction*, *supportive leadership and handling conflict*, and *staff relationships with physicians and autonomy*. Given the low scores on some of the items, especially those associated with interpersonal interaction and supportive leadership, this study illustrated Chinese nurses' concerns towards their workplace environment which can impact on the health and wellbeing of nurses and potentially contribute to the outcomes of patient care. This issue was also addressed by the systematic review conducted by Cummings *et al.* (Cummings *et al.* 2010), which found various forms of leadership exerted differential effects on the nursing workforce and work environment. The study indicated the need to shift task-focused leadership, a leadership style utilized in Chinese nursing (Wang *et al.* 2013), to relationship or people-focused leadership practice. A study conducted in one of the Magnet

hospitals in the U.S. (Massachusetts General Hospital 2006), used the PPE to investigate the nursing professional practice environment and found more positive perceptions of practice environments. Unlike the lower score identified in this study, their results included mean scores for 6 of the 8 subscales were equal to or higher than 3.0. The two that scored below 3.0 were *handling conflict* (2.7) and *teamwork* (2.9) (Massachusetts General Hospital 2006). Another study undertaken in Finland using revised professional practice environment scale (RPPE) found that the mean scores for 5 of the 8 subscales were above 3.0 and the remaining 3 subscales scored 2.85 (*team work*), 2.72 (*handling disagreement and conflict*), and 2.39 (*control over practice*) (Charalambous *et al.* 2010). The mean score was not comparable between the international studies with this CPPE-38 study due to some of the unmatched items in each subscale. However, it shows clearly that there are some perceptions of inadequacies in the work environment among Chinese nurses compared to their international counterparts. Wang and colleagues (Wang *et al.* 2013) stated the challenges facing Chinese nursing range from nursing shortages and inadequate financial investment to little evidence-based practice. Statements regarding inadequate time and staff, little support from managers, and less professional autonomy were identified by the study participants. Aiken and colleagues (Aiken *et al.* 2014) stated that nursing is repeatedly identified as a trusted profession that acts honestly and ethically and the public relies on nurses to bring about bold change that assures safety and quality in patient care. The health institutes strive to set a path toward an excellent professional practice environment. ANCC's newly established program, *Pathway to Excellence Program*, measures the essential elements of healthcare organizations for creating positive practice environments where nurses excel. The program has been recognized by the hospitals in the US as well as international organizations. Tan Tock Seng Hospital (TTSH) in Singapore has become the first pathway-designated international healthcare institute (American Nurses Credentialing Center 2014). The International Council of Nurses' theme for International Nurses Day 2015 is 'Nurses: A force for Change: Care Effective, Cost Effective' (ICN 2015). This title emphasizes the significance of the nursing workforce and how to assist and encourage nurses and nursing organizations in driving efficiency and effectiveness of healthcare delivery.

LIMITATIONS

Some limitations in study design limit the capacity to generalize findings to a wider context. The sample was small relative to the population and did not include a representative sample of the national nursing workforce given the total nursing population in mainland China. To facilitate recruitment and enable geographically disparate respondents to participate, the survey was made available in both paper form and via a web-based platform. While this method appears to have facilitated access to a wider range of respondents, investigators were unable to ensure that respondents completed the survey only once, despite explicit instructions to do so.

CONCLUSION

Nurses in mainland China are essential to the health care delivery system and China's ability to achieve health-related millennium development goals. Internationally, studies indicate the professional nursing environment is pivotal to the safety and quality of medical care. This study identified that Chinese nurses had lower perceptions of the quality of their workplaces compared to other published studies. Of note, apart from health care reform underway in contemporary mainland China, there are different issues facing health systems internationally (Lagomarsino *et al.* 2012), thus developing a more supportive and enabling practice environment is paramount to achieve goals of the reforms. Further research is needed to investigate tailored strategies based on the findings of this study to promote nurses' practice environments in order to achieve excellence in patient care and nursing in mainland China.

RELEVANCE TO CLINICAL PRACTICE

Improving nurses' work environments is likely to both contribute to the quality and safety and of health care, as well as work satisfaction and nurse retention. The issue is imperative in the context of striving for successful health care reform in contemporary China and globally.

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