ORIGINAL ARTICLE

Predictors of organizational commitment among Chinese nurses during the COVID-19 pandemic

Lyuna Su RN[1] | Orn-Anong Wichaikhum PhD, RN[2] | Kulwadee Abhicharttibutra PhD, RN[3]

[1]Nurse, Department of Hepatopancreatobiliary Surgery, Lincang People's Hospital, Lincang, China

[2]Assistant Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand

[3]Assistant Professor, Faculty of Nursing, Chiang Mai University, Chiang Mai, Thailand

Correspondence
Orn-Anong Wichaikhum, Faculty of Nursing, Chiang Mai University, 110/406 Inthawaroros Road, Suthep Subdistrict, Chiang Mai 50200, Thailand.
Email: ornwichai@gmail.com

Abstract

Aim: To investigate organizational commitment among Chinese nurses and analyze factors influencing organizational commitment during COVID-19.

Background: Organizational commitment is the most important link between nurses and the organization because it is effective in work retention and the motivation of nurses, especially when addressing the COVID-19 crisis. However, there has been no empirical study conducted to predict organizational commitment in the field of nursing by combining work values with professional practice environments.

Methods: A cross-sectional predictive study was done with 362 nurses recruited from two tertiary hospitals in China. The Organizational Commitment Questionnaire, the Work Values Scale, and the Practice Environment Scale of the Nursing Work Index were used to collect data. Two factors related to the organizational commitment of nurses were investigated by using binary logistic regression analyses.

Results: Increased work values and a professional practice environment were associated with an increased likelihood of higher organizational commitment.

Discussion: The COVID-19 crisis became the utmost challenge to global healthcare systems and professional organizational commitment. Nurses' organizational commitment was directly influenced by the professional practice environment and work values, especially intrinsic work values, in which the spirit of collectivism was consequential.

Conclusion and implications for the field of nursing and health policy: Study results provide information for global hospital administrators to promote these organizational commitment predictive factors, including work values and a professional practice environment in nursing practice. This helped foster a stronger organizational commitment among nurses to reduce nurse resource flow during COVID-19.

KEYWORDS
Chinese nurses, COVID-19, organizational commitment, professional practice environment, work values

BACKGROUND

The novel coronavirus (COVID-19) is, without a doubt, the most serious and widespread infectious disease global disaster in human history. Since the first case was reported at the end of 2019 in Wuhan, China, the virus spread around the world, bringing industrialized countries to a standstill. According to the World Health Organization, as of September 2021, 4,638,578 people died of the disease (World Health Organization, 2021).

Nurses have always played an important role in safeguarding public health, in particular for infection prevention and treatment (Różyk-Myrta et al., 2021). Unfortunately, due to inadequate preparations for the pandemic, combined with an ongoing lack of policies, there continues to

be a severe lack of personal protection equipment, resulting in health care workers having put themselves at risk of infection. This has led to a severe shortage of nurses (Turale et al., 2020).

There have been about 3000 coronavirus-related deaths of nurses in 60 countries (International Council of Nurses, 2021). The intense working environment aggravates the intention of nurses in various countries to leave, exacerbating the nursing shortage. Although there is no single global statistic to cite, the situation is dire. During the current pandemic, in the United States, the resignation rate of bedside nurses rose to 17.2%, in the United Kingdom about 36% of the nurses considered leaving the profession or workplace, and in Japan, 15.4% of the hospitals reported nurse departures during the pandemic (American Nurses' Association, 2021).

During this severe and dangerous COVID-19 crisis, there have been no reports of nurses resigning in China. This commendable and meritorious behavior of Chinese nurses is worth pondering and exploring. What are the factors that influenced their commitment to the organization and what evidence can be provided for the global response to public health emergencies?

The meaning of organizational commitment is the strength of nurses' willingness to maintain status according to their interests with the goals of their workplace (Liu et al., 2019). It is also associated with both positive and negative outcomes, such as job satisfaction (Chegini et al., 2019), caring behavior (Naghneh et al., 2017), and turnover (Labrague et al., 2018). Also, a higher individual work value was connected to work engagement (Saito et al., 2018). In addition, a significant predictor of organizational commitment was the participation of nurses in management and representative power, which included the concept of the work environment (Seren Intepeler et al., 2019). Under COVID-19 working conditions, nurses felt more stressed due to their overwhelming workload and a demanding working environment; so, both work value and work environment can also be considered vital factors of organizational commitment.

According to Hampton and Welsh (2019), the definition of work value is preferences about the desirability of work. It can be intrinsic and extrinsic. Intrinsic work values are more linked to intangible rewards, such as an interesting job and autonomy. However, extrinsic work values are more linked to tangible resources such as pay and security (Cemalcilar et al., 2018).

The spirit of collectivism shapes the work values of Chinese health care workers. It was, and is, crucial in the response to COVID-19 in China (XINHUANET, 2020). Work values and demographic characteristics help explain the employees' organizational commitment (Hegazy & AqylAlmaizar, 2017; Leszczynska, 2018). A previous study by Pi et al. (2016) found a strong significant relationship between an employee's work values and their organizational commitment (Pi et al., 2016).

The definition of a professional practice environment is the hospital characteristics of a work setting that facilitate or constrain professional nursing practice (Lake, 2002). During the pandemic, stress and anxiety have increased among nurses. In the United States, about 93% of health care workers experienced stress, and 76% reported fatigue and burnout. More than half of the nurses surveyed felt overwhelmed, and 60% reported difficulty sleeping (American Nurses' Association, 2021). Chinese nurses are also widely under pressure (Mo et al., 2020). About half of the nurses suffer from mid-to-high-intensity job burnout (Hu et al., 2020), while 47.1% of the nurses were depressed (Zheng et al., 2020). However, several studies reported that the work environment had a significant positive effect on organizational commitment (Akter et al., 2018; Asseeri & EI Seesy, 2019).

Globally, the nursing profession is held in high esteem. Nurses have a high and dynamic profile since they are the first responders to a patient in need and the last responders after the treatment of the same patient is completed. However, this esteem is not only based on perception. Attaining a nursing qualification is quite demanding. The academic and practical requirements are high, everywhere in the world. If one considers becoming a nurse, this usually requires passing the pre-qualification courses with very high marks. This makes sure the student nurses are of the highest caliber that can be offered.

Is the retention of nurses in China during the pandemic higher than that in the West because the academic and practical qualifications in China are so much more demanding, so that Chinese nurses will not readily give up their status, irrespective of having to face a demanding hospital management and one crisis after another? This question becomes relevant when in the West it is possible for a nurse working in a public hospital to join a private hospital that pays a higher salary. Does this possibility exist in China?

For nursing managers, the crisis includes not only the retention of the ideal workforce but also the motivational aspect of keeping nurses active and efficient. Thus, organizational commitment is essential to the effectiveness and stability of healthcare organizations. Exploring the organizational commitment of nurses is one of the best ways to help nursing managers solve such challenges. However, it does not clarify which predictor is better, with no prior research stating that the predictors mentioned truly predict organizational commitment.

Conceptual framework

The conceptual framework of this study is based on the literature review. As mentioned above, the definition of organizational commitment is the strength of the nurses to willingly maintain their status according to their interests with the goals of their workplace. Two factors related to organizational commitment include personal characteristics and organizational environment (Pi et al., 2016; Seren Intepeler et al., 2019). Organizational commitment can be speculated not only from the expressions of the nurse's beliefs and values toward their work but also from their actions—that simply assert the factors of the professional practice environment.

METHODS

Design

Organizational commitment as perceived by nurses was explored by a descriptive predictive study. Also, the predictability of organizational commitment that can be explained by the work values and professional practice environment among Chinese nurses in two tertiary hospitals in Yunnan province was examined.

Participants and data collection

The G*Power 3.1.9.4 program was used to calculate a sample size, based on a multiple linear regression analysis with a significance level of 0.05, power of 80%, and a small effect

size of 0.03 (Labrague & De Los Santos, 2020). Three hundred twenty-five nurses were the required minimum sample size, but 40 additional participants were added to account for a 12% sampling error, so that the final number of samples was 362. The stratified random sampling method was used in this study to select participants. The sample size of each hospital was determined based on the proportion of the population. Hence, 240 and 122 nurses were selected from two hospitals. To be eligible, the participants were required to be registered nurses from the specified hospitals, provide direct nursing care to patients, and have work experience of at least one year. A total of 362 questionnaires were handed out, and though all were returned, 32 were incomplete. Therefore, there were a total of 330 valid questionnaires, 91% of the distributed questionnaires.

Instrument

The instrument was composed of four parts: a demographic data form, the Organizational Commitment Questionnaire (OCQ), the Work Values Scale, and the Practice Environment Scale of the Nursing Work Index (PES-NWI).

Demographic Data Form

The Demographic Data Form consisted of age, gender, marital status, education level, employment status, job position, number of years of work in the current hospital, monthly income, and working department.

OCQ

The modified and translated OCQ developed by Lyman W. Porter in 1974 (Chen et al., 2015) consists of three dimensions with 12 items. Each item requires a response on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). A higher score means a higher level of organizational commitment. The validity of the OCQ was as follows: average variance extracted from 0.72 to 0.73; composite reliability from 0.80 to 0.86; factor loading from 0.72 to 0.91 ($P < 16$, 0.01) (acceptability of fit: $v2 /df$ = 3.01, GFI = 0.92, AGFI = 0.87, NFI = 0.93, RMSR = 0.05; Chen et al., 2015). In this study, the internal consistency reliability for the OCQ was 0.92.

Work values scale

The work values scale comprises two dimensions: intrinsic work values and extrinsic work values. Respondents had to mark their level of agreement with each item on a five-point Likert-type scale that ranged from 1 "strongly disagree" to 5 "strongly agree." High scores indicate more positive work values. The validity of the scale was reported as follows: variance explained in parentheses from 0.15 to 0.30; items-to-scale correlation from 0.59 to 0.73; factor loading from 0.50 to 0.72 (P

< 0.01) and composite reliability from 0.69 to 0.68, and the Cronbach's alpha coefficient of intrinsic work value was 0.87 (Liang, 2012). In this study, the internal consistency reliability for the work values scale was 0.93.

PES-NWI

In 2002, based on the professional practice environment model by Lake (2002), the Nursing Work Index was further modified into the PES-NWI. There are 31 items to explain the five dimensions. The factor loading was 0.40 or higher, and the internal consistency reliability was satisfactory, ranging from 0.71 to 0.83. The overall Cronbach's alpha was 0.82. The scale was translated into Chinese (You et al., 2013). For the total scale (Cronbach's alpha = 0.97) and the subscales (Cronbach's alpha = 0.84–0.95), the reliability was acceptable. In this study, the internal consistency reliability for the PES-NWI was 0.97.

ETHICAL CONSIDERATIONS

Approval for this study was given by the Research Ethical Committee of the Faculty of Nursing, Chiang Mai University (No. 022/2020), and the respective nursing departments of the two hospitals for research approval. A cover letter was sent to study participants about the objectives and methods of this study, as well as their rights to refuse or withdraw from this study at any time without being penalized or losing benefits. Study participants had two weeks to complete the questionnaire.

DATA ANALYSIS

The demographic data of participants were analyzed using the frequency percentage. According to the results of the Kolmogorov–Smirnov test ($P \leq 0.05$), the data were not normally distributed. Factors predicting organizational commitment were tested using binomial logistic regression analysis. The Variance Inflation Factor value of the work values and professional practice environment in this study was 2.59, indicating that there was no autocorrelation. Before the binomial logistic regression, the dependent variable (organizational commitment) was transformed into a dichotomous variable, with a median (53) total score of organizational commitment as the separation point, defined as 0 (average score $\leqq$ 53) and 1 (average score > 53).

RESULTS

Demographic characteristics

A total of 330 participants responded, ranging in age from 20 to 58 years with a mean age of 30.10 years (SD = 7.11). Almost two-thirds of the participants were married (n = 217, 65.76%). More than half (n = 183, 55.45%) of the participants' monthly income was more than ¥RMB5000 (≈$706.56 USD).

TABLE 1 Means, standard deviations of study variables ($n = 330$)

Variables	M	SD
Organizational commitment	4.34	0.60
Work value	3.79	0.78
Intrinsic value	4.07	0.77
Extrinsic value	3.51	0.91
Professional practice environment	3.33	0.47
Nurse participation in hospital affairs	3.28	0.53
Nursing foundations for quality of care	2.74	0.37
Nurse manager ability, leadership, and support of nurses	3.33	0.54
Staffing and resource adequacy	3.23	0.57
Collegial nurse–physician relations	3.42	0.48

Generally, organizational commitment was perceived by respondents at a high level ($\bar{x} = 4.34$, SD = 0.60). Participants' perceived intrinsic work values ($\bar{x} = 4.07$, SD = 0.77) were better than extrinsic values ($\bar{x} = 3.51$, SD = 0.91). The performance of the collegial nurse–physician relationships was the highest based on the perception of the nurses' working environment in the context of COVID-19, but nursing foundations for quality of care and resource issues were the lowest (Table 1).

Work values and professional practice environment significantly predicted organizational commitment. Overall, the predictors could explain 58.70% of the variability in organizational commitment among the participants. All factors were positively related to organizational commitment. The participants had an increasing 1.0 score of work values with a 0.17 increased likelihood of higher organizational commitment. Furthermore, the participants had an increasing 1.0 score of a professional practice environment; and a 0.09 increased likelihood of higher organizational commitment. In this prediction model, the predictive ability of work values ($\text{Exp}(B) = 1.19$, $P < 0.01$) was higher than that of the professional practice environment ($\text{Exp}(B) = 1.09$, $P < 0.01$) (Table 2).

DISCUSSION

In this study, the organizational commitment of nurses ($\bar{x} = 4.34$, SD = 0.60) was at a high level. As the COVID-19 crisis continues, the mental and physical health of nurses is affected. However, the connection of nurses' involvement with their workplace is high. Hospitals during an intense period need not only to continue to function but also have an improved performance. Highly committed nurses are essential since they are the largest group in the delivery of health services. Job satisfaction and organizational commitment are important factors in mediating the association of the nurses' workload, quality of supervisor, extra-role behaviors, and pay satisfaction with the intention to care for patients with COVID-19 (Sharif Nia et al., 2021).

Nurses felt a stronger sense of collective social responsibility and security brought on by stable work, which prompted them to have a good organizational commitment (Kupferschmidt & Cohen, 2020). Furthermore, marital status may have had a vital impact on a high organizational commitment since most of the study participants were married (65.76%). They had the ability to adjust to the relationship between work and family during the pandemic. Work-to-family enrichment is associated with higher job satisfaction, higher marital happiness, higher job engagement, and lower resignation intention (Zhang et al., 2021).

Work values and professional practice environment could predict organizational commitment, which is similar to some earlier studies (Ingarianti, 2017; Pi et al., 2016). The predictive ability of work values ($\text{Exp}(B) = 1.19$, $P < 0.01$) was higher than that of the professional practice environment ($\text{Exp}(B) = 1.09$, $P < 0.01$) (Table 2). This is similar to findings from a past study (Pi et al., 2016), which indicated that nurses' work achievements and challenges led to a more self-satisfied person. In other words, nurses feel valued for their expertise, leading to a stronger organizational commitment. The increased awareness and recognition of the heroic role of nurses during COVID-19 are the cause of a high organizational commitment (Różyk-Myrta et al., 2021).

Committing to hospitals tends to be more determined in nurses' jobs. A work value is related to the preferences toward a job. Work preferences may vary according to individuals. It can be identified by intrinsic and extrinsic work values. Participants' perceived intrinsic work values ($\bar{x} = 4.07$, SD = 0.77) were better than extrinsic values ($\bar{x} = 3.51$, SD = 0.91) in this study. When nurses are intrinsically motivated, they engage in working. During the pandemic, nursing jobs are challenging, that is, it is more difficult, and they have to deal with stressful situations in daily work as well as gain external rewards from doing their jobs such as increased pay or more bonuses.

One aspect that also needs to be considered is the rigorous training nurses undergo to qualify in their profession. This requires a high level of self-discipline which nurses take with them into their workplace.

According to the findings of this study, most participants were content with the professional practice environment in their current hospital. Generally, satisfied nurses tend to be more loyal to their hospital. This is consistent with past findings (Akter et al., 2018; Jernigan et al., 2016). It is common in China to award and honor health workers involved in the frontline of epidemic prevention and control. During COVID-19, nurses were faced with a shortage of personal protective equipment, a sharp increase in workload and inadequate support policies, which caused nurses to be physically and mentally exhausted. However, having a stable working income and more social attention made nurses satisfied with their working environment (Howard, 2020).

A professional practice environment, as characterized by nurse participation in hospital affairs, nursing foundations for quality of care, the ability of nurse managers, leadership and support of nurses, staffing, adequate resources, and collegial nurse– physician relations, was a predictor of organizational commitment. The connection between the

TABLE 2 Binomial logistic regression analysis of the factors predicting organizational commitment as perceived by the respondents ($n = 330$)

Variable	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)
Work values	0.17	0.03	25.13	1	0.00	1.19	1.11–1.27
Professional practice environment	0.09	0.02	27.80	1	0.00	1.09	1.06–1.13
Constant	−15.56	1.71	82.61	1	0.00	0.00	

Note. a. Variable(s) entered in step 1: work values, professional practice environment.
b. Estimation terminated at iteration number 5. −2 Log likelihood = 265.790[a]. Nagelkerke R2 = 0.587. c2 = 191.38. $P < 0.01$.

professional practice environment of nurses and organizational commitment is important for hospitals. At the time of the coronavirus outbreak, a favorable professional practice environment helped nurses survive and improve their work performance.

Nurses, generally, want appreciation and recognition from their workplaces so that they will be motivated and work more effectively. They feel their jobs are meaningful. Being engaged in their work was an intrinsic motivation that had a significant positive effect on their commitment (Potipiroon & Ford, 2017). Furthermore, a favorable work environment allowed nurses to work with their full capacity to gain achievement so that they became loyal and stayed in their workplace.

LIMITATIONS

Limitations of this study may include the response bias of the survey questionnaire. Self-reports may be seen as subjective, that is, participants rate items in a manner that are viewed favorably by others rather than their true answer (Salters-Pedneault, 2020). However, anonymity and confidentiality were assured to reduce such bias.

CONCLUSION

While dealing with the COVID-19 pandemic, the health care system saw a severe shortage of nurse resources, especially high-quality nurse resources in the world. Thus, it becomes important for nursing managers to retain their nurses and motivate them to work actively. The results of this study show that the work values of nurses and the professional practice environment can be used to predict their organizational commitment. In other words, when nurses' work values fit the organizational environment, and nurses recognize the values and goals of an organization, they will be more willing to stay in the organization, maintain a good relationship with the organization, and make efforts to achieve organizational goals. The research results show that the nurses' intrinsic work values have a greater impact on their organizational commitment than extrinsic work values.

Implications for nursing and health policy

As COVID-19 is still a worldwide phenomenon and will remain for a long time, nursing managers must be aware of their real work environment and identify the potential risks that nurses are facing in advance. It becomes necessary to strengthen nursing policies for improving work values as well as the professional practice environment for nurses. Nursing professional organizations can play a vital role in addressing issues related to particular work values and the professional practice environment at tertiary health care facilities. This will contribute toward maintaining the organizational commitment of nurses since they are the largest constituents. Nurse managers can promote the conditions of work attuned to the preferences of nurses with an attractive and supportive work environment. So that nurses can make better use of their knowledge and competencies and provide quality health service.

AUTHOR CONTRIBUTIONS
Study design: LS; data analysis: LS, OW; data collection: LS; study supervision: OW, KA; manuscript writing: LS, OW.

ETHICAL APPROVAL
Ethical approval was obtained from the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University (No.022/2020) and the hospitals involved in this research.

ORCID
Orn-Anong Wichaikhum PhD, RN https://orcid.org/0000-0002-3093-0132

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