


Relationship between emotional intelligence and job well-being in Chinese Registered Nurses: Mediating effect of communication satisfaction

Xue Li¹  | Xiaoxia Fang² | Lina Wang¹ | Xiaosong Geng¹ | Hongjuan Chang¹

¹College of Nursing, Xinxiang Medical University, Xinxiang City, China

²Department of Nursing, Xinxiang Central Hospital, Xinxiang City, China

Correspondence

Hongjuan Chang, College of Nursing, Xinxiang Medical University, No.601 Jinsui Avenue, Hongqi District, 453003 Xinxiang City, Henan Province, China.
Email: changhj0812@126.com

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Abstract

Aim: To explore the relationship between emotional intelligence and job well-being among Chinese Registered Nurses, and the mediating role of communication satisfaction in the relationship.

Design: A descriptive cross-sectional study design was employed.

Methods: Random sampling was adopted. The study was conducted from September to December 2019, and 1,475 Registered Nurses from a Chinese hospital provided responses to Wong and Law's emotional intelligence scale, communication satisfaction scale, job well-being scale and general information questionnaire. SPSS25.0 software was used to calculate means, standard deviations and correlations, and AMOS 21.0 software was used to establish the structural equation model.

Results: The emotional intelligence, communication satisfaction and job well-being of Registered Nurses in China were related to positional rank, work department, monthly income, years of service, night shift work distribution and intensity of work. There were positive correlations among emotional intelligence, communication satisfaction and job well-being. Communication satisfaction partly mediated the relationship between emotional intelligence and job well-being. Improving the level of emotional intelligence and communication satisfaction should be an important strategy to improve nurses' job well-being. Therefore, nursing managers could carry out targeted training on emotional intelligence management and communication between nurses and patients and pay attention to the spiritual needs of nurses and provide psychological guidance on a regular basis.

KEYWORDS

China, communication satisfaction, emotional intelligence, job well-being, mediation, nurses

1 | INTRODUCTION

Nurses' fatigue has become a global concern. In Europe, 43% of nurses consider leaving within 3 years, and 14% of nurses often consider leaving in the course of their daily work (Zhan et al., 2019).

In China, nurses' fatigue is very common; the average annual turnover rate of nurses is 28% (Zhu et al., 2015). One study shows that nurse resignation is related to pessimism, low job satisfaction and job burnout (Chen & Li, 2017). The loss of nursing talents has seriously hindered the development of the medical and health industry.

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Therefore, improving nurses' positive emotions, reducing job burn-out and reducing nurse turnover have become the main concern of nursing managers. With the rise of the positive psychology, researchers have been gradually turning to a method of enhancing positive professional emotional experience, measured through job well-being.

The subjective job well-being in the field of nursing work, which can expand the physiological, intellectual and social resources of nurses, helps to improve organizational behaviour, improve work performance and reduce absenteeism and turnover. The concept of job well-being was proposed by Diener in 1993. It can be used to understand nurses' positive emotional and cognitive evaluation of work (Ge et al., 2012). Job well-being consists of five dimensions: welfare treatment, interpersonal, work value, managers and working characteristics (Erdem et al., 2017). It usually refers to one's short-term or long-term evaluation of their own life, including positive emotions, negative emotions and life satisfaction (Diener, 2000). Job well-being is closely related to psychological well-being. Ryff et al. proposed in 1995 that well-being is vital "in order to realize the potential of the individual and the pursuit of self-improvement" (Ryff, 1995).

Studies have shown that job well-being helps to regulate nurses' negative emotions, improve job satisfaction and reduce job burn-out and turnover. Further, it improves the efficiency and quality of nurses' work (Wang & Li, 2019). At present, nurses' job well-being in China is at a medium level, and there is still much room for improvement. Therefore, it is very important for nursing managers to improve the happiness of nurses.

A study in China showed that emotional intelligence was positively correlated with job well-being, with the two concepts often working in coordination and thus becoming important factors related to the ability to work in the medical industry. (Zhang et al., 2014). Social intelligence is a person's social ability or ability to get along with others successfully, and the ability to perceive others' beliefs, thoughts, feelings and behaviours (Fatos & Tayfun, 2013). Different from social intelligence, emotional intelligence refers to a variety of non-cognitive skills, competencies and abilities that influence a person's capacity to succeed in the face of daily demands and pressures. It is the ability to process, understand and feel the emotions of oneself and others, and to react and act accordingly (Pérez-Fuentes et al., 2018). Although these concepts are considered discrete, it is generally believed that emotional intelligence is related to social intelligence (Carragher & Gormley, 2017). The nursing industry is one that involves significant emotional labour; thus, research on emotional intelligence in the nursing field has become critical. Nursing staff are facing greater pressure and challenges while providing quality nursing services to patients. This requires that clinical nurses have solid theoretical knowledge, strong professional skills, and the ability to recognize and self-regulate emotions. According to one study, the current level of nurses' emotional intelligence is at a medium level, and the level of nurses' emotional intelligence plays an important role in improving work motivation (Guseh et al., 2015).

Good communication skills are key to building a harmonious nurse–patient relationship and catalyst emotional engagement between them. A study shows that improving nurses' communication satisfaction can enable nurses to establish good interpersonal relationships in nursing work, improve job satisfaction and increase work value. Furthermore, interpersonal relationships and job value are part of job well-being (Luo & Liu, 2014). Communication satisfaction refers to a psychological feeling of whether an individual is satisfied with all aspects of communication within the organization (Wang et al., 2015). It has three dimensions: overall satisfaction with the conversation, individual response to conversation and free interaction. As a way of conveying emotions and information, communication can aid in understanding nurse's thought dynamics and reduce their negative emotions.

To the best of the researcher's knowledge, research on the emotional intelligence and communication satisfaction of Registered Nurses is limited. Emotional intelligence is a series of emotional reactions of individuals in the face of environment and pressure and is related to psychological adaptability and coping styles (Liu et al., 2019). Job well-being is the experience of getting value from work, having more positive emotions than negative emotions, and is a positive and lasting feeling (Ozkara, 2015). Therefore, we assume that emotional intelligence, as a psychological variable, will affect nurses' job well-being. However, whether communication satisfaction plays a role as a mediating factor in the relationship between emotional intelligence and job well-being remains unclear.

Therefore, there are three main questions in this research paper: First, what is the status of communication satisfaction, emotional intelligence, and job well-being of registered nurses in China? Second, what is the correlation between these three variables? Third, whether the mediating role of communication satisfaction between emotional intelligence and job well-being is established. The purpose of this study is to improve job well-being and add to the available knowledge in intervention research on clinical nurses' job well-being.

2 | THE STUDY

2.1 | Design

A descriptive cross-sectional study design was employed in this study. The predictive variables tested were emotional intelligence and communication satisfaction. The outcome variable was nurses' job well-being.

2.2 | Participants

The study was conducted between September and December 2019. Since the hospital in question is composed of many different departments and each department is considered to have equal representativeness, this study uses the relevant department as the unit of study

to use cluster sampling and conduct a sampling survey. All Registered Nurses were recruited from one general hospital in Henan, China. Questionnaires were randomly distributed by the department. Of the 1,500 questionnaires sent out, 1,475 were found valid, and the effective response rate was 98.33%. The inclusion criteria were as follows: (a) clinical on-the-job nurses who have obtained and the Registered Nurse qualification certificate, and (b) participated voluntarily and answered truthfully and reliably. On the contrary, the exclusion criteria were (a) trainee nurses and out-of-hospital trainers, (b) those on sick leave, maternity leave, personal leave and retired nurses and (c) nurses who refused to participate in the survey. Of all participants, 38 were males and 1,437 were females. The participants included 209 nurses, 820 nurse practitioners, 422 nurse managers and 24 associate professors of nursing. Overall, 420 belonged to the medicine department, 374 to surgical, 107 to obstetrics and gynaecology, 76 to paediatrics, 187 to intensive care units (ICUs) and 107 to operation rooms.

2.3 | Data collection

The questionnaire was designed before data collection, and the researcher learned the necessary communication skills and precautions, prepared for the communication with nurses before filling out the scale and drafted informed consent forms based on the research. In this study, all nurses in the hospital who meet the inclusion criteria were selected as the research participants, and the relevant management department of the hospital gave approval before the start of the study. The researcher distributed the questionnaire to the various departments of the hospital. Before the questionnaire was distributed, the researcher first fully communicated with the nurse, respected the nurse's right to know, informed the nurse of the corresponding precautions, obtained the nurses' cooperation and asked the nurse to sign the informed consent form. The researcher then explained the content of the questionnaire to the participants and oversaw the completion; the participants filled the questionnaires by themselves to ensure the authenticity of their responses. After completion, the questionnaires were collected on the spot. As a gesture for their support for and encouragement of scientific research, the hospital gave the participating nurses extra points, and the research team also gave each participant 20 yuan as reward.

The general information questionnaire, emotional intelligence scale, communication satisfaction scale and job well-being scale were used in this survey. All scales have been authorized and are Chinese scales that have been well-translated and have good reliability and validity.

2.3.1 | Demographic characteristics

Information on gender, age, positional rank, working department, marital status, number of children, education situation, monthly

salary income, years of service, number of night shifts and intensity of work were collected from participating nurses.

2.3.2 | Emotional intelligence

Based on the theory of Salovey and Mayer, Hong Kong scholar Wong and others have compiled Wong and Law's emotional intelligence scale, which has been proven to have good reliability and validity among Chinese nurses (Dougherty & Larson, 2010). The scale consists of 16 items and the following four dimensions—"self-emotional perception," "emotion regulation," "emotional use" and "recognize others' emotions," each dimension includes 4 items. All items were rated on a Likert scale, from "1" (strongly disagree) to "7" (strongly agree). Higher scores on the scale indicate higher levels of emotional intelligence. In this study, Cronbach's α score of the total scale was 0.926.

2.3.3 | Communication satisfaction

The communication satisfaction scale developed by Hecht is used to describe the situations and behaviours during interpersonal communication and measure the degree of communication satisfaction of the participants. The scale has good reliability and validity (Hecht, 1978). The scale consists of 20 items and three dimensions—"overall satisfaction with the conversation," "individual response to conversation" and "free interaction." All items were rated on a Likert scale, from "1" (very inconsistent) to "5" (very consistent). Higher scores indicate higher personal satisfaction with communicating with others. In this study, Cronbach's α score of the total scale was 0.887.

2.3.4 | Job well-being

The job well-being scale of nurses compiled by Chen and Liu, et al. also has good reliability and validity (Erdem et al., 2017). The scale consists of 19 items and five dimensions: "welfare treatment," "interpersonal," "work value," "managers" and "working characteristics." All items were rated on a Likert scale, from "1" (strongly disagree) to "6" (strongly agree). The total scores range from 19–114, and the higher the score of this scale, the higher the job well-being of nurses. In this study, Cronbach's α score of the total scale was 0.929.

2.4 | Ethical considerations

This study has been approved by the Ethics Committee of Xinxiang Medical University (China). Ethics review number: XYLL-2018096. Written informed consent was obtained prior to the investigation. The trained investigators informed the participating nurses of the purpose of this survey and the principles of voluntary withdrawal at any time. All the participating nurses gave signed obtained their informed consent before the investigation.

2.5 | Statistical analysis

The data were first collected and then screened. No data were lost, and there were no outliers; all variables were close to normal distribution. In addition, the variables in the measured structural model all reached the significant level. Specific information of parameter significance, reliability and convergence validity are shown in Table 1.

SPSS 25.0 was used for data analysis. Descriptive statistics were generated on three variables emotional intelligence, communication, satisfaction and job well-being. Categorical variables are expressed as percentages. The difference between the scores of the two groups was compared with an independent sample *t* test, and the comparison between the groups of three or more groups was done by one-way ANOVA. Pearson's correlation analysis was used to examine the correlation between the three. Due to the large sample size in this study, AMOS21.0 software was used to establish a structural equation model and analyse the mediating effect of communication satisfaction between emotional intelligence and job well-being.

3 | RESULTS

3.1 | Participant details

Demographic characteristics of Registered Nurses, communication satisfaction, emotional intelligence and job well-being scores are presented in Table 2. Women made up 97.4% of the nurses in the study;

83% of them were younger than 40 years of age; 28.5% of them worked in medicine departments; four-fifths were married; and two-thirds of them had a monthly income above RMB 4,000 (USD\$ 620). It was found that nurses with higher work intensity had lower emotional intelligence, communication satisfaction and job well-being (Table 2).

3.2 | Correlation analysis of nurses' emotional intelligence, communication satisfaction and job well-being

The study showed that nurses' emotional intelligence and communication satisfaction scores were significantly associated with job well-being (Table 3). There was a significant positive correlation between emotional intelligence and job well-being ($r = 0.570, p < .001$), a significant positive correlation between emotional intelligence and communication satisfaction ($r = 0.568, p < .001$) and a positive correlation between communication satisfaction and job well-being ($r = 0.564, p < .001$).

3.3 | The mediating effect of communication satisfaction on nurses' emotional intelligence and job well-being

Taking emotional intelligence as the predictive variable, communication satisfaction as the mediating variable and job well-being as the

TABLE 1 Parameter significance, reliability and convergence effectiveness of three variables ($N = 1,475$)

Variable	Indicator	Parameter significance assessment				Factor loading	SMC	CR	AVE
		Unstd.	S.E.	t-value	<i>p</i>				
Emotional intelligence	Self-emotional perception	1				0.616	0.379	0.815	0.526
	Emotion regulation	1.705	0.079	21.606	<.001	0.762	0.581		
	Emotional use	1.608	0.073	22.065	<.001	0.801	0.642		
	Recognize other's emotions	1.421	0.069	20.723	<.001	0.709	0.503		
Communication satisfaction	Overall satisfaction with the conversation	1				0.843	0.711	0.799	0.581
	Individual response to conversation	0.619	0.033	18.866	<.001	0.515	0.265		
	Free interaction	1.305	0.056	23.455	<.001	0.876	0.767		
Job well-being	Welfare treatment	1				0.690	0.476	0.883	0.603
	Interpersonal	0.804	0.030	26.604	<.001	0.772	0.596		
	Work value	0.862	0.030	28.79	<.001	0.850	0.723		
	Managers	1.058	0.040	26.158	<.001	0.757	0.573		
	Working characteristics	1.006	0.036	27.58	<.001	0.805	0.648		

Note: Unstd means unstandardized regression. S.E. represents the standard error of the estimated parameter coefficient. SMC stands for squared multiple correlations. CR signifies composite reliability. AVE denotes average variance extracted.

TABLE 2 Demographic characteristics of the study participants (N = 1,475)

Variable	N (%)	Communication satisfaction score	Emotional intelligence score	Job well-being
		Mean (SD)	Mean (SD)	Mean (SD)
Gender		$t = -3.49^{***}$	$t = 0.26$	$t = -2.68^{**}$
Male	38 (2.6)	63.71 (7.85)	78.55 (13.02)	78.21 (13.77)
Female	1,437 (97.4)	68.45 (8.27)	77.99 (13.03)	83.76 (12.57)
Positional rank		$F = 4.06^{**}$	$F = 7.89^{***}$	$F = 9.96^{***}$
Nurse	209 (14.2)	69.39 (8.59)	80.70 (12.57)	86.74 (13.30)
Nurse practitioner	820 (55.6)	67.71 (8.09)	76.87 (12.71)	82.42 (12.47)
Nurse-in-charge	422 (28.6)	68.86 (8.44)	78.46 (13.58)	83.94 (12.24)
Associate Professor of Nursing	24 (1.6)	70.92 (8.32)	85.38 (12.19)	91.33 (11.87)
Working department		$F = 8.90^{***}$	$F = 5.98^{***}$	$F = 11.44^{***}$
Medicine	420 (28.5)	69.16 (8.54)	77.97 (13.20)	84.54 (12.14)
Surgery	374 (25.4)	69.46 (8.23)	79.90 (13.04)	85.84 (11.75)
Obstetrics and gynaecology	107 (7.3)	68.03 (8.48)	76.20 (13.00)	82.17 (12.91)
Paediatrics	76 (5.2)	68.92 (9.32)	78.75 (13.70)	83.17 (14.73)
ICU	187 (12.7)	65.32 (7.42)	75.26 (12.68)	78.71 (13.35)
Operation room	107 (7.3)	65.27 (6.64)	73.71 (11.63)	78.60 (10.63)
Others	204 (13.8)	68.84 (8.36)	80.05 (12.49)	85.66 (12.62)
Monthly income, RMB (USD\$)		$F = 4.45^{**}$	$F = 8.37^{***}$	$F = 11.17^{***}$
<2,000 (<310)	84 (5.7)	71.15 (8.64)	85.33 (11.81)	91.58 (11.55)
2,000 ~ 4,000 (310 ~ 620)	227 (15.4)	68.25 (8.25)	77.49 (12.76)	83.06 (13.17)
4,000 ~ 6,000 (620 ~ 930)	770 (52.2)	68.08 (8.20)	77.32 (13.23)	83.04 (12.64)
6,000 ~ 8,000 (930 ~ 1,240)	331 (22.4)	67.77 (8.02)	77.51 (12.41)	82.57 (11.78)
>8,000 (>1,140)	63 (4.3)	70.81 (9.53)	81.00 (13.23)	87.43 (12.31)
Years of service		$F = 3.22^{\dagger}$	$F = 6.05^{***}$	$F = 7.33^{***}$
≤5	380 (25.8)	68.47 (8.37)	78.98 (12.87)	84.94 (12.15)
6 ~ 10	593 (40.2)	67.59 (8.12)	76.60 (12.56)	81.81 (12.96)
11 ~ 15	240 (16.3)	68.80 (8.62)	77.38 (13.61)	84.05 (12.60)
≥16	262 (17.8)	69.36 (8.15)	80.34 (13.39)	85.38 (12.12)
Night shift work distribution		$F = 4.59^{**}$	$F = 3.08^{\dagger}$	$F = 10.08^{***}$
0	424 (28.7)	69.41 (8.57)	79.12 (13.03)	85.82 (12.25)
1 ~ 4 days/month	313 (21.2)	68.77 (8.24)	79.14 (13.05)	85.27 (11.71)
5 ~ 8 days/month	537 (36.4)	67.75 (8.09)	77.19 (12.64)	81.96 (13.08)
9 ~ 12 days/month	162 (11.0)	67.24 (8.01)	76.30 (14.05)	81.35 (11.80)
>12 days/month	39 (2.6)	65.46 (8.01)	75.13 (12.36)	78.41 (14.98)
Intensity of work		$F = 12.13^{***}$	$F = 7.37^{***}$	$F = 60.68^{***}$
Very big	351 (23.8)	67.04 (8.10)	68.33 (8.29)	77.77 (12.87)
Slightly bigger	682 (46.2)	67.91 (8.19)	77.31 (12.71)	83.07 (11.69)
General	439 (29.8)	69.91 (8.28)	76.95 (13.21)	89.00 (11.48)
Slightly smaller	3 (0.2)	83.00 (12.12)	80.09 (12.71)	101.67 (14.98)

* $p < .05$.** $p < .01$.*** $p < .001$.

outcome variable, AMOS 21.0 was used to establish the structural equation model and to analyse the direct and indirect effects of the aforementioned variables. All the observation data were consistent with the structural mode I; the model is shown in Figure 1. The

path coefficients shown in Figure 1 were the standardized coefficient. Direct path analysis showed that the emotional intelligence of nurses had a significant positive predictive effect on job well-being ($\beta = 0.45$, $p < .001$). The indirect path showed that emotional

TABLE 3 Means, standard deviations and correlations between the model variables (N = 1,475)

Variable	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Self-emotional perception	21.45 (3.34)	1											
2. Emotion regulation	18.58 (4.61)	0.493***	1										
3. Emotional use	19.52 (4.13)	0.460***	0.618***	1									
4. Recognize others' emotions	18.45 (4.12)	0.459***	0.512***	0.582***	1								
5. Emotional intelligence	78.01 (13.03)	0.722***	0.838***	0.838***	0.800***	1							
6. Communication satisfaction	68.33 (8.29)	0.390***	0.416***	0.530***	0.482***	0.568***	1						
7. Welfare	15.10 (3.87)	0.260***	0.344***	0.354***	0.266***	0.384***	0.357***	1					
8. Interpersonal	19.41 (2.78)	0.379***	0.391***	0.431***	0.312***	0.471***	0.481***	0.485***	1				
9. Work value	22.63 (3.38)	0.431***	0.497***	0.574***	0.467***	0.616***	0.606***	0.555***	0.683***	1			
10. Managers	13.77 (2.80)	0.302***	0.346***	0.340***	0.268***	0.392***	0.392***	0.591***	0.634***	0.598***	1		
11. Working characteristics	12.71 (2.50)	0.326***	0.430***	0.437***	0.363***	0.489***	0.507***	0.584***	0.573***	0.714***	0.588***	1	
12. Job well-being	83.61 (12.63)	0.410***	0.486***	0.519***	0.407***	0.570***	0.564***	0.808***	0.805***	0.862***	0.819***	0.824***	1

*** $p < .001$.

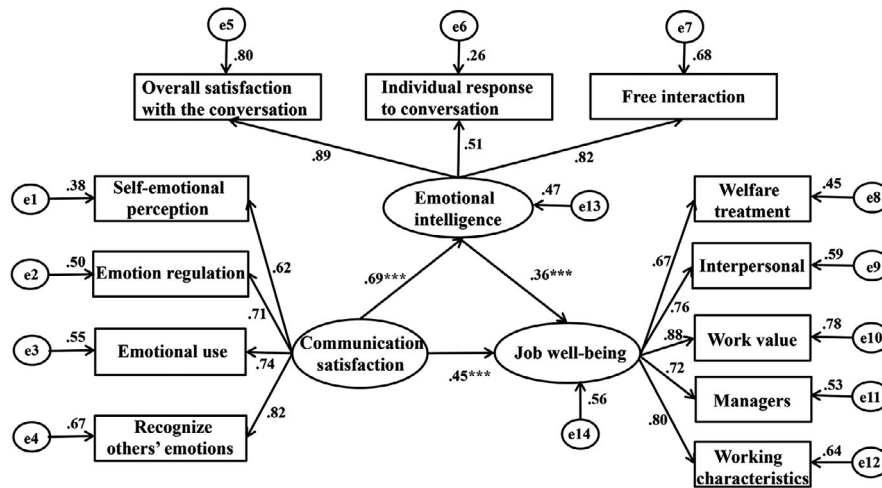


FIGURE 1 Hypothesized model of emotional intelligence, communication satisfaction and job well-being. Note: e: residual error. For root mean square error of approximation (RMSEA) with an acceptance level of <0.08, comparative fit index (CFI) with an acceptance level of >0.90, goodness of fit index (GFI) with an acceptance level of >0.90 and normal fit index (NFI) with an acceptance level of >0.90. In this study, for RMSEA = 0.078, CFI = 0.950, NFI = 0.944, GFI = 0.941. Since the sample size is larger than 500, it is not considered chi-square value (χ^2) and χ^2/df ratio. * $p < .05$, ** $p < .01$, *** $p < .001$

TABLE 4 The mediating effect of communication satisfaction between emotional intelligence and job well-being

Emotional intelligence → Job well-being	Point estimate	Product of coefficients		Bootstrapping Percentile95%CI		Bias-corrected95%CI		Two-tailed significance
		SE	Z	Lower	Upper	Lower	Upper	
Standardized direct effects	0.454	0.037	12.27	0.381	0.526	0.382	0.527	<0.001
Standardized indirect effects	0.249	0.025	9.96	0.199	0.298	0.200	0.299	<0.001
Standardized total effects	0.703	0.020	35.15	0.661	0.741	0.661	0.741	<0.001

Note: Standardized estimating of 5,000 bootstrap sample.

intelligence, by the function of the mediating variable “communication satisfaction” ($\beta = 0.69, p < .001$), positively affected perceived job well-being ($\beta = 0.36, p < .001$). The bootstrap confidence interval estimation method is used for interval estimation in Table 4. The number of bootstrap samples selected was 5,000, and none of the 95% confidence intervals of bootstrap included 0 and $Z > 1.96$. The results indicated that nurses' communication satisfaction played a partial mediating role in the relationship between emotional intelligence and job well-being. The direct effect of emotional intelligence on work well-being is 0.454, the indirect effect is 0.249, and the total effect is 0.703; the contribution rate of the mediating effect to the total effect is 35.42%.

4 | DISCUSSION

With the development of positive psychology, researchers have shifted their perspective to job well-being. The improvement of nurses' job well-being is key to improving their work enthusiasm and reducing job burnout and turnover intention (Krystyna et al., 2020).

The main purpose of this study was to explore the mediating role of communication satisfaction between emotional intelligence and job well-being. In addition, the impact of different demographic characteristics on job well-being of Registered Nurses in China was explored.

Consistent with previous research results (Li et al., 2017), our results showed that female nurses had higher communication satisfaction and job well-being scores than male nurses. Perhaps because women are inherently more sensitive and delicate than men, most women can always judge the patient's negative emotions based on the patient's subtle actions and promptly enlighten. Male nurses accounted for only 2.6%, perhaps influenced by Chinese traditional culture, men are given a higher sense of social responsibility than women. The general public are prejudiced against male nurses. It is generally believed that men are not as careful and gentle as women and that nursing is women's work. Due to this, many male nurses' enthusiasm for work gradually decreased, and their happiness index decreased. They may even lose confidence and consider leaving the nursing industry, which would seriously affect motivation to communicate (Lirong, 2014).

The study also found that nurses younger than 30 years old and those with junior and middle professional titles had lower scores on communication satisfaction, emotional intelligence and job well-being. These results were different from previous studies (Zhao et al., 2012). This may be related to the short time of entry and lack of work experience of nurses. In addition, operating room nurses had lower communication satisfaction, emotional intelligence, and job well-being scores than other department nurses, which is consistent with previous research reports (Basu et al., 2020). A possible explanation is that the nurses in the operating room are under greater physical and mental stress. Therefore, working in a state of nervousness and anxiety for a long period of time may lead to lack of energy and affect their experience of well-being.

The study also found that nurses with the lowest communication satisfaction, emotional intelligence and job well-being scores have been in the profession ranging from 6–10 years. The possible explanation is that nurses who have worked for <5 years are still enthusiastic and highly motivated. However, with an increase in nurses' work experience from 6–10 years of service, young nurses gradually lose interest in nursing work due to promotion pressure, complex nurse–patient relationship and work pressure, resulting in job burnout. After 10 years of working, the nurse has rich experience, strong working ability, becomes elite in nursing capacities, has had a smooth promotion and experienced better treatment. All aspects stabilize, and the level of communication satisfaction, emotional intelligence and happiness increase (Krystyna et al., 2020).

Another study showed that nurses with a high frequency of night shifts, high intensity of work and moderate monthly earnings had lower levels of communication satisfaction, emotional intelligence and job well-being, and with this being supported by previous research (Jarrar et al., 2018, 2019). Frequent night shifts make nurses' lives irregular, and high-intensity work pressures drive nurses to devote a lot of energy to work and reduce time for family. Furthermore, if nurses work more overtime shifts, are assessed more often, need more training and do not have a high income, they are more prone to negative emotions. Nurses with a lower workload are more likely to consider patient preferences and communicate effectively with patients.

Supporting previous research (Mansel & Einion, 2019), the results of the correlation analysis showed that there was a positive correlation between emotional intelligence and job well-being for Chinese Registered Nurses. People with a high level of emotional intelligence can better perceive the emotions of individuals. When personal emotions are complex and inconsistent with organizational rules, nurses may be good at psychological adjustment and managing personal emotions. They may also avoid negative behaviours through repression or by disguising personal emotions. In effect, this may reduce conflicts between nurses and patients and enhance job well-being.

Similar to previous studies (Zhai & Xie, 2015), there was a significant positive correlation between emotional intelligence and communication satisfaction. Good nurse–patient communication requires a nurse with a high level of emotional intelligence, a positive

response to the negative emotions of patients or individuals, and the use of communication skills to reduce bad moods. In actual work settings, nurses' work intensity, work pressure and high occupational risks can easily cause negative emotions in nurses. If these negative emotions cannot be resolved in time, they will affect the quality of nursing work; hence, it is important they use communication skills to create a good atmosphere for communication. Through communication, nurses can feel emotional support, which can effectively reduce the reactions and negative emotions that threaten physical and mental health caused by work pressure, satisfy the nurse's sense of belonging and benefit the production of positive emotions (Ducharme & Martin, 2000). The impact of communication satisfaction on nurses' job well-being is rare in previous literature. This study showed that there was a significant positive correlation between communication satisfaction and job well-being of Chinese Registered Nurses. Multiple regression results showed that emotional intelligence and communication satisfaction were independent predictors of job well-being. The results were consistent with the Amos structure model of communication satisfaction, which verified the validity of the model.

Our study showed that nurses' emotional intelligence can directly and indirectly affect their job well-being, through communication satisfaction, the latter of which plays a mediating role between emotional intelligence and job well-being. The mediating effect of nurses' communication satisfaction between emotional intelligence and job well-being contributed 35.42% to the total effect. It shows that nurses' communication satisfaction is an important mediating variable between emotional intelligence and job well-being, and it is necessary in order for nurses to transform emotional intelligence into job well-being. When nurses experience negative emotions at work, it can lead to a decline in emotional intelligence (Trigueros et al., 2020). This in turn will further reduce the level of communication satisfaction and ultimately reduce job well-being. Therefore, to increase the job well-being of Registered Nurses in China, hospital managers should enforce feasible measures. Managers should attach importance to the cultivation of nurses' emotional intelligence and communication satisfaction by training nurses about these aspects in their spare time.

One suggestion would be to use an immersive scenario simulation training method to implement a series of psychological or emotional experiences and develop the emotional intelligence of the nurses (Mustapha, 2019). Another suggestion would be to strengthen the training of nurses' non-verbal communication skills. This would help nurses become more effective at using body language to convey motions and cultivate nurses' communication skills. Strengthening nurses' emotional management and clinical communication skills can improve nurses' job well-being, reduce job burnout and improve the quality of nursing services (Kozowska & Doboszyńska, 2012).

Today, China is reforming its healthcare system. In the current situation, the number of nurses per 1,000 people in China is lower than the world average, and there is a severe shortage of nurses, indicating that nurses are under great pressure (Liu et al., 2015).

Studies have shown that in recent years, the turnover rate of nurses in China has been high (Shi et al., 2016). Therefore, improving the job well-being of nurses and reducing their turnover rate is an issue that needs attention. To address this problem, it is suggested that hospital managers should pay more attention to the cultivation of nurses' emotional intelligence and communication satisfaction alongside the emphasis on work efficiency and service quality.

4.1 | Limitations

There are some limitations in the current study. First, the sample is from a certain region of China and may not reflect the general situation of all Chinese nurses. Having a larger sample size for this study can make up for this limitation. Second, all data were from nurses' subjective feelings, which differ from the objective situation. This could cause small deviations in data results. Third, this study was a general scientific survey of the whole hospital, and not an in-depth study on representative departments. Fourth, a cross-sectional study cannot explore causal relationships. Therefore, longitudinal dynamic research could be carried out later. Some changes should be made in the design of future research on nurses' emotional intelligence, communication satisfaction and job well-being. Research can be conducted on nurses in different regions, different levels and be more representative of those working in ICUs. This will contribute to the investigation of more complex factors.

5 | CONCLUSION

To the best of the researchers' knowledge, this study is the first to explore the mechanism by which emotional intelligence affects nurses' job well-being from the perspective of communication satisfaction. This study showed that the emotional intelligence level of Chinese nurses was positively correlated with communication satisfaction and job well-being. Emotional intelligence and communication satisfaction significantly predicted job well-being, and communication satisfaction mediated the effects of the two. Therefore, to improve nurses' job well-being, the two important factors of emotional intelligence and communication satisfaction should be considered, in addition to general demographic factors. Regular training of emotional management and communication skills is an important strategy to improve nurses' job well-being. The training is most effective over longer durations and may directly affect the nurse's emotional intelligence level and communication satisfaction, as well as indirectly affect nurse's job well-being. Nurses with low levels of job well-being should be encouraged to communicate more with patients, colleagues and peers. Finally, nursing managers can also provide psychological guidance to nurses.

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CONFLICT OF INTEREST

The authors have declared no conflict of interest.

AUTHOR CONTRIBUTIONS

Xue Li: Data collection, paper writing, data analysis. Xiaoxia Fang: Data collection. Lina Wang and Xiaosong Geng: Project coordination, concept research, and critically revised manuscript. Hongjuan Chang: Research design, data collection, and manuscript revision.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Xue Li  <https://orcid.org/0000-0003-1338-6910>

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