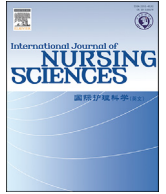


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Contents lists available at ScienceDirect

## International Journal of Nursing Sciences

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

## Original Article

## The mediating role of organizational commitment between calling and work engagement of nurses: A cross-sectional study

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## ARTICLE INFO

## Article history:

Received 2 December 2018

Received in revised form

15 January 2019

Accepted 23 May 2019

Available online 24 May 2019

## Keywords:

Nurses

Calling

Employee engagement

Organizational commitment

## ABSTRACT

**Objective:** Nurse shortage is a critical problem for global healthcare services. It impacts the quality of clinical care. Work engagement is the core competence of hospitals, which indicates employee's positive attitude toward organization and work. This study aimed to explore the relationships among calling, organizational commitment, and work engagement.

**Methods:** A cross-sectional study was designed, and 320 nurses from tertiary hospitals in China completed the questionnaires that included demographic information, calling scale, employee engagement scale, and organizational commitment scale. Pearson correlation was performed to test the correlations among calling, organizational commitment, and work engagement. Stepwise regression analyses were performed to explore the mediating role of organizational commitment. The bootstrap method was employed to confirm the mediating effect.

**Results:** Nurses' work engagement score was at the medium degree, whereas calling and organizational commitment were in the medium to high level. The results revealed that calling, organizational commitment, work engagement, and each dimension were positively correlated with one another ( $r = 0.145-0.922$ ,  $P < 0.01$ ). The organizational commitment plays a partially mediating effect between calling and work engagement ( $\beta = 0.603$  to  $0.333$ ,  $P < 0.01$ ).

**Conclusions:** The mediation effect of organizational commitment was verified, which provided a comprehensive understanding of how calling impacted work engagement. Moreover, administrators should not only promote interventions to increase work engagement but also pay attention to calling and organizational commitment so as to improve their work engagement. Taken together, increased level of work engagement is required in the current nursing field.

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## What is known?

- Under an environment of high pressure, demand, and workload, the level of Chinese nurses' work engagement is decreased.
- The positive impact of calling on work engagement has already been examined.
- The factors affecting nurses' work engagement should be determined to explore measures in improving work engagement among nurses.

## What is new?

- Calling and organizational commitment have positive effects on work engagement.
- Organizational commitment partially mediates the relationship between work engagement and calling.
- Future career development programs for Chinese nurses should emphasize not only on work engagement but also on calling and organizational commitment.

## 1. Introduction

Nurse shortages have become a global critical problem for healthcare services. According to the US Department of Labor's data, the demand for registered nurses in the United States will increase from 2.95 million in 2016 to 3.39 million in 2026 (a 15%

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Peer review under responsibility of Chinese Nursing Association.

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increase) [1]. In China, the number of registered nurses per 1,000 population is 2.73, which is far below than that of developed countries [2]. The lack of nursing staff has a serious impact on the quality of clinical care. In addition, China faces the challenges of population aging and “two-child” policy, which overload nurses with work, leading to their reduced work engagement [3]. Work engagement is described as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption [4]. It is the core competence of hospitals. In professional nursing practice, a low level of work engagement could enhance adverse events and improve nurses' turnover intention [5]. In light of this situation, factors affecting work engagement among nurses should be explored.

Previous studies have mainly considered secular variables and neglected spiritual variables when interpreting work engagement [6,7]. Understanding what motivates people to choose nursing as a career and focusing on their values, sense of meaning, and social contribution are important to developing nurses. Many nurses identify a calling as a motivational factor for choosing nursing despite the challenges of the nursing role [8]. Calling is defined as a transcendent summon, experienced as originating beyond the self, to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness and that holds other-oriented values and goals as primary sources of motivation [9]. Evidently, nurses with calling see work as a meaningful mission rather than a means to obtain resources, therefore motivating themselves to engage [10]. By contrast, if nurses perceive that they are unable to pursue a calling, they will eventually have an intention to leave the organization [11].

Organizational commitment is a psychological state that describes the relationship between employees and the organization, which can influence the decision of employees to continue or discontinue membership in the organization [12]. It reflects the psychological contract between employees and the organization, which is a mental mechanism about facilitating occupation stability. Allen and Meyer divided organizational commitment into three dimensions: affective, continuance, and normative commitment. Affective commitment refers to the emotional dependence, positive psychological tendency, and contribution or sacrifice of employees to the organization. Continuance commitment reflects the cognition of the cost linked to leave the organization. Normative commitment means that employees are limited by social norms and then develop a sense of responsibility and obligation to stay with the organization [13]. A study demonstrated that people with a calling seem to have a greater sense of accountability and responsibility for their jobs and organizations compared with those who do not. They may be committed to their organization because it is a specific context that is instrumental to living out their calling [14].

A research reported the relationship between calling and work engagement. Three hundred fifty-one nurses from healthcare institutions were surveyed, and the result showed that perceived calling was significantly related to dedication and absorption components of nurses' work engagement and could motivate nurses to engage in burdensome work [15]. In addition, calling is positively related to organizational commitment [14]. However, few studies focused on the influence of calling and organizational commitment on work engagement. To understand more about work engagement, relieve the tendency of nurses to leave, and improve the quality of nursing care, the present research focused on understanding the independent variable that can lead to increased work engagement.

## 2. Method

### 2.1. Study design and participants

This cross-sectional survey was conducted in tertiary hospitals (>500 beds) in Tianjin, China. A convenience sample of 320 nurses was surveyed. The inclusion criteria were as follows: (a) volunteered for the study and (b) engaged in the nursing profession for more than one year. The exclusion criteria were as follows: (a) advanced training nurses from other hospitals and (b) nurses on sickness leave. The invalid questionnaire exclusion criteria were as follows: (a) the answers to different items in the questionnaire had obvious regularity and (b) the questionnaires of the same hospital had obvious similarity.

### 2.2. Instruments

The measurement tools used in this research include four parts: (a) demographic information, (b) the calling scale, (c) the organizational commitment questionnaire (OCQ), and (d) Gallup Q12 (Gallup Workplace Audit). The developers permitted usage of all questionnaires in this study.

#### 2.2.1. Demographic information

Demographic data included age, sex, marital status, education level, clinical experience, and monthly income.

#### 2.2.2. Calling

The calling scale [16], developed by Dobrow et al., was used to assess participants' sense of calling. The scale contained 12 items, and each item was rated from 1 (strongly disagree) to 5 (strongly agree). The total score ranged from 12 to 60, which higher scores indicating a higher level of calling. The internal consistency reliability of the scale was between 0.88 and 0.94. CFI statistics ranged from 0.87 to 0.91, SRMR statistics ranged from 0.06 to 0.07, and factor loadings ranged from 0.43 to 0.86. This scale also has good reliability and validity in Chinese culture [17]. In the present study, the Cronbach's  $\alpha$  for the calling scale was 0.94.

#### 2.2.3. Organizational commitment

Organizational commitment was assessed by using the OCQ, which was developed by Allen and Meyer [18]. The questionnaire was translated into Chinese by Lin Yuanji, a Taiwanese scholar [19]. It contained three dimensions: affective, normative, and continuance commitment. Each dimension included six items (i.e. “I really feel as if this organization's problems are my own” and “This organization has a great deal of personal meaning for me”). All the items were measured with a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Cronbach's  $\alpha$  for each dimension of the scale were 0.87, 0.75, and 0.79. The total scale score was the sum of each item, ranging from 18 to 90, with higher scores representing employees with higher levels of organizational commitment. For the current study, the Cronbach's  $\alpha$  coefficient of the total scale was 0.917.

#### 2.2.4. Work engagement

Employee perceptions of engagement in their workplace were assessed using the Gallup Q12 (Gallup Workplace Audit) [20]. It is the most widely used questionnaire for measuring work engagement and consists of four sub-scales: clarity on required contribution (four items), opportunity to development (three items), personal recognition (three items), and quality of relationships

(two items). Moreover, it includes 12 items (e.g., “I know what is expected of me at work” and “In the last seven days, I have received recognition or praise for doing good work”). Each item was scored on a four-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). The raw score of the scale ranged from 12 to 48. A high score indicated a high level of work engagement. The average score for each dimension is greater than 3.4 divided into heights, moderate between 2.8 and 3.4, and low below 2.8 [21]. This scale also has good reliability and validity in Chinese culture [22]. The Cronbach's  $\alpha$  of the scale was 0.907 in this study.

### 2.3. Data collection

The data were collected from April to May in 2018. Before the investigation, three nurses working at the hospitals were trained as research assistants for data collection. After receiving approval from the ethics committee and the Department of Nursing in the three hospitals, the researchers distributed questionnaires at the time of nurses' meetings or group learning time. To eliminate the concerns of the participants, the respondents were informed that the investigation was anonymous, and the results were only used for scientific research. After the participants completed the questionnaires, they were collected immediately. The researchers carefully checked the questionnaires and excluded the invalid questionnaires. Overall, A final sample of 264 completed questionnaires were returned (effective response rate was 82.5%).

### 2.4. Statistical analysis

Data analysis was performed by using the SPSS 21.0 for Windows statistical software package.  $P < 0.05$  (two-tailed) was considered significant. Descriptive analysis was used to summarize sample characteristics and the average scores for calling, organizational commitment, and work engagement. Cronbach's  $\alpha$  was used to measure the internal consistency of all measurement instruments. Pearson correlation was used to test the associations among calling, organizational commitment, and work engagement. Stepwise regression analyses were used to explore the mediating effect of organizational commitment in the relationship between calling and work engagement. In the first step, the dependent variable (work engagement) was regressed on the independent variable (calling). This indicated the total effect of independent variables on dependent variables. In the second step, the mediator variable (organizational commitment) was regressed on the independent variable (calling). In the final step, the dependent variable (work engagement) was regressed on the mediator (organizational commitment) and the independent variable (calling). When both mediator and independent variable were entered in the final regression model, a mediator effect was supported when the significant association between the independent variable (calling) and dependent variable (work engagement) became less significant or non-significant. We used the bootstrap method to confirm the significance of the mediator effect. It involves repeatedly sampling from the data set and estimates the confidence intervals (CIs) for the indirect effects. The model 4 of PROCESS tool for SPSS provided by Hayes was used [23]. According to Hayes' suggestion, the number of bootstrap samples was 1000.

### 2.5. Ethical considerations

Ethical approval for the present study was obtained from the ethics committee of relevant hospitals. The participation was voluntary and anonymous.

## 3. Results

### 3.1. Descriptive statistics

A total of 264 nurses from three different hospitals participated in this study. An overwhelming amount of the participants were female (98.1%), and their average age was  $34.79 \pm 8.41$  years. Most of the respondents were married (70.5%), and 65.1% had a bachelor's degree or above. Approximately 31.4% had more than 15 years of clinical experience in their hospitals. The number of participants with monthly income of 3000–5000 CNY was roughly the same as that of participants with monthly income of 5001–8000 CNY (44.7% and 48.1%) (see Table 1). Most demographic characteristics were weak and non-significant. Hence, they were not included in the result.

In general, participants showed a moderate level of work engagement ( $3.17 \pm 0.48$ , the intermediate score between 2.8 and 3.4). The overall mean score of calling was in medium to high level ( $3.68 \pm 0.82$ , above the intermediate score of 3.0). The overall mean score of organizational commitment was in medium to high level ( $3.64 \pm 0.64$ , above the intermediate score of 3.0) (Table 2).

### 3.2. Correlational analysis

The Pearson correlation coefficients of all variables are shown in Table 3. Calling, organizational commitment, work engagement, and most of their dimensions were positively correlated with one another. Calling ( $r = 0.603$ ,  $P < 0.01$ ) was directly related to work engagement. Total organizational commitment ( $r = 0.645$ ,  $P < 0.01$ ) and the three dimensions ( $r = 0.189$ – $0.712$ ,  $P < 0.01$ ) were directly correlated with total work engagement.

### 3.3. Regression analysis

The results of stepwise regression analyses on the mediator effect of organizational commitment in the relationship between calling and work engagement, are shown in Table 4. Calling predicted work engagement ( $\beta = 0.603$ ,  $P < 0.01$ ) in step one. In step two, calling also predicted organizational commitment ( $\beta = 0.609$ ,  $P < 0.01$ ). When both calling and organizational commitment were entered in the prediction of work engagement, the standardized

**Table 1**  
Characteristics of participants ( $n = 264$ ).

Characteristics	Frequency	Percent
Sex		
Man	5	1.9
Woman	259	98.1
Marital status		
Single	70	26.5
Married	186	70.5
Divorced	6	2.3
Widow	2	0.7
Education level		
Vocational school	7	2.7
Diploma degree	85	32.2
Bachelor of Science in nursing or above	172	65.1
Clinical experience (years)		
<3	44	16.7
3–5	28	10.6
6–10	53	20.1
11–15	56	21.2
>15	83	31.4
Monthly income (CNY)		
<3000	15	5.7
3000–5000	118	44.7
5001–8000	127	48.1
>8000	4	1.5

**Table 2**  
Descriptive statistics of the study variables.

Variable	Average Score Range	Mean $\pm$ SD
Total calling	1–5	3.68 $\pm$ 0.82
Total organizational commitment	1–5	3.64 $\pm$ 0.64
Affective commitment	1–5	3.92 $\pm$ 0.73
Continuance commitment	1–5	3.41 $\pm$ 0.70
Normative commitment	1–5	3.60 $\pm$ 0.90
Total work engagement	1–5	3.17 $\pm$ 0.48
Clarity on required contribution	1–5	3.23 $\pm$ 0.49
Opportunity to development	1–5	3.05 $\pm$ 0.61
Personal recognition	1–5	3.05 $\pm$ 0.65
Quality of relationships	1–5	3.40 $\pm$ 0.52

regression coefficient for the association decreased from  $\beta = 0.603$  to 0.333 ( $P < 0.01$ ).

### 3.4. Mediation analyses

As shown in Table 5, the path coefficient of the indirect effects of calling on work engagement through organizational commitment was 0.196 (95% CI: 0.131–0.260). The path coefficient of the direct effect of calling on work engagement through organizational commitment was 0.158 (95% CI: 0.110–0.213). Therefore, organizational commitment was a partial mediator between calling and work engagement.

## 4. Discussion

This study aimed to explore the relationship among work

engagement, calling, and organizational commitment and the role played by these variables in work engagement among nurses. All hypotheses of this study were partially confirmed.

The present research examined the relationship between calling and work engagement. Consistent with previous studies conducted in Western countries [10,15,24], our results supported the positive relation of calling to work engagement in China. Moreover, our study provided cross-cultural evidence for the calling–positive work association in the field of nursing. As Dobrow's [17] institute pointed out, individuals with a calling feel strong sense of passion, self-esteem, and identity in a particular work domain. It is the strong sense that made them exert great energy into their work and made them less likely to withdraw from their work. In the job of realizing self-worth, calling is an important personal resource and motivating factor. Even if the work environment is heavy, individuals with a calling are willing to meet various challenges and difficulties and even make sacrifices for it [15]. Nurses with calling are willing to invest more in their work because of their passion for nursing and their naturally high degree of work engagement [25].

We found that organizational commitment had a positive effect on work engagement. This result supported the previous studies by Cho [26] and Santos [27]. Hakanen [28] conducted a three-year longitudinal study of the job demands–resources model. He found that organizational commitment had an inseparable connection with work engagement. When employees had a high level of organizational commitment, they had a strong belief and acceptance of the organization's goals and values and were willing to make considerable efforts and sacrifice to their organization. They also had strong desire to keep the relationship with the organization [29,30].

**Table 3**  
Pearson correlation coefficient of study variables ( $n = 264$ ).

	1	2	3	4	5	6	7	8	9	10
1.Calling	1									
2.Affective commitment	0.695**	1								
3.Continuanace commitment	0.147*	0.259**	1							
4.Normative commitment	0.615**	0.748**	0.449**	1						
5.Total organizational commitment	0.609**	0.830**	0.678**	0.922**	1					
6.Clarity on required contribution	0.623**	0.678**	0.204**	0.644**	0.637**	1				
7.Opportunity to development	0.411**	0.537**	0.164**	0.494**	0.498**	0.645**	1			
8.Personal recognition	0.594**	0.661**	0.145**	0.609**	0.593**	0.704**	0.708**	1		
9.Quality of relationships	0.322**	0.478**	0.101	0.341**	0.380**	0.569**	0.471**	0.463**	1	
10.Total work engagement	0.603**	0.712**	0.189**	0.645**	0.645**	0.887**	0.863**	0.888**	0.680**	1

Note: \* $P < 0.05$ , \*\* $P < 0.01$ .

**Table 4**  
Regression analysis of study variables.

Dependent variable	Independent variable	$\beta$	$t$	$P$	$F$	$R^2$	$P$
Work engagement	Calling	0.603	12.223	<0.001	149.392	0.363	<0.001
Organizational commitment	Calling	0.609	12.440	<0.001	154.756	0.371	<0.001
Work engagement	Calling	0.333	5.953	<0.001	123.394	0.486	<0.001
	Organizational commitment	0.442	7.899	<0.001			

**Table 5**  
Direct and indirect effects of calling on work engagement through organization commitment among nurses.

Model pathway	Estimated effect	95%CI
Direct effect		
Calling $\rightarrow$ Organizational commitment	0.472	0.397–0.546
Calling $\rightarrow$ Work engagement	0.196	0.131–0.260
Organizational commitment $\rightarrow$ Work engagement	0.335	0.252–0.419
Indirect effect		
Calling $\rightarrow$ Organizational commitment $\rightarrow$ Work engagement	0.158	0.110–0.213



The most important finding in this research is the mediating role of organizational commitment in the relationship between calling and work engagement. The results indicated that work engagement was not only affected directly by calling but also influenced indirectly by organizational commitment. When organizational commitment was added, the effect of nurses' calling was strengthened. Calling is a complex experience that comes from the inner self. Individuals with high-level calling perceive their work as sacred instead of being secular [31]. Employees with calling see their career as a way to achieve their self-worth. They are willing to exert more effort into their job and enjoy it. Moreover, Jain showed that organizational commitment could mediate the negative impact of stressors on employees' psychological well-being and physical health [32]. Employees with organizational commitment are willing to work in the organization and realize their value pursuit by working in the organization. Therefore, employees' calling and organizational commitment should be improved to enhance their engagement.

Subsequently, nursing administrators should not only look for interventions to increase calling of nursing, but also need to focus on development and investment in nurses' organizational commitment. Human beings are creatures who seek value and meaning. Calling could provide human beings with a sense of value and meaning in their work [10]. Nursing managers should establish effective communication with nurses to help them link their work with tangible, socially oriented goals to enhance their sense of calling [33]. In addition, in the undergraduate stage, the university should conduct lectures and clinical practices to stimulate nursing students' enthusiasm and calling. However, calling might have a limitation [34,35]. Employees who view work as a calling perform well at work, even making sacrifices in non-work domains. Thus, employers may not see the need to provide additional incentives or external incentives. Hence, employees may feel overworked and exploited by their employers [36]. Therefore, nursing administrators should establish mechanisms to support well-being and psychological safety. Through these mechanisms, nurses could provide feedback and suggestion to organizational operations. Moreover, administrators could shape a safe working environment to support their callings, thereby expanding greater freedom and responsibility for nurses.

In addition, the level of organizational commitment of nurses should be improved. Previous studies have shown that job security is one of the factors that shape high-level organizational commitment. Administrators can set organization's norms and organizational policies fairly. Moreover, they should improve the recognition for young nurses on organizational culture, values, and social regulation to help them formulate career planning, which is necessary for the formation of organizational commitment [37]. Once the calling and organizational commitment are improved successfully, nurses will exert more effort into their work, and better engagement is likely to be achieved.

## 5. Limitations

Despite our findings, this study has some limitations. First, all variables were evaluated using self-report questionnaires, which carries the risk of bias, such as social desirability. Second, the study design was a cross-sectional type. Thus, the relationships among work engagement, calling, and organizational commitment may not be causal. Future research should employ a longitudinal design to test the causal model. Third, we reported the mediating roles of organizational commitment in the relationship between calling and work engagement in this study but did not consider the influence of demographic data. Lastly, this study only used a convenience sample, and the data were collected from nurses in only one

city of China, which limited the generalization of these results.

## 6. Conclusions

The results of this research showed that nurses' work engagement score was at the medium degree, whereas calling and organizational commitment were in the medium to high level. The mediation effect of organizational commitment was also verified, which provided a comprehensive understanding of how calling impacted work engagement. Moreover, administrators should focus on nurses' calling and organization commitment and take measures actively to improve their work engagement. Taken together, increased level of work engagement is required in the current nursing field.

## Conflicts of interest

No conflict of interest declared.

## Funding

Financial support for this research was received from the National Natural Science Foundation of China (71704132).

## Acknowledgments

The authors gratefully acknowledge the supervisors and 320 nurses who participated in this study for their assistance as well as all the experts and members of our group for their help and advice.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijnss.2019.05.004>.

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