

THE EFFECT OF LEADER-MEMBER EXCHANGE ON JOB CRAFTING IN NURSING: THE MEDIATING ROLE OF PSYCHOLOGICAL SAFETY

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ABSTRACT

BACKGROUND

Nurses are expected to make prompt and accurate decisions, have high crisis management skills, and exhibit proactive behaviors due to the nature of their service. Nevertheless, this situation is thought to be affected by the directors' approach and the working environment's structure. Therefore, this study aims to determine the mediating role of psychological safety in the effect of leader-member exchange on job crafting.

METHODS

This study is a descriptive cross-sectional study. The study was conducted with 782 nurses in Istanbul, Turkey. Structural equation modeling was used in the study. AMOS software was used for model analysis, and SPSS software was used for descriptive statistics and correlation analysis.

RESULTS

The results indicate that the effects of leader-member exchange on job crafting ($\beta = .541, p < .05$) and psychological safety ($\beta = .430, p < .05$) are statistically significant. Moreover, the effect of psychological safety on job crafting is statistically significant ($\beta = .453, p < .05$). Based on the path analysis, it was determined that psychological safety has a mediating role in the relationship between leader-member exchange and job crafting (Confidence Interval; LB=0.059, UB=0.172).

CONCLUSION

This study revealed that psychological safety is a mechanism that contributes to the explanation of the relationship between leader-member exchange and job crafting. The findings will create ideas for directors to provide a healthier working environment. This situation is predicted to bring more positive results for employees and patients.

KEYWORDS

leader-member exchange, job crafting, psychological safety, nursing

INTRODUCTION

The health sector is a complex area of business that provides 24/7 service with intense specialization and effort. It has a multidisciplinary structure that requires a high degree of coordination between employees and has a high division of labor. Therefore, the relations of employees with each other and their superiors are of utmost importance. One of the points to be mentioned here is leader-member exchange (LMX). Basically, LMX defines the bilateral process between the leader and each subordinate in which roles and expectations are developed. According to the theory, there is a social exchange between the leader and the employee, and the exchange relationship quality varies from employee to employee [1]. Employees with high-quality relationships are referred to as the "in-group." The leader shares more mutual support, frequent interaction, loyalty, commitment, respect, love, and trust with the employees in the in-group [2]. The employees outside this group are called the "out-group." The leader establishes more formal and formalized relations with this group of employees. This relationship is downward and unidirectional. There are defined roles, low trust, limited interaction, and less support and rewards [3].

Job crafting (JC) is one of the variables analyzed in this study. The concept of JC is defined by Wrzesniewski & Dutton [4] as the process by means of which members in an organization autonomously and proactively transform their tasks and make their jobs more meaningful. In other words, employees try to harmonize their work with their interests and values. For this reason, employees redesign their jobs by changing from passive to active in an informal process [5]. This situation points to a bottom-up approach as opposed to the classical top-down job design. Therefore, the employee redefines, organizes, and proactively leads his/her work. Although JC includes forms of proactive behavior, it differs from the pure proactive behavior concept. Because it involves coping strategies gathered in three main categories to respond to the changing demands of the work context [6]. These strategies include changes in the quantity, scope, or type of work tasks (task crafting), changes in the quality or quantity of social interactions at work (relational crafting), and changes in the way one perceives work (cognitive crafting) [7]. The leader's approach has a significant impact on employees' JC. The leader's rewards and incentives may encourage or discourage individuals to change relational and task boundaries in their work. Also important is how the leader organizes the organization. The

current form of organization may allow employees to exhibit proactive behavior and increase their desire and ability for JC. Conversely, it may be organized in such a way as to inhibit these activities of the employee [1]. Based on this, the study hypothesis is as follows:

Hypothesis 1: LMX is positively related to JC.

Another variable addressed within the scope of the study is psychological safety (PS). PS means that the individual has a sense of confidence that he/she will not be embarrassed, ridiculed, or punished by other individuals in the organization as a result of every activity he/she performs in the organization [8]. The directors' approach is as critical as colleagues' behavior in making employees feel safe and comfortable [9]. Directors' clear and comprehensible policies and supportive and flexible approach towards employees make individuals feel safe and thus enable them to play an active role. Excessive authoritarian, oppressive, and harsh behaviors of the directors restrict the mobility of the employees and prevent them from speaking and expressing their opinions [10]. Hence, the leadership behavior applied by the director has a determining effect on employees' perceptions of PS [11]. Based on this, the study hypothesis is as follows:

Hypothesis 2: LMX is positively related to PS.

PS contributes to employees' initiative and highlights their innovative aspects [12]. Psychologically secure employees do not show resistance to change. They feel more committed to their jobs, and they speak up and develop suggestions to make improvements for the organization [13]. In this way, in organizations with high PS, employees can freely express their opinions, are not afraid of taking risks, and exhibit creative and proactive behaviors [14]. Accordingly, it can be expected that employees' JC will also be high in organizations where PS is high. In addition, LMX may have a direct effect on JC as well as an indirect effect through PS. Based on this, the study hypotheses are as follows:

Hypothesis 3: PS is positively related to JC.

Hypothesis 4: PS mediates the relationship between LMX and JC.

Based on the above information, the variables discussed are important for the health sector. In particular, it can play a critical role for nurses, who are the main providers of care services. JC could be beneficial in factors such as the fact that nurses have many role definitions, health care services require immediate decision-making, and overcoming organizational problems. However, the points to be noted

here are; exchange between the leader and the nurse (LMX) and the suitability of the environment. It is thought that nurses should feel PS for high JC. Nurses are in constant contact with patients, colleagues and managers due to their jobs. In this way, it is assumed that the constant exchange of nurses with their environment may affect their perceptions of PS. Studies reveal that PS affects nurse behaviors [15]. In addition, it is stated in the literature that PS affects not only nurses but also the quality of health services provided [16].

In summary, this study has two main objectives. The first is to examine the relationship between LMX and JC in the health sector, and the latter is to reveal the mediating role of PS in this relationship.

METHODS

SAMPLING AND DATA COLLECTION

The study was descriptive regarding the objective and cross-sectional regarding the time dimension. The study population is the nurses working in private hospitals in Istanbul, Turkey. A disproportional stratified sampling method was employed in the study to reveal the general situation in the hospitals since the hospitals in the population did not have homogeneous characteristics in terms of human and other resources.

In the light of the hospital classification criteria of the Ministry of Health, the private hospitals on the website of the Istanbul Provincial Health Directorate are divided into 3 layers as A, B and C. Layer A is hospitals with more than 100 beds and equipped with intensive technology. It offers luxury and advanced medical care. Layer B is hospitals with 50 to 100 beds. It has relatively lower technological equipment than the hospitals in Layer A and can provide all kinds of medical services except advanced medical care. Layer C is hospitals with less than 50 beds. It is limited in terms of personnel volume and technological possibilities. Provides only basic medical care.

The procedures were reviewed and approved by the Marmara University ethics committee with a decision no: 2021/114. The data were collected between June and August 2022 using a face-to-face survey method.

MEASURES

The study used a four-part questionnaire form as a data collection tool. The first part of the form includes the "JC

Scale," the second part consists of the "PS Scale," the third part contains the "LMX Scale," and the last part includes the "Personal Information Form" to obtain descriptive information of the participants.

JC Scale:

The scale was introduced to the literature by Slemp & Vella-Brodick [17]. Adaptation of the scale into Turkish was conducted by Kerse [18]. The scale is a five-point likert type and consists of a total of 19 questions. The Cronbach's alpha coefficient of the scale was found to be 0.91 for the whole scale, 0.75 for the "task crafting" dimension, 0.86 for the "cognitive crafting" dimension, and 0.84 for the "relational crafting" dimension.

PS Scale:

The scale was introduced to the literature by Edmondson [8]. Adaptation of the scale into Turkish was conducted by Yener [19]. The scale is a five-point Likert type and consists of seven questions in total. Having one dimension in the original, the scale was collected in two dimensions as a result of the analyses. The Cronbach's alpha coefficient of the scale was found to be 0.81 for the whole scale, 0.86 for the "tolerance" dimension, and 0.76 for the "initiative" dimension.

LMX Scale:

The scale was introduced to the literature by Liden & Maslyn [20]. Adaptation of the scale into Turkish was conducted by Bas et al. [21]. The scale is a five-point Likert type and consists of a total of 12 questions. As a result of the factor analysis, the scale is analyzed in four dimensions. The Cronbach's alpha coefficient of the scale was found to be 0.93 for the whole scale, 0.92 for the "impact" dimension, 0.86 for the "loyalty" dimension, 0.70 for the "contribution" dimension, and 0.90 for the "professional respect" dimension.

STATISTICAL ANALYSES

The data obtained in the study were analyzed using AMOS 23.0 software. "Reliability Analysis" was conducted to test the reliability of the scales, and "Confirmatory Factor Analysis (CFA)" was conducted using the AMOS program to test the construct validity. The constructed model was tested through path analysis. For the structural equation modeling, the data set should provide a multivariate normal distribution. In this regard, multivariate outliers were analyzed with Mahalanobis distance values. Besides, SPSS for Windows 25.0 program was used for descriptive statistics and correlation analysis.

DATA ANALYSIS

DESCRIPTIVE STATISTICS AND INTERNAL CONSISTENCY OF THE MEASUREMENT SCALES

A total of 900 questionnaires were distributed, 300 per layer, and 804 people returned the questionnaire; the response rate was 87%. 22 questionnaires were excluded from the study due to incomplete and invalid responses. As a result, 782 questionnaires were evaluated within the scope of the

sample. Most of the nurses participating in the study were female (78.8%, $n=616$) and single (74%, $n=579$). The nurses have been working in their hospitals for an average of three years and in their profession for an average of five years. The nurses participating in the study were between 19-55 years of age, with an average age of 26. Most participants (90.3%, $n=706$) had no administrative duties. Descriptive statistics and internal consistency of the variables of the study are shown in Table 1.

TABLE 1. DESCRIPTIVE STATISTICS AND INTERNAL CONSISTENCY OF ALL MEASURES USED IN THE STUDY

	Mean	SD	Cronbach's alpha	Number of items
Job Crafting	3.65	0.79	.89	19
task crafting	4.04	0.56	.77	7
cognitive crafting	4.30	0.58	.79	5
relational crafting	3.78	0.79	.84	7
Leader-Member Exchange	4.12	0.73	.93	12
affect	4.21	0.85	.91	3
loyalty	3.93	0.92	.84	3
contribution	4.06	0.85	.80	3
professional respect	4.29	0.80	.90	3
Psychological Safety	3.70	0.69	.81	7
indulgence	3.78	0.79	.71	3
initiative	3.65	0.79	.80	4

Note: SD, Standard deviation. The possible score range for all measures is 0–5.

Cronbach's α was used to evaluate the internal consistency of each scale. For the JC scale, the cronbach's α was 0.82 and ranged between 0.77 and 0.84 for the three dimensions. For the LMX scale, the cronbach's α was 0.93 and ranged between 0.80 and 0.91 for the four dimensions. For the PS scale, the cronbach's α was 0.81 and ranged between 0.71 and 0.80 for the two dimensions. Cronbach's α value of all variables above 0.70 indicates that the scales are reliable.

CORRELATIONAL ANALYSIS OF VARIABLES

Before applying the correlation test, the normality test was performed. The test results are shown in Table 2.

The normal distribution of the data depends on the skewness and kurtosis values being between ± 3 [22]. From

this point of view, the results obtained show that this study data has a normal distribution.

Parametric tests were used in this study as the data showed a normal distribution. Therefore, Pearson correlation was applied to test the relationship between the scales used in the study. The correlation coefficients are shown in table 3.

The results show that, LMX had a positive moderately correlated with JC ($r = 0.45, p < .05$) and positive weakly correlated with PS ($r = 0.34, p < .05$). The results obtained are statistically significant for both variables. In addition, PS was positive weakly correlated and statistically significant with JC ($r = 0.31, p < .05$).

HYPOTHESIS TESTING

The effects were tested in a model with no mediator, with results are shown in Table 4.

TABLE 2. NORMALITY TEST OF THE SCALES

Scale Dimensions	Skewness	Kurtosis	Result
Job Crafting	-1.073	2.032	Normal
Task Crafting	-0.651	0.723	Normal
Cognitive Crafting	-1.088	1.651	Normal
Relational Crafting	-1.114	1.932	Normal
Leader-Member Exchange	-1.205	1.773	Normal
Affect	-1.338	1.941	Normal
Loyalty	-0.881	0.545	Normal
Contribution	-1.003	0.753	Normal
Professional Respect	-1.524	1.785	Normal
Psychological Safety	-0.620	0.329	Normal
Indulgence	-0.849	0.633	Normal
Initiative	-0.838	0.695	Normal

TABLE 3. CORRELATIONS AMONG STUDY VARIABLES

		1	2	3	4	5	6	7	8	9	10	11
1	TC											
2	CC	.50**										
3	RC	.54**	.59**									
4	JC	.82**	.79**	.87**								
5	AF	.32**	.33**	.36**	.40**							
6	LY	.28**	.28**	.36**	.37**	.67**						
7	CN	.29**	.29**	.34**	.37**	.61**	.60**					
8	PR	.29**	.35**	.33**	.38**	.72**	.59**	.64**				
9	LMX	.34**	.37**	.41**	.45**	.88**	.85**	.83**	.85**			
10	ID	.13**	.19**	.28**	.24**	.23**	.23**	.14**	.20**	.23**		
11	IN	.17**	.24**	.31**	.29**	.31**	.31**	.25**	.27**	.34**	.48**	
12	PS	.18**	.25**	.34**	.31**	.32**	.32**	.24**	.28**	.34**	.81**	.90**

Abbreviations: TC, task crafting; CC, cognitive crafting; RC, relational crafting; JC, job crafting; AF, affect; LY, loyalty; CN, contribution; PR, Professional Respect; LMX, Leader-member exchange; ID, Indulgence; IN, initiative; PS, psychological safety. (**p < .05).

TABLE 4. PATH MODEL WITHOUT MEDIATOR

Path	β	t Values	P Values	Result
LMX → JC	0.541	10.834	**	Hypothesis 1 Supported
LMX → PS	0.430	6.592	**	Hypothesis 2 Supported
PS → JC	0.453	7.157	**	Hypothesis 3 Supported

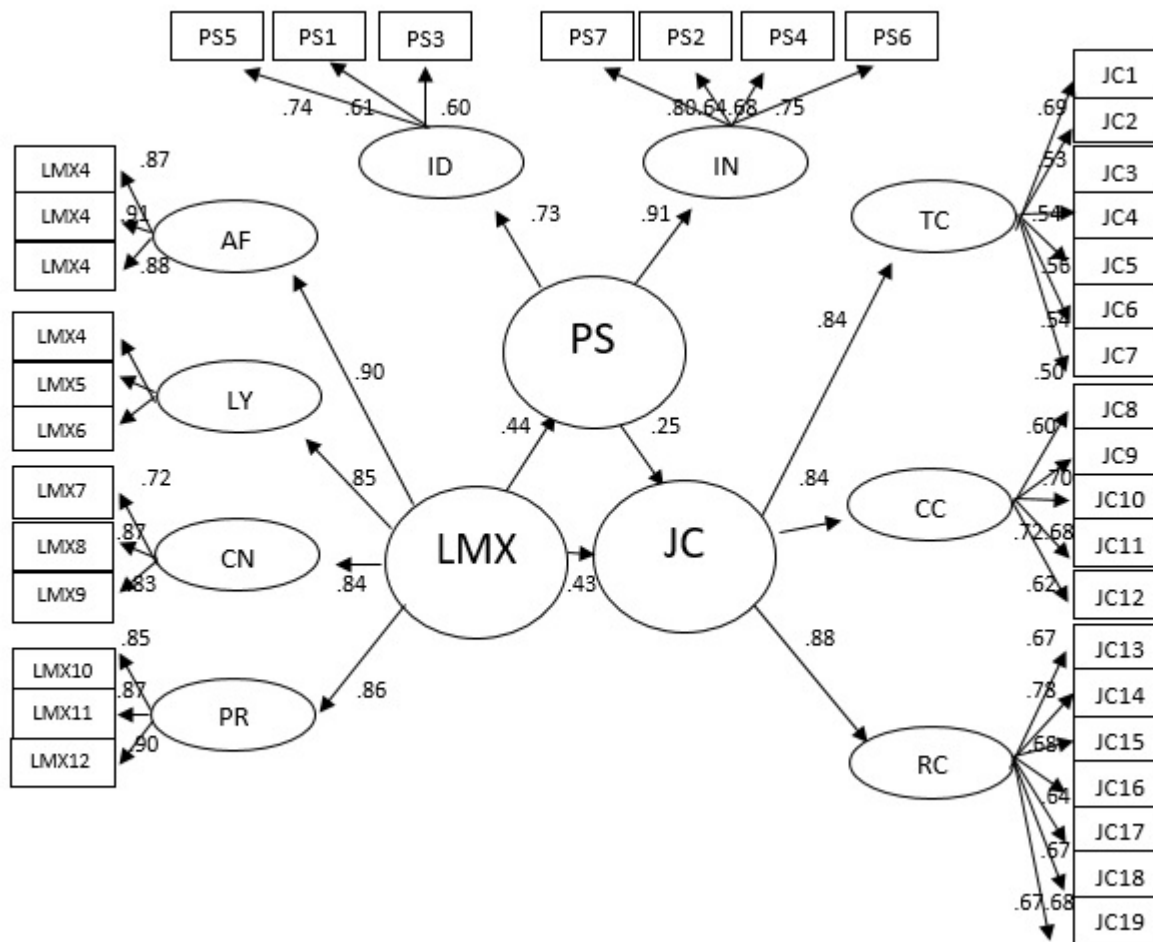
Note: β = path coefficient; LMX, Leader-member exchange; JC, job crafting; PS, psychological safety. (** p < .05).

The results show that, the effects of LMX on JC (β = .541, p < .05) and PS (β = .430, p < .05) was statistically significant.

In addition, the effect of PS on JC was statistically significant. (β = .453, p < .05). Therefore, the hypotheses were accepted.

Finally, we tested a mediating effect model to verify whether PS mediates the relationship between LMX and JC (Figure 1). The analysis results obtained are shown in Table 5.

FIGURE 1. FULL STRUCTURAL MODEL WITH THE MEDIATOR



Note: LMX1-LMX12, twelve indicators of LMX; AF, affect; LY, loyalty; CN, contribution; PR, Professional Respect; LMX, Leader-member exchange; JC1-JC19, nineteen indicators of JC; TC, task crafting; CC, cognitive crafting; RC, relational crafting; JC, job crafting; PS1-PS7, seven indicators of PS; ID, Indulgence; IN, initiative; PS, psychological safety.

TABLE 5. THE EFFECT OF LMX ON JC THROUGH WITH MEDIATING EFFECT OF PS

		(β)	Std. Error	t	p	Result
LMX	JC →	0.541	0.025	10.834	**	Accepted
LMX → PS → JC	Direct Effect	0.430	0.025	8.378	**	Accepted
	Indirect Effect	0.111	Confidence Interval (LB=0.059, UB=0.172)			Hypothesis 4 Supported
Goodness-of-fit						
CMIN/DF ≤5.00			3.286			
RMSEA (≤0.08)			0.054			
GFI (≥0.80)			0.858			
CFI (≥0.80)			0.898			
TLI (≥0.80)			0.890			
SRMR (≤0.08)			0.048			

Note: β = path coefficient; LMX, Leader-member exchange; JC, job crafting; PS, psychological safety; LB, Lower Bound; UB, Upper Bound. (** p < .05).

Before examining the mediating role in the created model, it was examined whether the independent variable had an effect on the dependent variable. When the effect of LMX on JC is examined, it is seen that it has a statistically significant and positive effect. While the effect of the independent variable on the dependent variable was significant, it was examined whether there was a mediator role in this effect. The fact that the values in the 95% confidence interval do not include "0" according to the results of the model shows that it has a mediator role in the model (LB=0.059, UB=0.172). In addition, goodness-of-fit is within the range accepted in the literature [23]. After deciding that there is a mediator role, it was examined whether the direct effect was significant in order to decide on the type of this mediator role. As a result, it was concluded that the direct effect was significant, but the value of the effect coefficient decreased ($\beta=0.430$, $p<0.05$) and it was decided that the mediator was a partial mediator.

DISCUSSION

This study examined the relationship between LMX and JC in nurses and the mediating role of PS in this relationship. Based on the study findings, nurses' JC levels also increase as LMX increases. Therefore, they exhibit more proactive behaviors and can make their work compatible with their interests and values. There are different studies in the literature examining the effect of LMX on JC. In research conducted by Lee [24] on shipbuilding company employees, for instance, it was found that LMX positively affects JC, and employees having a good relationship with their leaders perform more JC. Another study was conducted with private company employees' participation and found that LMX positively affects JC [25]. Also, in another study, the effect of LMX on teachers' JC was analyzed, and it was found to have a positive effect [26]. In a meta-analysis investigating the social factors affecting JC, it was found that LMX is an important factor and is strongly correlated with JC [27]. Along with this, the number of studies examining the effect of LMX on JC in the health field is quite limited. Demiray & Irge [28] found a significant positive relationship between LMX and JC in a study on healthcare professionals working in public hospitals. Pan et al. [29] emphasized that LMX has a significant effect on JC in their study on nurses. Based on this, these studies in the literature support our research findings.

The study's findings show a significant positive relationship between LMX and PS. This situation makes nurses confident they will not be ridiculed and punished even if their activities result in negative consequences. When the literature is examined, it is generally seen that PS mediates LMX. For example, the mediating role of PS in the relationship between LMX and information-concealing behavior in service sector employees was examined. A significant positive relationship was found between LMX and PS [30]. In another study, the mediating role of PS in the relationship between LMX and job commitment in the manufacturing sector was analyzed, and it was found that LMX had a significant effect on PS [31]. In the studies examining the mediating role of PS in the relationship between LMX and vocal behavior, it was stated that LMX is one of the main precursors of PS [32]. There are limited studies examining the relationship between LMX and PS in the health field. Khalil et al. [33] found a significant positive relationship between LMX and PS in research conducted on pharmacists during the COVID-19 period. These studies support our research findings.

In this study, a significant positive relationship was found between PS and JC. Therefore, nurses who feel psychologically comfortable and secure exhibit more proactive behaviors. It is possible for them to lead their work by taking actions that will make their work meaningful for them. When the literature is reviewed, there need to be more studies examining the relationship between PS and JC. For instance, in a study conducted on office workers, it was found that providing a psychologically safe environment encourages employees to exhibit proactive behaviors [34]. In a study including health sector employees in the sampling, it was found that PS is an important factor in promoting JC and is negatively related to crafting hindrance situations [35]. In a study conducted during the COVID-19 period, it was mentioned that JC is a useful practice to overcome the increasing uncertainties in extraordinary situations, and for this purpose, employees should feel psychologically safe [36]. These studies support our research findings.

Finally, the mediating role of PS in the relationship between LMX and JC was tested in this study. The findings show that PS mediates this relationship. To the best of our knowledge, this is the first study to consider the role of PS in the relationship between LMX and JC. The mediating role of PS in this relationship shows that PS is remarkable as an explanatory mechanism.

IMPLICATIONS OF THE STUDY

THEORY IMPLICATION

LMX is known to affect JC at various levels and in various ways. However, the number of studies examining the relationship between these two variables in the health field is quite limited. Therefore, this study on nurses contributes to expanding the literature on LMX and JC. Even if the effect of LMX on JC is known, this relationship needs to be further explained. It is known that the general environment and social conditions are effective factors in the relationship between the two variables. For this reason, the mediating role of the PS concept, which is effective in making employees feel safe and comfortable, was tested for the first time in this study. The indirect effect of LMX on JC through PS was positive and significant. Particularly in hospitals, a social environment where human relations are intensive, this result provides a different perspective on LMX and JC.

PRACTICAL IMPLICATION

Most healthcare workers face many negative situations, such as burnout, intention to leave the job, and low motivation. These negative situations occur mostly among nurses. This is because nurses have the largest proportion among healthcare workers and are the primary group responsible for healthcare services. These negative situations may affect not only the welfare of nurses but also the quality of health care provided [37]. Studies have shown that nurses work under physical, cognitive, and perceptual loads. Therefore, these problems in working conditions should be eliminated for the safety of both nurses and patients [38]. In addition, the health sector is a specialized field containing many uncertainties; anything can happen at any time and requires vital decisions to be made in the event of a crisis. The COVID-19 pandemic is one of the best examples of these difficult situations. Encountering many patients who died, caused a heavy mental destruction in the employees. In addition, workloads of all employees have increased and working conditions have become more difficult. This situation requires nurses to exhibit proactive behaviors. Therefore, providing an environment suitable for JC in hospitals can reduce the negative situations nurses face and enable them to exhibit proactive behaviors. Based on the study results, it is recommended that leaders/directors should provide a suitable environment for the realization of JC by exhibiting policies and behaviors enabling nurses to feel psychologically comfortable and safe.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The findings obtained due to the cross-sectional design of the study reveal the situation in a certain period. Thus, testing this model with a longitudinal design will be beneficial in terms of supporting the research findings. This study was conducted on private hospitals. As a different perspective, the situation in public hospitals can also be presented. Even public and private hospitals are comparable. On the other hand, the sample of the current study included nurses. Examining other professional groups in future studies shall contribute to generalizing the results obtained for health professionals.

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