


# Distributive Justice and Turnover Intention Among Medical Staff in Shenzhen, China: The Mediating Effects of Organizational Commitment and Work Engagement

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**Background:** Turnover of medical staff is a vital issue in the global healthcare system. Previous evidence has confirmed the critical effect of distributive justice on turnover intention, but few studies have focused on the mediating mechanism behind this relationship or the medical staff. This study aimed to examine the mediating roles of organizational commitment and work engagement in the relationship between distributive justice and turnover intention of medical staff, and explore potential occupational differences.

**Methods:** Stratified random sampling was adopted to select qualified medical staff from each clinical department of a large general hospital in Shenzhen, China, at a physician-to-nurse ratio of 1:1.5. The medical staff were surveyed using the Distributive Justice Scale, the Organizational Commitment Scale, the Work Engagement Scale, and the Turnover Intention Scale from May to July 2020. Of the 500 medical staff sampled, 480 responded (response rate: 96.00%), and 457 were finally included for analysis (effective response rate: 95.21%). A mediation analysis was performed using Model 6 of the SPSS macro PROCESS program.

**Results:** There were significant positive correlations among distributive justice, organizational commitment, and work engagement and significant negative correlations among distributive justice, organizational commitment, work engagement, and turnover intention. Distributive justice directly and negatively affected the turnover intention of physicians and nurses, but there were occupational differences in the underlying mechanism between distributive justice and turnover intention. Distributive justice indirectly affected turnover intention among physicians mainly through the mediating effect of organizational commitment, and indirectly among nurses through three different pathways: the mediating effect of organizational commitment, the mediating effect of work engagement, and the chain mediating effect of organizational commitment and work engagement.

**Conclusion:** The relationship between distributive justice and turnover intention was found to be mediated by organizational commitment and work engagement among medical staff in Shenzhen, with variations between physicians and nurses. Thus, appropriately targeted interventions are needed for physicians and nurses to reduce turnover intention.

**Keywords:** medical staff, distributive justice, turnover intention, organizational commitment, work engagement

## Introduction

Rapid economic development and an aging population have considerably increased the demand for high-quality medical services.<sup>1</sup> During the COVID-19 pandemic, the importance of medical staff has been particularly highlighted. As an essential human resource, medical staff promote and maintain individual health and help ensure the continuous operation of medical systems. However, because of the high work intensity, high occupational risk, and sometimes disharmonious physician-patient relationships, medical staffing is unstable, and turnover occurs frequently. Studies have revealed that

physicians' turnover intentions in the UK, Germany, the USA, France, and Finland range from 11.8% to 22%.<sup>2</sup> In addition, more than half of Iraqi physicians have expressed turnover intentions.<sup>3</sup> In recent years, the increasing turnover of medical staff in Chinese hospitals has also aroused widespread concern. According to a study in China, 10.4% of physicians in tertiary hospitals had considered working in other hospitals, and 20.5% were planning to switch careers.<sup>4</sup> The Global Health Observatory data repository showed that China has 2.20 medical doctors and 3.08 nursing and midwifery personnel per 1000 people, much lower than other countries such as the USA and Australia.<sup>5</sup> Given this context, excessive turnover of medical staff in China and having to deal with its consequences are likely to weaken the ability of hospitals to meet the needs of patients and ensure high-quality care, and may substantially increase the operational and management costs of hospitals.<sup>6</sup> Therefore, given the value of medical staff and the potential loss because of their mobility to hospitals and the medical system, it is essential to intervene in the turnover behavior of medical staff.

Turnover intention, the primary predictor of turnover behavior, is an inclination and willingness of employees to quit their jobs or professions, which has a predictive effect on actual turnover behavior.<sup>7</sup> According to the Sixth National Health Services Survey in 2018, the proportion of medical staff with moderate or above turnover intention in China was as high as 55.6%,<sup>8</sup> highlighting the urgent need to alleviate and deal with the problem of medical staff turnover. Understanding the mechanism of turnover intention can contribute to reducing the actual turnover rate and promote the implementation of strategies to prevent excessive loss of human resources.<sup>9</sup> However, previous studies in China have paid more attention to the influence of single psychosocial factors on the turnover intention of medical staff, with less attention paid to the comprehensive effects of multiple variables.<sup>10</sup> Given that turnover intention may be affected by various psychosocial factors, an in-depth examination of the mechanism of turnover intention is needed to enable more effective interventions to address this issue among medical staff.

Distributive justice refers to people's perceptions of the fairness of outcomes or resource allocation, which largely depend on the results of historical or social comparisons.<sup>11</sup> Many theories explain how distributive justice affects turnover intention, such as equity theory, the job demands-resources model, and the effort-reward-imbalance model. These theories widely agree that distributive justice is an effective factor in reducing turnover intention. According to equity theory, people tend to compare themselves with similar individuals around them. If there is an imbalance in distributive justice, they will change their behaviors and attitudes to balance the inputs and returns. However, if this change does not ease their sense of injustice, people may leave such situations as frustration builds.<sup>12</sup> An empirical study of business employees showed a close relationship between distributive justice and turnover, with employees who perceived a lack of distributive justice being more inclined to leave.<sup>13</sup> Distributive justice is a widespread concern in China, as many basic problems in the current medical system are related to deficiencies in the compensation system for medical staff.<sup>14</sup> Therefore, we considered it necessary to explore the effect of distributive justice on the turnover intention of medical staff.

Although previous studies on nurses have also confirmed the relationship between distributive justice and turnover intention,<sup>14</sup> most studies have not examined the potential pathways between them. Furthermore, previous studies have focused less on physicians. The specific role of distributive justice among physicians on turnover intention also remains unclear. Although the two types of professionals, physicians and nurses, work in the same organization, the nature of the demands and the degree of autonomy and control in their work have their own distinctive characteristics.<sup>15,16</sup> Specifically, these types of medical staff have occupational differences in work content and responsibilities, as well as individual differences in role cognition and personality traits, which may have correspondingly differing effects on their perceptions and attitudes. Therefore, this study aimed to explore the underlying mechanism between distributive justice and turnover intention among medical staff and to examine whether there are occupational differences between physicians and nurses in this mechanism. Clarifying the mechanism involved and the relevant relationships are likely to help formulate better-targeted incentive strategies for physicians and nurses in China, to address the issue of turnover intention more effectively among medical staff and help stabilize the healthcare workforce.

Organizational commitment is defined as an individual's identification and involvement in a particular organization. More precisely, this means they are willing to work hard for the organization and to stay there.<sup>17</sup> In the current study, high levels of organizational commitment were confirmed to be associated with positive organizational outcomes.<sup>18</sup> As

a psychological link between employees and their organizations, organizational commitment can lead to various beneficial organizational outcomes in relation to work behaviors, employee attitudes and employee retention.<sup>19,20</sup> An employee with a solid organizational commitment who can form an organizational identification, take ethical responsibility for the organization, and seriously consider the costs of leaving, will be less willing to leave their current organization.<sup>21</sup> In addition, distributive justice can influence employees' attitudes and behaviors. If an employee believes that the outcome they have obtained is fair, they will value their organization more and form a positive attitude toward it (such as organizational commitment).<sup>22</sup> Given the close association between organizational commitment, distributive justice, and turnover intention, Price et al proposed the Price-Mueller model, claiming that organizational commitment is a vital precursor factor affecting turnover intention, whereas structural factors such as distributive justice and salary can indirectly affect turnover intention through organizational commitment.<sup>23</sup> We aimed to explore further whether this relationship exists among medical staff.

Work engagement refers to a full and active working state, including the three dimensions of vigor, dedication, and absorption.<sup>24</sup> According to the job demands-resources model of Bakker and Demerouti, when work resources are insufficient to meet work demands, the level of work engagement declines.<sup>25</sup> In previous studies, distributive justice has been identified as the primary job resource that influences work engagement.<sup>26</sup> Specifically, the more that distributive justice is perceived as being applied by employees, the more actively engaged they are in their work. In addition, previous evidence suggests that work engagement is an essential factor affecting turnover intention, with higher work engagement associated with a lower turnover intention.<sup>27</sup> Employees with high work engagement not only improve customer satisfaction levels and the performance of their organizations, but also have a higher sense of work and life satisfaction.<sup>28</sup> Individuals with high work engagement may have a more heightened sense of work accomplishment and identification, which is a prerequisite for individuals' willingness to stay in an organization.<sup>29</sup> Therefore, work engagement may be an important mediator in the relationship between distributive justice and turnover intention among medical staff.

It would appear, therefore, that organizational commitment and work engagement could be considered as likely to independently mediate the relationship between distributive justice and turnover intention among medical staff. However, there are few studies on the overall relationship and influence path among distributive justice, organizational commitment, work engagement and turnover intention, especially among medical staff. It remains unknown whether these two mediating variables play a combined role. According to cognitive-affective system theory, organizational commitment is an essential factor affecting work engagement, promoting employees' work engagement by stimulating their obligation to return.<sup>30</sup> Empirical research also supports this view that organizational commitment and work engagement have a significant positive correlation, and organizational commitment can predict work engagement.<sup>31</sup> In light of previous studies, we assumed that organizational commitment and work engagement would play a chain mediating role in distributive justice and turnover intention. Statistically, the multivariate mediation model has more advantages than the simple mediation model, which can clarify the specific mediating effect of each mediating variable while controlling for other mediating variables, and reduce the parameter estimation bias caused by ignoring other mediating variables in a simple mediation model.<sup>32</sup> From a practical standpoint, when a mediation model contains more than one related mediating variable, such variables can play a serial mediating role.<sup>33</sup> The simultaneous intervention of multiple mediating variables will be more conducive to the improvement of dependent variables than the intervention of a single variable and will play a greater role.<sup>34</sup> Furthermore, if the chained mediation model is supported, it may be more effective to intervene in relation to the proximal factors concerning the dependent variables than the distal factors.<sup>35</sup> Therefore, this study aimed to explore the chain mediating effect of organizational commitment and work engagement to provide more ways to reduce turnover intention.

Owing to the differences in work content, characteristics, and requirements between physicians and nurses, there may be some differences in the related mechanism of distributive justice on turnover intention. However, the underlying mechanism of the relationship between distributive justice and turnover intention has not been established, nor whether such occupational differences exist. Therefore, this study aimed to explore the mediating roles of organizational commitment and work engagement among medical staff in the relationship between distributive justice and turnover intention in Shenzhen, as well as the occupational differences in the model, to provide a theoretical reference for more effective interventions to address the issue of medical staff turnover in China.

## Materials and Methods

### Participants and Procedures

In the first stage, convenience sampling was adopted to select a large general hospital in Shenzhen as the survey site for several reasons. First of all, Shenzhen attaches great importance to the development of medical staff. It is a pioneer in medical and health system reform in China, and many measures it has taken in the field of health have been emulated by other cities. Second, as a special economic zone in China, Shenzhen has a strong demand for medical care, but the current total amount of healthcare human resources is insufficient, with the number of practicing physicians and registered nurses per 1000 people ranking as the lowest among sub-provincial cities in China.<sup>36</sup> The high demand for health services and the shortage of medical staff highlight the importance of exploring the mechanism of distributive justice affecting turnover intention. Finally, the hospital is a large general hospital with a comprehensive capacity, comprising complete clinical departments and extensive treatment provision, with 1500–2000 employees. This hospital is relatively mature and stable in terms of its development, providing a context more likely to accurately reflect the long-term working conditions and attitudes of medical staff. We believe that this survey is representative of medical staff working in Shenzhen.

In the second stage, stratified random sampling was used to conduct a cross-sectional field survey at the hospital from May to July 2020. Since the ratio of physicians to nurses in this hospital is 1:1.5, we stratified the departments and investigated the medical staff meeting the inclusion criteria in each clinical department by that ratio to obtain a representative sample. A total of 200 physicians and 300 nurses were selected. Participants who met the following criteria were recruited: (1) physicians or nurses with professional qualification certification in hospitals; (2) physicians or nurses who had been working in the hospital for more than one year; (3) physicians or nurses who were regular employees; and (4) physicians or nurses who were working at their posts during the survey. Physicians or nurses who did not meet the above criteria or who were unwilling to participate were excluded from the sample.

This study was approved by the Ethics Committee of Southern Medical University, Guangzhou, Guangdong Province, China (Ethical approval number: NFKDX002). The data collectors guided the participants through the questionnaire after receiving training on obtaining their permission, explaining the purpose of research, understanding the content of the questionnaire, coding the participants, and keeping their answers confidential.<sup>37</sup> Before the survey, all participants were informed of the purpose and anonymity of the study, and asked to complete questionnaires within 5–10 minutes. After the participants had completed the survey, the data collectors collected the questionnaires and checked the completeness and accuracy of the questionnaires to exclude invalid questionnaires, such as regular answers and key information omissions. In total, 480 medical staff participated in the survey voluntarily. After excluding invalid questionnaires, 457 valid questionnaires were obtained, with an effective response rate of 95.21%.

## Measures

### Demographic Characteristics

Demographic information was collected, including age, gender, educational level, marital status, occupation, working years, and average weekly work time.

### Distributive Justice

Distributive justice was assessed on a scale based on the Distributive Justice Index developed by Price and Mueller,<sup>38</sup> and revised for the Chinese context with good reliability and validity.<sup>39</sup> Each item was rated on a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree).<sup>40</sup> Subsequently, items were averaged, with higher scores denoting a higher sense of distributive justice. The Cronbach's alpha coefficient of this scale in this study was 0.966.

### Organizational Commitment

Organizational commitment was measured by the Organizational Commitment Scale developed by Mowday and Porter and then translated by Yan.<sup>9,17,41</sup> Previous studies have tested this scale in the Chinese context with good reliability and validity.<sup>42</sup> The scale contained nine items and one dimension, using a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). Total scores were calculated and averaged. Higher scores indicated a stronger organizational commitment. The Cronbach's alpha coefficient of this scale in this study was 0.909.

## Work Engagement

The Chinese version of the Utrecht Work Engagement Scale was used to measure the level of work engagement of medical staff.<sup>24,43</sup> There were 17 items on the scale. A 5-point Likert scale was adopted, with 1 indicating “completely disagree” and 5 indicating “completely agree”. The average score of all items was calculated, and a higher score indicated a higher level of work engagement. In this study, the Cronbach’s alpha coefficient of this scale was 0.951.

## Turnover Intention

The Chinese Turnover Intention Scale developed by Liang et al was adopted.<sup>39</sup> The reliability and validity of the scale have been verified in previous studies in China.<sup>44</sup> The scale consisted of three items, and each item was scored similarly to the preceding scales described above. The average score for all items was used to measure participants’ turnover intention. Higher scores indicated higher turnover intention. In this study, the Cronbach’s alpha of this scale was 0.911.

## Statistical Analysis

IBM SPSS 25.0 was used for the descriptive statistics, reliability, and Pearson’s correlation analysis. Model 6 in the SPSS macro PROCESS program was used to examine the mediating roles of organizational commitment and work engagement in the relationship between distributive justice and turnover intention of physicians and nurses.

## Results

### Demographic Characteristics

In total, 457 valid questionnaires were collected. As shown in Table 1, 360 were females and 97 were males. The average age of the medical staff in this study was 33.44 years (standard deviation [SD] = 8.76). Among them, 278 were nurses and 179 were physicians. Most participants had a bachelor’s degree (80.1%). Additionally, 34.6% of the respondents reported that they worked more than 60 hours per week on average.

### Descriptive Statistics and Bivariate Correlations

Significant correlation between variables is a prerequisite for conducting a mediation test.<sup>45</sup> The results of the descriptive and correlation analysis of the data obtained from the physicians and nurses are presented in Table 2. It was found that distributive justice was positively correlated with organizational commitment ( $R = 0.40$ ,  $P < 0.01$  for physicians;  $R = 0.47$ ,  $P < 0.01$  for nurses) and work engagement ( $R = 0.27$ ,  $P < 0.01$  for physicians;  $R = 0.37$ ,  $P < 0.01$  for nurses), but negatively correlated with turnover intention ( $R = -0.38$ ,  $P < 0.01$  for physicians;  $R = -0.50$ ,  $P < 0.01$  for nurses). Similarly, organizational commitment was also positively correlated with work engagement ( $R = 0.55$ ,  $P < 0.01$  for physicians;  $R = 0.61$ ,  $P < 0.01$  for nurses) and negatively correlated with turnover intention ( $R = -0.67$ ,  $P < 0.01$  for physicians;  $R = -0.62$ ,  $P < 0.01$  for nurses). In addition, work engagement was negatively correlated with turnover intention ( $R = -0.46$ ,  $P < 0.01$  for physicians;  $R = -0.50$ ,  $P < 0.01$  for nurses). All study variables were significantly correlated, which provided statistical support for testing the mediation model.<sup>46</sup>

### Mediation Effect Testing

After standardizing all variables, multiple linear regression analysis was performed on physicians and nurses, using Model 6 in the SPSS macro PROCESS program to analyze the mediating effects of organizational commitment and work engagement between distributive justice and turnover intention. The results indicated that distributive justice had a negative effect on turnover intention among both physicians and nurses ( $\beta = -0.384$ ,  $P < 0.001$  for physicians;  $\beta = -0.503$ ,  $P < 0.001$  for nurses), and had a positive effect on organizational commitment ( $\beta = 0.396$ ,  $P < 0.001$  for physicians;  $\beta = 0.466$ ,  $P < 0.001$  for nurses). Organizational commitment could positively predict work engagement ( $\beta = 0.529$ ,  $P < 0.001$  for physicians;  $\beta = 0.552$ ,  $P < 0.001$  for nurses), whereas, it negatively predicted turnover intention ( $\beta = -0.548$ ,  $P < 0.001$  for physicians;  $\beta = -0.412$ ,  $P < 0.001$  for nurses). Additionally, the predictive effects of distributive justice on work engagement ( $\beta = 0.063$ ,  $P > 0.05$ ) and work engagement on turnover intention ( $\beta = -0.116$ ,  $P > 0.05$ ) were found not to be significant among physicians. However, for nurses, there were significant effects found for distributive justice on work engagement ( $\beta = 0.117$ ,  $P < 0.05$ ) and for work engagement on turnover intention ( $\beta = -0.156$ ,  $P < 0.05$ ) (see Table 3).

**Table 1** Demographic Characteristics of Medical Staff (N=457)

Variables	Frequency (N)	Percentage (%)
Gender		
Male	97	21.2
Female	360	78.8
Age		
≤30	219	47.9
31–40	157	34.4
≥41	81	17.7
Marital Status		
Single without partner	177	38.7
With spouse or partner	280	61.3
Number of children		
0	191	41.8
1	173	37.9
2	93	20.3
Educational level		
Junior college and below	26	5.7
Bachelor	366	80.1
Master degree or above	65	14.2
Occupation		
Physicians	179	39.2
Nurses	278	60.8
Working years		
1–5	250	54.7
6–10	111	24.3
11–15	50	10.9
16–20	27	5.9
≥21	19	4.2
Weekly work hours		
≤30	29	6.3
31–40	165	36.1
41–50	75	16.4
51–60	30	6.6
≥61	158	34.6

**Table 2** Descriptive Statistics and Bivariate Correlations for Physicians and Nurses (N=457)

	Physicians M (SD)	Nurses M (SD)	1	2	3	4
1 Distributive justice	2.73 (0.93)	2.95 (1.02)	–	0.47**	0.37**	–0.50**
2 Organizational commitment	3.47 (0.64)	3.63 (0.64)	0.40**	–	0.61**	–0.62**
3 Work engagement	4.20 (0.72)	3.97 (0.79)	0.27**	0.55**	–	–0.50**
4 Turnover intention	2.42 (0.81)	2.41 (1.02)	–0.38**	–0.67**	–0.46**	–

**Notes:** Correlations for physicians are presented below the diagonal and the correlations for nurses are presented above the diagonal; \*\* $P < 0.01$ .

**Abbreviations:** M, mean; SD, standard deviation.

Bootstrapping procedures were used to test the chain mediating effect, with 5000 rotations. As shown in [Table 4](#) and [Figure 1](#), among physicians and nurses, the 95% confidence interval (CI) for the direct effect of distributive justice on turnover intention and the single mediating effect of organizational commitment did not cross 0, indicating that distributive justice could directly predict turnover intention (effect =  $-0.136$ , lower limit [LL] =  $-0.237$ , upper limit [UL] =  $-0.016$  for physicians; effect =  $-0.253$ , LL =  $-0.378$ , UL =  $-0.165$  for nurses), and that organizational commitment was the mediator between them



**Table 3** Regression Analysis of the Relationship Between Distributive Justice and Turnover Intention for Physicians and Nurses (N=457)

Regression Equation		Physicians					Nurses				
Result variable	Predictor variable	R	R <sup>2</sup>	F	β	t	R	R <sup>2</sup>	F	β	t
Turnover intention	Distributive justice	0.384	0.148	30.666	-0.384	-5.538***	0.503	0.253	93.537	-0.503	-9.671***
Organizational commitment	Distributive justice	0.396	0.157	32.855	0.396	5.732***	0.466	0.217	76.554	0.466	8.750***
Work engagement	Distributive justice	0.557	0.311	39.630	0.063	0.924	0.615	0.379	83.787	0.117	2.183**
	Organizational commitment				0.529	7.767***				0.552	10.273***
Turnover intention	Distributive justice	0.686	0.470	51.703	-0.136	-2.263**	0.680	0.462	78.445	-0.253	-5.008***
	Organizational commitment				-0.548	-7.884***				-0.412	-6.986***
	Work engagement				-0.116	-1.755				-0.156	-2.773**

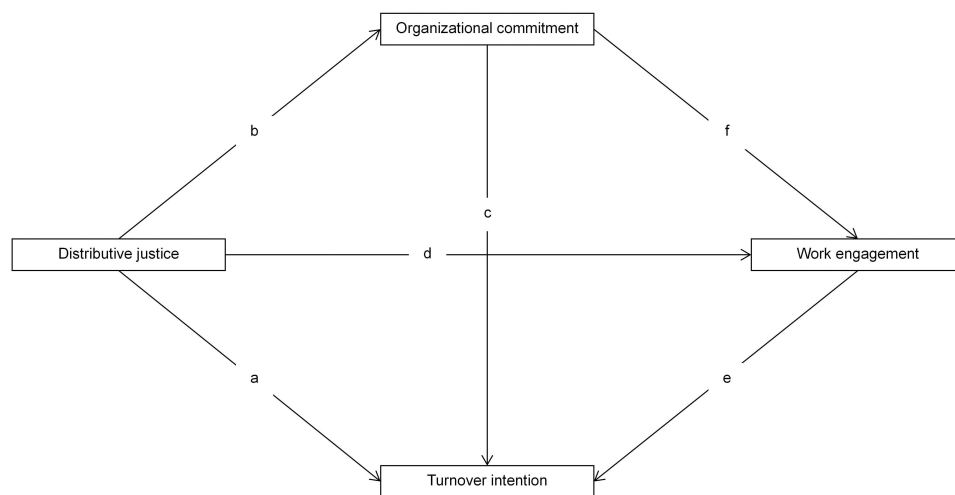
Notes: \*\*\*P<0.001; \*\*P<0.05.

**Table 4** Organizational Commitment and Work Engagement in the Mediation Effect Analysis for Physicians and Nurses (N=457)

Pathway	Physicians				Nurses			
	Effect	BootSE	BootLLCI	BootULCI	Effect	BootSE	BootLLCI	BootULCI
Indirect effect 1	-0.217	0.051	-0.326	-0.123	-0.192	0.038	-0.272	-0.124
Indirect effect 2	-0.007	0.009	-0.028	0.009	-0.018	0.011	-0.046	-0.001
Indirect effect 3	-0.024	0.014	-0.055	0.001	-0.040	0.016	-0.073	-0.011
Total indirect effect	-0.248	0.052	-0.351	-0.149	-0.250	0.036	-0.325	-0.184
Direct effect	-0.136	0.056	-0.237	-0.016	-0.253	0.054	-0.378	-0.165
Total effect	-0.384	0.065	-0.485	-0.230	-0.503	0.056	-0.650	-0.430

Notes: Indirect 1, distributive justice→organizational commitment→turnover intention; Indirect 2, distributive justice→work engagement→turnover intention; Indirect 3, distributive justice→organizational commitment→work engagement→turnover intention.

(effect = -0.217, LL = -0.326, UL = -0.123 for physicians; effect = -0.192, LL = -0.272, UL = -0.124 for nurses). These two paths formed a common path in terms of the effect of distributive justice among physicians and nurses on turnover intention. Notably, work engagement was not found to be a mediator between distributive justice and turnover intention among physicians (effect = -0.007, LL = -0.028, UL = 0.009). The same was true for the chain mediating role of physicians' organizational commitment and work engagement (effect = -0.024, LL = -0.055, UL = 0.001). However, in contrast to the



**Figure 1** The chain mediation model by occupation.

Notes: (A), β = -0.136, P < 0.05 for physicians; β = -0.253, P < 0.001 for nurses. (B), β = 0.396, P < 0.001 for physicians; β = 0.466, P < 0.001 for nurses. (C), β = -0.548, P < 0.001 for physicians; β = -0.412, P < 0.001 for nurses. (D), β = 0.063, P = 0.357 for physicians; β = 0.117, P < 0.05 for nurses; (E), β = -0.116, P = 0.081 for physicians; β = -0.156, P < 0.05 for nurses. (F), β = 0.529, P < 0.001 for physicians; β = 0.552, P < 0.001 for nurses.

findings for physicians, the 95% CI for both direct and indirect effects in nurses did not cross 0, indicating that all paths were significant. Specifically, the total indirect effect for nurses was composed of indirect effects generated by three pathways: path 1 involved distributive justice → organizational commitment → turnover intention; path 2 involved distributive justice → work engagement → turnover intention; and path 3 involved distributive justice → organizational commitment → work engagement → turnover intention. The values of the indirect effect (path 1), indirect effect (path 2) and indirect effect (path 3) were  $-0.192$ ,  $-0.018$ , and  $-0.040$ , respectively, accounting for 38.17%, 3.58%, and 7.95% of the total effect.

## Discussion

This study investigated the mediating roles of organizational commitment and work engagement in the relationship between distributive justice and turnover intention among medical staff in Shenzhen, China, and explored the potential occupational differences in the model. Distributive justice was found to directly and indirectly affect the turnover intention of medical staff, and organizational commitment played a significant mediating role. However, interestingly, our study found that the single mediating effect of work engagement and the chain mediating effect of organizational commitment and work engagement were significant for nurses, but not for physicians. The results revealed occupational differences in organizational commitment and work engagement in the relationship between distributive justice and turnover intention for physicians and nurses.

This study found that distributive justice had a negative predictive effect on the turnover intention of medical staff, which was consistent with previous studies.<sup>14</sup> More specifically, medical staff with a higher sense of distributive justice may have a lower turnover intention. One possible explanation is that distributive justice is an essential component of people's perceived social value.<sup>47</sup> When medical staff perceives distributive justice, they believe that they are in a valued position in the hospital. This is likely to encourage such individuals to develop a greater sense of positive psychological security and treat other members in the hospital in a friendly manner, thereby improving team cohesion and reducing the motivation to leave or resign. Another explanation is that medical staff may evaluate the internal and external environment of the hospital and weigh the possible consequences of turnover before making decisions.<sup>48</sup> When they feel that the distribution is fair, they may fail to find other options more attractive than staying in the organization and thus may be more inclined to stay in order to avoid possible losses.

This study showed that organizational commitment was a significant mediator of distributive justice and turnover intention, which was in line with a study of employees among five institutions in Dubai and further supported the viewpoint of the Price-Mueller model.<sup>23,49</sup> More precisely, when the distribution is perceived to be fair, employees will identify with their organization, and thus be less likely to develop intentions to leave it. In light of these results, we would contend that, under the effect of distributive justice, medical staff would be likely to have a tolerant attitude toward their organizations and be more forgiving of defects in systems and procedures.<sup>50</sup> They would also be likely to identify with their organizations and develop a higher organizational commitment, helping deepen their desire to establish a long-term and stable relationship with their hospitals.<sup>51</sup> Thus, improving the organizational commitment of staff is vital in hospital human resource management.

More importantly, this study revealed occupational differences in the mechanisms of distributive justice and turnover intention. First, the mediating effect of work engagement was significant only for nurses and not for physicians. In an organizational environment with high distributive justice, nurses with higher work engagement showed a lower turnover intention. This was similar to the finding of Shahpouri et al, who reported the partial mediating effect of work engagement in the relationship between job resources, personal resources, and turnover intention.<sup>26</sup> According to the self-interest model, nurses may adjust their work engagement level according to the extent of established distributive justice principles in an organizational environment of equitable distribution.<sup>52</sup> Consequently, they are likely to consider their work situation as controllable and increase their positive cognition of job prospects, leading to lower turnover intentions. By contrast, a mediating effect of work engagement on physicians was not found. A possible explanation is that, as individuals with high professional standards and a high sense of life responsibility, physicians tend to be altruistic and always maintain high vitality and concentration to spare no effort in treating patients. Moreover, the prescriptions written by physicians have a decisive effect on patients, and thus, physicians are bound to assume greater responsibility and have a deeper understanding of the importance of their work than nurses.<sup>53</sup> This would imply that physicians' work



engagement is governed more by a sense of duty and a sense of mission in relation to their profession than it is by distributive justice. Consequently, improvements in work engagement do not alleviate the negative impact of distributive justice on turnover intention.

Second, this study demonstrated that organizational commitment and work engagement played a chain mediating role between distributive justice and turnover intention, but only for nurses. This finding indicated that a high level of perception of distributive justice could improve the organizational commitment of nurses, driving them to increase work engagement and maintain a positive work state, thereby alleviating high turnover intention. According to social exchange theory, employees and organizations maintain an exchange relationship.<sup>54</sup> If nurses perceive distributive justice applying in terms of rewards, they are likely to think that the exchange relationship is fair and reasonable, which in turn would generate a moral or quasi-moral obligation to the organization, resulting in a higher organizational commitment.<sup>55</sup> As a form of exchange, they will feel obliged to return the fair treatment of the organization with a higher level of work engagement, thereby reducing turnover intention.<sup>31</sup> However, although some conditions for mediation were found among physicians (that is, distributive justice explained organizational commitment and turnover intention, and organizational commitment explained work engagement), work engagement did not affect physicians' turnover intention, which inhibited the chain mediating effect. This finding is inconsistent with previous studies showing that work engagement could significantly negatively affect the turnover intention of rural physicians in China,<sup>56</sup> which needs further attention in future studies.

This study had several limitations. First, although this study explored the mediating roles of organizational commitment and work engagement in the relationship between distributive justice and turnover intention, the limitations of the cross-sectional investigation mean that the causal relationship between the four variables could not be assessed. Thus, longitudinal surveys are necessary to verify the intrinsic relationships between the variables. Second, a self-report questionnaire was used in this study, which involved subjective assessment. Third, because of the COVID-19 pandemic, we did not conduct a large-scale nationwide survey but only conducted a survey of medical staff in one hospital in Shenzhen. Future research should be expanded to collect data from different regions and occupations to verify whether the research results can be generalized.

## Theoretical Implications

Theoretically, our study provides a valuable direction for future research. First, this study enriches the existing literature on distributive justice and turnover intention among medical staff. Our study is one of the few to investigate the turnover intention of medical staff in Shenzhen and which shows that the distributive justice perception of medical staff had a negative predictive effect on turnover intention in the context of large cities in China. Second, the results strengthen the existing literature on distributive justice, organizational commitment, work engagement and turnover intention, by showing that organizational commitment and work engagement had a chain mediating effect between distributive justice and turnover intention among medical staff in Shenzhen. Finally, this study found that there were occupational differences in the influence mechanism of distributive justice on turnover intention, which can be used to prompt researchers to take occupational factors into consideration in further research.

## Practical Implications

Our study of the influence mechanism of distributive justice on turnover intention among medical staff can help formulate corresponding countermeasures to retain Chinese medical staff and ensure the stability of medical staff. First, distributive justice has a negative predictive effect on the turnover intention of medical staff. As an important vehicle and manifestation of interpersonal relationships, distributive relationships affect the way people interact with others and with organizations. Therefore, we recommend that technical ability, workload, work experience, occupational risk, service quality, and other factors be considered comprehensively in medical staff's performance appraisals and incentive mechanisms when adjusting medical staff wages. Additionally, a fair and transparent system of professional qualifications and post-promotion incentives is essential to promote the personal development of medical staff. Second, the results suggest that managers should pay attention to the important mediating role of organizational commitment, and focus on strengthening the hospital culture, on humanistic care, and on staff career management, to improve the retention rate of medical staff. Third, according to our findings, managers need to consider the different professional characteristics

of physicians and nurses when looking for ways to reduce turnover rates. Distributive justice can directly affect turnover intention, or indirectly affect turnover intention by first affecting the distal factor organizational commitment and then the proximal factor work engagement in the nursing population. Management should comprehensively consider the three indirect paths affecting turnover intention simultaneously while improving the fairness of distribution. Efforts should be made to enhance nurses' organizational commitment and work involvement, and strengthen nurses' organizational emotional support, through encouraging open channels of communication, positive interaction among staff, and providing training and personal development opportunities to increase their willingness to work.

## Conclusion

In conclusion, this study explored the potential mechanism between distributive justice and turnover intention among medical staff and investigated its occupational differences in Shenzhen. Organizational commitment was found to be the critical mediating factor between distributive justice and turnover intention among medical staff. Additionally, the single mediating effect of work engagement and the chain mediating effect of organizational commitment and work engagement were significant only for nurses. These findings highlight possible occupational differences in the mechanisms of distributive justice and turnover intention, suggesting the need for appropriately targeted interventions aimed at physicians and nurses to reduce turnover intention.

## Ethics Statement

This study was approved by the Ethics Committee of Southern Medical University, Guangzhou, Guangdong Province, China (Ethical approval number: NFKDX002). In addition, we confirm that this study was conducted in accordance with the Declaration of Helsinki. The participants provided their written informed consent to participate in this study.

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## Disclosure

Dongxue Chen, Qian Lin, and Tiecheng Yang are co-first authors in this study. The author reports no conflicts of interest in this work.

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