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Original Article

The causal relationship between moral leadership and moral climate on the fatigue of nurses with the mediating role of perceived stress

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Abstract

The present study aimed to test the structural model of the effect of ethical leadership and ethical climate on nurses' fatigue, with an emphasis on the mediating role of perceived stress. In the form of a correlational design, 161 participants from the study population, including nursing staff working in teaching hospitals affiliated with Khorramabad University of Medical Sciences in 1402-1403, were selected using a cluster random sampling method in the form of dividing hospitals into two groups: city centers and suburbs. The data was collected using the Fatigue Assessment Questionnaire (MFI), Perceived Stress Scale (PSS), Spocker's Ethical Climate Scale, and Brown et al.'s Ethical Leadership Questionnaire. Structural equation modeling (SEM) was used as a statistical method to analyze the study data, and Amos software was used to analyze the data. The results showed that ethical leadership and ethical climate have a significant relationship with fatigue. Also, a mediation test using the bootstrap method showed the importance of perceived stress in the relationship between ethical leadership and ethical climate as well as fatigue. The research findings indicate that nurses' fatigue and perceived stress are influenced by ethical leadership and ethical climate. Therefore, strategies and solutions such as creating ethical leadership and creating the necessary ethical climate for them can be used to reduce fatigue and perceived stress in nurses.

Keywords

Ethical climate
Ethical leadership
Nurses' fatigue
Perceived stress

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Introduction

Fatigue is a common experience among nurses today, and it can have a significant impact on patient care outcomes and cost the healthcare system significant amount of budget (Balaoing, 2023). According to research findings, nurses report a prevalence of fatigue of 91.9%, which indicates that two-thirds of nurses frequently experience fatigue (Groves et al., 2020). The term "fatigue" was first defined by Johnson in 1992 as a component of burnout, referring to temporary inability during consecutive muscle contractions and the failure to maintain strength, or a feeling of mental and physical incapacity accompanied by discomfort, failure, and humiliation (Canadian Nurses Association, 2012). Nurse fatigue is defined as a subjective, multidimensional feeling That is both physically and mentally pervasive, interfering with their physical and cognitive abilities, and may persist even after rest periods (Billones et al., 2021). Nurse fatigue arises from confronting difficult and exhausting situations, such as caring for injured patients, which can lead to various complications (Bell et al., 2023). An increase in musculoskeletal disorders, frequent absenteeism due to illness, reduced alertness and efficiency, and an increase in job turnover are some of the complications mentioned by Henson & Sherry in 2020. Nurses' performance is disrupted by these complications and fatigue (Al-Mugheed et al., 2022). The nursing profession's focus on human health makes research in this area even more crucial, and it's imperative to identify the factors that lead to fatigue. Nursing is a highly stressful profession (Masadeh et al., 2021). According to Stewart et al.,2020, nearly 90% of national nurses' associations worldwide are concerned about nurses' burnout, stress, and fatigue (Stewart et al.,2020). These issues, stemming from the unique nature of their stressful job, have become an integral part of modern nursing, creating many problems for both nurses and patients (Shamsi et al., 2022). Stress has become a major focus in the nursing profession (Tajnia et al., 2022).

According to Lazarus and Folkman (1984), perceived stress is a result of individuals' perceptions and

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evaluations of the stress process. Perceived stress occurs when an individual interprets and evaluates an event as imposing stress and pressure (Shamsi et al., 2022). The organization will lose its motivated workforce if it ignores the constant stresses nurses face over time. Undoubtedly, the deterioration of long-developed talents and capabilities leads to nurse fatigue (Ghaffari et al., 2021). Previous research has demonstrated that nurses who experience perceived stress experience decreased productivity and eventually experience burnout (Dopolani et al., 2022). A study estimates that 60% of nurses working in Iranian hospitals experience stress (Mohammadi et al., 2020). Stress in the workplace is detrimental to both patients and nurses, leading to a decrease in nurses' performance in patient care (Raisi et al., 2021). Therefore, it is crucial to identify and strengthen the factors that help nurses reduce stress and fatigue. The ethical climate is a factor that contributes to reducing perceived stress and fatigue among nurses. The shared perception of how issues are resolved, ethical management is conducted, and what is considered morally correct and appropriate is what defines organizational ethical climate. According to researchers, the ethical climate within an organization refers to the perception of its members regarding which organizational activities and procedures are right and which are wrong (Kim et al., 2021). In healthcare environments, the ethical climate is described as a form of organizational climate that arises from relationships among healthcare personnel, support from the medical staff, open communication regarding patient care, and interactions with patients and their families (Brooks et al., 2020). This ethical climate can be utilized as an organizational variable to enhance the care environment (Kim et al., 2020), and it can also create a foundation for proper nursing performance, which affects patient care outcomes and even the nurses themselves. It helps retain nurses in their profession (Fouladi et al., 2023). Therefore, since the work environment influences nurses' willingness to continue their service, a negative ethical climate and a negative perception of it lead to job dissatisfaction among nurses and their decision to leave their job or even the profession (Clark et al., 2021). Based on the aforementioned studies, processes that impact the creation of an ethical climate and staff role modeling at all levels have lasting effects. Leadership and the ethical climate have an impact on variables such as stress and fatigue. Reduced work efficiency among nurses is also caused by fatigue and stress. Therefore, based on the research background, the present study aims to examine the relationship between ethical leadership and the ethical climate with fatigue, with the mediating role of perceived stress among nurses. See Figure1.

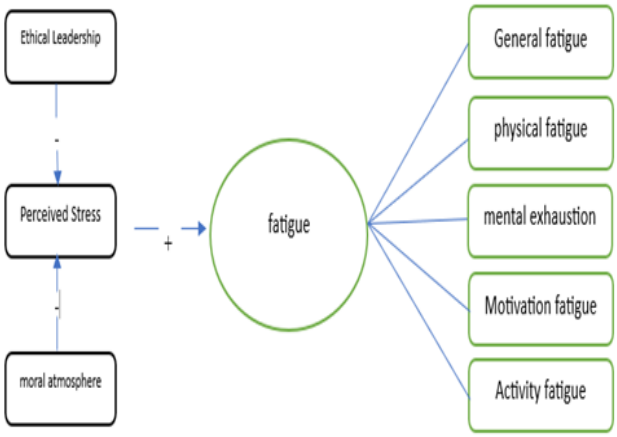

Figure 1. Conceptual model of the study

Method

Participants

The present research design is a correlational design through structural equation modeling (SEM), which is a multivariate correlation method. The research population includes nurses working in teaching hospitals affiliated.

With Khorramabad University of Medical Sciences in 1402-1403 using cluster random sampling method in the form of hospital division, of whom 161 people were selected as a sample by random sampling method.

Instrument

Fatigue Measurement Questionnaire (MFI):

The Multidimensional Fatigue Inventory (MFI) was developed by Smets (1996) and consists of 20 items and 5 subscales: general fatigue (4 questions), physical fatigue (4 questions), decreased activity (4 questions), decreased motivation (4 questions), and mental fatigue (4 questions). It is used to measure fatigue. The total score of each domain is 4-20, and the total fatigue score is determined by summing the scores of the domains between 20 and 100, a higher score indicates a higher level of fatigue. Confirmatory factor analysis showed that the questions of each dimension describe the same dimension and the questionnaire has good internal consistency (alpha coefficient for general, physical, and mental fatigue was higher than 8%, and for decreased activity and motivation was higher than 65%). The results of other studies also confirm the appropriate reliability and validity of this tool. This questionnaire has been translated into Persian and its reliability and validity have been confirmed (Khani-Jazni et al., 2012).

Perceived Stress Scale (PSS):

This scale was designed in 1983 by Cohen et al (Cohen et al, 1983). The scale has 14 items, which are adjusted based on the Likert scale. The PSS questions project about feelings and thoughts that the individual has had during the past month. The minimum score on this scale is 14 and the

maximum score is 70. In this scale, items 4, 5, 6, 7, 9, 10, and 13 are scored inversely. Cohen et al., the internal consistency coefficients for each of the subscales and the overall PSS score were between 0.84 and 0.86 (Cohen et al, 1983).

Ethical Leadership Questionnaire:

In the present study, the ethical leadership questionnaire of (Brown et al., 2005) was used to measure ethical leadership. This questionnaire has 10 items and its answers are on a five-point Likert scale from 1 (completely disagree) to 5 (completely agree). Brown et al.(34) have reported the reliability coefficient of this questionnaire using Cronbach's alpha method of 0.95 (McKenna et al., 2021). In the research of Baharlu et al., the reliability of this questionnaire was obtained using Cronbach's alpha coefficient of 0.84 (Baharlo et al, 2015).

Ethical atmosphere questionnaire:

To measure the moral atmosphere, Shpoker's ethical atmosphere scale (Schwepker et al, 2001) was used. Which has 7 items and its answers are scored on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). The creator of this questionnaire has reported a Cronbach's alpha coefficient of 0.86 for its reliability (Schwepker et al, 2001). Also, Shamsi and colleagues obtained the reliability of the questionnaire using Cronbach's alpha coefficient of 0.81 (Shamsi et al, 2016).

Procedure

The inclusion criteria for the study were: willingness to participate, not working in an administrative job, and having work experience of one year or more.

Results

The descriptive indices of the research variables are presented in Table 1 and 2.

Table 1. Descriptive indices of research variables

Average research variables	Average	Standard deviation	Skewness	kurtosis
Ethical atmosphere	18.69	6.96	0.51	-0.92
Ethical leadership	29.39	9.49	0.63	-.059
Perceived stress	46.44	12.59	-0.43	-.081
Fatigue	43.83	8.22	-0.12	-1.04

Table 1 shows the mean and standard deviation of the scores related to the research variables. Also, the other two columns of the table show the skewness and kurtosis results for the normality of the data. As can be seen, the skewness and kurtosis indices of all apparent variables are between -2 and +2, which indicates the Normality of the distribution of the variables and their suitability for performing regression analysis (P<0/05). Table 2 displays the Pearson correlation coefficients between the research variables, given that the regression analysis is based on the sample correlation matrix.

Table 2. Correlation coefficient between research variables

Variables	1	2	3	4
1- Ethical atmosphere	-			
2- Ethical leadership	0.66**	-		
3- Perceived stress	0.56**	0.55**	-	
4- Fatigue	0.35**	0.024**	0.43**	-

The correlation between all research variables is significant, as shown in Table 2. Evaluation regarding the compatibility of the model proposed by the researcher with the data collected from the sample, whose most important indicators are the chi-square index and the square root of the mean square of the estimation error. Incremental criteria also compare the estimated model with the zero model, the most important indicators of which are Bentler-Bonnet's normalized index and comparative fit index. If the values of the introduced indicators are favorable compared to their decision criteria, the fit of the models and the alignment of the questions with the factors can be confirmed. The criteria for the acceptability of these indicators and the results of these analyses are presented in Table 3.

Table 3. The fit indices of the structural mode

Indicator / Model	CMIN	CMIN/DF	CFI	NFI	IFI	TLI	RMSEA
Suggested template	21.14	1.11	0.997	0.972	0.997	0.996	0.027
decision criterion	P>0.05	1<χ2/df<5	GFI>0.9	NFI>0.9	IFI>0.9	TFI>0.9	RMSEA<0.08

As can be seen in Table 3, all the fit indices are at an optimal level, so the measurement models have achieved an optimal level of fit and based on them, the structure of each variable can be confirmed. The main criterion for identifying the conformity of the conceptual model with the experimental data is Chi-Square (CMIN), which can be explained by fit indices. The CMIN value for the model is acceptable if the significance level of P is higher

than 0.05. The CMIN/DF index also shows the difference between the conceptual model of the research and the research data, which is lower than the CFI and NFI indices. It should be said that the CFI index, through the comparison of an independent model, has No relationship between the variables and the proposed model, which is the value of the test improvement. On the other hand, NFI demonstrates the difference between the conceptual model and the model in which the variables are defined completely independently. As the results showed, the values of these indices were greater than 0.9, which indicates the appropriate fit of the measurement patterns. In addition to this RMSEA index, it is the root mean square of approximation, which is defined as the size of the difference for each degree of freedom, the value of which is less than 0.08, the better the fit of the model. Based on the obtained results, the output of Amos software is presented in Figure 2.

As can be seen in Figure 2, all coefficients of direct paths are completely significant. In addition, the results of the bootstrap also showed that all indirect relationships are significant (P<0.001) as shown in Table 4.

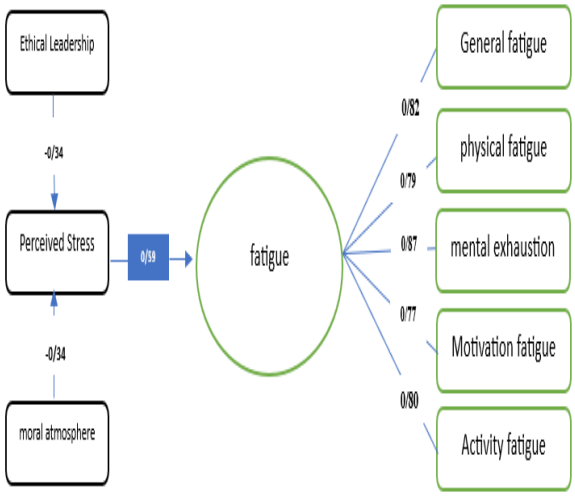

Figure 2. Conceptual model of the study

Table 4. Bootstrap results for mediating research paths

path	Indirect effect	lower limit	upper limit	significance level
Ethical Leadership ⟹ Perceived Stress ⟹ fatigue	-19.0	-0.30	-0.10	0.007
Ethical atmosphere ⟹ Perceived Stress ⟹ fatigue	-0.20	-0.33	-0.08	0.009

According to Table 4, the lower limit of the confidence interval for perceived stress as a mediator in the relationship between moral leadership and fatigue is (-0.19) and its upper limit is (-0.30) in the relationship between moral climate and fatigue as a mediator. (-0.20) and its upper limit is (-0.33). The confidence level for this confidence interval is 95. Given that zero is outside this confidence interval, therefore, the mediating relationships have been significant.

Discussion

The present study aimed to investigate the relationship between ethical leadership and the organizational moral climate with fatigue, considering the mediating role of perceived stress in nurses working in Khorramabad hospitals, and the results of the study indicated this relationship. There is a significant and negative correlation between ethical leadership and the ethical climate with fatigue. In this way, the more positive the ethical climate in the organization, the less stress is felt, which accordingly reduces the level of fatigue in them. If the level of perceived stress in the organization is high, the perceived level of fatigue also increases. Ethical behaviors in an organization are manifestations of management, and to promote ethical behaviors, the organization's management must play a fundamental role (Gonçalves et al., 2023), which is consistent with the results of Six et al. (2023) Strengthening ethical leadership can, directly and indirectly, reduce job stress, which is caused by indicators such as stress due to limited responsibility and authority, perceived inefficiency, stress due to conflict and contradiction, fatigue, and burnout. The findings of McKenna and Jesky's (2021) study also indicate that there is a significant relationship between the level of job stress and the ethics that employees perceive, in other words, employees who consider ethics as the rule in their workplace perceive less job stress. Ducharlet et al. (2020), in their research, also showed that there is a relationship between the ethical climate and the intention to leave, emotional exhaustion, job satisfaction, trust in the supervisor, interpersonal conflicts, and the ethical climate because if the manager's behavior with the employees of an organization is interpreted ethically, the organization will find that the level of job satisfaction has increased and the desire to leave the job has also decreased (Kim M. et al., 2020). In addition, in explaining the findings, it can be said that in addition to internal stressors caused by job and work-related stress, organizational and managerial factors related to jobs are also involved in work-related stress among nurses. To better manage job stressors, in addition to individual measures that must be taken to control job-related work pressure, organizational factors are also involved in the effective management of stressors. In a way, managers also pay attention to adaptation by using measures such as guiding and supporting employees. Job and meritocracy, designing an appropriate legal system, improving organizational communications, and people's participation in decision-making can be effective in managing job stress and preventing employees from becoming more committed to their jobs and burnout.

On the other hand, regarding the relationship between perceived stress and fatigue, the results of the study showed that there is a positive and significant relationship between perceived stress and fatigue in nurses, and these findings are consistent with the results of domestic studies such as Basahrpoor et al. (2013), Babapour et al. (2021), Masada et al. (2021), and

Mohammadi et al. (2020), who showed in their research that nurses experience moderate stress. This finding is also consistent with the results of Labrago's (2020) research, which reported in their study that there is a significant relationship between physical and mental health, including headache, fatigue, and insomnia in nurses, and their job stress. There is a correlation between physical and mental health, including headache, and fatigue, and there is a significant relationship between insomnia in nurses and their job stress. Findings: It seems that the problem of adapting to problematic and stressful conditions in the workplace can affect the mental health of nurses and is expected to lead to high job burnout. Given that hospitals need motivated and cheerful staff to achieve their goals, it is essential to pay attention to the mental health of nursing staff. In this regard, we must seek to strengthen morale create appropriate mental health, and create solutions for cheerfulness and creating cheerfulness. It can be said that factors such as working in the ward and caring for patients, dealing with patient suffering, lack of resource support, high workload, inappropriate organizational relationships with colleagues, and patient's lack of response to treatment are considered stressful factors in the workplace (Asl et al., 2022). Nurses face physical, psychological, and social stimuli in all areas of their work, each of which can cause them a lot of stress, so facing these conditions is a fundamental factor in their encounter with feelings of fatigue in different dimensions. As these stressful conditions continue, the individual feels threatened, and if an individual is constantly under pressure in their job situation, in the long run, this pressure creates a negative emotional state towards themselves and their job, and as a result, it provides the basis for an intensified decrease in interest and motivation towards the job (Bardhan et al., 2019).

Conclusion

Given that the results of the study indicate that the majority of nurses report high stress in their workplace and, as a result, severe fatigue. Given that this study aims to discover the negative relationship between ethical leadership and ethical climate with fatigue, it is suggested that nurses working in hospitals receive training to deal with stress to increase their ability level by taking advantage of this training. Awareness can be increased to improve their health. Given the positive and significant role of rational leadership and the resulting ethical climate, it is recommended that managers of medical centers reduce the perception of stressful experiences by using appropriate management methods and provide the basis for creating job satisfaction and vitality in the workplace.

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No potential conflict of interest was reported by the authors.

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