



# Comparison of the Effect of Yoga and Aerobic Exercise on Nurses' Burnout: A Randomized Controlled Trial

Saede Faramarzi<sup>1</sup>, Ali Dehghani <sup>1</sup> and Mohsen Hojat <sup>1,\*</sup>

<sup>1</sup>Department of Nursing, School of Nursing, Jahrom University of Medical Sciences, Jahrom, Iran

\*Corresponding author: Department of Nursing, School of Nursing, Jahrom University of Medical Sciences, Jahrom, Iran. Email: mohsenhojat.mh@gmail.com

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## Abstract

**Background:** There is evidence of yoga and aerobic exercises as an effective therapy for nurse burnout; however, these methods have yet to be compared.

**Objectives:** This study aimed to compare the effects of yoga and aerobic exercises on burnout among nurses.

**Methods:** This was a randomized controlled trial with a pre-test and post-test design. The study was conducted in two medical and educational hospitals in the south of Iran (February 2019 to April 2019). A total of 81 female nurses were randomized to yoga (n = 27), aerobics (n = 27), and control (n = 27) groups. In this study, 24 sessions of yoga and aerobic practices were run. The Maslach Burnout Inventory was filled out before the intervention, immediately after, and one month later. The data were analyzed using IBM SPSS software 16.0. Shapiro test, analysis of variance (ANOVA) test, chi-square test, Friedman test, and Kruskal-Wallis one-way analysis test were used to analyze the data.

**Results:** A total of 71 participants remained and continued the study, and 56% were married. The participants' mean age and mean work history were  $35.78 \pm 3.94$  and  $11.65 \pm 5.10$  years, respectively. The mean of overtime work in the month was  $35.67 \pm 23.85$  hours. There were no significant differences between the three groups before intervention ( $T_0$ ) and one month after intervention ( $T_2$ ), although the mean scores of the aerobic and yoga groups were reduced, compared to the control group. Immediately after intervention ( $T_1$ ), a significant difference was observed in emotional exhaustion ( $P = 0.007$ ,  $Df = 2$ , Kruskal-Wallis  $\chi^2 = 10.016$ , size effect = 0.95 - 2.26). The mean score of emotional exhaustion in the yoga group ( $23.13 \pm 4.13$ ) was reduced compared to the aerobic ( $36.00 \pm 5.65$ ) and control ( $38.44 \pm 10.96$ ) groups.

**Conclusions:** Both yoga and aerobics reduced burnout, compared to the control group. Yoga was better than aerobics in the emotional exhaustion dimension. Although further research is needed to compare these two interventions, using each of them can reduce the burnout of nurses. Nursing managers can use yoga as an effective method to reduce job burnout. For future research, it is suggested to use other yoga techniques with longer intervention time and long-term follow-up.

**Keywords:** Burnout, Yoga, Aerobic Exercise, Nurses

## 1. Background

Nurses are usually under lots of physical and psychological stresses, which can cause many individual, familial, social, and organizational consequences. High job stress can lead to burnout in nurses (1). The prevalence rate of nurse burnout was reported within the range of 25 - 68%. Burnout in nurses was four times greater than that of other professionals (2). Moreover, the prevalence of burnout among female nurses was very high (3-5). Burnout has negative consequences on nurses' health (6, 7). New research has shown that burnout is transmitted from one employee to another; therefore, it harms the workplace atmosphere (2, 6).

Several strategies have been proposed to reduce burnout, among them yoga and aerobic exercise, which are emphasized more (8). Because it is done in a group, it improves interpersonal interaction, reduces physical pressure and muscle spasms, and is a form of self-care (9). By promoting relaxation and creating a sense of restoration, yoga can decrease symptoms of burnout and possibly prevent it. Aerobic exercise effectively manages burnout because it provides a cognitive regeneration strategy that lets your cognitive processes and central nervous system. Aerobic exercise recovery can reduce mental fatigue (10). Physical activity has a positive effect on job stress (11). Additionally, it was indicated that yoga

affects the parasympathetic nervous system and inhibits gamma-amino-butyric acid; however, aerobic exercise was found to stimulate the sympathetic nervous system (12).

A systematic review by Di Mario et al. showed that yoga can reduce burnout in healthcare workers; however, stronger evidence is still needed (13). Swarbrick and Middleton study showed that yoga can play an effective role in improving nurses' job burnout and interpersonal relationships (14). Balaoing's study showed that yoga and self-management are effective methods for reducing job burnout (15). A systematic review by Heuel et al. on physical exercise indicates the efficacy of exercise-based health promotion for increasing nurses' workability (16). A study conducted by Heuel et al. on 476 nurses showed that physical activity seems to have a positive effect on nurses' emotional balance and help them deal with the symptoms of burnout (16).

Different studies have been conducted on the effects of aerobics and yoga exercises on burnout, most of which have confirmed the effectiveness of these kinds of exercises in burnout (17-19). Yoga focuses more on the strength of the muscles and the inside of the body; nevertheless, aerobics, in addition to the strength of the muscles, focuses on the outside and the appearance of the body. Both different techniques and processes cause the release of endorphins in the body. They improve mental health, muscle strength, blood circulation, oxygen level, and concentration (18-20).

Different sources have emphasized the use of these two types of activities to reduce stress and anxiety in staff (13, 21). Yoga and aerobics can reduce job burnout by changing lifestyle, focusing on life outside of work, creating a short break, creating a sense of control over the body and environment, strengthening adaptation, and increasing self-confidence and coping ability (14, 22). On the other hand, in previous studies, the effects of yoga and aerobics on burnout have been investigated and confirmed; however, none of them stated which one is more effective. In addition, most of the review studies have shown that there is a need for further evidence regarding the effect of each of these two interventions on job burnout (13, 16). However, no study has been found to compare the effects of yoga and aerobics exercises on burnout to date. Therefore, the current study was designed to compare the effects of yoga and aerobics on nurses' burnout.

## 2. Objectives

This study aimed to compare the effects of yoga and aerobic exercises on burnout among nurses.

## 3. Methods

### 3.1. Study Design and Setting

This randomized controlled (with the blind evaluator and statistical analyst), pretest-posttest design trial (IRCT20181224042087N1) was performed to compare the effects of yoga and aerobics exercises on nurses' burnout (February 2019 to April 2019). The study was conducted in two medical and educational hospitals affiliated with the Jahrom University of Medical Sciences in the south of Iran. Jahrom University of Medical Sciences in the south of Iran has 3 public hospitals, two of which are Peymaniyeh and Motahari hospitals, which are educational and treatment centers. The capacity of Peymaniye and Motahari hospitals is 230 and 180 beds, respectively. These two hospitals have 700 nurses, 490 of whom are female.

### 3.2. Samples and Sampling

The inclusion criteria were nurses who were not pregnant or menopause with no mental or musculoskeletal disorders (self-report), with no participation in a regular exercise program for the past 3 months, at least 2 years of work experience, and a moderate to high level of burnout (evaluated by the Maslach Burnout Inventory [MBI]). The exclusion criteria were the incidence of any complication or acute illness during the intervention, absence in three consecutive or five non-consecutive intervention sessions, and the occurrence of great distress or crisis during the study.

There were 700 nurses in Motahari and Peymaniyeh hospitals (affiliated with Jahrom University of Medical Sciences, Jahrom, Fars, Iran). There were 490 female nurses. According to inclusion criteria, 330 nurses were eligible (20 pregnant, 15 postpartum, 12 with sports activity, 13 with musculoskeletal problems, and 100 with low levels of burnout). A list of 330 nurses was prepared, and a number was assigned to each nurse. The numbers 1 - 330 were requested 81 times from Excel Random Sample 7.0 software. A total of 81 nurses were selected randomly. Again, a list of 81 subjects was prepared, and the Random Allocation Software 2.0 software was asked to provide random numbers 81 times. The samples were allocated to the yoga, aerobics, and control groups, respectively (27 samples were allocated to each group). Two separate steps (sampling and random allocation) were performed by computer-based software, which was not predictable for nurses and researchers. Concealment of random allocation was done.

### 3.3. Sample Size

The sample size was calculated based on the following formula:

$$n = \frac{(\sigma_1^2 + \sigma_2^2/\kappa) (z_{1-\alpha/2} + z_{1-\beta})^2}{\Delta^2} \quad (1)$$

The parameters for the sample size estimation were the following:

$\alpha = 0.05$ ;  $\beta = 0.8$ ; effect size = 0.33; mean + standard deviation (SD) of burnout in the yoga group =  $36.4 \pm 5.2$ ; mean + SD of burnout in the aerobic group =  $33 \pm 5.2$  (17, 18). The sample size was calculated at 72 nurses, with 10% attrition considered. Therefore, the total sample size was estimated at 81 nurses or 27 participants in each study group.

### 3.4. Data Collection

Data collection was performed 3 times: before the intervention ( $T_0$ ), immediately after the intervention ( $T_1$ ), and one month later ( $T_2$ ). The baseline data included sociodemographic variables (age, working hours per week, overtime hours per month, work experience, number of children, marital status, educational level, employment status, and type of ward). Of note, the Maslach Burnout Inventory for Medical Personnel (MBI-HSS MP) was used. The MBI consists of 22 items (never = 0, rarely = 1, occasionally = 2, usually = 3, most of the time = 4, often = 5, and always = 6). The MBI has three dimensions (emotional exhaustion, depersonalization, and personal accomplishment). When the scores of emotional exhaustion and depersonalization were high, and the score of personal accomplishment was low, the burnout level was high (Table 1). The internal consistency for each dimension with Cronbach's alpha coefficient was 0.90, 0.79, and 0.71, respectively (23-25). The validity and reliability in Iran have been confirmed (Cronbach's alpha = 0.78) (26). In this study, Cronbach's alpha coefficient was calculated at 0.83, 0.89, and 0.81 in the dimensions of emotional exhaustion, depersonalization, and personal accomplishment, respectively.

### 3.5. Interventions

#### 3.5.1. Yoga

The "Integral Yoga" practice (according to Integral Yoga Institute, 2017) was conducted in four small groups. In this regard, 24 practice sessions were conducted under the constant supervision of an internationally female, qualified yoga trainer at Shahed sports gym (a private sports club in Jahrom, Fars). The intervention lasted 8 weeks (three times per week) (11, 13). The mean time per session was  $70.35 \pm 7.51$  minutes. The temperature of the gym was set at between 37 and 39°C, and light non-verbal music was also used during training. Integral yoga is a kind of traditional yoga that combines physical exercises (asana), breathing (Hirayama), relaxation, meditation, and

self-knowledge (27). The program of each yoga session was set as follows: 10 minutes of warm-up (with paw carpeting of asana), 40 minutes of asana (core gestures) performed from easy to hard gestures in standing position, sitting, and then sitting again and standing were performed in 2 minutes of relaxation, 5 minutes of breathing, and finally 10 minutes of relaxation. All these exercises were performed based on the ability of the participants (11). In this type of yoga, body and mind coordination is needed, and it has three stages: psychic, spiritual, and supramental. The coach taught and worked on the preliminary stage depending on the capacity of each group (28, 29).

#### 3.5.2. Aerobics

Aerobic exercise was conducted in four small groups. In this regard, 24 aerobic practice sessions were conducted under the constant supervision of an internationally female, qualified aerobic trainer at Shahed sports gym.

The mean time per session was  $73.11 \pm 4.29$  minutes. Of note, the whole intervention lasted for 8 weeks (three times per week). The temperature of the gym was set at between 37 and 35°C, and aerobic non-verbal music was also used during training. The aerobic exercise program was performed according to the exercise prescription guidelines for Americans (30). This training was done as follows: 10 minutes of warm-up, 50 minutes of aerobic exercise (a combination of low-pressure and high-pressure aerobics), and 15 minutes of return to baseline. The required level of weekly energy expenditure was 17.5 kcal/kg. Moreover, energy expenditure was assessed using the values of burned calories provided by the training devices in terms of some factors, including age, weight, and training performance. Finally, the studied nurses were instructed to exercise within 60 - 75% of their maximum heart rate (maximum heart rate = 220 - age). The heart rate was checked at the end of the exercise and before relaxation in one minute. The cost of yoga classes and aerobic exercises was covered by the researchers. Ten participants were excluded during the intervention (Figure 1). The participants were not absent.

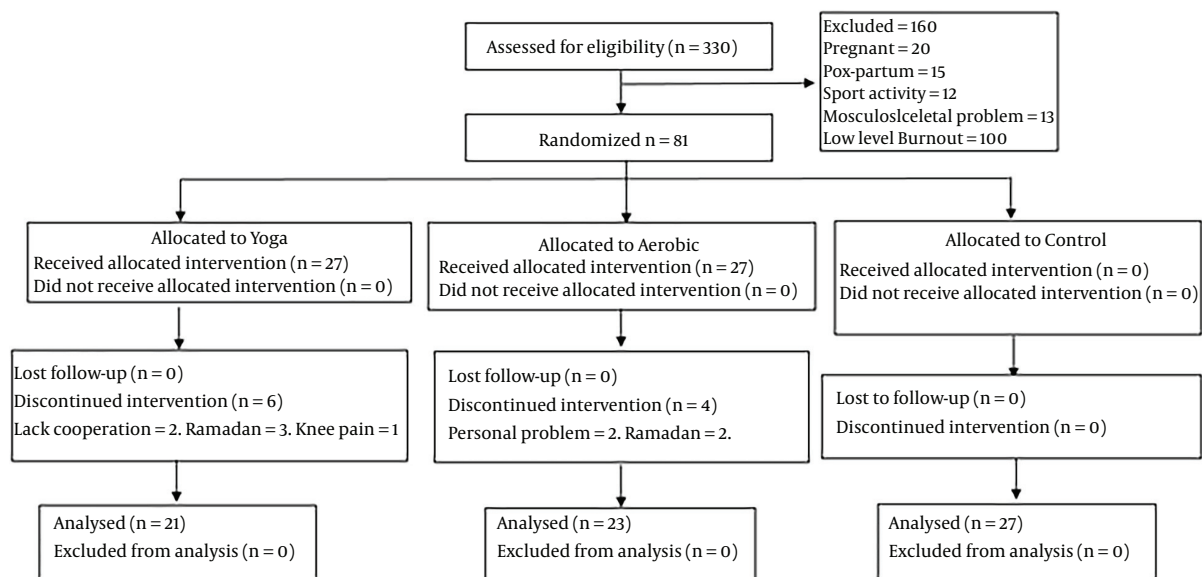
### 3.6. Data Analysis

The data were analyzed using the IBM SPSS software 16.0. Demographic variables were analyzed by the analysis of variance (ANOVA) test and chi-square ( $\chi^2$ ) test. The Shapiro test was also used to verify the normality of the dependent variables. Therefore, due to the non-normality of the data, the Friedman test (within-group comparison) and the Kruskal-Wallis test (between-group comparison) were used.

**Table 1.** Grading the Maslach Burnout Inventory Scores Questionnaire Level

MBI	Low	Moderate	High
Emotional exhaustion	16 ≥	17 - 26	≤ 27
Depersonalization	6 ≥	7 - 12	≤ 13
Personal accomplishment	39 ≥	33 - 38	≤ 32

Abbreviation: MBI, Maslach Burnout Inventory.

**Figure 1.** Consort flow diagram.

### 3.7. Ethical Considerations

The protocol for this study was approved by the Ethics Committee of Jahrom University of Medical Sciences (IRJUMS.REC.1397.114). The objectives of the study were explained to all participants. They were free to withdraw from the study. Written and oral consent was obtained.

## 4. Results

Overall, 6 participants and 4 participants left the yoga and aerobic groups, respectively. Eventually, 71 participants completed the study (Figure 1). The attrition rate was estimated at 12.35%. A total of 71 participants remained and continued the study. Moreover, 56% of the participants were married. The participants' mean age and mean work history were  $35.78 \pm 3.94$  and  $11.65 \pm 5.10$  years, respectively. The mean of overtime work in the month was  $35.67 \pm 23.85$  hours (Table 2). There was no statistically significant difference in the cases' demographic characteristics in all groups. There was

no statistically significant difference between eligible nurse ( $n = 330$ ) and random sample ( $n = 81$ ) (emotional exhaustion: *Kruskal – Wallis*  $x^2 = 1.129$ ,  $DF = 2$ ,  $P = 0.347$ ; depersonalization: *Kruskal – Wallis*  $x^2 = 1.408$ ,  $DF = 2$ ,  $P = 0.719$ ; personal accomplishment: *Kruskal – Wallis*  $x^2 = 1.366$ ,  $DF = 2$ ,  $P = 0.691$ ).

The mean of the MBI in emotional exhaustion, depersonalization, and personal accomplishment was  $38.68 \pm 4.96$ ,  $24.68 \pm 2.55$ , and  $33.49 \pm 2.85$ , respectively. There was no significant difference between the three groups at  $T_0$  and  $T_2$  in terms of the three MBI dimensions. In  $T_1$ , only a significant difference was observed in emotional exhaustion ( $P = 0.007$ ,  $Df = 2$ , *Kruskal – Wallis*  $x^2 = 10.016$ ). The mean score of emotional exhaustion in the yoga group ( $23.13 \pm 4.13$ ) was reduced, compared to the aerobic ( $36.00 \pm 5.65$ ) and control ( $38.44 \pm 10.96$ ) groups. In the yoga group, in two dimensions of emotional exhaustion ( $P = 0.001$ ) and personal accomplishment ( $P = 0.045$ ), at three times ( $T_0$ ,  $T_1$ , and  $T_2$ ), statistically significant differences were

**Table 2.** Statistical Analysis of Demographic Variables Before the Intervention (T<sub>0</sub>) Group<sup>a</sup>

Variable	Yoga	Aerobic	Control	P-Value
Age	36.18 ± 5.03	36.14 ± 1.02	35.03 ± 5.78	0.674 <sup>b</sup>
Working hours per week	39.29 ± 3.95	38.85 ± 3.94	39.79 ± 3.27	0.652 <sup>b</sup>
Overtime hours per month	31.69 ± 18.35	38.08 ± 30.67	37.24 ± 22.53	0.596 <sup>b</sup>
Work experience	11.39 ± 4.58	13.01 ± 5.29	10.65 ± 5.44	0.239 <sup>b</sup>
Number of children	1.80 ± 0.81	1.70 ± 0.46	1.57 ± 0.60	0.524 <sup>b</sup>
Marital status				0.535 <sup>c</sup>
Single	9 (42.85)	10 (43.47)	12 (44.45)	
Married	12 (57.14)	13 (56.53)	15 (55.55)	
Education degree				0.354 <sup>c</sup>
BSc	10 (47.62)	13 (56.52)	100	
MSc	11 (52.38)	10 (43.48)	0	
Employment status				0.230 <sup>c</sup>
Short-term contractual	10 (47.63)	7 (30.44)	7 (25.93)	
Semi-contractual	3 (14.28)	3 (13.04)	5 (18.52)	
Long term contractual	3 (14.28)	3 (13.04)	6 (22.22)	
Registered	5 (23.81)	10 (43.48)	9 (33.33)	
Field of study				0.259 <sup>c</sup>
Nursing	10 (47.63)	12 (52.17)	13 (48.14)	
OR	1 (4.74)	0	3 (11.11)	
Anesthesia	10 (47.63)	11 (47.83)	11 (40.75)	
Wards				0.693 <sup>c</sup>
Medical	4 (19.04)	3 (13.04)	0	
Surgery	6 (28.64)	3 (13.04)	3 (11.11)	
ER	0	4 (17.4)	2 (7.4)	
OR	1 (4.74)	0	3 (11.11)	
NICU	1 (4.74)	1 (4.35)	11 (40.76)	
ICU	3 (14.28)	5 (21.74)	3 (11.11)	
CCU	3 (14.28)	2 (8.7)	2 (7.4)	
Post CCU	3 (14.28)	3 (13.04)	3 (11.11)	
Pediatric	0	2 (8.69)	0	

Abbreviations: MSc, Master of Science; BSc, Bachelor of Science; OR, operation room; ER, emergency room; NICU, neonatal intensive care unit; ICU, intensive care unit; Post CCU, post coronary care unit.

<sup>a</sup> Values are presented as No. (%) or mean ± SD.

<sup>b</sup> The results of the one-way analysis of variance.

<sup>c</sup> The results of the chi-square test.

observed with the help of the Friedman test (Table 3).

Side effects related to the performed interventions were not reported. A nurse with knee pain also reported a long history of knee pain, and in this regard, the medical follow-up revealed that she had a history of knee pain for several years.

## 5. Discussion

The results showed that yoga decreased the average burnout scores on dimensions of emotional exhaustion; however, it could not affect personal accomplishment

and depersonalization. Therefore, only in emotional exhaustion, there was a significant difference between the groups. In other words, yoga was more effective than aerobics in emotional exhaustion. Nonetheless, neither of them (yoga and aerobics) could affect the other two dimensions. A study by Alexander et al. showed a significant improvement in scores of emotional exhaustion and depersonalization in the yoga group (17). Correspondingly, emotional exhaustion is a dimension of burnout that occurs in stress (2, 6). Therefore, yoga can repair it more. In addition, burnout is an internal state. Yoga also works on the inner core of the body; as a result,

**Table 3.** Comparison of Burnout Levels of Nurses in Three Groups of Yoga, Aerobic, and Control Before, Immediately, and One Month After the Intervention<sup>a</sup>

MBI	Yoga	Aerobic	Control	Kruskal-Wallis	P-Value	Lower-Upper Effect Size
<b>Emotional exhaustion</b>						
T <sub>0</sub>	38.12 ± 9.46	38.69 ± 7.91	38.35 ± 10.15	4.050	0.132	0.025 - 0.062
T <sub>1</sub>	23.13 ± 4.13	36.00 ± 5.65	38.44 ± 10.96	10.016	0.007	0.95 - 2.216
T <sub>2</sub>	37.81 ± 7.44	37.61 ± 5.51	39.71 ± 9.56	3.842	0.146	0.114 - 0.28
<b>Friedman</b>	0.001	0.48	0.65			
<b>Depersonalization</b>						
T <sub>0</sub>	24.33 ± 4.71	24.54 ± 1.09	24.11 ± 3.79	2.173	0.337	0.048 - 0.118
T <sub>1</sub>	23.36 ± 3.03	23.63 ± 4.09	24.17 ± 5.19	2.448	0.294	0.081 - 0.198
T <sub>2</sub>	23.63 ± 3.52	23.89 ± 7.91	24.76 ± 3.38	4.002	0.135	0.093 - 0.229
<b>Friedman</b>	0.45	0.42	0.73			
<b>Personal accomplishment</b>						
T <sub>0</sub>	33.07 ± 6.71	34.38 ± 5.82	32.42 ± 6.29	0.90	0.638	0.128 - 0.313
T <sub>1</sub>	35.59 ± 2.20	35.47 ± 3.39	32.66 ± 6.86	4.48	0.106	0.228 - 0.706
T <sub>2</sub>	35.01 ± 4.12	35.04 ± 8.13	31.03 ± 6.22	5.08	0.79	0.266 - 651
<b>Friedman</b>	0.045	0.39	0.41			

Abbreviation: MBI, Maslach Burnout Inventory.

<sup>a</sup> Values are presented as mean ± SD unless otherwise indicated.

it can improve burnout better than aerobics. This finding is not consistent with the findings of other studies, in which healthcare professionals had significantly better scores on MBI depersonalization after yoga and aerobics intervention (31-33).

Unlike the present study, in most studies, all dimensions of burnout significantly improved in both yoga and aerobic groups (13, 14, 21). In the present study, a significant improvement was observed only in emotional exhaustion. This difference can be due to work conditions, the time of intervention that was concurrent with Ramadan, participants, and their conditions when answering the questionnaire. Of note, the larger sample size, greater severity, and longer duration of exercise in the aerobic group in the present study might be the reasons for this difference, which can cause more tiredness.

In this study, in the aerobic group, there was no statistically significant difference in the dimension of burnout; however, clinical differences were observed. The difference between yoga and aerobics is that aerobics emphasizes physical activity; nevertheless, yoga focuses more on rejuvenation from the inside, mind, balance, physical strength, self-awareness, and self-reflection (34). These differences make yoga more effective than aerobics because burnout is a psychological syndrome. Accordingly, the reasons for this difference might be diversity in culture, work conditions, level of burnout in T<sub>0</sub>, time of intervention, types of aerobic and yoga

exercises, and the subject's characteristics. It should be noted that planning aerobic exercises should be done in a way that does not cause any physical or mental fatigue.

The results of the present study showed no statistically significant differences in the aerobic group in any burnout dimension in T<sub>0</sub>, T<sub>1</sub>, and T<sub>2</sub>. This finding is consistent with the results of Alavi's study (18) Alavi reported that exercise training did not improve emotional exhaustion, depersonalization, and personal accomplishment. This harmony is justifiable to the similarity in the context, as both studies were conducted in the city of Jahrom. However, this result is in contrast to the results of another study, which showed that aerobic training had a significant effect on improving both MBI's dimensions (18). In this regard, one possible reason for this difference can be the different gender of the samples.

By comparing the groups (yoga, aerobics, and control), the mean score of all BMI dimensions, in T<sub>1</sub> and T<sub>2</sub>, did not show statistically significant differences; nevertheless, there were clinical differences. However, both intervention groups had better results than the control group.

The means of emotional exhaustion in the yoga and aerobic groups in T<sub>1</sub> were significantly better than in the control group. This finding is consistent with the results of other studies, which showed that burnout improves after yoga or aerobics (3, 33, 35). Based on all studies, both yoga and aerobic exercises can improve nurses' burnout by

creating a sense of morale and enjoyment among subjects (11). Improvement can be observed in the present study, although this improvement is not statistically significant. This is exactly where the present study challenges other studies.

Nursing managers should pay more attention to the fact that they cannot reduce the nurse's burnout without any special action. Therefore, it is suggested that healthcare systems provide occupational health resources, such as yoga.

The main limitation of this study was the insufficient cooperation of hospital managers with the subjects to participate in this study (the presence of nurses in sports programs was a challenge). In addition, several participants left the study because half the study period overlapped with Ramadan. However, this investigation is the first study that has been conducted to compare two effective interventions for job burnout.

### 5.1. Conclusions

The present study challenged the results of previous studies conducted on the full effect of yoga and aerobics on reducing burnout. Yoga was observed to be more effective than aerobics in affecting the physical and mental dimensions of nurses. However, further studies are needed to confirm these results. Nursing managers can use yoga as an effective method to reduce job burnout. For future research, it is suggested to use other yoga techniques with longer intervention time and long-term follow-up.

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### Footnotes

**Authors' Contribution:** Study concept and design: Mohsen Hojat, Ali Dehghani, and Saede Faramarzi; acquisition of the data: Mohsen Hojat and Saede Faramarzi; analysis and interpretation of the data: Mohsen Hojat and Saede Faramarzi; drafting of the manuscript: Mohsen Hojat, Ali Dehghani, and Saede Faramarzi; critical revision of the manuscript for important intellectual content: Mohsen Hojat, Ali Dehghani, and Saede Faramarzi; statistical analysis: Mohsen Hojat and Saede Faramarzi; administrative, technical, and

material support: Mohsen Hojat and Ali Dehghani; study supervision: Mohsen Hojat.

**Clinical Trial Registration Code:** IRCT20181224042087N1.

**Conflict of Interests:** No conflict of interest was declared by the authors.

**Data Availability:** The dataset presented in the study is available on request from the corresponding author during submission or after publication. The data are not publicly available due to ethical and organizational security.

**Ethical Approval:** The study is a master's thesis approved by Jahrom University of Medical Sciences (IR.JUMS.REC.1397.114).

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**Informed Consent:** Written and oral consent was obtained.

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