

The Effect of Mindfulness Intervention on Job Stress in Nurses of Intensive Care Units

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Abstract

Background: Nursing is one of the stressful jobs and working in an intensive care unit is inherently stressful due to its active and dynamic features and complexity. One of the appropriate methods for decreasing stress is mindfulness training, therefore, this study aimed at assessing the effect of mindfulness training on nurses' job stress level.

Methods: The present study was conducted in intensive care unit of Imam Hussein hospital (SA), a subspecialty hospital in Kermanshah in 2016. This was a pre- and posttest study with a control group in which 60 nurses were randomly and equally placed into 2 groups (control and experimental). Eight 90-minute mindfulness training sessions, one session per week, were provided to the experimental group. After the training sessions, the scale-revised questionnaire on nursing job stress was given to both control and experimental groups; and then, the effect of intervention was measured and compared between the 2 groups. Data analysis was done through descriptive and inferential statistical tests using SPSS 16 software.

Results: A significant difference was found between average \pm standard deviation of stress scores in the control group before (159.57 ± 20.56) and after (171.63 ± 21.39) mindfulness intervention ($P = 0.001$). Also, a significant difference was obtained between average \pm standard deviation of stress scores in the experimental group before (165.28 ± 21.35) and after (118.20 ± 17.52) mindfulness intervention ($P = 0.001$). However, no significant difference was detected between the control (159.57 ± 20.56) and experimental (165.28 ± 21.35) groups in average \pm standard deviation of stress scores before mindfulness intervention ($P = 0.31$). A significant statistical difference was found between the experimental (118.20 ± 17.52) and control (171.63 ± 21.39) groups after training ($P = 0.001$).

Conclusions: Mindfulness intervention can decrease job stress of the nurses who work in intensive care units. Therefore, considering the importance of nurses' mental health, which influences quality of health care services and patients' satisfaction, it is recommended that the health centers and hospital managers put mindfulness intervention training in their agenda.

Keywords: Mindfulness, Job Stress, Intensive Unit, Nurses

1. Background

The word "stress" refers to a wide range of problems. Stress puts the individual under pressure, affecting his/her body's internal system. Stress is an important problem due to its physical, mental, and social effects; moreover, it influences all societies at different times and situations (1). Stress is one of the common phenomena in our life time. Urbanization, migration, industrialization, complexities of the societies, organizations, etc. have caused a large amount of stress. As it can be observed from the evidences, about 80% of the today's problems are rooted in stress. There are many studies on the effect of stress on physical and mental health and achievement motivation, signifying the importance of this problem; thus, it is essential to

assess individual and social factors of stress (2). Nursing is one of the stressful professions and ICU is inherently stressful due to its complexity, active and dynamic features. Evidently, physicians and nurses, who work under stress, can harm their colleagues and patients by their decreased performance and activity (3).

Stress is more often the result of inappropriate function of thinking and understanding than only the events. In other words, it is not the external events which lead to stress, but it is our attitude and thinking towards the events, which makes us vulnerable to stress (2).

One of the appropriate methods for decreasing stress and tension is mindfulness training. There are different definitions regarding mindfulness. One of the famous applied definitions of mindfulness is as follows: mindful-

ness is a moment by moment awareness, which is being trained purposively by the present time experience and non-judgmental attitude (4). Mindfulness is accepting and awareness of inner and outer experiences; although mindfulness as a psychological attribute is a tendency of being aware in routine life, it can be increased through meditation or training (5).

Mindfulness helps us understand this point that negative emotions may happen, but these emotions are not fixed or a permanent component of a characteristic. Also, they prepare the chance of replying to the events thoughtfully. Mindfulness is a method for enjoying a better and meaningful life and relieving pain (6). The literature and evidence also indicate the useful effects of mindfulness training on health (7). Increased mindfulness leads to increased psychological well-being, agreement, openness, conscientious, and decreased pain symptoms. In fact, mindful individuals are more capable in recognizing, managing, and solving everyday problems (8). Mindfulness training is one stress reducing and psychotherapy-based treatment method in which mental representation of objects available in life that is out of immediate control is trained through breathing and thinking. This treatment method is a combination of relaxation and mindfulness. Studies have shown that mindfulness helps individuals to adjust their negative behavior patterns and thoughts and set positive behaviors related to health (9). Van et al. (2016) in a study on Australian nurses found that mindfulness is directly related to decreased job stress (10). Another study on nurses of intensive care units revealed that mindfulness intervention can be effective in decreasing stress and increasing comfort above 40%.

Mindfulness training is one of the best training methods, which leads to decreased stress, anxiety, and depression. By this method, individuals can be trained to observe their conditions and thoughts without judgment, reaction, and acceptance (4).

Considering the importance of reducing stress in all individuals, especially in nurses, the effect of many factors on decreasing nurses' stress have been assessed to date. However, no study has been conducted in Iran on the effect of mindfulness intervention on job stress level of nurses working in intensive care units.

Aim: The present study aimed at assessing the effectiveness of mindfulness intervention on job stress level of nurses working in intensive care units.

2. Methods

This was a pre- and posttest clinical trial study with a control group conducted in 2016. The statistical population of the study included all the nurses working at Imam

Hussein (SA) hospital in Kermanshah. Simple random sampling method was used to select the participants. Initially, all the nurses working in intensive care units of Imam Hussein (SA) hospital in Kermanshah (128 nurses) were selected and were asked to respond to the reviewed scale of nursing stress (pretest), then, 60 nurses who had the highest score on the nursing stress questionnaire (from the maximum score of 285 to the bottom), were selected and randomly assigned into control and experimental groups (30 nurses in the control and 30 nurses in the experimental groups). Nursing job stress pretest was taken from the members of the 2 groups. Then, to assess the efficacy of mindfulness training, the training was conducted in eight 90-minute sessions once per week for 8 weeks. The content of the sessions were taken from the study of Talebizadeh et al. (2012) (11). Then, nursing job stress posttest was conducted for both groups. A summary of the contents in the sessions are as the follows:

The first session: taking the pretest; setting general policies by considering confidentiality and participants' personal life; inviting participants to introduce themselves; practice eating mindful raisins; physical check homework (doing physical checks) (45 minutes); homework (conducting everyday normal activities such as washing, eating, brushing etc.). The Second Session: Reviewing homework of the last session, practicing thoughts and feelings, homework (documenting pleasant events).

The third session: reviewing homework of the last session; meditating in a sitting position for 30 to 40 minutes; homework (mindful walking); breathing space for 3 minutes twice a day as homework; space breathing and documenting unpleasant events for 3 minutes as homework. The Fourth session: reviewing homework of the last session; viewing meditation; hearing meditation; homework (sitting meditation); sitting meditation practice; homework (3 minutes of breathing space). The Fifth Session: Sitting meditation; homework (guided sitting meditation). The sixth session: visualized sitting meditation; homework (shorter guided meditation, at least 40 minutes); vague scenarios practice; and homework (3 minutes of breathing 3 times a day). The seventh session: meditating in a sitting position: homework (self-directing practice, referring to the relationship between mood and activity); homework (3 minutes of breathing 3 times a day and also when the participant was faced with difficult stress and emotions); discussing the recurrence symptoms; and planning homework about recurrence. The Eighth Session: Physical check; homework; reflection; feedback; at the end of the sessions; and taking the posttest.

Measurement tools: expanded nursing stress scale: expanded nursing stress scale, the new version of the nursing stress scale, was used, which was designed by Togh

et al. (1981) (12). The final revised version of this scale includes 57 questions and 9 scales. The subscales of this questionnaire include death, conflict with physicians, lack of enough emotional preparation, problems related to colleagues, problems related to head nurses, doubts about treatments, patients and their families, and discrimination (Milutinovic et al.) (2012) (13). The questionnaire scoring process was as follows: 57 parts of the questionnaire were set in a 5-degree Likert scale and the participant had to choose one of the following choices based on the frequency of the desired position experience. The answers included: (1) I have no stress; (2) Sometimes, I have stress; (3) I often have stress; (4) I have severe stress; and (5) This position does not include my duties. Also, to determine the psychometric properties, Cronbach's alpha was used to assess the inner consistency of the subject. Results revealed that nurses' revised scale coefficient (0.96) was greater than the main scale (0.89). Subscales credit range was from ($\alpha = 0.88$) conflict with head nurses to ($\alpha = 0.65$) discrimination. Factor analysis of the discrimination subscale revealed that gender discrimination was more scattered (more variance) than racial discrimination (12).

Data distribution was found to be normal using Kolmogorov-Smirnov test. Descriptive statistic (average, standard deviation, and frequency) and inferential statistics (independent t test, paired t test, Fisher's exact, and chi-square test) were used for data analysis. Significant level was set at $P \leq 0.05$.

3. Results

Demographic features of the study included age, gender, marital status, number of children, education level, obligated shift, job title, clinical work experience, intensive unit work experience, type of intensive unit, income, overtime hours, received fee, the experience of stress reduction period. The 2 groups were not significantly different with respect to demographic characteristics except in the treatment unit variable.

Table 1 revealed a significant difference between the average of stress scores and each one of the components in the experimental group before and after holding mindfulness training sessions [$P = 0.001$].

Table 2 reveals a significant difference between the average of the stress scores and each one of the components in the control group before and after holding mindfulness training sessions [$P = 0.001$].

Table 3 reveals no significant difference between the 2 groups in the average of job stress scores before holding mindfulness training sessions [$P = 0.31$], meaning that the 2 groups were homogeneous before training.

Table 1. Comparing the Average and Standard Deviation of the Nurses' Job Stress Scale Components Before and After Mindfulness Intervention in the Experimental Group

Areas	Before Intervention	After Intervention	Paired t Test P Value
Death	18.97 ± 7.16	17.37 ± 5.23	0.001
Conflict with doctors	13.80 ± 4.49	10.67 ± 2.71	0.04
Inadequate emotions	6.10 ± 3.66	4.57 ± 2.10	0.001
Problems related to colleagues	14.76 ± 4.64	10.77 ± 3.42	0.001
Problems related to managers	22.33 ± 6.64	16.10 ± 5.59	0.001
Work pressure	28.83 ± 6.43	19.77 ± 4.70	0.001
Hesitation in treatment	26.67 ± 6.23	18.37 ± 3.68	0.001
Patients and their families	26.47 ± 6.87	17.03 ± 4.94	0.001
Discrimination	7.53 ± 5.06	3.57 ± 2.47	0.001
All the areas	165.28 ± 21.35	118.20 ± 17.52	0.001

Table 2. Comparing the Average and Standard Deviation of the Nurses' Job Stress Scale Components Before and After Mindfulness Intervention in the Control Group

Areas	Before Intervention	After Intervention	Paired t Test P Value
Death	20.83 ± 4.38	25.27 ± 8.67	0.001
Conflict with doctors	13.73 ± 3.55	14.87 ± 2.93	0.004
Inadequate emotions	6.73 ± 2.68	6.17 ± 2.41	0.045
Problems related to colleagues	17.13 ± 4.33	18.77 ± 3.91	0.143
Problems related to managers	21.40 ± 4.98	22.63 ± 4.13	0.002
Work pressure	25.45 ± 5.18	26.57 ± 3.74	0.02
Hesitation in treatment	23.70 ± 4.93	25.80 ± 4.47	0.21
Patients and their families	22 ± 4.49	23.53 ± 4.18	0.003
Discrimination	7.38 ± 3.58	8.03 ± 3.437	0.007
All the areas	159.57 ± 20.56	171.63 ± 21.39	0.001

Table 4 displays a significant difference between the 2 groups in the average of job stress total score after holding mindfulness training sessions ($P = 0.001$).

Table 3. Comparing the Average and Standard Deviation of the Nurses' Job Stress Scale Components Before and After Mindfulness Intervention in Both Experimental and Control Groups

Areas	Control Group	Experimental Group	Independent T P Value
Death	20.83 ± 4.38	18.97 ± 7.16	0.23
Conflict with doctors	13.73 ± 3.55	13.80 ± 4.49	0.95
Inadequate emotions	6.73 ± 2.68	6.10 ± 3.66	0.45
Problems related to colleagues	17.13 ± 4.33	14.76 ± 4.46	0.05
Problems related to managers	21.40 ± 4.98	22.33 ± 6.64	0.54
Working pressure	25.45 ± 5.18	28.83 ± 6.43	0.03
Hesitation in treatment	23.70 ± 4.93	26.67 ± 6.23	0.04
Patients and their families	22 ± 4.49	26.47 ± 6.87	0.004
Discrimination	7.38 ± 3.58	7.53 ± 5.06	0.89
All the areas	159.57 ± 20.56	165.28 ± 21.35	0.31

Table 4. Comparing the Average and Standard Deviation of the Nurses' Job Stress Scale Components After Mindfulness Intervention in the 2 Groups

Areas	Control Group	Experimental Group	Independent T P Value
Death	25.27 ± 8.670	17.37 ± 5.229	0.001
Conflict with doctors	14.87 ± 2.933	10.67 ± 2.708	0.001
Inadequate emotions	6.17 ± 2.408	4.57 ± 2.096	0.008
Problems related to colleagues	18.77 ± 3.910	10.76 ± 3.481	0.001
Problems related to managers	22.63 ± 4.131	16.10 ± 5.592	0.001
Working pressure	26.41 ± 3.708	19.77 ± 4.703	0.001
Hesitation in treatment	25.80 ± 4.475	18.37 ± 3.681	0.001
Patients and their families	23.53 ± 4.183	17.03 ± 4.944	0.001
Discrimination	7.79 ± 3.437	3.57 ± 2.473	0.001
All the areas	171.63 ± 21.39	118.2 ± 17.52	0.001

5. Discussion

Findings achieved by comparing the 2 groups indicated that mindfulness method is useful for job stress of

the nurses working in intensive care units.

Demographic features of the participants were as follows: age, gender, marital status, number of children, education level, obligated shift, job title, clinical work experience, the experience of working in the intensive care unit, type of ward, income, overtime hours, received fee, and the experience of passing stress reduction period. The 2 groups were similar and homogeneous in all features except treatment unit; the two groups were not similar in the treatment unit variable. This was inevitable considering the volunteer participants, disproportionate number of personnel in the wards, and selection basis, which was randomly done from those who obtained a high score in job stress, without considering any special ward.

Considering the first aim of the study "assessing job stress of the nurses working in intensive care units before and after mindfulness intervention in the two experimental and control groups", the results revealed a significant difference between average of stress scores and each one of its components before and after mindfulness intervention in the control group; this difference was towards increased stress scores. Moreover, a significant difference was found in the experimental group between the average of stress scores and each one of its components before and after mindfulness intervention; this difference was towards decreased stress scores.

No significant difference was found between the 2 groups in stress scores and each one of the components before mindfulness intervention; it means that both groups were homogeneous in stress scores. However, after mindfulness intervention, the average of stress scores in the experimental group was decreased to the score of 47.08 compared with before intervention. Also, in the control group, the average of stress scores after waiting period was increased to score of 12.06 compared with before intervention, which might have been due to being close to the hospital evaluation time and internal consecutive visits. In total, the results revealed a significant difference between pre- and posttest results of the experimental group. This significant difference was also seen in the posttest results of the experimental and control groups.

With respect to the second aim of the study "comparing job stress of the nurses working in intensive care units before and after mindfulness intervention in the 2 groups", the results demonstrated no significant difference between the 2 groups in the average of job stress total score before mindfulness intervention. However, a significant difference was obtained between the 2 groups after intervention, showing that the 2 groups were different after training, which indicated effectiveness of the intervention.

Mindfulness intervention has made a significant difference in decreasing job stress in nurses working in intensive

care units, so that the stress score was decreased to score of 53.43 in the experimental group compared with the control group, indicating intervention effectiveness. Therefore, it can be stated that mindfulness intervention can influence stress reduction.

Findings of the study are consistent with the following studies:

Akbari et al. (2013) in a study found that mindfulness training influences stress scores reduction perceived by patients under training (14). The study of Jalaly et al. (2014) also showed that mindfulness is a partial mediator variable in the relationship between job stress with inefficient attitudes and job emotions (15). Furthermore, Khorri et al. (2015) in a study reported that stress reduction mindfulness training is one of the best mindfulness training methods that leads to reduction of stress, anxiety, and depression (4), Abd-ol-ghaderi et al. (2013) (16). Baou et al. (2015) in a study reported that mindfulness has a significant positive relationship with the 4 components of emotional intelligence and has a significant negative relationship with the perceived stress (17). Pargancar et al. (2015) in a study reported that stress reduction-based mindfulness program leads to reduction of heart pain (angina) and physical constraints due to heart pain (angina); it also leads to increased mental health, decreased stress and anxiety, and increased mindfulness (18). Tanay et al. (2012) in a study reported that training mindfulness skills significantly reduces signs of vulnerability and anxiety statistically and clinically (19). Moreover, Motahari et al. (2012) in their study found that mindfulness training significantly influences marital stress of the mothers with hyperactive children. Moreover, they found that mothers of the experimental group showed a significant decrease of marital stress. Considering findings of this study, mindfulness intervention can be suggested as an effective method for decreasing marital stress of the mothers with a child suffering from hyperactive-attention deficit and increasing health level of these mothers (20).

Masoumian et al. (2013) reported that according to the findings of the study, mindfulness-based stress reduction treatment leads to improved quality of life and applying strategies of coping with pain in patients suffering from chronic back pain (21).

Results of the study showed that mindfulness intervention can decrease job stress of the nurses working in intensive care units. Therefore, considering the importance of nurses' mental health, which leads to reduced physical symptoms due to stress, absence from work, tension with colleagues and family, and influences health care quality and patients' satisfaction, the managers of the health centers and hospitals are highly recommended to put mindfulness intervention training in their agenda.

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Footnotes

Authors' Contributions: Maryam Gholizadeh: searching, data gathering, and writing the manuscript; Jamileh Mokhtari Nouri: data analysis; Seyyed Mohammad Khademhosseini and Mohsen Ahmaditahoor: study design, data gathering, and writing the manuscript.

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