

# Controlling anxiety in physicians and nurses working in intensive care units using emotional intelligence items as an anxiety management tool in Iran

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**Introduction:** Today, anxiety is one of the most common problems of mankind, to the extent that we could claim that it predisposes human to many physical illnesses, mental disorders, behavioral disturbances, and inappropriate reactions. The intensive care unit is a stressful environment for its staff, especially physicians and nurses. These stresses may have negative effects on the mental health and performance of the nurses and physicians. But the complications caused by this stress can be prevented by training emotional intelligence components. In this study, the impact of training emotional intelligence components on stress and anxiety in nurses and expert physicians is examined.

**Methodology:** A cross-interventional, pre- to post-, case and control group design was used and inferential study design was implemented. Our study included 150 registered hospitals physicians and nurses, who were widely distributed. In the study, a ten-question demographic questionnaire, a 20-question situational anxiety Berger (overt) questionnaire, and a 133-question Bar-on emotional intelligence questionnaire were used.

**Results:** Research results indicate that average score for the situational anxiety of the case group in nurses was 47.20 before the intervention and it was reduced to 42.00 after the intervention, and in physicians was 40.46 before the intervention and it decreased to 33.66 after implementation of training items of emotional intelligence, which indicates the impact of training of emotional intelligence components on reduction of situational anxiety. The average score of situational anxiety of control group nurses was 46.73 before the intervention and it decreased to 45.70. In physicians, it was 38.33 before the intervention and it increased to 39.40 during post-test. However, *t*-test did not confirmed a statistically significant difference between the average score of situational anxiety of both case and control groups before the intervention, and there was a statistically significant difference between the average score of both case and control groups after training components of emotional intelligence ( $P = 0.000$ ).

**Conclusion:** Training emotional intelligence components reduces situational anxiety of nurses and physicians working in intensive care units and their emotional intelligence score increased and situational anxiety score was significantly reduced.

**Keywords:** emotional intelligence, training, anxiety, nurses and physicians, intensive care units

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## Introduction

The term “anxiety” was first used in the fifteenth century as “physical strain.” In the seventeenth century, Banber introduced it as a cause of illness in a physical mental plan. Emotionally, anxiety causes hypochondriasis, absence from work, abuse of

psychoactive drugs, and reduction of self-esteem. Nurses are constantly exposed to damages caused by anxiety. Nurse workplaces and work-related activities are threatening factors creating anxiety.<sup>1-3</sup> The intensive care unit is one of the most stressful environments for its staff. These stresses have negative effects on the mental health and performance of the nurses and physicians. The urgency needed, caring for the dying, lack of equipment and facilities, and not communicating well with other colleagues are all stressful for nurses and doctors.<sup>4</sup> This stress is tangible in intensive care and internal units. These environments can be potentially stressful and require stress-related interventions.<sup>2-5</sup> Emotional intelligence has been described as an argued ability, capacity, and skill of understanding oneself and others, assessing and managing the emotions of oneself and the others, and a group of people with whom we are associated.<sup>6</sup> Individuals with higher emotional intelligence express their feelings and desire more often, and consequently, provide a wider social network and social support for themselves. Social support, in turn, enhances mental health and protection against stress. Researchers have shown that emotional intelligence turns stress into mental health.<sup>7</sup> There is evidence indicating that some forms of emotional intelligence may protect people from stress and thus lead to a better compliance, for instance, a study by Ciarochi and colleagues found evident implications in emotional intelligence that prevent states of depression.<sup>8</sup> Boussiakou and colleagues concluded that emotional intelligence is a required variable to decrease anxiety and frustration and increase levels of confidence and courage. They found that pessimists obtained lower score in emotional intelligence.<sup>9</sup> Bar-on looked at why some people are more successful than others and in looking for the factors that cause success and emotional health, Bar-on found that the key for success and the factor that predicted their success is not general intelligence.<sup>10</sup> A new study shows emotional intelligence reduces stress and predicts 66% of key success factors in healthcare, researchers found that healthcare professionals high in emotional intelligence are far more effective in a number of key performance areas, including stress management, showing that these skills are critical for healthcare professionals and especially those in leadership positions.<sup>11</sup> A study conducted by Miri and Bourang in which the relationship between emotional intelligence and academic anxiety was measured, suggests that there is a significant relationship between emotional intelligence and academic anxiety and there is a significant relationship between all components of emotional intelligence including self-awareness, self-control, self-motivation,

social consciousness, communication skills, and academic anxiety.<sup>12</sup> Esmaeeli and colleagues showed that training emotional intelligence components is significantly effective in enhancing mental health ( $P > 0.001$ ) and has reduced illness symptoms in the components of mental health.<sup>13</sup> Based on studies conducted on the relationship between, and the impact of, training emotional intelligence, such as controlling emotions or interpersonal and intrapersonal relations on reduction of stress and anxiety or mental health, this paper aims to investigate the impacts of training emotional intelligence components (interpersonal awareness, interpersonal skills, problem-solving skills, approaches to cope with pressure and stress, and compatibility) on reducing anxiety in physicians and nurses working in intensive care units.

## Methodology

This study is a pretest and post-test intervention case-control study and the statistical community of this research includes the nurses and specialist physicians working in intensive care unit (ICU<sup>1</sup>, CCU<sup>2</sup>, mental unit, burn wards, pediatric ICU and hemodialysis wards) of Beheshti Hospital and Emam Sajad hospitals in Yasouj and Shahid Rajae Gachsaran and Emam Khomeini Dehdasht in Iran in 2010. Sample admission requirements included the lack of any severe depression or anxiety disorders as well as work experience of more than 2 years in intensive care units. Sample exclusion requirements included having acute mental or physical disease and participation in other educational or therapeutic programs to promote emotional intelligence levels. After investigation of the desired conditions (inclination to participate in educational programs), 150 individuals (120 nurses and 30 physicians) participated in this study. Sixty nurses and 15 specialists were selected from Beheshti Hospital and Emam Sajad hospitals in Yasouj for the case group and 60 nurses and 15 specialists were selected from Shahid Rajaie Gachsaran and Emam Khomeini Dehdasht for the control group. Both groups participated in pretests before the training program. For data collection, the 20-question Berger situational anxiety (overt) questionnaire and the 133-question Bar-on emotional intelligence questionnaire were used. The emotional intelligence questionnaire consists of five factors: interpersonal relationships, intrapersonal relationships, stress management, adaptability, and general mood, which consist of 15 subscales. The subscales are: self-regard, assertiveness, emotional self-awareness, self-actualization, independence, interpersonal relationship, empathy, social responsibility, problem-solving, reality testing, flexibility,

stress tolerance, impulse control, happiness, and optimism. To validate this test for internal consistency, Cronbach's  $\alpha$  was applied in seven samples from different populations.<sup>10</sup> The mean of coefficients of Cronbach's  $\alpha$  was reported for all subscales in the range of 0.69 (social responsibility) and average of 0.86 (emotional self-awareness) and average of 0.76. Investigation of test-retest reliability showed average coefficients of reliability equal to 0.66. Using the test-retest method, the reliability of this test was reported as 0.74 for 35 individuals immediately after 1 month.<sup>1</sup>

Retest coefficients were 0.90%, 0.84%, and 0.082% for the subscales of stress tolerance, impulse control, and social flexibility, respectively. Retest coefficients were 0.58%, 0.062%, and 0.65% for subscales of assertiveness and social responsibility and independence.<sup>7</sup> To validate the situational (explicit) anxiety questionnaire created by Berger and colleagues, 130 individuals were randomly selected from the normal sample, proportionate to criterion sample size (130 distressed individuals diagnosed by a psychiatrist) observing the ratio of gender and age groups of members of criterion sample, and then to study validity of the test, average explicit and implicit anxiety and finally, total anxiety in two levels of 0.95% and 0.99% were separately calculated and the results of reliability calculation were significant at 95% and 99%.<sup>14</sup> The reliability of this questionnaire has been calculated as 87% in various studies, including research by Mahmoudi and Ruhi, who respectively calculated the reliability of the Spielberger test, which achieved a result of 89% and 90% in their preliminary study.<sup>15,16</sup> To run this test, pre- and post-tests were performed for the control group and both groups were tested again after the end of training sessions for the case group. The researcher has developed the training program in this research and this program was refined as much as needed after four sessions of general conference programs and six intergroup sessions, educational pamphlets and posters. Training programs were performed at two sessions per week and each session lasted 2 hours. This program focused on 15 subscales of emotional intelligence and programs to reduce anxiety. In the training programs performed, the required training were performed regarding the above items, and then methods of thinking, emotion expression, affections, changing perceptions, and changing judgments about beliefs were taught. Methods of coping with stressful factors and conditions of stressful environment were taught. Statistical descriptive methods and covariance and one-way variance tests, chi-squared, and *t*-tests were used to analyze the data.

## Protocol of implementation of training emotional intelligence

A demographic questionnaire and Berger's situational anxiety 20-item (overt) and 20-item personality anxiety questionnaire (covert) were given to all participants and then participants were divided into case and control groups. The following training program was implemented in the case group: in the first session of the conference, some definitions were presented on emotional intelligence, different types of emotional intelligence, concept of decisiveness, anxiety and different types of anxiety and its role in reducing the efficiency of physicians and nurses.

In the second session, training was undergone on empathy, problem-solving methods, flexibility, thought-control methods, and methods of replacing negative thoughts with positive thoughts, relaxation techniques, and methods of controlling anxiety.

In the third session, required training was undergone on the methods of identification of oneself and others, and relationships with the others, independence, self-concept, and impulse control.

Moreover, educational pamphlets as well as educational booklets on the above concepts were given to all participants. Both case and control groups were given the 20-question Berger situational anxiety and the 133-question Bar-on questionnaires 1 month after the end of training sessions as post-test to the case group. The questionnaires were completed.

## Results

The findings suggest that the average age for nurses is 30 years and for physicians 39 years. The number of participants in this study was 75 people in the case group (60 nurses and 15 physicians) and 75 people in the control group (60 nurses and 15 physicians). The average age of participants was 38.75 years in the case group and 39.7 in the control group. Regarding marital status, 88 participants in the case group (58.7%), and 25 participants in the control group (16.7%) were married. Thirty participants in the case group (20%) and four participants in the control group (2.7%) were single. One participant in the case group (0.65%) and one participant in the control group (0.65%) were separated. In addition, one participant in the case group (0.9%) and two participants in the control group (1.9%) were divorced. The average work experience is 7.38 years in nurses and 4.43 years in physicians. A *t*-test confirmed significant differences between these groups ( $P = 0.006$ ). The distribution of males and females in both groups was almost the same. The highest literacy in

**Table 1** Distribution comparison and mean scores for situational anxiety in physicians and nurses in Iran

Situational anxiety group	N (%)	Mean	Standard deviation	P-value	DF	Significance
Physicians						
Case	15 (10%)	40.46	4.20	1.407	13	0.171
Control	15 (10%)	38.33	4.09			
Nurses						
Case	60 (40%)	47.20	8.81	0.346	118	0.730
Control	60 (40%)	46.73	5.62			

**Abbreviation:** DF, degrees of freedom.

nurses was a bachelor's degree in 112 nurses (74.7%) and seven (4.7%) had high school diploma and one had a master of science (0.7%). In physicians, there were 27 specialists (18.0%), and three had postspecialist qualifications.

The findings in Table 1 show that mean situational anxiety in the case group physicians was 40.46 and in nurses was 47.20 and this compares with the control group. A *t*-test showed that there was no significant difference between the mean in nurses (0.730) and physicians ( $P = 0.171$ ). The findings in Table 2 show that mean emotional intelligence scores are higher in physicians than nurses and this was significant.

As shown in Table 3, the mean score of situational anxiety of nurses was 47.20 before the intervention. This reduced to 42.00 after education on emotional intelligence items. The mean score in physicians was 40.46 before the intervention, and this reduced to 38.33 after education on

emotional intelligence items. These results indicate that training of emotional intelligence components reduces situational anxiety.

Also, results showed that the average score of situational anxiety in the case group was 44.32 before intervention, whereas this score was 44.76 in the control group. Although the *t*-test result showed there was no significant difference between the average score of situational anxiety of both case and control groups before the intervention ( $P = 0.730$ ), there was a statistically significant difference between the average score of case and control groups after training in emotional intelligence components ( $P = 0.000$ ).

Thus, we can conclude that training in components of emotional intelligence has been effective in reducing situational anxiety of subjects in the case group.

## Discussion

The emotional intelligence educational program emphasizes recognition of emotions and their interaction with the inner and outer life of the individuals, acceptance of their emotions, dealing correctly with anxiety as well as learning how people deal with their own stress and anxiety, and most importantly, correct and organized expression of emotion. This study shows a positive relationship between the increase in emotional intelligence and reduction of anxiety. The levels of stress and anxiety in the case group were reduced in comparison with the control group. However, the study findings suggest that training components of emotional intelligence affects five main components of emotional intelligence and 15 components of emotional intelligence. The findings for all 15 items is consistent with the results of the studies conducted by Ogińska-Bulik,<sup>17</sup> Matthews and colleagues,<sup>18</sup> Montes-Berges and Augusto,<sup>19</sup> and Naidoo and Pau.<sup>20</sup> The findings are similar to the studies conducted by Hallahan and Moos<sup>21</sup> in relation to emotional intelligence and flexibility, physical symptoms and depression, and the Bar-on study.<sup>10</sup> This study has the same results as the study conducted by Esmaeli and colleagues,<sup>13</sup> which confirmed the impact of emotional intelligence training

**Table 2** Distribution of emotional intelligence items scores in physicians and nurses in Iran

Analysis	Mean $\pm$ standard deviation		P-value
	Group		
	Physicians (N = 30)	Nurses (N = 120)	
<b>Emotional intelligence items</b>			
Self-regard	35.63 $\pm$ 5.28	34.91 $\pm$ 4.81	0.016
Self-awareness	28.10 $\pm$ 3.03	27.16 $\pm$ 4.17	0.435
Assertiveness	25.96 $\pm$ 3.16	24.97 $\pm$ 23.86	0.396
Independence	25.4 $\pm$ 2.51	24.23 $\pm$ 3.03	0.285
Self-actualization	34.00 $\pm$ 2.85	33.49 $\pm$ 2.72	0.114
Empathy	32.30 $\pm$ 2.54	31.48 $\pm$ 3.43	0.917
Social responsibility	36.76 $\pm$ 3.66	35.89 $\pm$ 3.90	0.744
Interpersonal	42.66 $\pm$ 5.94	41.24 $\pm$ 5.34	0.034
Stress tolerance	33.96 $\pm$ 3.58	31.75 $\pm$ 4.03	0.745
Impulse control	35.70 $\pm$ 3.42	32.62 $\pm$ 6.00	0.012
Reality testing	36.66 $\pm$ 2.44	35.81 $\pm$ 3.94	0.006
Flexibility	29.56 $\pm$ 3.72	29.10 $\pm$ 4.54	0.839
Problem-solving	32.89 $\pm$ 2.54	31.17 $\pm$ 3.26	0.004
Optimism	30.26 $\pm$ 3.45	31.02 $\pm$ 3.28	0.761
Happiness	35.60 $\pm$ 4.61	34.76 $\pm$ 3.25	0.281
Total emotional intelligence	495.46 $\pm$ 35.75	479.65 $\pm$ 31.58	0.893

**Table 3** Distribution of situational anxiety scores in physicians and nurses in Iran and comparison of scores between case and control groups before and after training on emotional intelligence items

Analysis	Mean		Paired t-test	DF	P-value
	Before emotional intelligence education items	After emotional intelligence education items			
<b>Situational anxiety group</b>					
Nurses					
Case	47.20	42.00	-2.919	118	0.004
Control	46.73	45.70			
Physicians					
Case	40.46	33.33	-2.498	13	0.019
Control	38.33	39.40			
			<b>P-value</b>	<b>DF</b>	<b>Significance</b>
Comparison of mean before training in emotional intelligence items in case and control groups			1.87	148	0.730
Comparison of mean after training in emotional intelligence items in case and control groups			0.686	148	0.000

**Abbreviation:** DF, degrees of freedom.

on mental health of women and men who referred to the counseling center. This training program taught mind extension towards the inner and outer reality of participants along with a practice of brave acceptance of emotions and facing them correctly. In this program, participants are encouraged to attempt to overcome their stress and anxiety states through practical and theoretical emotional intelligence components as well as methods of mental focus. Thus it seems logical that participants score better in terms of emotional intelligence and score lower in terms of situational anxiety after passing a training course of emotional intelligence components. It should be noted that the novelty of the concept of emotional intelligence on control of anxiety and stress, there is a lack of research regarding the impact of emotional intelligence on anxiety of physicians and nurses and unavailability of other health programs to promote emotional intelligence and occupation of physicians and nurses and lack of support from the supporting systems, which was a limitation of this study. Further research based on health programs in other medical groups and other mental disorders such as disorders in interpersonal, mood, anxiety, and behavioral relationships, such as aggression and marital disputes, are of interest.

## Conclusion

The results of the study show that physicians and nurses experience high levels of stress. The level of stress experienced at work in the occupational case group was higher than in the control group. The ability to effectively deal with emotions and emotional information in the workplace assists employees in coping with occupational stress.

Therefore, emotional intelligence should be developed in stress-management training. Training in emotional intelligence items, decreased situational anxiety in physicians and nurses.

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## Disclosure

The authors report no conflicts of interest in this work.

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