The Beneficial Effects of Emotional Intelligence Training for Critical Care Nurses on Job Burnout: A Quasi-Experimental Study

Abstract

Background: Critical care nurses are at especially high risk of burnout. Burnout is a maladaptive response to work-related stress that is associated with negative consequences for patients. Emotional intelligence enables nurses to make better decisions and manage their patients more effectively. It impacts positively on the quality of care. This study aimed to assess the effect of emotional intelligence training on job burnout for nurses at the critical care units. **Materials and Methods:** A quasi-experimental study was conducted at two critical care units: the Cardiac Surgery Academy and El Demerdash Hospital, both of which are affiliated to Ain Shams University. The subjects were 200 critical care nurses. Each group of nurses trained for five sessions, each lasting about two hours, in the form of seminars. Researchers collected data through self-administered questionnaires containing three parts (demographic data of nurses, Wong and Law's Emotional Intelligence Scale and Maslach burnout inventory). **Results:** For emotional intelligence, the mean (SD) score of studied nurses pre-intervention was 19.95 (6.30), while post intervention it was 36.4 (9.57), a significant difference ($t = 14.01$ $p = $<0.01). Regarding burnout, the mean score of studied nurses pre-intervention was 59.61 (19.58), while post intervention it was 89.90 (19.60), ($t = 16.05$ $p = $<0.01). The regression model explains 67% of the variation in total emotional intelligence detected through R^2 value 0.67 ($F = 12.980$ $p = $<0.001). **Conclusions:** The present study revealed that emotional intelligence training had positive effects on nurses' experience of burnout at work. Providing educational training programs about emotional intelligence for newly hired nurses is recommended.

Keywords: *Burnout, emotional intelligence, nurses, stress*

Hadya Abboud Abdel Fattah[1], Gehan Karawan Sallam[2], Abdelaziz Said Hendy[3], Ahmed Abozeid[4], Nigel Rodenhurst[5]

[1]*Assistant Professor Nursing, Fatima College of Health Sciences, United Arab Emirates,* [2]*Clinical Research Nurse at Obstetrics and Gynecology Department, UAE University College of Medicine and Health Sciences, Al Ain, United Arab Emirates,* [3]*Assistant Lecturer at Pediatric Nursing, Faculty of Nursing, Ain Shams University, Cairo, Egypt,* [4]*Assistant Lecturer at Medical Surgical Nursing, Faculty of Nursing, Ain Shams University, Cairo, Egypt,* [5]*Specialist Support Lecturer, Aberystwyth University, Aberystwyth, United Kingdom*

Introduction

Critical care nurses work in exceptional surroundings where nurses are anticipated to make life and death decisions while exposed to extremely stressful situations and ethical problems daily. The emotional and physical burden on critical care nurses is growing. This is caused by fluctuations in the difficulties of patients and organizations, shortage of supplies, and the growing numbers of critically ill patient all of which cause burnout and stress among nurses.[1] Burnout is caused by emotional burden and labor, depersonalization, feelings of disappointment, stress due to illnesses, discouragement, unhappiness with one's job, diminished quality of nursing care, and struggles with patients and teamwork.[2] Critical care nursing includes providing nursing care for patients with life-threatening diseases and providing patients' families with support.[3,4] Thus, critical care nurses experience major emotional labor whilst managing their own emotions, and those of patients.[5]

Emotional intelligence is related to proficiency in identifying, expressing, and understanding emotions, adjusting emotions in thought and thoughtfully controlling both negative and positive emotions.[6,7] Imani *et al.* (2019)[8] found that emotional intelligence training for Iranian nurses improved client/patient satisfaction and health. Emotional intelligence reduces the burden of burnout and promotes nurses' feelings of ownership towards their careers. Al-Hamdan *et al*. (2019)[9] found that emotional intelligence training for nursing managers in Iran improved their ability to manage conflict and stress in the workplace.

Burnout syndrome is a state of mental, emotional, and physical fatigue caused by extreme and prolonged stress. Critical care nurses and their unit coworkers can suffer

Address for correspondence:
Dr. Abdelaziz Said Hendy, Assistant Lecturer, Pediatric Nursing, Faculty of Nursing, Ain Shams University, Egypt. E-mail: Abdelaziz.hendy@ nursing.asu.edu.eg

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from high rates of burnout syndrome, which has adverse consequences on teamwork and quality of care. A recent study from Saudi Arabia showed that 25 to 33% of critical nurses manifested symptoms of burnout syndrome.[10] A study from Canada showed that burnout among critical care staff is associated with diminished quality of care, the dissatisfaction of patients, increased medical errors, higher rates of nosocomial infection, and higher 30-day patient mortality rates.[11]

In Egypt, there is a shortage of critical nurses resulting from high instances of burnout which negatively affects care provided to patients and there are few studies assessing the relationship between emotional intelligence and burnout among nurses, especially those working in critical areas. This study was based on implementing a training program about emotional intelligence and examined its effect on reducing the level of burnout felt by nurses. The factors that influence the level of emotional intelligence in the nurses were also examined by applying linear regression.

Material and Methods

A quasi-experimental design "one group pre/post-test" was conducted from October 2019-February 2020. The study was carried out at critical care units at the Cardiac Surgery Academy and El Demerdash Hospital, both of which are affiliated with Ain Shams University in Egypt. The purposive sample included all the available nurses who worked in the mentioned settings and the study included 200 nurses. The inclusion criteria were that critical nurses were responsible for providing care for patients, they were of both genders and could be full time or part time. The exclusion criteria were that those who participated must have more than one year's experience and not less. The estimated sample size was 200 nurses, at a confidence level of 99%, attrition rate of 0%, power value of 90% and the precision rate at 0.05 by using the equation devised by Thompson (2006).[12]

The tool was a self-administered questionnaire including three parts developed by the researchers: Part I was demographic characteristics of the subjects including age, gender, marital status, qualifications, experience, working hours, income, and residence. Part II was Wong and Law's Emotional Intelligence Scale (WLEIS). This was designed by Wong and Law (2002)[13] to measure nurses' emotional intelligence. It includes 16 items grouped equally into four main dimensions: emotional self-appraisal, emotional appraisal of others, use of emotion and regulation of emotion. Responses of nurses were scored through a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. The overall score would therefore range between (16 and 80), with a higher score a sign of greater emotional intelligence. Part III was Maslach burnout inventory: This was adopted from Maslach *et al.* (1986)[14] and was used to assess nurses' burnout levels. It included 22 items grouped into emotional fatigue (9 items), personal fulfillment (8

items), and depersonalization (5 items). Responses of nurses were scored through a 5-point Likert scale ranging from (1) every day to (5) never. The overall score would therefore range between (22 and 110), with higher scores being a sign of improvement of burnout. A group of five experts in the critical care-nursing departments ascertained the content's validity to assess the layout, format, accuracy, consistency, and relevancy of the tools. Reliability pretesting was carried out through Cronbach's Alpha for Wong and Law's Emotional Intelligence Scale = 0.80 and Cronbach's Alpha for Maslach burnout inventory = 0.82. Before training, the researchers used the tools to complete the pretest. During the first step session, the researcher clarified the aim of the study and components of the tools. The educational program was prepared and designed by the researcher after reviewing the literature, particularly Friganovic *et al.*,[5] regarding the nurses' level of emotional intelligence and burnout at pretest.

The subjects were divided into five groups. Each group trained for five sessions, each lasting about two hours in the form of seminars, asking open questions with researchers and experts in the psychological field. The nurses were provided with literature. Researchers used illustrative methods such as PowerPoint lectures, short videos, questions & answers, and reflective thinking. In the first session, the researchers introduced the studied nurses to each other. Researchers informed nurses about the aim of study, structure, and training method of the sessions. The expectations of nurses about the training session were understood and nurses were asked to complete the predesigned questionnaires. In the first session, concept of emotional intelligence and its modules (15 modules of emotional intelligence, coping mechanisms for stress) were clarified and debated. The participants were educated in ways of coping with stress factors and their surroundings. In the second session, the studied nurses were informed about the concept of emotional self-discipline, feelings expression and approaches of changing instilled concepts. In the third session, self-control of emotion, the significance of impartiality over personal perception, coping aptitudes, and relaxation techniques were outlined to the nurses. In the fourth session, the participants were taught about emotional refinement, emotional intelligence techniques, and using emotional intelligence. The sessions ended after trainers responded to the nurses' questions. At the end of the intervention, the researcher waited for four weeks, then assessed nurses using the same tool.

The Statistical Package for Social Science (IBM SPSS) version 23 was used. Data were presented in the form of number/percentage and mean (SD). A T. test was used to compare means pre and postintervention. Pearson correlation coefficients were used to measuring the relationship between two variables-emotional intelligence and burnout scale. Also, researchers used a linear regression test to model the relationship between a scalar response and one or more explanatory variables.

Ethical considerations

At the beginning of the study, each nurse was informed of the purpose and possible outcomes of the study. The ethics committee at BU, RESEARCH.REC.14/7/2019. The nurses were assured about confidentiality of data collected and each one was informed of their right to refuse participation in the study or withdraw at any time from the study with no consequences. The researcher obtained consent from the nurses before participating.

Results

The mean (SD) age of subjects was 32.45 (6.80). 80% of them were female and 65% of them were married. 61% of the subjects had a technical nursing degree and the mean (SD) of years' experience was 7.43 (5.10) while 74% of them had insufficient income. The table also shows that 60% of studied nurses were full time [Table 1]. It is also clear that there was marked improvement in all domains of emotional intelligence scores of the subjects at post intervention. The mean (SD) score of total emotional intelligence pre-intervention was 19.95 (6.30) while post intervention it was 36.4 (9.57), a significant difference of $t = 14.01$ $p = <0.001$. Also, there was marked improvement in all domains of burnout scale scores among the subjects at post intervention, with p value <0.01. The mean score of total burnout scale pre-intervention was 59.61 (19.58), while post intervention it was 89.90 (19.60), a noteworthy difference at p value <0.01 [Table 2].

Likewise, it can be seen that there was a highly negative correlation between burnout scale and emotional intelligence at p value <0.01 [Table 3]. This model explains 67% of the variation in total emotional intelligence detected through R^2 value 0.67 (F = 12.980; p = <0.001). It also shows that high educational level, efficient income and experience had a clear positive effect on emotional intelligence levels ($p<0.001$). Meanwhile, age and being married had a minor positive impact on emotional intelligence with p value <0.05 [Table 4].

Discussion

The results illustrated significant improvement in all domains of emotional intelligence of the 200 nurses after the emotional intelligence training program. This was consistent with an international study conducted by Kozlowski *et al.*[15] which concluded that research generally supports the need for emotional intelligence training and the effectiveness of even a short intervention in pressurized medical settings. Furthermore, the results supported the findings of the study performed by Vahidi *et al.*,[16] which detected that following a similar intervention, scores of emotional intelligence were higher in contrast with the pre-intervention period in the study group of registered nurses in Iran. It is also consistent with the study conducted by Meng & Qi,[17] which reported that around two-thirds of

Table 1: Number and percentage distribution of the subjects according to their characteristics (*n*=200)

Characteristics	*n* (%)
Age	
20-<25	50 (25)
25-<30	30 (15)
30-< 35	40 (20)
35 or more	80 (40)
Mean (SD)	32.45 (6.80)
Gender	
Male	40 (20)
Female	160 (80)
Marital Status	
Married	130 (65)
Not Married	70 (35)
Qualification	
Secondary nursing degree	40 (20)
Technical nursing degree	122 (61)
Bachelor nursing degree	30 (15)
Higher education	8 (4)
Years of Experience	
1-<5 years	68 (34)
5-<10 years	62 (31)
10-15 years	35 (17.50)
>15 years	35 (17.50)
Mean (SD)	7.43 (5.1)
Income	
Efficient	52 (26)
Not efficient	148 (74)
Working Hours	
Part Time	80 (40)
Full Time	120 (60)
Residence	
Urban	140 (70)
Rural	60 (30)

student nurses had higher emotional intelligence scores at the end of the study conducted in China.

Regarding the current study, there was marked improvement in all domains of burnout scale among the nurses at post intervention. The mean score of total burnout scale pre-intervention was 59.61 (19.58), while postintervention it was 89.90 (19.60), a very significant difference. These results may be due to an effective educational program about emotional intelligence, how to cope with self-control, to use straightforward language, and concepts pitched at a level consistent with the nurses' previous learning experiences. These results were not matched in a study by Antoun *et al.*[18] which focused on internal medicine residents at a hospital in Beirut. Burnout levels were not reduced, but this study used Balint seminars, which may have been an unfamiliar learning environment for the subjects to adapt to. Our results were, however, consistent a study performed by Gozalo *et al.*,[19] which revealed that application of intervention had a highly positive effect on burnout of nurses at an intensive care unit.

Table 2: Mean emotional intelligence and burnout score distribution of subjects at pre and postintervention (n=200)

Domains	Pre Mean (SD)	Post Mean (SD)	t test p
Emotional intelligence domains			
Self-emotion appraisal	5.23 (1.97)	9.57 (3.04)	7.89 0.006
Emotional appraisal of others	4.47 (1.33)	8.62 (3.30)	8.23 0.004
Use of emotion	4.01 (1.78)	8.48 (2.99)	6.15 0.009
Regulation of emotion	6.24 (2.69)	10.14 (3.11)	7.76 0.005
Total	19.95 (6.30)	36.40 (9.57)	14.01 p<0.001
Burnout domains			
Emotional fatigue	24.94 (7.64)	37.60 (9.40)	9.34 0.008
Personal fulfillment	21.65 (5.58)	32.50 (10.30)	8.00 0.009
Depersonalization	13.02 (3.66)	19.80 (4.90)	8.93 0.008
Total	59.61 (19.58)	89.90 (19.60)	16.05 p<0.001

Table 3: Correlation between the nurses' emotional intelligence scores and their burnout scale scores post-intervention

Items	Burnout
Emotional intelligence	
r	−0.54
p	0.006

*Pearson scale

Table 4: Multiple linear regression model

	Unstandardized Coefficients B	standardized Coefficients β	t	p
Age	0.39	0.37	8.13	0.018
Educational level	0.57	0.43	9.46	0.007
Marital status (Married)	0.15	0.23	5.02	0.014
Income (Efficient)	0.76	0.45	11.37	0.003
Experience	0.95	0.69	12.03	p<0.001
	R^2 0.67	F 12.98	p<0.001	

Note: Dependent Variable: Emotional intelligence. b. Predictors: (constant) age, Educational level (High), Marital status (married), Experience and Income (efficient)

Regarding the correlation between the nurses' emotional intelligence and their burnout scale scores, the present study found that there was a highly negative correlation between burnout scale and emotional intelligence. These results support those of Samaei *et al.*[20] study, which found that there was a severe negative correlation between emotional intelligence and burnout of nurses in Iran. Aldaz *et al.*[21] also found a clear correlation between alexithymia, emotional intelligence, and burnout among nurses working in nursing home settings in Spain.

The current study detected that high educational level, sufficient income and experience were positive predictors of emotional intelligence. Age and being married had some positive effect on emotional intelligence. These results support the findings of Hong & Lee,[22] who found that experience and education level had a significant effect on emotional intelligence among nurses in Korea. In addition, Mohamed *et al.*[23] found that more than two-fifth of studied nurses had moderate level of burnout, whilst slight less than one-third of them had high burnout and recommended to apply intervention program to reduce burnout among nurses.

From the above discussion, the research design of this quasi-experimental study clearly allows for some credible and significant comparison to other recent studies. It makes an important contribution to an existing area of study concerning emotional intelligence and quality of healthcare, specifically among critical care settings. The methodology is replicable, produced clear results and could be applied to other settings for comparative purposes. The limitation is that it is a single center study; the data were obtained from only two hospitals affiliated to the same university and the results may not fully relate to all settings within Egypt or internationally.

Conclusion

The present study revealed that emotional intelligence training had a positive impact on critical care nurses' burnout rates in critical care settings. It also found that characteristics including age, experience, educational level, income and marital status had an impact on emotional intelligence levels among the nurses. It is recommended that educational training programs about emotional intelligence for newly hired nurses are implemented more widely and routinely. Burnout levels and emotional intelligence among critical care nurses should be continuously monitored. Further research assessing the predictive factors affecting nurses' burnout rates is also recommended.

Conflicts of interest

Nothing to declare.

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