Original Article

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Emotional intelligence skills: is nurses' stress and professional competence related to their emotional intelligence training? a quasi experimental study

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Introduction: Emotional intelligence is a social skill that controls stress and affects one's ability to cope with the demands and environmental pressures; it so can improve professional competence in health care providers such as nursing students. Training on emotional intelligence increases the mental health and influences the mutual relationships, stress, depression and aggression. This study aimed to determine the effect of emotional intelligence skills training program on the stress and academic success of nursing students in a higher education health complex.

Methods: This study is a quasi-experimental study with an educational intervention. The participants included 100 students of nursing selected by stratified random sampling from both genders. They were randomly categorized into two intervention and control groups including 50 subjects, respectively. We used Meyer and Salvia model in Emotional Intelligence training in the intervention group. During the training sessions in the intervention group, the control group did not receive any intervention. Academic stress and professional competence in both groups were measured before and two weeks after the experiment. SPSS version 21 was used to analyze the data, using Paired t-test, independent t-test, Wilcoxon, Mann-Whitney and Chi-Square tests.

Results: The mean age of the participants was 20±2.14 years old. According to the results, the mean difference of the changes in the professional competence ($p<0.001$), total academic stress ($p<0.001$), and the four areas of academic stress such as emotional response ($p<0.001$), physical response ($p<0.001$) and physiological response ($p<0.001$) were significant. The intervention group, as compared with the control group, showed no significant effect on the other factors of academic stress such as frustration, conflict, academic pressure, changes and self-imposed stress.

Conclusion: The education of emotional intelligence components can improve the efficiency of nursing care services and professional competence due to deceased stress.

Keywords: Emotional intelligence, Stress, Academic success, Professional competence

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Introduction

Stress is an inseparable part of daily life in the 21st century and many diseases are associated with it. Moreover, lack of skill and emotional, psychosocial and social abilities makes people more vulnerable to developing psychosocial disorders (1). Nursing is a complex profession and nurses are important members of healthcare teams and have continuous interaction with patients and their families in a stressful environment (2). The stressors that nurses typically face with include daily exposure to deadly events, feelings and emotions of patients and their families, lack of sufficient staff, heavy workload (3), individual conflicts, shift work, lack of mental support, confrontation with physicians, and ambiguity in the amount of authority. Lack of knowledge and proper control of these stresses may cause serious and inevitable damages to the nurses and patients (4). Stress can reduce professional competence as well as academic success in students with several negative outcomes such as poor well-being and poor academic performance, lack of academic achievement, and memory reduction (5-7).

Nursing professional competence has been widely referred to in the literature as the excellence of nursing care; however, WHO has described this concept as a component of skills, knowledge, and attitudes that nurses might acquire it (8). On other hand, nurse competence can be related to some personal characteristics such as emotional intelligence (EI) and personality qualities. Therefore, the EI and personality characteristics have recently attracted considerable attention in education of health care professions (9).

The education of emotional intelligence (EI) can enhance the mental health and is related to sensitivity to interactions, anxiety, depression and aggression (8). Salovey and Mayer define emotional intelligence as a combination of four abilities including emotional empathy, emotional use, understanding emotions, and managing emotions (9, 10). Carmeli indicated that emotional intelligence contributes as much as 80% to an individual's success in life, while the rest of them could be the result of intelligence quotient. He also believed that it can be improved by training and corrective programs such as therapeutic techniques. In fact, emotional intelligence has a more important role than general intelligence in the individuals' success in various fields of study and competence attainment (11). Por et al. revealed a positive correlation between all components of emotional intelligence (emotional self-awareness, confidence, self-esteem, self-sufficiency, empathy independence, interpersonal relationships, social responsibility, problem-solving, realism, flexibility, stress tolerance, impulsive control, satisfaction and optimism) and development in one's personal well-being (12). Parkero, et al. also indicated a high correlation between the dimensions of emotional intelligence with academic success and professional competence. Besides, they found a significant correlation between high levels of emotional intelligence and social competence (13). Tehrani demonstrated that students should appropriately develop their emotional regulation and general cognitive abilities. Inclusion of emotional intelligence in the curriculum of universities and its promotion among the students is recommended (14). An awareness of these relationships might help the nurse managers to assume proper strategies to reach important outcomes such as the nurses' better performance, and conflict management to achieve professional competence in their job.

Different studies have been conducted on the effect of emotional intelligence; however, few studies have been carried out on the impact of emotional intelligence on professional competence and academic success in smaller centers which train nursing students and have their own culture. Therefore, this research was conducted to investigate the effect of emotional intelligence skills training on the stress and academic achievement of nursing students in Quchan's Higher Education Complex, in Iran.

Methods

This is a quasi-experimental study on nursing students using pre-test, post-test, and control group design in February 2017. We aimed to compare the effect of emotional intelligence on the stress and professional competence of nursing students studying at Quchan's Nursing Education Complex.

The studied population consisted of nursing students (both genders) of Quchan's Nursing Education Complex. The inclusion criteria included the students' willingness to attend the classes, no use of any medication, and no participation in any stress management courses in the last 6 months, no exposure to crises such as natural disasters during the last 6 months, no breavement, and no history of the student or parents' divorce. The exclusion criteria included the students' unwillingness to continue their participation in the study, and the use of drug therapies to control stress during the intervention.

In order to measure the students' response to academic stress, we used Gadzella's Inventory to assess academic stress; it has been designed to study the college students' stressors and their

reactions to them. It is a self-reporting, paper and pencil questionnaire which consists of 51 items listed under nine categories which focuses on five types of stressors (Frustrations, Conflicts, Pressures, Changes, and Self-imposed) and four types of reactions to them (Physiological, Emotional, Behavioral, and Cognitive (13-16).

Higher scores reflect higher academic stress and more reactions to stressors, respectively. Content validity was confirmed by some experts. The reliability of the subscales of frustration, conflicts, pressures, changes and self-imposed stress was calculated 0.74, 0.79, 0.7, 0.75, 0.77, respectively, using Cranach's alpha. These coefficients were 0.84, 0.88, 0.88, 0.44 and 0.8 respectively for the subscales of physiological, emotional, and cognitive behavioral responses.

For measurement of professional competence, we used the Persian translated versions of Competency Inventory for Registered Nurse (CIRN). This tool contains 55 items that assesses the competence of nurses in seven dimensions of clinical care, leadership, interpersonal relationships, ethical performance, professional development, coaching and education, and the desire to research critical thinking. Total score range is 0-220, higher scores indicating higher overall competence (16-18). The validity was confirmed by the experts and reliability using Cranach's alphas was 0.73 and 0.89, respectively.

After obtaining the students' informed consent and reassuring them about the confidentiality of the information collected, they were divided into 4 clusters randomly based on the year of their entrance in the university. 100 female and male nursing students were assigned into two groups randomly. Then, Academic Stress Inventory of Gadzella and Competency Inventory were distributed to be completed in 60 minutes. After reading each phrase, the subjects selected their responses. They filled out the questionnaires in their leisure time. Then the participants of the intervention group attended 6 training sessions of 90 minutes in the form of lectures, questions and answers, group discussion, and role play. The educational program was developed based on the pattern of emotional intelligence by Salovey and Mayer (10). During the training sessions in the intervention group, the control group did not receive any intervention. The post-test was administered 2 weeks after the last training session, and the results were compared with each other. At the end, the students of the control group were provided with the training content, as well. The data were analyzed using SPSS, 21 software. We used paired t-test, independent t-test, Wilcoxon, Mann-Whitney and Chi-Square tests.

Results

The mean age of the participants was 20±2.14 years old. The mean and standard deviation showed the lack of a significant difference in the means of the control and experimental groups. The demographic characteristics of the students are displayed in Table 1.

The first hypothesis of the study was that training (Emotional Intelligence Skills) improves the students' stress, and the second hypothesis of the study was that training (Emotional Intelligence Skills) improves the students' professional competence. So, the mean and standard deviation of the academic stress and areas' score, and the professional competence score were assessed in the experimental and control groups before and after the intervention (Table 2).

According to the results, the mean difference of the changes in the professional competence ($p<0.001$), total academic stress ($p=0.028$), and the three areas of academic stress such as emotional response ($p<0.001$), physical response ($p<0.001$) and physiological response ($p<0.001$) was significant.

The intervention group, as compared with the control group, showed no significant effect on the other factors of academic stress such as frustration, conflict, academic pressure, changes and self-imposed stress.

Discussion

Training of emotional intelligence components can improve the efficiency of nursing care services and professional competence due to deceased stress. The results revealed that the students' professional competence in the experimental

Table 1: Demographic characteristics of students

Group Variable	Control (n=50) N (%)	Intervention (n=50) N (%)	p
Gender			
Female	39 (78%)	36 (72%)	0.48**
Male	11 (22%)	14 (28%)	
	Mean±SD	**Mean±SD**	
Average	17.23±1.22	17.16±1.43	0.80*

*Independent t-test; **chi-square

Table 2: Comparison of the mean value of total academic stress, areas' and professional competence

Variables	Experimental group (n=50)		Control group (n=50)		p value
	Before intervention Mean±SD	After intervention Mean±SD	Before intervention Mean±SD	After intervention Mean±SD	
Frustration	17.52±4.48	16.96±3.64	18.24±5.40	17.02±3.70	0.751
Conflict	7.48±1.98	7.12±2.07	7.80±2.28	7±2.10	o.485
Pressure	10.78±3.40	10.08±3.28	10.14±3.20	9.28±2.77	0.854
Changes	8.72±2.43	8.52±2.84	9.10±2.91	8.36±2.06	0.439
Self-imposed stress	21.68±2.88	22.38±6.05	20.72±4.12	19.86±3.53	0.529
Physiological response	31.52±8.76	26.30±7.78	26.88±8.37	27.46±7.16	<0.001
Emotional response	10.56±3.27	7.86±3.30	10.32±4.23	10.16±3.50	<0.001
Behavioral response	16.18±5.05	11.82±3.72	14.24±4.42	14.26±4.01	<0.001
Cognitive response	6.24±1.85	6.48±2.45	6.24±2.13	6.26±2.00	0.722
Total academic stress	130.68±19.97	117.50±16.62	123.68±23.45	119.66±16.86	0.028
Professional competence	142.50±6.74	154.14±7.78	142.94±10.30	145.60±10.48	<0.001

group was higher than that of those in the control group ($p<0.001$). This finding is in line with the results regarding the effects of the emotional intelligence skills training in other studies (19, 20). Samiee found a significant correlation among the variables of self-awareness, self-management and finally personal competence and the workforce performance (20).

Also, the results showed that the score of the critical thinking ability obtained in the training was increased only in the analysis dimension of academic stress. In other words, this training method did not fully affect students' stress. According to the results, emotional intelligence skills training significantly affected the mean score of physiological response, emotional response, and behavioral response of stress in students. It is consistent with the findings of Por, et al.; it was indicated that emotional intelligence was positively related to well-being, problem-focused coping and perceived nursing competency. However, it was negatively related to perceived stress (12). Therefore, it does not confirm the results of other studies (21, 22).

Emotions and feelings are a crucially important aspect of our behavior. Considering the effects of stress on physical health through physiological changes, increased emotional intelligence can decrease stress response at physiological (physical) level. Therefore, the existence of a relationship between emotional intelligence and physical responses resulting from stress appears logical. Educating emotional intelligence skills has an effect on behavioral responses to stress in nursing students. The results of this our study are consistent with the findings of the study conducted by Noorbakhsh, et al., showing that emotional intelligence was positively associated with problem-focused and emotion-focused stress coping styles (23).

The emotional intelligence skills training program was effective among nursing students receiving intervention and training skills decreased emotional and behavioral responses, leading to an increase in the professional competence of nursing students, but based on the results shown in Table 3, the training of emotional intelligence skills did not have a significant effect on the mean of stress caused by frustration, stress caused by conflicts, changes in the experimental group, and experimental group pressure, physical reactions, cognitive assessment of stress, and academic stress in nursing students. In other words, the emotional intelligence skills are not able to reduce and change different types of stress in the nursing students. The results are in line with those of Birks which assessed emotional intelligence and perceived stress in healthcare students in a multi-institutional, multi-professional study. They showed that by increasing emotional intelligence, the amount of stress associated with education and stressors increases in the students (24).

However, studies have revealed that the effect of education and increase in competency mostly depends on the organizational culture, socio-economic condition and the people's perspectives. Probably, the lack of reduction of the students' stress can be attributed to such factors as the population studied (25-27).

Also Najafi, et al. in their study indicated stress in students in the same situations. Moreover, in their study they reported mild to very severe symptoms of depression, the prevalence of different degrees of depression, anxiety and stress among students (27). Stress is the inseparable part of today's human life and the living environment is undergoing constant technological changes. Academic stress refers to the growing need for knowledge and, in general, the person's perception of not having enough time to achieve that knowledge (28). Culture-bound

syndrome is of considerable importance in the study of the causes of academic stress. In other words, the results of a variety of studies indicate that the causes of academic stress are culture-dependent; for example, it seems that expectations and parent's expectations of their children have determining roles in academic stress in the East Asian and Central Asian societies (29-31).

In the study by Levitats and colleagues about emphasis on the emotional intelligence of public healthcare staff and its potential influence on public service encouragement, and job satisfaction, it was found that the components of emotional intelligence were related to skills and behavioral responses. People who are developing their emotional skills have more satisfaction in their personal and professional lives (32). Thus, as mentioned above, the relationship between emotional intelligence and professional competence seems logical. Contrary to expectations, although the researcher made an attempt to homogenize two intervention and control groups as far as possible, the results of some hypotheses were contrary to what the researcher expected. The reasons for this cannot be attributed to the lack of full comprehension of some questions by the subjects, the subject's mental conditions when responding (such as being tired, stressed and anxious, intellectual tension), and lack of understanding of the subjects about the importance and necessity of using emotional intelligence. It is recommended that the training of emotional intelligence components and stress coping styles or strategies should be incorporated as in-service training courses for working nurses so that in addition to increasing the efficiency of nursing care services and empowerment of nursing students, they can manage to enhance the satisfaction of patients and their families about nursing services and promote community health. It is also suggested that the present study be carried out on other students of other universities and disciplines so that the results can be compared. Also, the effectiveness of the intervention can be evaluated with other interventions in the field of academic stress in the form of a comparative plan.

Conclusion

The findings of this study showed that emotional intelligence skills training programs can be effective for nursing students. Also, training skills decreased emotional and behavioral responses and led to an increase in the professional competence of nursing students. This study had some limitations and strengths, as well. One of the limitations was individual differences between the subjects and the ability of each subject to respond to some questions in the questionnaire and receive instructional knowledge. It is suggested that this study be carried out in other fields of medical sciences and the results are compared with one another. Moreover, the effectiveness of this intervention can be evaluated in comparison with other interventions in the field of academic stress and response.

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References

1. Lewis GM, Neville C, Ashkanasy NM. Emotional intelligence and affective events in nurse education: A narrative review. Nurse education today. 2017; 53:34-40.
2. Van der Linden D, Pekaar KA, Bakker AB, Schermer JA, Vernon PA, Dunkel CS, et al. Overlap between the general factor of personality and emotional intelligence: A meta-analysis. Psychological bulletin. 2017; 143(1):36.
3. Johansson P, Oleni M, Fridlund B. Patient satisfaction with nursing care in the context of health care: a literature study. Scandinavian journal of caring sciences. 2002;16(4):337-44.
4. Crowne KA, Young TM, Goldman B, Patterson B, Krouse AM, Proenca J. Leading nurses: emotional intelligence and leadership development effectiveness. Leadership in Health Services. 2017;30(3):217-32.
5. Hegney DG, Craigie M, Hemsworth D, Osseiran-Moisson R, Aoun S, Francis K, et al. Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. Journal of Nursing Management. 2014;22(4):506-18.
6. Bazrafkan L, Shokrpour N, Yousefi A, Yamani N. Management of Stress and Anxiety Among PhD Students During Thesis Writing: A Qualitative Study. The health care manager. 2016; 35(3):231-40.
7. Fernandez R, Salamonson Y, Griffiths R. Emotional intelligence as a predictor of academic performance in first-year accelerated graduate entry nursing students. Journal of clinical nursing. 2012;21(23-24):3485-92.
8. Liu M, Yin L, Ma E, Lo S, Zeng L. Competency Inventory for Registered Nurses in Macao: instrument validation. J Adv Nurs .2009; 65(4):893–900
9. Kozlowski D, Hutchinson M, Hurley J, Rowley J, Sutherland J. The role of emotion in clinical decision making: an integrative literature review. BMC medical education. 2017;17(1):255.
10. Mayer JD, Caruso DR, Salovey P. Emotional intelligence meets traditional standards for an intelligence. Intelligence. 1999;27(4):267-98.
11. Carmeli A. The relationship between emotional intelligence and work attitudes, behavior and outcomes: An examination among senior managers. Journal of managerial Psychology. 2003;18(8):788-813.

12. Por J, Barriball L, Fitzpatrick J, Roberts J. Emotional intelligence: Its relationship to stress, coping, well-being and professional performance in nursing students. Nurse education today. 2011;31(8):855-60.
13. Parker JD, Summerfeldt LJ, Hogan MJ, Majeski SA. Emotional intelligence and academic success: Examining the transition from high school to university. Personality and individual differences. 2004;36(1):163-72.
14. Tehrani TH, Kabir NK, Sheraghi F. The relationship between emotional intelligence, mental health and academic achievement in Neyshabour nursing students. Scientific Journal of Hamadan Nursing & Midwifery Faculty. 2012;20(3): 35–45.
15. Gadzella BM. Student-life stress inventory: Identification of and reactions to stressors. Psychological reports. 1994; 74(2):395-402.
16. Gadzella BM, Baloglu M. Confirmatory factor analysis and internal consistency of the Student-life Stress Inventory. Journal of Instructional Psychology. 2001;28(2):84.
17. Meretoja R, Isoaho H, Leino-Kilpi H. Nurse Competence scale: development and psychometric testing. Journal of advanced nursing. 2004; 47(2):124-33.
18. Sagherian K, Steege LM, Geiger-Brown J, Harrington D. The Nursing Performance Instrument: Exploratory and Confirmatory Factor Analyses in Registered Nurses. Journal of nursing research. 2018;26(2):130-7.
19. Jokiniemi K, Meretoja R, Pietilä AM. Constructing content validity of clinical nurse specialist core competencies: exploratory sequential mixed-method study. Scandinavian journal of caring sciences. 2018;32(4):1428-36.
20. Samiee R, Dolati M, Paghaleh MS. The Relationship between Personal competence of Emotional Intelligence and Staff performances. International journal of business and management. 2013; 4(4): 162.
21. Nightingale S, Spiby H, Sheen K, Slade P. The impact of emotional intelligence in health care professionals on caring behaviour towards patients in clinical and long-term care settings: Findings from an integrative review. International journal of nursing studies. 2018;80:106-17.
22. Yilmaz M. The effects of an emotional intelligence skills training program on the consistent anger levels of Turkish university students. Social Behavior and Personality: an international journal. 2009; 37(4):565-76.
23. Noorbakhsh SN, Besharat MA, Zarei J. Emotional intelligence and coping styles with stress. Procedia-Social and Behavioral Sciences. 2010;5:818-22.
24. Birks Y, McKendree J, Watt I. Emotional intelligence and perceived stress in healthcare students: a multi-institutional, multi-professional survey. BMC medical education. 2009;9(1):61.
25. Bahrami MA, Taheri Gh, Montazeralfaraj R, Dehghani Tafti A. The Relationship between Organizational Climate and Psychological Well-Being of Hospital Employees. World Journal of Medical Sciences. 2013; 9(1): 61-7.
26. Khushde S, Farhangi M, Kouteh BR, Kahrazei F, Ziapour A. A comparative study of homesickness, depression, and internet addiction between native and nonnative students at University of Sistan and Baluchestan, Iran. Annals of Tropical Medicine and Public Health. 2017;10(6):1537.
27. Kalyani MN, Pourjam E, Jamshidi N, Karimi S, Kalyani VN. Survey of stress, anxiety, depression and self-concept of students of Fasa University of medical sciences, 2010. Journal of Fasa University of Medical Sciences. 2013;3(3):235-40.
28. Huang GH, Gove M. Confucianism, Chinese families, and academic achievement: exploring how Confucianism and Asian descendant parenting practices influence children's academic achievement. In Science Education in East Asia. Cham: Springer; 2015. pp. 41-66.
29. Abdulghani HM, Al-Drees AA, Khalil MS, Ahmad F, Ponnamperuma GG, Amin Z. What factors determine academic achievement in high achieving undergraduate medical students? A qualitative study. Med Teach. 2014; 36(sup1):S43-8.
30. Amini M, Nabeiei P, Delavari S. The Relationship between Emotional Intelligence and Communication Skills in Healthcare Staff. Self. 2018; 18:3-59.
31. Park H, Lee MJ, Choi GY, Zepernick JS. Challenges and coping strategies of East Asian graduate students in the United States. International Social Work. 2017;60(3):733-49.
32. Levitats Z, Vigoda-Gadot E. Yours emotionally: How emotional intelligence infuses public service motivation and affects the job outcomes of public personnel. Public Administration. 2017;95(3):759-75.