



Emotional intelligence and caring behavior among Iranian nurses

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Abstract

Background: Several studies in Iran have examined nurses' caring behaviors (CB) or emotional intelligence (EI). However, no study in Iran investigated the relationship between EI and CB among Iranian nurses.

Objectives: This study examined the correlation between EI and CB among nurses.

Methods: A cross-sectional study was conducted in 2020 on a sample of 223 nurses working in Shahid-Beheshti Hospital in Kashan, Iran. A demographic questionnaire, the Caring Dimension Inventory-25, and the Siberia Schering's EI questionnaire were used to collect data. Descriptive statistics, t-test, one-way analysis of variance, and Pearson's correlation coefficient were used to analyze the data.

Results: Totally, 202 nurses completed and returned the study questionnaires. Most of the nurses were female (66.8%), married (77.2%), and had a bachelor's degree in nursing (84.7%). The mean age and work experience of the participants were 31.17 ± 6.59 and 2.11 ± 2.06 years, respectively. The mean EI and CB scores of the nurses were 100 ± 17.99 and 43.87 ± 10.14 , respectively. Although no significant correlation was found between the nurses' overall CB and EI scores ($r=0.065$, $p=0.358$), a significant correlation was found between the scores of "psychosocial care" subscale and all components of EI.

Conclusion: Nurses demonstrated moderate EI and low CB. A significant relationship was observed between the scores of psychosocial caring behaviors with the total score of EI and its dimensions. It is suggested to design and implement programs to promote nurses' EI. Hope that these programs will improve CB in nurses.

Keywords: Emotional Intelligence, Nursing care, Behavior, Nurses.

Introduction

Caring behavior (CB) is defined as actions characteristic of concern for a patient's well-being, such as sensitivity, comforting, attentive listening, honesty, and nonjudgmental acceptance.^[1] It is also defined as acts, behaviors, and gestures enacted by a professional nurse to convey concern, safety, and attention to a patient.^[2] Caring and CB imply a mindset and commitment for respecting others and preventing impending unpleasant events, expressing love and attachment, presence, empathy, and appreciation.^[3] However, in modern and technological healthcare systems, nurses face heavy workloads, lack of time, and insufficient workforce that increase their emotional and psychological stress,^[4] expose them to burnout, fatigue, and compassion fatigue,^[5] and prevent them from demonstrating appropriate CB.^[6]

A number of factors related to nurses, the healthcare

system, the nursing profession, nursing education, and patients, may affect nurses CB.^[7] However, there are conflicting results in this regard. Some studies reported an association between nurses' CB and their personal characteristics.^[8] However, a study found no relationship between nurses' personal characteristics and their CB.^[9] While reviewing routine admittance criteria for bachelor's nursing programs and emphasizing that nursing requires the ability to empathize, care, and react in an emotionally sound manner, Smith suggests that candidates' emotional intelligence (EI) should be assessed as an eligibility criterion. Smith did not examine EI or CB in nurses, but believes that CB and EI may be correlated.^[10]

The term EI describes a type of intelligence that includes the ability to understand and regulate the emotions of oneself and others, and to use this knowledge to guide one's thoughts and actions.^[11] Scholars believe that EI is

essential to establish, nurture, and sustain the highly emotional and demanding work that nurses must perform when interacting with patients. Nurses with high EI are aware of their need for love, the need for love for the patient, and the patient's need to receive love.^[11] It is also believed that every nursing intervention is influenced by EI, and that it is not enough to focus on procedures without considering the person receiving the intervention.^[12] Therefore, nurses must be skilled in managing the emotions of themselves and others.^[13] It is reasonable to assume that health professionals with higher EI are not only more compassionate, empathetic, resilient, supportive, and better able to manage the emotions of others, but also better able to care for themselves and their patients. However, despite the growing theoretical literature in this area, observational studies are limited. Several studies in Iran have examined nurses' CB^[7,9] or EI.^[14,15] A study also assessed the relationship between EI and organizational citizenship behavior in nurses in teaching hospitals of Kerman, Iran, but failed to find a relationship between these two variables.^[16] Another study in Gonabad, Iran, investigated the relationship between nurses' EI and their professional and individual characteristics. The results failed to find a significant relationship between EI and individual characteristics, although EI was significantly correlated with job characteristics such as, working shift, and employment status.^[17] However, a study in Mazandaran, Iran examined the relationship between EI and burnout in nurses and reported that nurses with higher EI experienced lower levels of burnout.^[18] Nonetheless, no study investigated the relationship between EI and CB in Iranian nurses.

Objectives

This study was conducted to examine the correlation between EI and CB of nurses in Shahid-Beheshti Hospital of Kashan, Iran.

Methods

Study design and participants

This cross-sectional study was conducted between April and July 2020 on a sample of nurses working in different wards of Shahid-Beheshti Hospital in Kashan, Iran. The sample size was calculated using the results of a pilot study that measured the EI of 20 nurses randomly selected from different wards of the aforementioned hospital. The mean EI of the nurses was 111.25 ± 14.5 . Then, using the

following formula ($Z_{1-\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}} / d^2$), and with a type one

error of 0.05, a standard deviation of 14.5, and a measurement error of 2 points, a sample of 203 subjects was needed for the study. However, considering a possible dropout of 10%, the sample size increased to 223. The nurses who participated in the pilot study were not included in the final sample.

Inclusion criteria were at least a bachelor's degree in nursing, no known mental illness, work experience of at least 6 months, and willingness to participate in the study. Incomplete response to the study questionnaires was the only exclusion criterion. First, the list of qualified nurses was taken from the nursing office of the hospital and then, using the random number generator in SPSS software was used to randomly select the required samples. Then, the first researcher referred to the wards where the selected nurses worked, found them, and after explaining the objectives of the study, invited them participate in the study. They were then provided with the study instruments and instructed to complete them in a quiet and private setting and return them to the researcher at her next visit.

Data collection instruments

A three-part instrument was used to collect the study data, including a demographic questionnaire, the Caring Dimension Inventory-25 (CDI-25), and the Siberia Schering's EI questionnaire. The demographic questionnaire included items on the participants' age, gender, work experience, academic degree, marital status, workplace, type of employment, and job position. The CDI-25 includes 25 items in the five dimensions of psychosocial (10 items), physical/technical (11 items), professional (1 item), unnecessary (1 items), and inappropriate (2 item) caring behaviors.^[19] Respondents are asked to answer the items in response to the prompt question, "Do you consider the following aspects of your nursing practice to be caring?" All items are responded on a 5-point Likert scale ranging from 5: "strongly agree" to 1: "strongly disagree." Items in the inappropriate CB subscale are reverse scored. The total score of the scale can range from 25 to 125. The higher the score, the more nurses believed their behavior was more caring. In the present study, scores < 50, 50-100, and > 100 were considered weak, moderate, and unfavorable caring behavior, respectively. The validity and reliability of the Persian translation of the CDI-25 have been assessed by Salimi *et al.*, and the Cronbach's alpha coefficient was 0.83.^[20] In the present study the Cronbach's alpha of the CDI-25 was calculated to be 0.79.

The Siberia Schering EI questionnaire includes 33 items in the five components of self-awareness, self-regulation, self-motivation, empathy, and social skills. Items 9, 10, 12, 14, 18, 20, 22, 28, and 33 are scored on a five-point Likert scale ranging from "5: always" to "1: never," and the remaining are reverse scored. The total score can range between 33 and 165. A higher score indicates better EI.^[21] Hatem Goya *et al.* interpreted scores in the range of 0-24%, 25-49%, 50-74%, and 75-100% as weak, moderate, good, and excellent EI, respectively.^[15] The validity and reliability of the Persian translation of the questionnaire was assessed by Eydi *et al.*, and the Cronbach's alpha coefficient was 0.81.^[21] In the present study, the Cronbach's alpha of the CDI-25 was calculated to be 0.78.

Data analysis

Data were analyzed in SPSS v.16.0 (SPSS Inc., Chicago, IL, USA). The normal distribution of quantitative variables was evaluated using the Kolmogorov-Smirnov test, and the distribution of the data was normally distributed. Descriptive statistics (i.e. frequency, percentage, mean, and standard deviation) were calculated to describe the data. The *t*-test and one-way analysis of variance were used to compare the mean scores of EI and caring behaviors between subgroups of participants. Pearson's correlation coefficient was used to determine the association between EI and CB scores. The significance level was set at <0.05.

Ethical considerations

This study was approved by the Research Ethics Committee of Kashan University of Medical Sciences, Kashan, Iran (ethics approval code: IR.KAUMS.MEDNT.REC.1398.98093). All participants were briefed on the study aims and signed a written informed consent before participating in the study. Participation in the study was voluntary, all questionnaires were anonymous, and data were managed confidentially.

Results

Of the 223 nurses, 202 completed and returned the study questionnaires. Most of the participants were female (66.8%), married (77.7%), and had a bachelor's degree in nursing (84.7%). The majority of participants worked in the intensive care units (28.2%) and surgical wards (18.3%), [Table 1]. The mean age and work experience of the participants were 31.17 ± 6.59 and 2.11 ± 2.06 years, respectively.

Participants' EI score ranged from 33 to 165 with a mean of 100 ± 17.99 . Among the five components of EI, participants possessed the highest and the lowest percent

of the scores in self-regulation (65.89 ± 20.67) and self-motivation components (55.86 ± 10.91), respectively [Table 2]. Also, participants' CB scores ranged from 25 to 90 with a mean of 43.87 ± 10.14 . Among the CB subscales, participants possessed the highest and the lowest percentage of the scores in the inappropriate (59.00 ± 16.92) and professional (25.75 ± 11.22) subscales, respectively [Table 2].

The Pearson correlation coefficient showed no significant correlation between the nurses' total score of CB and their total score of EI ($r=0.065$, $p=0.358$), however, moderately significant correlation was found between the "psychosocial care" subscale scores and all components of EI [Table 3].

The mean scores of EI and CB were not significantly associated with the participants' individual characteristics [Table 1].

Discussion

Our nurses scored approximately 60% of the EI score. Hatem Goya *et al.* interpreted scores in the range of 50-74% as moderate EI,^[15] therefore, the EI score of our nurses can be regarded moderate. Consistently, in the studies by Vahidi *et al.*,^[14] and Kheirmand *et al.*^[23] nurses' EI has been reported as moderate. However, Hatem Goya *et al.*^[15] reported that nurses' EI levels were at a good level. Christidou *et al.* in Greece also reported nurses' EI as high.^[24] The reason for the discrepancies might be attributable to differences in measurement tools, differences in how EI is interpreted and categorized, and differences in the populations studied. In the present study, nurses possessed the highest EI scores in the self-regulation component. In an earlier study in Indonesia, nurses possessed the best EI scores in the self-awareness component.^[25] According to Rego *et al.*, nurses with high self-regulation are better able to control themselves in the face of adverse circumstances and criticism from patients and colleagues. They also can adopt more explanatory behaviors. This self-control also helps nurses create open ways to communicate with patients and colleagues, as a result, patients will be more willing to share their concerns and feelings with nurses. These nurses are more likely to listen, to help, and treat patients with respect. A nurse with high self-regulation and control over criticism maintains a relationship of trust and mutual understanding, builds positive relationships, and helps patients maintain a reciprocal emotional flow.^[26] Nevertheless, the moderate EI score of our nurses indicates that they need to be trained on how to strengthen their EI. It is believed that all components of EI can be learned and strengthened.^[27]

Nursing education authorities and nursing managers can develop programs to strengthen nurses' EI. Nurses are also suggested to apply for, seek, and attend EI training programs to reinforce their EI.

Table 1. The demographic characteristics of the nurses participating in the study

Variables	n (%)	Emotional intelligence	P-value ^a	Caring behaviors	P-value ^a
Sex					0.525
Male	67 (33.2)	98.53±24.43	0.364	44.5±11.01	
Female	135 (66.8)	101.14±16.01		43.55±9.71	
Work experience					0.078
1-5 years	80 (39.6)	102.78±22.51	0.510	45.85±11.48	
6-10 years	55 (27.2)	98.58±16.06		41.87±9.27	
11-15 years	56 (27.7)	97.27±21.48		43.78±8.97	
16-20 years	11 (5.5)	97.00±23.94		40.01±7.15	
Education level					0.641
Bachelor	171 (84.7)	101.47±18.35	0.117	44.57±10.27	
Master	28 (13.8)	93.71±23.63		40.21±8.38	
PhD	3 (1.5)	93.66±7.50		38.00±12.12	
Marital status					0.744
Single	45 (22.3)	98.40±16.48	0.488	44.33±12.67	
Married	157 (77.7)	100.65±19.87		43.76±9.36	
Unit					0.075
Intensive care	57 (28.3)	101.05±21.62	0.784	42.63±9.11	
Surgical	37 (18.3)	100.48±18.54		43.91±7.99	
Medical	34 (16.8)	98.97±20.21		47.14±10.50	
Emergency	32 (15.8)	96.59±21.89		44.93±13.94	
Gynecological	18 (8.9)	106.22±12.08		46.22±10.14	
Pediatrics	16 (7.9)	101.18±12.38		39.25±7.54	
Official	8 (4.0)	99.00±12.82		38.37±6.50	
Employment status					0.095
Compulsory services	45 (22.3)	98.66±19.51	0.184	46.31±12.53	
Permanent	41 (20.3)	103.70±16.44		44.21±9.50	
contractual					
Permanent	89 (44.1)	97.96±17.95		42.00±8.99	
Contractual	27 (13.4)	105.40±25.04		45.48±9.58	
Position					0.289
Nurse	187 (92.5)	99.98±19.55	0.425	44.13±10.08	
Head nurse	7 (3.5)	109.57±13.52		43.28± 14.33	
Supervisor	8 (4.0)	99.00±12.82		38.37±6.50	

^a t-test or analysis of variance

In the present study, the nurses scored about 44 out of 125 on the CB scale. This means that they scored only about 35% of the total score of CB. Such a low score shows that our nurses do not have appropriate CB. Our nurses scored low on most dimensions of CB, except for the unnecessary behaviors subscale, which scored 59% of the possible score. They also scored the lowest on the professional behavior subscale, where they scored only about 25% of the possible score. Hosseinzadeh studied the nurses' CB in Ardabil educational hospitals and reported that nurses achieved an optimal level.^[7] In another study

in Qom, nurses obtained a score of 4.65 out of 6, which can be interpreted as relatively favorable CB.^[28] Although the variations in the scores of nurses' CB across studies can be attributed to differences in assessment tools and scoring methods, as well as differences in the population studied, it seems that nurses' scores in our study were undesirable in all domains of CB. This finding should attract the attention of management and those responsible for nursing education, and they should design in-service training programs to improve nurses' CB. Such a low CB is indicative not only of weakness in nursing education,

but also of the high workload, high job stress, low job satisfaction, inappropriate management, and inappropriate organizational climate in which nurses work.^[2,4,29] Increasing the managerial supports, decreasing nurses' workload, and strengthening the monitoring and supervisory systems might be beneficial in the improvement of nurses' CB. As nurses learn appropriate CB during their student years, nursing educators should strive to provide their students with appropriate role models of CB, human caring, and caring based on loving-kindness for their students.

We found no significant relationship between the total EI or CB scores and nurses' demographic characteristics. Saleh Salimi *et al.* also found no significant relationship between nurses' CB and their personal characteristics such

as work experience, gender, ethnicity, bachelor's grade point average, and shift work. However, they found significant relationships between nurses' CB and the type of employment, age, and the university where the nurses had studied.^[30] Amiri *et al.*, also found significant relationships between nurses' age and work experience and their CB, such that the score of their CB increased with age and work experience.^[28] Vahidi *et al.* also found no significant relationship between nurses' EI and their personal characteristics such as age, sex, education level, marital status, and work experience.^[14] Nightingale *et al.* on the other hand, reported that nurses' EI increased with their age. They also reported significant relationships between nurses' EI and their work experience, length of service, and marital status.^[31]

Table 2. The nurses' scores of the emotional intelligence and caring behaviors

Variables	Min	Max	Mean±SD	% of the score
Emotional intelligence				
Total score	48	245	100.28±19.19	60.77±11.63
Self-motivation	10	35	19.55±3.81	55.86±10.91
Self-awareness	11	40	23.99±4.37	59.98±10.93
Self-regulation	9	85	23.06±7.23	65.89±20.67
Empathy (Social alertness)	9	30	17.90±3.63	59.68±12.10
Social skills	6	25	15.79±3.61	63.18±14.44
Caring behaviors				
Total score	25	90	43.87±10.14	35.10±8.11
Psychosocial	10	45	23.12±4.37	46.24±8.74
Professional	1	4	1.28±0.56	25.75±11.22
Inappropriate	2	10	5.90±1.69	59.00±16.92
Unnecessary	1	5	1.42±0.62	28.51±12.40
Physical/technical	11	37	18.41±4.81	33.47±8.76

Table 3. Correlation coefficients between emotional intelligence scores and its various dimensions with caring behavior and its subscales^a

	Total emotional intelligence score	Self-motivation	Self-awareness	Self-regulation	Empathy	Social skills
Total caring behaviors score	0.065 (0.358)	0.034 (0.629)	0.016 (0.822)	0.089 (0.210)	0.044 (0.530)	0.146 (0.038)
Psychosocial	0.512 (0.001)	0.499 (0.001)	0.542 (0.001)	0.494 (0.001)	0.521 (0.001)	0.455 (0.001)
Professional	0.082 (0.244)	0.107 (0.129)	0.014 (0.848)	0.094 (0.183)	0.062 (0.378)	0.113 (0.108)
Inappropriate	0.101 (0.127)	0.016 (0.058)	0.079 (0.021)	0.182 (0.062)	0.190 (0.072)	0.132 (0.058)
Unnecessary	0.017 (0.810)	0.066 (0.353)	0.030 (0.670)	0.013 (0.857)	0.007 (0.923)	0.026 (0.717)
Physical/technical	0.102 (0.147)	0.057 (0.420)	0.018 (0.796)	0.133 (0.060)	0.063 (0.374)	0.173 (0.114)

^a All data presented as r (P-value)

The insignificant association between EI and CB and nurses' demographic characteristics might be attributed to the fact that regardless of the characteristics such as age, sex, work experience and so on, both EI and CB scored relatively low in the present study. Such a result, in turn, could be attributed to contextual factors such as high workload, high job stress, low job satisfaction, and inappropriate management and supervisory systems. Nonetheless, considering the controversies about the relationship between nurses' EI or CB and their individual characteristics, further studies with larger sample sizes are suggested in this area.

In the present study, no significant correlation was found between the overall EI and CB scores. However, a significant correlation was observed between the scores of the "psychosocial" subscale of CB and the total score of EI and all its dimensions. In other words, as EI scores increased, nurses' psychological care behaviors improved. Also, due to the inverse scoring in the "inappropriate caring behaviors" component, it can also be concluded that as the EI score increases, the score for inappropriate caring behavior decreases and appropriate caring behavior increases. Therefore, it seems that nurses with higher EI communicate better with patients and demonstrate better psychosocial caring behaviors. Kaur *et al.* also reported that higher EI promotes nurses' caring behaviors, patient satisfaction, and nurses' job satisfaction.^[32] Sommaruga *et al.*^[33] also found a significant direct association between nurses' EI and quality of care, CB, and job satisfaction. In contrast, Chao *et al.*^[34] found no significant relationship between nurses' EI and quality of care, patient and nurse satisfaction, and nurses' CB. Given the findings, as well as the fact that EI and CB can be learned^[35] nursing officials must take measures to promote nurses' EI and CB. Some studies have also shown significant associations between nurses' EI and their self-efficacy,^[36] quality of care, and reduction of job stress.^[13] An increase in EI appears to improve mental health,^[13] self-efficacy,^[36] stress management, and decision-making in acute situations, and help nurses perform their duties better and feel higher self-efficacy.^[13]

This study was a cross-sectional study, so, the causal relationships presented should be interpreted with caution. The study was conducted in only one teaching hospital, and may not be fully generalizable to all nurses working in other settings. Therefore, multicenter studies with larger sample sizes are recommended. The effects of EI training on nurses' CB should also be studied.

Conclusions

We found no significant correlation between the total scores of EI and CB. However, a significant relationship was observed between the scores of psychosocial caring behavior with the total score of EI and its dimensions. Nurses' psychosocial caring behaviors improved as their EI scores increased. Therefore, authorities of nursing education and nursing services are recommended to design and implement strategies and programs to promote nurses' EI. Hope that these programs improve the nurses' CB and the quality of care.

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Competing interests

There are no conflicts of interest.

Abbreviations

Caring behaviors: CB

Emotional intelligence: EI

Caring Dimension Inventory-25: CDI-25

Authors' contributions

All authors read and approved the final manuscript. All authors take responsibility for the integrity of the data and the accuracy of the data analysis.

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Role of the funding source

None.

Availability of data and materials

The data used in this study are available from the corresponding author on request.

Ethics approval and consent to participate

This study was approved by the Research Ethics Committee of Kashan University of Medical Sciences, Kashan, Iran (ethics approval code: IR.KAUMS. MEDNT. REC.1398. 98093). All participants were briefed on the study aims and signed a written informed consent before participating in the study. Participation in the study was voluntary, all questionnaires were anonymous, and data were managed confidentially.

Consent for publication

By submitting this document, the authors declare their consent for the final accepted version of the manuscript to be considered for publication.

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