Is Nurses' Professional Competence Related to Their Personality and Emotional Intelligence? A Cross-Sectional Study

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ABSTRACT

Introduction: Nurses' professional competence is a crucial factor in clinical practice. Systematic evaluation of nurses' competence and its related factors are essential for enhancing the quality of nursing care. This study aimed to assess the nurses' competence level and its possible relationship with their personality and emotional intelligence.
Methods: Using a cross-sectional survey design, three instruments including Nurse Competence Scale, short form of Schutte Self Report Emotional Intelligence Test, and the short 10-item version of Big Five Factor Inventory, were administered simultaneously to a randomized stratified sample of 220 nurses working in hospitals affiliated to Mashhad University of Medical Sciences. Data analysis was performed using SPSS 11.5.
Results: Majority of nurses rated themselves as "good" and "very good", with the highest scores in "managing situations" and "work role" dimensions of nurse competence. A relatively similar pattern of scores was seen in competence dimensions, personality and emotional intelligence, among male and female nurses. Emotional intelligence and personality scores showed a significant relationship with nurses' competence, explaining almost 20% of variations in nurse competence scores.
Conclusion: Iranian nurses evaluated their overall professional competence at similar level of the nurses in other countries. Knowledge about the nurses' competence level and its related factors, including personality and emotional intelligence, may help nurse managers in enhancing nurses' professional competence through appropriate task assignments and conducting in-service educational programs, thus improving the health status of patients.

Introduction

Nursing competency has been extensively addressed in literature in terms of safety and quality of nursing care, though still lacks worldwide consensus in definition.[1] WHO has described it as a framework of skills portraying knowledge, attitudes and psychosocial and psychomotor components.[2] It is more comprehensively defined as the capability of nurse in demonstrating a set of attributes including personal characteristics, knowledge, attitudes, values, and skills needed to accomplish nursing professional responsibilities.[3]

Acquiring essential competencies by nurses is believed to be crucial for the quality of nursing practice.[1] The competence level of nurses directly influences the patients' safety, health status, morbidity and mortality,[4] as well as satisfaction with nursing care and conflict managements.[5,6] Nurses' poor competency may lead to some undesirable consequences including nurses' frustration, job dissatisfaction,[4] and their attrition.[7] Therefore, systematically measuring of nurses'

competence is essential for management and education in nursing profession, giving a better insight to nurse educators and managers, and helpin them to enhance the nursing care quality.[8,9]

Nurse competence may be associated with some personal attributes, such as emotional intelligence (EI) and personality traits.[10,11] Recently, the EI and personality characteristics have received considerable attention in health care professions.[11,12] Some authors argue that emotional intelligence is even more important than intelligence quotient (IQ) in achieving positive outcomes regarding patients and nurses.[13]

Salovey and Mayer defined EI as the "ability to monitor one's own and others feelings and emotions, to discriminate among them and using this information to guide one's thinking and actions".[14] Emotions, according to Salovey and Grewal, are "useful sources of information that help individuals to make sense of and navigate the social environment".[15] Nurses need the ability to make good rapport with their clients, show empathy with patients, and manage their own emotions in order to provide quality care.

Thus skills in emotional intelligence may help them to better understand the emotional ambience of the healthcare environments. During work, nurses are expected to make critical decisions in life-and-death situations based on all available data, including data achieved from emotions. Therefore, improved decision making and problem solving linked to the emotional intelligence, makes it as a characteristic of effective nursing performance and outcomes.[11] Although, emotions are fundamental to nursing practice and potentially affects all aspects of working situation in commonly stressful and emotionally charged health care settings,[10,16] still there is a limited or contradictory evidence in this area.[17]

Personality is shaped through the interaction with the environment, and its determinants are related to genetic-physiological, as well as socio-cultural factors.[18] As an influential factor, personality is suggested to be considered in

nursing profession.[12] However, there is a controversial evidence about the relationship of personality and job performance.[18-20] For example, Chang et al., showed that the personality can predict nurses' job satisfaction, and enhances the positive career outcome. They suggest that it has significant implications for nurses and healthcare managers.[12] Also, Shimizutan et al., suggested a relationship between personality type and burnout.[21] However, Whitworth[22] reported no significant correlation between female registered nurses' personality factors and their methods of conflict management.

Despite the important role of nurse competence in clinical practice, and its related factors, few studies have been conducted to investigate it's the relationship of nurses' competence with their personality and emotional intelligence.[23-25] Understanding of this relationships may help nurse managers to adopt appropriate strategies to achieve very important outcomes such as nurses' better performance, job satisfaction, and conflict managements.

This study aimed to examine the competence level of clinical practicing nurses and its possible relationship with their personality traits and emotional intelligence.

Materials and methods

A cross-sectional survey design was adopted to study the population of nurses working in clinical wards of teaching hospitals, affiliated to Mashhad University of Medical Sciences, Mashhad, Iran. The target population was nurses with baccalaureate degree in nursing (N≈3000). Because of possible heterogeneity of work places, a randomized stratified sample of nurses was selected from 11 teaching hospitals comprising 140 clinical wards. The sample size was estimated using the Cochran's sample size formula ($n=\sigma^2*Z^2/e^2$). We used an average standard deviation (SD=11.01) for nurse competence scores estimated from a pilot study, and the values reported in previous studies conducted in Iran.[23-25] The confidence level was set to 95% (α <0.05, Z=1.96), and

error of estimation (e) to 1.5. The calculated sample size was 207 nurses, but we selected 220 nurses because of possible attrition. Inclusion criteria was having at least one year clinical work experience, and working as a clinical nurse in one of university affiliated hospitals.

We used self-report questionnaires in paper and pencil form, including the Persian translated versions of Meretoja's Nurse Competence Scale (NCS);[26,27] the short form of Schutte Self Report Emotional Intelligence Test (SSEIT),[28] the abbreviated 10-item version of Big Five Factor Inventory (BFI-10),[29-31] as well as a questionnaire for demographic and background variables. To reduce the risk of fatigue, boredom and burden, thus increasing the quality of the data, we used short forms of instruments to measure EI and personality. The instruments underwent the processes of translation from English to Persian and back-translation. We consulted with the experts regarding the face and content validity of the Persian versions of the instruments. Also, we tested the instruments using a sample of 30 nurses in a pilot study. Few minor changes were made in wording of some items according to the feedback received from experts and nurses.

Demographic data included participants' gender, age, educational level, and number of years working as a nurse.

This scale was originally developed for practicing nurses based on Benner's competency framework,[26] but it also showed validity in measuring nurses' as well as nurse students' competencies.[26,32] The Persian version of this scale has also been adapted and used within the context of Iranian hospitals.[23-25, 33]

NCS has 73 items, and seven dimensions: helping role (7 items), teaching-coaching (16 items), diagnostic functions (7 items), managing situations (8 items), therapeutic interventions (10 items), ensuring quality (6 items), and work role (19 items). Nurses rated their competence level on each item, using a visual analogue scale (VAS), from 0 (very low), to 100 (very high). The total competence score

was calculated by adding up the whole item scores and dividing the sum by 73. Subscale scores were calculated by dividing the sum of item scores in each dimension by the number of items within that dimension. Finally, the scores were categorized into four levels, as low (0–25), quite good (25–50), good (50–75) and very good (75–100).

The frequency of using each skill by nurses during their clinical practice, were also measured on a four point scale (0, not applicable in my work; 1, used very seldom; 2, used occasionally; and 3, used very often in my work).

The Cronbach alpha in the present study was 0.987 for the whole NCS, and ranged from 0.897 to 0.962 for its subscales. Split-half reliability for equal forms was estimated as 0.935, using Spearman-Brown Coefficient.

The abbreviated 10-item version of Big Five Factor Inventory (BFI-10)

This scale includes 10 items for personality traits assessment based on Big Five Factor Model[29] with adequate psychometric properties, introduced and cross-culturally tested by Rammstedt[30] Original BFI-10 showed acceptable discriminant, convergent, and external validity, as well as test-retest reliability.[31] The Persian translated version of this scale has been used by two studies in Iran, reporting acceptable validity (convergent validity for the whole scale .67) and reliability (test-retest reliability .68 to .84),[34] confirming the existence of Five Factors[35] in the original version.

The core aspects of a Big Five dimensions were assessed by a pair of short items (Extraversion 1 and 6; Agreeableness 2 and 7; Conscientiousness 3 and 8; Neuroticism 4 and 9; and Openness 5 and 10), while one item indicated the positive pole in the dimension, and the other denoted the negative pole. Items were rated from 1 for "strongly disagree" to 5 for "strongly agree". A common stem, "I see myself as someone who:" was used for all items. Item 1 in Extraversion; 7 in Agreeableness; 3 in Conscientiousness; 4 in Neuroticism; and 5 in Openness was scored in

reverse.[31] After reversing the "Neuroticism" scores, we added up the scores of all items, and subscale items, to calculate the total scale score and subscale scores, respectively. The total score could range from 10 to 50.

Schutte Self Report Emotional Intelligence Test (SSEIT-33)

The scale has been originally developed by Schutte et al.,[28] based on the trait model of emotional intelligence introduced by Salovey and Mayer[36]. A few studies have examined the factor structure of SSEIT-33. We considered the Kun et al., study because we found it more clear and conclusive than others. She suggested three factors for the scale, including: "Appraisal of Emotions" (10 items), "Optimism and Regulation of Emotions" (7 items), and "Intrapersonal and Interpersonal Utilization of Emotions" (7 items). Nine items has been left uncategorized.[37] The original scale shows good internal consistency (alpha = 0.87) and test-retest reliability (r = 0.78). The correlation of the scale with the related constructs (regulation of emotions, impulsivity, and awareness of emotion, depressed mood, and outlook on life) supports its validity. The Persian version of the scale has been evaluated and used in Iran, showing to be valid and reliable.[38]

Participants answered the items on a 5-point Likert scale, which 1 denoted "strongly disagree" and 5 implied "strongly agree"; to describe themselves. The items 5, 28 and 33 were reversely scored. The total score was calculated by summing up all item scores, that could range from 33 to 165, with the higher scores indicate to greater ability in emotional intelligence, and vice versa. Also, subscale scores were calculated by adding up item scores within each dimension. In this study, the Cronbach alpha for the whole scale was 0.911. Using Spearman-Brown coefficient, the equal length split-half reliability was estimated as 0.879.

Data were collected during September and October 2014. The researcher visited the selected nurses at their work place. After introducing the purpose of the research,

receiving consent, and giving necessary instruction, nurses participated in the study and filled the questionnaires.

Data analysis was performed using SPSS 11.5 (SPSS Inc., Chicago, USA) software. To summarize the data, we used frequency distribution, mean, range and standard deviation. In all statistical tests, the significance level was set to 0.05 (two tailed).

To examine the relationship between nurses' competence levels, as dependent variable, and other factors such as background variables, SSEIT-33 and BFI-10 scores, as independent variables, Spearman's rank correlation coefficient and multiple linear regression analyses were used. We excluded participants who left more than 50% of subscale items with no answer.

This study was approved by Ethical Committee of Mashhad University of Medical Sciences, Iran (ethical code: 243451-2014/8/20). We obtained written approval from authors of the original instruments used in this study. All the participants were given written and verbal description of study, and their anonymity and confidentiality throughout the study were guaranteed. Participation in the study was voluntary, and returning the questionnaires was considered as informed consent.

Results

A total of 204 questionnaires (response rate: 92.7%) were returned. Of them, 173 questionnaires without missing responses in the NCS and its sub-scales were used in the analyses. Table 1 and Table 2 represent nurses' descriptive variables.

Nurses' self-assessed competence level

The total score of clinical competence of nurses' ranged from 35 to 100 (n=173). The mean of nurses' competence scores was 75.16 (SD=13.15; SE=1.00). Majority of nurses rated themselves as "good" and "very good". As seen in Figure 1, score variations in dimensions of nursing skills represent a similar pattern among male and female nurses.

Highest scores belong to "managing situation" and "work role" both in male and female nurses, while lowest scores in male nurses pertain to "ensuring quality" and "teaching-coaching" skills, and in female nurses to "ensuring quality" and "therapeutic interventions". The overall frequencies of the skills "used occasionally" and "used often" by nurses, were 74.0% for helping roles, 70.3% for teaching-coaching, 71.0% for diagnostic functions, 88.7% for managing situations, 68.4% for therapeutic interventions, 60.2% for ensuring quality, and 74.9% for work role. Mean reported score for frequency of using the skills, ranged from 2.99 for "ensuring quality", to 3.46 for "managing situations" categories.

A linear positive correlations were observed between the frequencies with which the skills used by nurses and their competence scores in all categories. The Pearson correlation coefficient between these variables showed a moderate to strong values of 0.714 (helping role), 0.696 (teaching-coaching), 0.671 (diagnostic functions), 0.678 (managing situations), 0.654 (therapeutic interventions), 0.659 (ensuring quality), and 0.646 (work role), all were statistically significance at 95% confidence level ($P<0.001$).

Background factors in relation to the nurse competence levels

No statistically significant correlation was found between age and the NCS overall scores as well as its sub-scores ($r=0.140$, $P=0.073$). NCS overall scores were not significantly different between male and female ($t=1.223$, $P=0.223$), as well as single and married nurses ($t=0.840$, $P=0.076$). Also, variables including years of working experience, residence place (city, countryside), type of university (public, private), high school and university GPAs, showed no significant association with NCS scores and its sub-scores ($P<0.05$).

Personality and Emotional Intelligence

Figures 2 and 3 show a similar pattern in scores of personality and EI dimensions between male and female nurses. The overall mean for total personality scores was 35.82

(4.167). Maximum and minimum scores belonged to the dimensions of conscientiousness and neuroticism, respectively. Female nurses rated their personality slightly higher than their male counterparts in all dimensions, except "openness to experiences", though this difference was not statistically significant, neither in total scores ($P=0.471$), nor in sub-scores ($P=0.527$).

The overall mean for total EI scores was 98.18 (9.277). The highest and lowest scores belonged to the dimensions of "appraisal of emotions", and "intrapersonal and interpersonal utilization of emotions", respectively both in male and female nurses. Again, female nurses retained their slight dominance in terms of their EI scores as compared to male nurses; but here, this dominancy were statistically significant in the total EI score ($P=0.032$) and sub-score of "intrapersonal and interpersonal utilization of emotions" ($P=0.010$), according to Mann-Whitney U test.

Using Spearman's rank correlation coefficient, NCP overall scores showed modest to moderate positive correlations with both the total personality scores ($r=0.297$, $P<0.001$), and total EI scores ($r=0.488$, $P<0.001$). Accordingly, multiple linear regression analyses were adopted to examine the association of EI and personality traits as independent variables, with NCS overall scores, as dependent variables. Using the Enter method, we included the total personality and EI scores in the model, and set the probability of F value to 0.05 and 0.1 for entry and removal of variables in the model, respectively. Table 3 shows a regression model in which the nurses' total personality and EI scores can significantly predict their NCS overall scores ($P<0.001$). The model produced an R^2 value of 0.215 (SE=11.700), explaining almost 20% of total variance in NCS overall scores. According to standardized Beta values, EI showed a stronger correlation with nurse competence and had more weight in predicting NCS overall scores, as compared to personality scores. Standardized Beta coefficients indicate

that an increase of one standard deviation in personality scores, holding the EI scores constant, results in an increase of NCS total scores by almost 21% of its standard deviation. Similarly, an increment of EI score by one standard deviation, holding the personality scores constant, results in an increase of NCS total scores by almost 40% of its standard deviation (Table 3).

Table 1. Demographic data of participants

Variables	N (%)	Variables	N (%)
Gender		**Place of residence**	
Male	47 (23)	City	190 (93.1)
Female	157 (77)	Countryside	8 (3.9)
Marital status[*]		Missing	6 (2.9)
Single	47 (23)	**University type**	
Married	154 (76)	Public	117 (57.4)
Widow	2 (1)	Private	87 (42.6)

[*]Mised=1

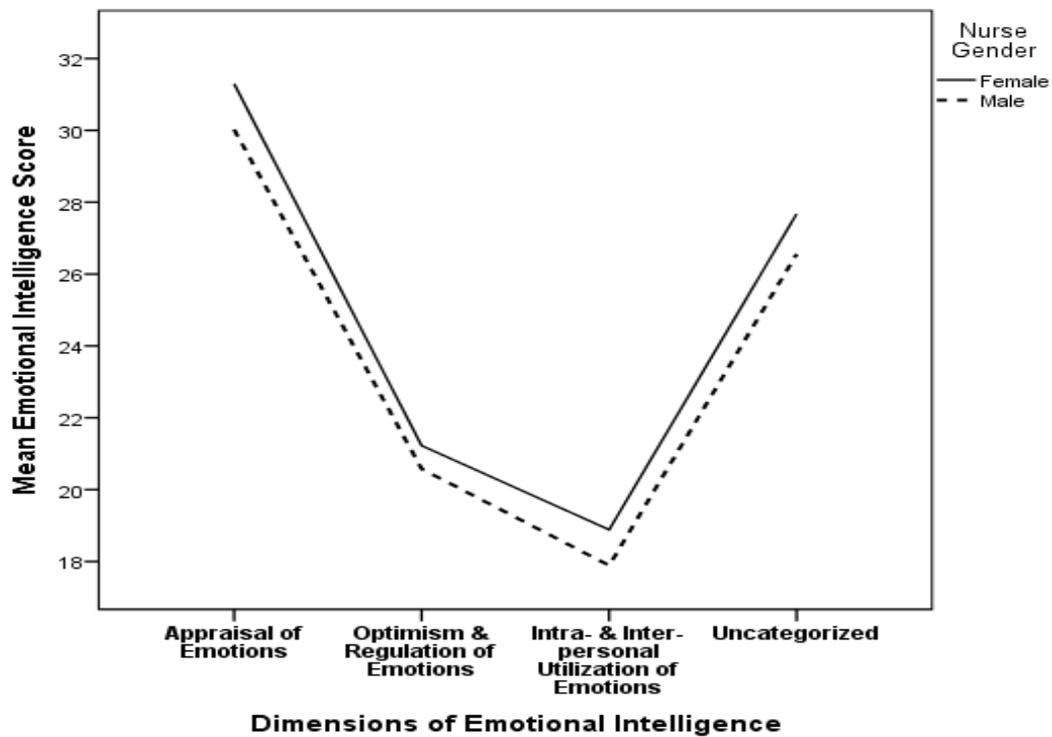**Table 2**. Descriptive statistics of participant nurses (continuous variables)

Variable	N	Mean (SD)
Age	193	33.96 (6.738)
Years of working as a nurse	201	9.27 (6.074)
High school GPA (0-20)	156	16.81 (1.451)
Nursing school GPA (0-20)	162	16.18 (1.207)
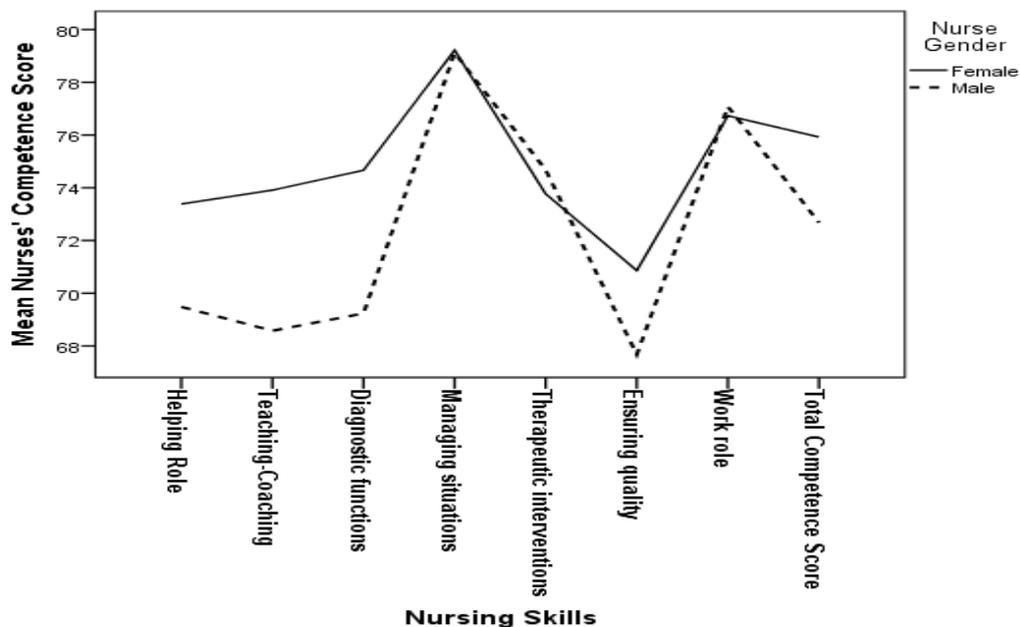
Figure 1. Self-reported nurses' competence scores by gender
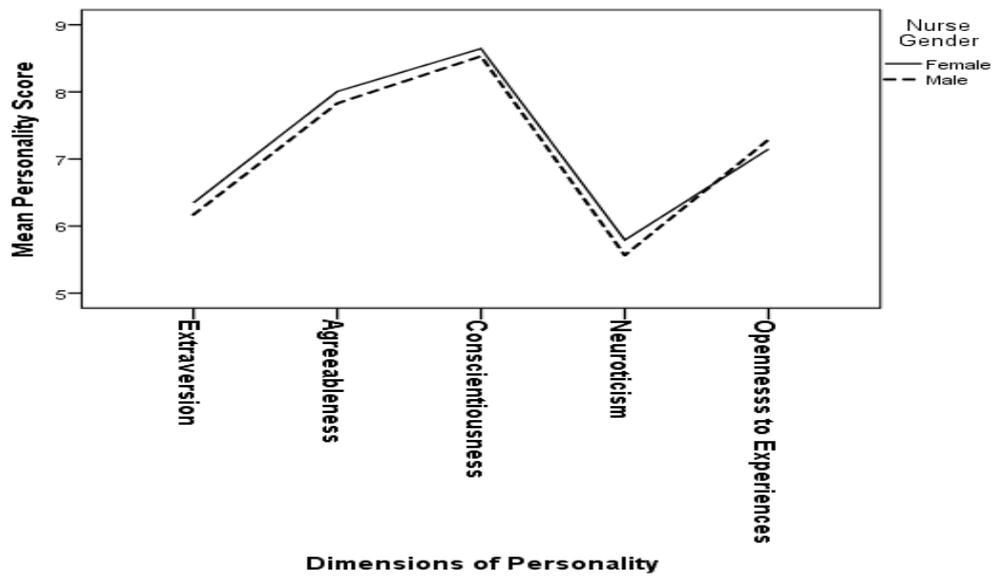
Figure 2. Self-reported nurses' personality scores by gender

Figure 3. Self-reported nurses' emotional intelligence scores by gender
Regression model

Table 3. Multiple regression results (Method: Enter; n=167; Dependent Variable: NCS total scores)

Predictors	B	Std. Error	Beta	t	Sig.	95% Confidence Interval for B	
						Lower	Upper
Constant	-2.513	11.744		-0.214	0.831	-25.702	20.675
Personality Total Score	0.645	0.216	0.208	2.992	0.003	0.219	1.071
EI total Score	0.556	0.099	0.391	5.636	0.000	0.361	0.750
						Adjusted R Square= 0.205	

Discussion

In this study, the majority of nurses assessed their overall nursing competencies as good and very good. This is in line with the result of other studies conducted in Iran and other countries.[8,9,23] This may indicate that Iranian nurses are as competent as nurses in other countries, despite their different educational and cultural context. Undoubtedly, more detailed, cross-cultural studies seem to be required to determine the roots of this similarity.

The male and female nurses similarly rated themselves in "managing situation" and "work role" with the highest scores; while they did it in the "ensuring quality" and "teaching-coaching" dimensions, with the lowest scores. Exactly similar pattern was reported in Istomnia et al., study in which the Lithuanian surgical nurses assessed their professional competence; however, the results were not reported separately for male and female nurses.[9]

A positive correlation existed between the frequencies of using the nurse skills and the competence level of those skills. This is consistent with previous studies.[9,27,33,39] As expected, the higher the frequency of using a skill, the higher the competence level in that skill.[26] Poor overall mean score in ensuring quality dimension signifies the vigorous need of managers' more attention to this dimension.

Our results showed that the nurses' personality and EI are significantly correlated with their competence level. The association of nurses' performance and their personality traits,[19,20,40] as well as their EI[11,17,41,42] has been discussed in the literature. Pitt et al., demonstrated that personal qualities affect academic and clinical performance of preregistration nurse students as well as their ability to complete a pre-registration program in three years. They reported that better academic performance was correlated with lower aloofness, higher self-control (conscientiousness), and higher resilience (emotional stability). Also they found that students with higher confidence had been more competent in their final clinical assessment. [40]

In the study of Chang et al., nurses who had positive evaluation and expectation towards themselves and others, expressed higher job satisfaction. They advocated that training workshops can enhance nurses' self-care awareness, helping them to become more proactive in their work.[12]

In another study, Whitworth reported a relationship between female nurses' personality type and their preferred conflict management styles. She suggested that nurse managers should consider the relationship between personality characteristics and methods of dealing with conflicts, as a component of nurse competence, for facilitating constructive changes in organizational culture.[22] In line with this, Shimizutani et al., showed an association between nurses' personality characteristics and their coping styles, as well as personal, work-relates, and client-related burnout.[21]

Above findings suggest that as the desired changes in personality is not easy, the nurse managers are expected to appoint their nurse staff to those tasks that well-match with their personality attributes. This may help to prevent conflicts and nurse

burnout, and ultimately improves patient outcomes.[5]

O'Boyle et al., in their meta-analysis addressed the emotional intelligence as an important predictor of job performance and work-related outcomes.[41] Also, the impact of emotional intelligence on nursing team performance and cohesiveness has been studied. It is believed that emotional regulation may enhance patient outcomes, thus training professionals to this ability could be productive.[17] Moreover, the relationships of EI and nursing performance, stress, coping, and well-being among nurses have been supported in other studies.[11,16] Bulmer-Smith et al., concluded that emotionally intelligent leaders may positively affect the employee retention, nursing care quality, and patient outcomes.[10]

Moreover, Kooker et al., highlighted the importance of EI competencies in both practice and educational settings.[42] The relationship of personality and EI has been addressed in the literature.[14,16,28] Whether the personality is associated with EI or not, the relationship of performance with both personality and EI has been established separately in the literature.

Likewise, the relationship of these two factors with nurse competence was demonstrated in the present study. We believe that, nurses' competence acts as a mediator between the variables of nurses' personality and EI in one side, and the variable of nurses' performance on the other side. Obviously, more detailed structural modeling studies are required to confirm such relationships.

The randomized cluster sampling in this study may increase the representativeness of the sample, thus increasing the generalizability of the findings. Also, we achieved a high response rate by providing the participants with face to face explanation of the study details and instruction to complete the questionnaires, ensuring them about the anonymity. Also, simultaneous inclusion of personality and EI to assess their relationship with nurse competence may be considered as strength of present study; though no causality inferences can be made because of cross-sectional design adoption.

The sample size of this study was not large. Also, to achieve measures of nurse competence levels, we merely used a self-report approach. Adoption of multi-method approach to nurse competence evaluation may increase the validity of results.

Conclusion

Overall, Iranian clinical nurses evaluated their professional competencies as "good" and "very good". The nurses' competence level was associated with their personality traits and EI. Nursing leaders, who can address the personality types and emotional side of their staff, patients, and families, may develop highly energized and synergized teams, necessary for survival during this ever-changing landscape of healthcare. More longitudinal and interventional studies are needed to give clearer picture of factors shaping and influencing the nurses' competence. Also, systematic and regular evaluation of nurses' competence level is of paramount.

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Ethical issues

None to be declared.

Conflict of interest

The authors declare no conflict of interest in this study.

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