Original Article

Psychometric Analysis of the Short-Form Emotional Skills and Competence Questionnaire in Undergraduate Nurse Students

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Objective: The main purpose of this study was to validate the short-form of the Emotional Skills and Competence Questionnaire (ESCQ) Scale among Iranian undergraduate students.
Method: A total of 250 nurse undergraduate students participated in this study. Participants completed the ESCQ in addition to measures of Sheering Emotional Intelligence Questionnaire and Student's Demographic Questionnaire.
Results: Exploratory factor analysis resulted in three factors that were largely consistent with the a priori scale structure. These factors included such dimensions as appraisal of others' emotions, managing and regulating emotion and specifying and understanding the individuals' own emotions.
Conclusions : The results provide initial support for the construct validity of the self- report version of the ESCQ in nurse students.

Key Words: *Emotions, Psychological Test, Psychometrics, Nursing*

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The concept of Emotional Intelligence (EI) has generated a broad interest both in the lay (1) and scientific fields (2, 3), overshadowing other less spectacular classical psychological concepts such as personality, or even a concept having a bad press as IQ (4, 5). Thus, The American Dialect Society selected emotional intelligence (EI) as the most useful new word of 1995. Salovey & Mayer (3) defined emotional intelligence as, "the ability to monitor one's own and other's feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (3). A person who possesses this ability would not only be aware of his own emotions, but would also be a good judge of other people's emotions, and manifest this ability in their behaviors and when communicating with others. An emotionally intelligent person should be able to regulate his or her own behavior and solve problems using his emotions (3). It is frequently proposed that the high interpersonal skills associated with EI should is also associated with career success; evidence for associations between EI and occupational success have been reported by Bar (6). Academic progress in students might also be expected to be related to EI since emotional and social skills in dealing with a university environment could contribute to overall achievement. Schutte et al. (7) reported that Trait EI was positively related to grade point average but this finding was not replicated in a larger study by Newsome, et al (8).

The interest in emotional intelligence is likely to be related to the claims of some of its proponents. For example, Goleman (1) stated that emotional intelligence provides one with "an advantage in any domain in life, whether in romance and intimate relationships or picking up the unspoken rules that govern success in organizational politics." Unfortunately, the explosion of interest in emotional intelligence (EI) has not been accompanied by any consensus about how it should be defined or measured, or even whether the concept meets scientific criteria for a meaningful psychological construct (9).

Emotional intelligence can be assessed with three types of measurements: (i) a self-reported measure, (ii) an observer/informant measure, and (iii) an ability-based measure. Although self-report measures have been criticized as too subjective and less valid because of strong social desirability tendencies, Bandura (10) has claimed that people commonly behave according to their thoughts and feelings. McClelland (11) has published an anthological article in which he appeals to researchers to "test the competencies rather than intelligence". In more recent years, there are strong movements towards shifting from ability and aptitude testing to competence testing. Pervin (12) encouraged researchers to "…call attention to the person's cognitive activities – the operations and transformations that people perform on information, in contrast to some store of cognitions and responses that a person has" (p. 117).

It is also interesting to emphasize that these 671 hits found for EI are distributed within different and assorted topics, showing the expansion of EI to several fields as health, education, human resources, assessment, sport psychology, and transcultural psychology. On the other hand, this growth has also been focused on the development of self-report and performance instruments for the assessment of EI, thus, to date, there are at least 10 well validated instruments to measure EI.

The psychometric qualities and the relations of ESCQ with several relevant constructs in Croatian, Portuguese, Finnish, Swedish, Slovene, Spanish, and Japanese contexts were presented, using target samples of mainly high school and university students, as well as other subjects (workers and supervisors), highlighting construct, convergent, divergent and concurrent validity. The ESCQ proved to be a reliable and valid measure in varied contexts, showing construct, convergent, divergent and concurrent validity. Exploratory factor analysis showed that there were three factors underlying the questionnaire: perceiving and understanding, expressing and labeling, and managing and regulating emotions. Faria, et al. (13) in examining convergent and divergent validity indicated that ESCQ had the strongest relationships with Schutte's self-reported emotional intelligence scale (7) and Toronto alexithymia scale (TAS-20; 14). In addition, it showed significant relationships, but moderate with extraversion and openness to experience of the Big five traits questionnaire. ESCQ is correlated with life satisfaction scale, even after controlling some other personality traits (from self-concept) and social skills indicating its incremental validity in predicting this important criterion. In addition, it was manifested that the internal consistency of the scale reached adequate values (Cronbach's alpha between. /65 and. /91) (13)

The first purpose of the present study was to develop an Iranian version of short-form Emotional Skills and Competence Questionnaire (SESCQ), originally developed by Taksic (14), to assess the individual differences in emotional intelligence or competence. The second purpose was to examine the psychometric properties of the scale, and its relationship with the other scale, Sheering Emotional Intelligence questionnaire .More specifically, the objectives of the research were (a) to test whether Taksic (14) Emotional Intelligence Scale is one-dimensional or multidimensional for the nurse sample; (b) to investigate the internal consistency of the scale for the sample; and (c) to test the hypothesis that women are likely to score higher.

Materials and Methods

Participants

The subjects were 250 nurse students randomly selected from a population of students from just one university, taking into account the distribution by sex and study schedule. The sample includes 250 students, 60 % female and 40%male. Regarding the test administration, the researchers provided instructions to explain how to answer the questions. And then, the participants completed the questionnaires on their own, and handed them to the researchers directly.

Procedure and Instruments

The original version of the Emotional Skills and Competence Questionnaire (ESCQ) has 45 statements (15), having the following three scales: a) ability to perceive and understand emotion; b) ability to express and label emotion; and c) ability to manage and regulate emotion. Before the administration of the questionnaire, we carried out a pilot study with college students. Our first step was to undertake a new Persian translation of those sentences that the subjects did not understand properly. The subjects were asked personally to explain the meaning of each of the items in the tests to ensure that students in their age group could interpret all the items correctly. This new translation from English to Persian was done by the authors and was independently translated back to English by an English teacher, who found no significant differences between his back-translation of the ESCQ and the original version. This showed that the translated sentences (items) had the same or very similar meaning as the original English items. The ESCQ, and a socio-demographic questionnaire as well as the emotional intelligence questionnaire were collectively administered together in selected classes during regular university hours.

Furthermore, we used a second scale, Sheering Emotional Intelligence Questionnaire (EIQ) which was a 33-item scale. The items were constructed using a Likert format scale of five alternatives for the responses with anchors of 1: not at all, 2: rarely, 3: sometimes, 4: frequently, and 5: always. The score was the sum of the ratings. An internal consistency analysis showed a Chronbach's alpha of .84 for the 33-item scale (16). Mansur (17) reported that internal consistency (.85) and construct validity of EIQ was more sufficient in the Iranian sample. Student's Demographic Questionnaire was also used. This questionnaire consisted of three questions. The purpose of using these questions was to identify the subjects' gender, age and year of the study.

Exploratory factor analysis using principal component method was performed by SPSS 17.

Results

Construct Validity

The data were reanalyzed using the principal components method with direct oblimin rotation.

Initial exploratory factor analyses revealed a nine factor solution for the data. The percentage of variance explained by the nine factors was 61% of the data. Items that did not load on any factor or that did not have a significant relationship with the total scale of the ESCQ were eliminated (18 items).

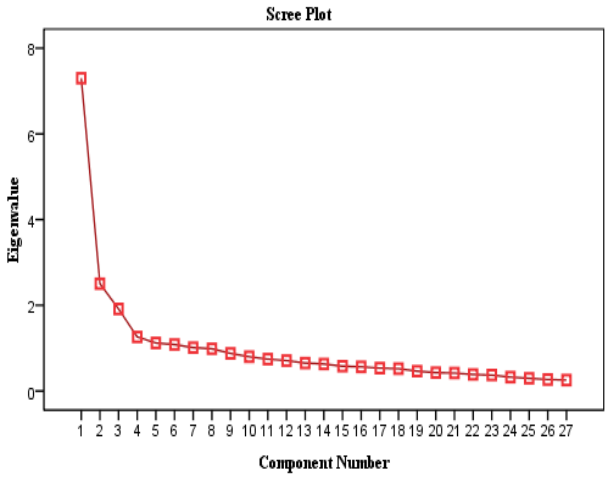

Figure 1. Scree plot of the SESCQ.

Therefore, the exploratory factor analysis procedure was repeated with 27 items. In relation to the number of factors, the scree plot (Figure1), the criterion of Eigen value higher than 1, and the MAP method all suggested three factors. Percentage of variance explained by the three factors was 43.40% of the data (27.04% by Factor 1).

When executing the exploratory factor analysis, the KMO value (.87) was acceptable. The sphericity test was significant; therefore, the factor analysis of these items was appropriate.

The three-factors matched those described by Faria et al (18) in content. For example, Factor 1 was signed by first scale of the original version (Ability of Appraisal of others' emotions). Factor 2 included seven statements, which corresponded to the second scale of the original version (Ability to manage and regulate emotions). Factor 3 comprised of six statements which corresponded to the third scale of the original version (Ability to specify and understand own emotions).

Concurrent Validity

To examine the convergent validity of the SESCQ with other well-known self-report measures of EIQ, Pearson correlation coefficients were computed (Table 3). As expected, significant positive correlations were found between them (.458, $p < .001$).

Reliability

In order to examine the internal consistency of the 27 item inventory, total Cronbach alpha reliability (α) was found to be .85. In the validity analysis of each factor; Cronbach alpha coefficients were calculated for the scores on the factors and were found to be .79 for appraisal of others 'emotion; /80 for managing and regulating emotions; .65 for specifying and understanding own emotions. Overall, the SESCQ scales had acceptable levels of reliability (above .70) except for the specifying and understanding own emotions scale. Inter-factor correlations are demonstrated in Table 2. Positive correlations were found between the scores on the three factors. These relationships were found to be significant at the.001 and with large effect size.

Table1. Pattern matrix for the three-factor solution obtained from exploratory factor analysis with Oblimin rotation

Item	factor1	factor 2	factor 3
37) I notice when somebody feels guilty.	.84		
38) I notice when somebody tries to hide his/her real feelings.	.78		
36) I notice when somebody tries to hide his/her bad mood.	.78		
39) I notice when somebody feels down.	.65		
34) I am able to tell somebody's feelings by the expression on his/her face.	.65		
14) When I see how someone feels, I usually know what has happened to him	.61		
18) I am able to detect my friend's mood changes.	.58		
25) If I observe a person in the presence of others, I can determine precisely her or his/her emotions.	.56		
35) I can detect my friends` concealed jealousy.	.54		
15) I am able to tell the difference if my friend is sad or disappointed.	.51		
26) I do not have difficulty to notice when somebody feels helpless.	.47		
23) I am capable to describe my present emotional state.		.78	
43) I can easily name most of my feelings.		.77	
44) I am able to express how I feel.		.76	
24) I can say that I know a lot about my emotional state.		.71	
40) As far as I am concerned, it is normal to feel the way I am feeling now.		.68	
21) I am able to express my emotions well.		.61	
22) I can recognize most of my feelings.		.59	
30) There is nothing wrong with how I usually feel.		.56	
17) I am capable to list the emotions that I am currently experiencing.		.48	
11) I study and learn best, when I am in a good mood and happy.			.71
5) When somebody praises me, I work with more enthusiasm.			.66
10) When I am with a person who thinks highly of me, I am careful about how I behave.			.54
4) Unpleasant experiences teach me how not to act in the future.			.47
9) When I am in a good mood, every problem seems soluble.			.47
12) If I really want to, I will solve a problem that may seem insoluble.			.46
20) I do not have difficulty to persuade a friend that there is no reason to worry.			.30

Table 2. Inter-factor correlation between scores

Factors	Appraisal of others' emotions	Managing and regulating emotion	Specification and understanding own emotions
Appraisal of others' emotions	1	.476**	.362**
Managing and regulating emotion	.476**	1	.374**
Specification and understand own emotions	.362**	.374**	1

Table 3. Gender Differences in subscales of SESCQ and EIQ

Variables	Boys		Girls			
	M	SD	M	SD	*t*-value e	*p*-value
1) Appraisal of others' emotions	40.10	6.22	40.64	6.62	.65	.52
2) Managing and regulating emotion	32.30	4.99	33.27	6.25	1.28	.20
3) Understanding own emotions	28.53	3.31	28.96	3.30	.99	.32
EIQ	109.60	10.29	107.54	10.67	1.51	.132

Gender Differences

Gender differences were tested by means of independent sample t-tests (Table 3). Significant differences in mean scores between males and females were not observed. Therefore, the results indicated a non-significant gender effect on the scores of all the subscales of SESCQ and EIQ, suggesting that gender was not a determining factor for emotional intelligence in the nurse sample. These results were also confirmed by other studies (16).

Discussion

The present research examined the validity of the Iranian version of a short-form ESCQ. As a result of factor analysis of ESCQ, a new 27-item scale with three factors was developed. While developing a new factor structure, a total of 16 items were taken out of the original scale. Although the original items of the FPAQ emanated from 6 conceptual categories of attitudes, the factor analysis revealed that seven factors were salient. These three factors explained a large proportion of the variance in emotional competence, which provided further evidence for the utility of the revised version of the scale. The three factors identified were consistent with the empirical literature on emotional intelligence (18).

The result of the coefficient alphas of the subscales has revealed a satisfactory level of internal consistency. Previous studies using the original version of the ESCQ (15,18-21) implied that the alphas ranged from: .85 to .90 for Perceive and Understand Emotion (PU), .79 to .82 for Express and Label Emotion (EL), and.71 to. 78 for Manage and Regulate Emotion (MR). In spite of the fact that the alpha for specifying and understanding own emotions (like MR) in the Iranian version of the SESCQ was slightly lower than what was obtained in the original version, the alphas for the other two scales were not greater than the original version. These results indicated that the Iranian version of the SESCQ was reliable.

Convergent validity was tested through the correlations with a similar measure. As anticipated, the highest relationships of ESCQ emerged with sheering's self-reported emotional intelligence scale. These results were consistent with a previous study (7) that reported a positive relationship of the ESCQ with Schutte's self-report emotional intelligence scale. Therefore, the correlation analyses which were carried out provide more evidence for the convergent validity of the scale.

In contrast with prior studies, scale scores of the individuals did not differ with respect to gender. One possible reason for the lack of difference may be due to the homogenous nature of the sample in terms of age, education level, IQ, similarity of interest, attitudes and cultural values among nurse students. Differences that occur between males and females in one culture do not necessarily mean that such differences also occur in other cultures (21). The gender differences that have been observed in emotional intelligence in previous studies result from studies conducted on individuals with Western cultures (22, 7).

On the basis of the preceding studies and the data presented, we believe that the ESCQ is a three-factor scale with adequate psychometric properties (internal structure, reliability as internal consistency, and convergent validity) and is substantially shorter than the original. However, the major limitation of the current study is that the sample size was small and the participants were only undergraduate nurse students. Although this sample size was adequate to conduct a factor analysis, it was not representative enough to demonstrate that the ESCQ can be administered for different populations. Thus, to be conservative, we only conclude that the SESCQ is an adequate measure of emotional intelligence for nurse undergraduate students.

In conclusion, the current study revealed that SESCQ is an adequate measure of emotional competence in the Iranian sample of nurse.

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