Emotional Intelligence of Medical Residents of Tehran University of Medical Sciences

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Abstract- Nowadays, educators pay attention to emotional intelligence which is defined as the ability to monitor and explain one's own and other's emotional experience and feelings to differentiate between them as well as applying necessary information for determining thoughts and actions. The goal of this study was to determine emotional intelligence of medical residents of Tehran University of Medical Sciences. By means of two stage cluster sampling, 98 medical residents of Tehran University of Medical Sciences were selected. Participants were asked to fill valid and reliable Persian version of Emotional Quotient inventory (EQ-i) questionnaire which had been developed due to Bar-On model. Seventy two filled-up questionnaires were returned (RR=73%). Mean EI score of all participants was 319.94 ± 32.4. Mean EI score was not significantly different between male and female also, single and married participants. EI did not differ significantly in residents in respect to their discipline. Mean responsibility subscale differ significantly between male and female participants (P=0.008). Multiple regression analysis showed that happiness subscale is a predictive factor for total EI score (B=-0.32, P=0.009). Responsibility subscale differed significantly between men and women participants and happiness subscale was a good predictor for emotional intelligence score. These factors should be considered in education of medical residents.
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Introduction

Emotional intelligence (EI) is the ability to monitor and explain one's own and other's emotional experience and feelings to differentiate between them as well as applying necessary information for determining thoughts and actions (1-3).

According to EI definition, perception, understanding and regulation of emotions are important components for intellectual and emotional growth (4). EI derived from the theory that intelligence is a multidimensional phenomenon which is valuable for learning, behavior, interaction and practice assessment as it includes different components such as social, emotional and behavioral aspects (5,6). Higher EI is associated with better personal and social skills.

Previous studies demonstrate that college students with higher EI have better mental and physical health status as well as improved control of stress (7).

Mester *et al.* and Rode *et al.* reported that higher EI can significantly be related to academic performance, effective public speaking and group behavior (8,9).

In recent years, EI becomes one of the most important concepts in the field o medical education which can be applied as a predictor of success that can improve patient care and clinical practice (10).

Medical residents as future physicians must have the ability to communicate with patients in order to understand their feelings and emotions in right way. The goal of this study was to determine emotional intelligence of medical residents of Tehran University of Medical Sciences.

Materials and Methods

This cross sectional study conducted in Tehran University of Medical Sciences between January and June 2010.

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By cluster sampling seven disciplines (internal medicine, surgery, radiology, pediatrics, psychology, emergency medicine and ophthalmology) were selected and fourteen medical residents of each discipline were selected by means of table of the random numbers (Total=98).

The enrolled cases were contacted via either email or face-to-face contacts.

Participants were asked to fill a valid and reliable Persian version of Emotional Quotient inventory (EQ-i) questionnaire which had been developed due to Bar-On model. The first version consisted of 133 questions as Persian version included 90 questions (11,12).

It is a self-report questionnaire which took 30 min to complete. It includes five categories and 15 scales. The five categories are Intrapersonal (Self-Regard, Emotional Self-Awareness, Assertiveness, Independence, and Self-Actualization), Interpersonal (Empathy, Social Responsibility and Interpersonal Relationship), Stress Management (Stress Tolerance and Impulse Control), Adaptability (Reality Testing, Flexibility and Problem Solving), and General Mood Scale (Optimism and Happiness). Each question is based on a 5-point Likhert scale scoring system ranging from 5 to 1 (completely agree: 5 to completely disagree: 1). Total score is the sum of all questions scores.

Higher score is indicative of higher emotional intelligence.

Demographic characteristics (age, sex), discipline and marital status were collected for all participants.

All statistical analyses were carried out using the Statistical Package for the Social Sciences (SPSS 18.0 for Windows).

Kruskal-Wallis and independent sample t-test was used for continuous variables and the Pearson Chi-square test with Fisher's exact test was applied for categorical variables and between group assessments. Pearson correlation was used to find association between different subscales of EI and total EI score. Pearson correlation coefficient was used to determine relationship between age and total EI score.

Multiple regression analysis was used to for the predictive value of sex, marital status, discipline, age and different subscales of EI for total EI score. P-value less than 0.05 considered significant.

Results

Seventy two filled-up questionnaires were returned (RR = 73%). Thirty five participants were male (48%) and 37 (52%) were female. Thirty three (35.8%) were single and 39 (54.2%) were married. Thirty five (48.6%) were in their first year of residency education, 22 (30.6%) were in second and 12 (16.7%) in third year of residency education. Three were chief residents. Mean EI score of all participants was 319.94 ± 32.4.

Mean EI score was not significantly different between male and female also, single and married participants. EI did not differ significantly in different discipline residents (Table 1).

Table 1. Mean total score of questionnaire in different sex, marital status and discipline students.

Different variables	Mean total EI score	P-value
Sex		0.3
Men	316.5 ± 36.8	
Women	323.1 ± 27.7	
Marital status		0.3
Married	323.1 ± 34.6	
Single	316.1 ± 29.7	
Discipline		0.7
Surgery	334.4 ± 29.4	
Internal medicine	314.9 ± 3.7	
Pediatrics	330.0 ± 31.5	
Ophthalmology	319.7 ± 40.6	
Radiology	324.2 ± 17.7	
Psychiatry	311.4 ± 30.8	
Emergency medicine	312.0 ± 34.6	

Table 2. Mean scores of different subscales in men and women participants.

Subscale	Men	Women	*P*-value
Problem solving	13.4 ± 3.6	13.8 ± 2.5	0.6
Happiness	13.8 ± 4.3	13.8 ± 3.1	0.9
Independence	13.7 ± 4.3	13.8 ± 3.0	0.8
Stress Tolerance	16.4 ± 5.0	17.2 ± 3.5	0.4
Self-Actualization	12.7 ± 3.7	12.8 ± 2.7	0.8
Emotional Self-Awareness	13.6 ± 3.9	13.6 ± 3.3	0.9
Reality Testing	15.6 ± 3.6	15.0 ± 2.7	0.3
Interpersonal Relationship	12.5 ± 3.5	13.0 ± 2.8	0.5
Optimism	13.7 ± 3.2	13.4 ± 2.3	0.6
Self-Regard	13.5 ± 3.4	14.1 ± 3.5	0.4
Impulse Control	18.0 ± 5.4	16.6 ± 4.1	0.2
Flexibility	17.9 ± 3.3	17.4 ± 3.2	0.5
Responsibility	11.8 ± 2.6	10.3 ± 2.2	0.008
Empathy	12.0 ± 2.9	11.0 ± 2.2	0.1
Assertiveness	17.0 ± 4.3	17.0 ± 4.0	0.9

Table 3. Multiple regression analysis of different subscales.

	B	*P*-value
Problem solving	-.0.12	0.2
Happiness	-0.32	0.009
Independence	-0.16	0.1
Stress Tolerance	-0.11	0.4
Self-Actualization	-0.07	0.6
Emotional Self-Awareness	-0.9	0.4
Reality Testing	0.01	0.9
Interpersonal Relationship	0.1	0.2
Optimism	0.009	0.9
Self-Regard	-0.07	0.5
Impulse Control	0.01	0.8
Flexibility	-0.07	0.4
Responsibility	-0.07	0.5
Empathy	-0.1	0.3
Assertiveness	-0.1	0.2

Table 4. Multiple regression analysis of different characteristics of participants as predictive factor for total EI score.

	B	*P*-value
Age	-0.11	0.3
Sex	0.04	0.6
Marital status	0.2	0.09

Mean responsibility subscale differed significantly between men and women participants (Table 2).

There was no significant correlation between age and total EI score (r=-0.04, *P*=0.7). Multiple regression analysis showed that happiness subscale is a predictive Factor for total EI score (Table 3).

Discussion

The results of this study showed that the mean score of emotional intelligence of medical residents of some disciplines of Tehran University of Medical Sciences was 319.94 ± 32.4 which was lower than the score Namdar *et al.* reported. They evaluated nursing and midwifery students of Tabriz University of Medical Sciences and reported mean EI score of 332.08 ± 39.08 by means of BarOn EQ-I questionnaire (2). To assess validity and reliability of BarOn EQ-I questionnaire, Samuie *et al.* reported mean EI score of 313.6 ± 37.1 among students of Isfahan University of Medical Science and Islamic Azad University of Khorasgan (12). In 2006, Zarrati *et al.* evaluated 232 students of Mashhad University and investigated mean EI score of 415.25 in evaluated cases (13). The difference between Zarrati *et al.* study and ours was that they applied non-validated version of BarOn questionnaire which included 133 questions.

Although mean total EI score was not significantly different between male and female participants, like Haghani *et al.* study, we found that score of responsibility subscale was significantly higher in women than men (14). In Namdar *et al.* study mean EI score of male participants was higher than women although the difference was not statistically significant (2). Contrary to our results, Brackett *et al.* reported that EI score was significantly higher in women than men and lower EI score in men was associated with negative outcomes, including illegal drug and alcohol use, deviant behavior, and poor relations with friends (16).

Our results showed that married participants had higher EI score (although not significant) and residents of surgery obtained higher score followed by pediatrics residents. Although we expected to obtain higher EI score in psychiatry residents as they are in contact with patients more than other residents, they got lower EI score in our survey. We found no significant correlation between age and total EI score (r=-0.04, *P*=0.7) like Namdar *et al.* findings (r=-0.06, *P*=0.45) (2). Also, we investigated that age did not have a predictive role for EI score. No other demographic characteristics such as sex and marital status had predictive role for EI score. The only factor which had predictive role for EI score was happiness subscale of questionnaire.

Psychologists and educators are interested in evaluating people's emotional intelligence to predict its relation to academic success, interpersonal relations, behavior and social life (16).

It has been showed that emotional intelligence is positively related to team activities, functioning, academic success and life enjoyment (2,17). So, it is important to evaluate and pay attention to emotional intelligence of medical students especially medical residents who are going to be a physician in a little while and are in close contact with patients.

Our study had some limitations. First, we evaluated only medical residents of Tehran University of Medical Sciences and not all medical students. Second, our sample size did not include all disciplines. Third, we assessed only emotional intelligence and we did not evaluate other factors such as ability to control stress or life satisfaction. Further studies are required to assess all these factors. In conclusion, responsibility subscale differed significantly between men and women participants and happiness subscale was a good predictor for emotional intelligence score.

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