

Trait Emotional Intelligence and Its Correlates in Oman Medical Specialty Board Residents

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ABSTRACT

Background As part of the globalization of medical education, residency programs in Oman have adopted competency-based standards by the Accreditation Council for Graduate Medical Education International (ACGME-I). Correctly perceiving the emotions of others and managing one's own emotions are essential to high-quality patient care.

Objective We tested the reliability and construct validity of the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF), and assessed trait Emotional Intelligence (EI) in Oman Medical Specialty Board (OMSB) residents in multiple specialties. We explored for correlations with trainees' sociodemographic background data.

Methods We conducted a cross-sectional, observational study between February and August 2017. Participants were OMSB residents. We administered the TEIQue-SF and collected sociodemographic data from participants. Multiple linear regression analysis was conducted to identify independent predictors of trait EI.

Results The present cohort scored high in the trait EI subscale of Well-being, followed by Sociability, Self-control, and Emotionality. Among sociodemographic factors, female gender and high income were significant predictors of TEIQue-SF's Well-being subscale and high income and living in a rented home were significant predictors of the Sociability subscale.

Conclusions This is the first study conducted among medical residents in Oman regarding trait EI and its correlates. Our findings of overall high EI and several socioeconomic predictors echo the literature on the assessment of EI in trainees. The findings add to the evidence of cross-cultural applicability of instruments to measure trait EI, and use assessments of EI in resident selection and education.

Introduction

In 1999, the Accreditation Council for Graduate Medical Education (ACGME) defined 6 competencies important to the practice of medicine: professionalism, systems-based practice, interpersonal and communication skills, medical knowledge, patient care, and practice-based learning and improvement.^{1,2} There is evidence that some of the constituents of these 6 core competencies embrace the construct of trait emotional intelligence (trait EI).³

Trait EI refers to an ability to monitor one's own and others' emotions, to discriminate among them, and to use this information to guide one's thinking and action.⁴ There is evidence to suggest that for an individual to excel in competencies such as interpersonal and communication skills and professionalism,¹ higher trait EI is essential.⁵ On the other hand, modern medical care is sometimes perceived to be “dehumanizing,” with studies suggesting that physicians are becoming less compassionate or suffering from “compassion fatigue.”⁶ This has been linked to reduced levels of EI in physicians.⁷ Some have

recommended educational interventions to enhance physicians' “people skills,”^{8,9} and there are indications that EI might help fill this gap.¹⁰ The inclusion of the trait EI in health care curricula has been growing in recent years.^{11,12}

Oman's residency program follows the competency criteria of ACGME International. To date, no studies have explored trait EI and its correlates in Omani trainees. We tested the reliability and construct validity of the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) for measuring EI in Oman Medical Specialty Board (OMSB) residents, and to explore a possible association between the 4 dimensions of trait EI and the specialty, year of training, gender, and socioeconomic data.

Methods

We conducted a cross-sectional, analytical study between February and August 2017. Subjects were residents enrolled in the OMSB training programs.

Setting

OMSB is an autonomous training body located in Muscat, Sultanate of Oman, serving as the sponsoring

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institution for 17 training programs. In 2017, 597 residents were training in OMSB residency programs.

Sampling Method

Based on the published mean difference and standard deviations in TEIQue-SF subscales,¹³ the required sample size for a 95% confidence interval, 5% a level, and power of 80%, calculated, was 323, using Epi Info software (Centers for Disease Control and Prevention, Atlanta, GA). Data collection took place during a mandatory OMSB workshop. To ensure the representativeness of the study sample, stratified random sampling was adopted, according to the specialty (approximately 65% medical, 20% surgical, and 15% laboratory), reflecting the demographic distribution of residents in OMSB programs. We used randomization software to select participants. Subjects were contacted via the OMSB e-mail system to explain the study and have them provide signed consent electronically. Those who declined to participate were replaced by other randomly selected trainees.

Study Instrument and Sociodemographic Variable

We used the TEIQue-SF (provided as supplemental material),¹⁴ a self-administered scale designed to capture personality facets and an individual's disposition in relation to the emotions. In addition to TEIQue-SF, we collected information on various sociodemographic variables (TABLE 1).

Ethical approval was granted by the OMSB Research Ethics Committee and the College of Medicine and Health Sciences at Sultan Qaboos University, Muscat, Oman. Written informed consent was obtained from all participants.

Data Analysis

We computed descriptive statistics for sociodemographic characteristics and items in the TEIQue-SF. Comparison between groups was conducted using the 2-tailed Student's *t* test or one-way analysis of variance (ANOVA). Tukey-post-hoc pairwise comparison was performed to find the statistically significant ANOVA. Correlation analysis was conducted by calculating the Pearson product-moment coefficient. Multiple linear regression analysis was conducted to identify independent predictors of the residents' trait EI. Significance was set at .05. All statistical analyses were carried out using SPSS Statistics 22 (IBM Corp, Armonk, NY).

In order to reduce the probability of type 1 errors in the confirmatory factor analysis of data in the current study, we used the adjusted goodness of fit index with

What was known and gap

Emotional intelligence (EI) has received attention in the business and medical sectors. EI has not been measured in trainees in an Arab nation.

What is new

A study of EI in a sample of Omani residents found higher overall EI scores in female trainees, and several sociodemographic predictors of EI and its subscores.

Limitations

Single institution study and a majority female sample limit the ability to generalize.

Bottom line

The findings add to evidence of cross-cultural applicability of instruments to measure EI and its use of these assessments in resident selection and education.

a cutoff score of > 0.90 . Factor loading > 0.30 of the individual item was included in the equation. Bartlett's test and the Kaiser-Meyer-Olkin index were performed to gauge the fitness of the data for factor analysis. Linear regression analysis was carried out for the significant variables in the univariate level analysis (ANOVA) to evaluate the predictors of Emotionality, Well-being, and Sociability factors. The independent variables were considered given their theoretical relationship with both outcome and

TABLE 1
Sociodemographic Characteristics of Residents^a

Variable	n (%)
Gender	
Male	101 (32)
Female	219 (68)
Age, Mean $\pm$ SD	27.84 $\pm$ 1.84
Accommodation	
Rent	74 (23)
Owned	246 (77)
Socioeconomic status	
Low income	5 (2)
Average income	279 (87)
High income	36 (11)
Secondary education	
Bilingual school	21 (7)
Government school	299 (93)
Level of residency	
Resident 1	121 (38)
Resident 2	105 (33)
Resident 3	94 (29)
Specialty	
Medical	206 (64)
Surgical	72 (23)
Laboratory	42 (13)

^a N = 320 under the auspices of Oman Medical Specialty Board from 17 different subspecialties in Oman.

exposure, and their often-observed correlation with Emotionality, Well-being, and Sociability factors in univariate analysis ($P = .25$). The standardized β coefficients were stated with 95% confidence interval (CI). The goodness of fit in the linear regression model was assessed by the coefficient of determination (R^2) Cox and Snell approach.¹⁵

Results

A total of 320 participants returned complete questionnaires (TEIQue-SF), yielding a response rate of 99%. TABLE 1 presents their sociodemographic characteristics, which reflects the actual distribution of residents across the 3 specialty subtypes. The mean ($\pm$ SD) of the trait EI score by factors which are as follows for each subscale: Well-being 4.57 ± 0.67 ; Self-control 4.29 ± 0.72 ; Emotionality 3.75 ± 0.70 ; and Sociability 4.31 ± 0.61 . The global trait EI of all residents was 4.20 ± 0.42 .

Reliability and Validity of TEIQue-SF

The reliability and validity of TEIQue-SF have been established across different populations,^{16–18} but not with trainees in the Arab world. Internal consistency reliabilities of the 4 factors were as follows: Cronbach $\alpha = 0.70$ for Emotionality, $\alpha = 0.8$ for Self-control, $\alpha = 0.78$ for Well-being, and $\alpha = 0.75$ for Sociability. Confirmatory factor analysis resulted in 4 factors having an Eigenvalue > 1 and accounting for 68% of the total variance. We confirmed internal consistency and 4 factors as previously reported.¹⁹ These factors were congruent with the original scale, Sociability, Emotionality, Self-control, and Well-being. The individual items loaded well on each factor.

TABLE 2 shows the univariate analysis of the 4 subscales of the trait EI as well: Well-being, Self-control, Emotionality, and Sociability, correlated with different sociodemographic characteristics. Female gender and high income were associated with the higher mean score on Well-being of trait EI ($P = .019$; $P = .002$) and living in a rented house and high income correlated with Sociability in univariate analysis (mean $\pm$ SD 4.44 ± 0.61 , $P = .043$; mean $\pm$ SD 4.00 ± 0.44 , $P = .003$, respectively). No association was found between other independent explanatory sociodemographic variables (age, marital status, income, year of residency, specialty, and education level) and any EI subscales. There also was no single independent variable that was associated with the composite EI score.

TABLES 3 and 4 show multiple linear regressions we ran to predict EI subscales Well-being and Sociability, which were significant in univariate analysis.

Discussion

The current study, which is the first of its kind in the region, investigated the level and correlates of EI in OMSB residents using the TEIQue-SF. We also explored the psychometric properties of the generic TEIQue-SF.

Our average composite score for the TEIQue-SF was 4.20 ± 0.42 , lower than the average score for the general population and for surgical residents in a prior study,²⁰ but comparable to a study of family medicine residents.³ Our study did not find any significant difference in trait EI and its subscales among residents in different specialties, years of training, and by marital status and age, which is similar to a study of Iranian students of medical sciences²¹ and a study of American residents in their senior year.²²

Omani residents scored high on indices of Well-being, followed by Sociability, Self-control, and Emotionality, respectively, in contrast to a study in which the lowest scores were on the Sociability subscale.²³ Our lowest score was Emotionality, and there may be cultural factors in this finding. Omani culture, due to traditional value systems, may be less likely to openly express emotion,²⁴ and there is some propensity in Omani culture to somatize emotionality.²⁵ Future studies could explore whether there are cultural differences in some aspects of trait EI.

Prior studies have examined the determinants of the trait EI in medical trainees and practitioners.^{26–28} In our sample, gender was a strong predictor of high trait EI: women scored significantly higher in trait EI scores than men in the Well-being subscale, echoing the findings of a systematic review of studies on trait EI.¹ Female gender and high income also showed strong links to the Well-being subscale, in contrast to studies that found no association between trainees' (?) gender and overall EI.^{20,22,29,30} Our findings are consistent with research from Sri Lanka,³¹ Saudi Arabia,³² Malaysia,³³ Iran,²¹ and India.³⁴ This could be explained by women being better at articulating emotions compared to men.³⁵ In addition, over the last decade, Omani women have academically outnumbered their male colleagues,³⁶ resulting in a "feminization" of health care services in the country.³⁷ Therefore, it is possible that the observed higher EI among female residents could be partly reinforced by the increasing participation of women in the health workforce.

We also explored the effects of socioeconomic status on trait EI. In Oman, one's social standing often reflects his or her family origin or tribe, while in Western Europe or North America, one's education, income, and occupation define socioeconomic status.³⁸

TABLE 2
Univariate Analysis of Trait Emotional Intelligence Subscales and Associations With Different Sociodemographic Characteristics of Study Participants

Variable		Well-Being		Self-Control		Emotionality		Sociability	
		(Mean $\pm$ SD)	P Value	(Mean $\pm$ SD)	P Value	(Mean $\pm$ SD)	P Value	(Mean $\pm$ SD)	P Value
Gender	Male	4.44 $\pm$ 0.68	.019 ^a	4.33 $\pm$ 0.77	.54	3.76 $\pm$ 0.68	.75	4.34 $\pm$ 0.70	.62
	Female	4.63 $\pm$ 0.66		4.27 $\pm$ 0.70		3.74 $\pm$ 0.71		4.30 $\pm$ 0.57	
Age	Age	r = -0.083	.14	r = 0.023	.68	r = 0.039	.48	r = 0.005	.93
Marital status	Married	4.60 $\pm$ 0.79	.86	4.19 $\pm$ 0.54	.72	3.55 $\pm$ 0.86	.62	4.50 $\pm$ 0.58	.57
	Single	4.55 $\pm$ 0.63		4.32 $\pm$ 0.73		3.73 $\pm$ 0.65		4.32 $\pm$ 0.57	
Accommodation	Rent	4.53 $\pm$ 0.66	.59	4.40 $\pm$ 0.76	.14	3.78 $\pm$ 0.72	.45	4.44 $\pm$ 0.61	.043 ^a
	Owned	4.58 $\pm$ 0.67		4.26 $\pm$ 0.71		3.70 $\pm$ 0.69		4.27 $\pm$ 0.61	
Socioeconomic status	Low income	4.63 $\pm$ 0.32	.002 ^a	4.33 $\pm$ 0.77	.52	4.13 $\pm$ 0.88	.46	4.00 $\pm$ 0.44	.003 ^a
	Average income	4.53 $\pm$ 0.68		4.27 $\pm$ 0.73		3.74 $\pm$ 0.69		4.28 $\pm$ 0.60	
	High income	4.80 $\pm$ 0.52		4.42 $\pm$ 0.60		3.76 $\pm$ 0.77		4.63 $\pm$ 0.58	
Secondary education	Public	4.47 $\pm$ 0.57	.48	4.17 $\pm$ 0.69	.45	3.48 $\pm$ 0.47	.07	4.34 $\pm$ 0.56	.81
	Private	4.57 $\pm$ 0.67		4.30 $\pm$ 0.72		3.76 $\pm$ 0.71		4.31 $\pm$ 0.61	
Level of residency	Resident 1	4.59 $\pm$ 0.67	.39	4.28 $\pm$ 0.74	.53	3.76 $\pm$ 0.71	.77	4.32 $\pm$ 0.63	.48
	Resident 2	4.08 $\pm$ 0.82		3.75 $\pm$ 1.53		3.69 $\pm$ 0.09		3.83 $\pm$ 0.47	
	Resident 3	4.52 $\pm$ 0.67		4.32 $\pm$ 0.65		3.70 $\pm$ 0.70		4.29 $\pm$ 0.56	
Specialty	Medical	4.55 $\pm$ 0.68	.20	4.29 $\pm$ 0.70	.22	3.69 $\pm$ 0.71	.50	4.34 $\pm$ 0.63	.58
	Surgical	4.52 $\pm$ 0.68		4.20 $\pm$ 0.85		3.61 $\pm$ 0.73		4.25 $\pm$ 0.58	
	Diagnostic	4.74 $\pm$ 0.56		4.44 $\pm$ 0.56		3.63 $\pm$ 0.56		4.29 $\pm$ 0.57	

^a Statistically significant.

Note: To study the relationship between independent variables and emotional intelligence subscales, 2-tailed Student's t test or one-way analysis of variance (ANOVA) were used. A Tukey-post-hoc pair wise comparison was performed for a statistically significant ANOVA. Correlation analysis was conducted by calculating the Pearson product-moment coefficient.

TABLE 3

Multiple Linear Regression Analysis for Predicting Well-Being Factor From Explanatory Independent Sociodemographic Variables of Study Participants

Variable	B	SE _B	β	P Value
Intercept	30.453	3.508		
Gender	1.057	0.487	0.123	.031 ^a
Age	−0.142	0.124	−0.065	.25
Rented home	−0.077	0.534	−0.008	.89
Low income	0.828	1.794	0.026	.65
High income	1.648	0.702	0.130	.020 ^a

Abbreviations: B, unstandardized regression coefficient; SE_B, standard error of the coefficient; β, standardized coefficient.

^a $P < .05$.

A number of studies reported a weak to modest relation between EI trait measures and income level.^{27,39,40} Our finding, consistent with other studies,⁴¹ was that well-being significantly related to high income.

Our male to female distribution (219 women, 101 men) might reduce the generalizability of our findings. In addition, as the validity and reliability of EI have been debated in the literature, many existing constructs of EI lack cut-off points to define whether a subject has high or suboptimal EI.

Conclusion

In our study, Omani residents scored high in the subscale of Well-being of trait EI, followed by Sociability, Self-control, and Emotionality. In terms of determinants, female gender, high income, and living in a rented home were significant predictors of TEIQue-SF's subscales of Well-being and Sociability, respectively. Our study lays the groundwork for further exploration of culturally adapted instruments to assess EI in the recruitment and training of future physicians.

TABLE 4

Multiple Linear Regression Analysis for Predicting Sociability Factor From Explanatory Independent Sociodemographic Variables of Study Participants

Variable	B	SE _B	β	P Value
Intercept	27.027	3.186		
Gender	−0.198	0.442	−0.025	.65
Age	−0.052	0.112	−0.026	.64
Rented home	0.967	0.485	0.112	.047 ^a
Low income	−1.707	1.630	−0.058	.29
High income	2.081	0.638	0.180	.001 ^a

Abbreviations: B, unstandardized regression coefficient; SE_B, standard error of the coefficient; β, standardized coefficient.

^a $P < .05$.

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