



Personality Traits are Associated with Spiritual Intelligence in Medical and Dental Students: A Study in a Medical Sciences University in Iran

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Background: Describing the personality traits of medical health students is an essential for understanding their motivation and learning styles and can help plan theoretical and clinical training in this field. Given the dearth of research in this area, the present study was conducted to examine and describe personality traits and spiritual intelligence in medical sciences students and to determine the relationship between these two variables. **Methods:** This descriptive, analytical, cross-sectional study was conducted with 240 medical and dental students at Babol University of Medical Sciences selected through simple random sampling. The students completed a demographic questionnaire, the NEO Five-Factor Inventory and the Integrated Spiritual Intelligence Scale developed by Amram and Dryer. **Results:** The spiritual intelligence score was higher among dental students than medical students (220.12 ± 78.63 vs. 191.08 ± 65.79) and was higher among women than men (229.27 ± 83.25 vs. 191.89 ± 78.63). The results of the multivariate regression analysis revealed extraversion ($\beta = 0.330$) was positively associated with spiritual intelligence. Openness to experience ($\beta = -0.581$), agreeableness ($\beta = -0.433$), and conscientiousness ($\beta = -0.415$) were negatively associated with spiritual intelligence. However, neuroticism was not associated with spiritual intelligence. **Conclusions:** Some personality traits were associated with spiritual intelligence in Iranian medical and dental students. These findings suggest that improving the spiritual intelligence of medical and dental students requires further attention to personality traits in this group of students.

Key words: Personality traits, spiritual intelligence, dental students, medical students

INTRODUCTION

Examining the personality traits of medical and dental students can help identify strategies for increasing the clinical skills of this group.¹ The Big Five personality traits include *neuroticism* (nervousness, incompatibility, and emotional instability), *extraversion* (loving others and willingness to participate in social activities), *openness* (active imagination and productive internal and external experiences), *agreeableness* (altruism and sympathy) and *conscientiousness* (dutifulness, punctuality, and accuracy).^{2,3} Research suggests that personality traits are associated with academic behavior in medical sciences students. Pool *et al.* have reported that the personality trait openness to experience is

associated with students' academic and clinical performance.⁴ Recent studies propose that personality traits play a role in the mental health of medical sciences students.⁵

Intelligence refers to a set of tools used to achieve productivity, effectiveness, happiness, satisfaction, and ultimately meaningfulness in life. Intelligence has different dimensions, including cognitive intelligence, emotional intelligence, and spiritual intelligence.⁶ Spiritual intelligence is the ability to being holistic harmony of life, being aware of higher planes of spiritual thought, being conscious of spiritual dimensions of daily events, and practicing humility, gratitude

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and empathy.⁷ People with a high spiritual intelligence are more flexible and have a higher consciousness of the self, are more capable of dealing with problems and pain and overcoming them, avoid doing wrong to others, have an integrative thinking, are independent of others, and are less likely to experience depression. Understanding spiritual intelligence as part of the more extensive system of personality sensitizes researchers to the parts of personality to which this intelligence is linked or may help understand its effects.⁸ Duffy *et al.* proposed that spirituality may be related to what individuals value from their work.⁹ Moreover, reports indicate a relationship between mental health and spirituality.¹⁰ Certain personality traits are believed to be associated with spirituality and spiritual intelligence.¹¹ Very few studies have examined the relationship between spiritual intelligence and personality traits. Löckenhoff *et al.* reported a positive correlation between spirituality and personality traits.¹²

Examining personality traits and spiritual intelligence in medical and dental students is important for several reasons. First, describing the personality traits of medical students is essential for understanding their motivation and learning styles. Second, little research has examined the relationship between personality traits and spiritual intelligence in medical health students. Third, personality traits are effective in predicting medical students' academic and clinical performance. Fourth, familiarity with the personality traits of this group can help them to better plan for their elective courses or take advantage of teaching methods and curricula in line with their personality traits. Finally, familiarity with students' spiritual intelligence can entail the use of spiritual strategies to deal with stress.¹⁴

The present study, therefore, seeks to examine personality traits and spiritual intelligence in medical health students. It also seeks to answer the question of how personality traits and spiritual intelligence differ between dental and medical students, whether spiritual intelligence and personality traits are associated with gender in dental students, and whether spiritual intelligence can be predicted through personality traits in this group of students.

METHODS

This descriptive, analytical, cross-sectional study was conducted with medical and dental students at Babol University of Medical Sciences. The study population consisted of all the dental and medical students of this university in the academic year 2014–2015. Given the approximately 1500 students meeting these criteria, a sample size of 300 was required as per Morgan and Jersey's table. The researchers randomly distributed 300 questionnaires among the students based on the admissions list. A total of 26 students did not respond to the questionnaires and 34 students partially completed them

and were therefore excluded from the study. This left 240 participants (120 dental and 120 medical students) to complete the questionnaire. The data of these students were statistically analyzed. Of the 120 dental students, 30 (25%) were in their first year of school, 28 (23.33%) were in their second year, 23 (19.16%) were in their third year, 17 (14.16%) were in their fourth year, 13 (10.83%) were in their fifth year, and nine (7.5%) were in their sixth year of school. The medical students showed a similar pattern with 31 students (25.83%) in their first year of school, 29 (24.16%) in the second year, 21 (17.50%) in the third year, 19 (15.83%) in the fourth year, 13 (10.83%) in the fifth year, and seven (5.83%) in the sixth year of school.

The data collection tools used in this study included a personality traits questionnaire and a spiritual intelligence questionnaire. A demographic questionnaire was also developed and administered to examine information such as the students' gender, academic year, age, and marital status. The students completed two questionnaires, namely the NEO Five-Factor Inventory and the Integrated Spiritual Intelligence scale. The ethical committee of Babol University of Medical Sciences approved this study (number: MUBOBOL.REC.1394.5).

The NEO Five-Factor Inventory

This questionnaire is a personality test developed based on the factor analysis McCrae and Costa (1992) and consists of 60 items that measure the Big Five personality traits based on a five-point Likert-type scale,¹⁴ including:

- Neuroticism - The tendency to experience negative emotional states such as fear, sadness, embarrassment, nervousness, anger, guilt, and hatred
- Extraversion - An overall high-energy approach within the material and social world made up of traits such as sociability, activeness, assertiveness, and courageousness
- Openness - The elements of an active imagination, an esthetic sense, attention to inner feelings, change-seeking, and intellectual curiosity
- Agreeableness - Altruism, sympathizing with others, eagerness to help and believing in others being helpful
- Conscientiousness - The power to control impulses in a way approved by society, facilitating goal-oriented behavior, reflection before action, delayed gratification, and adherence to rules and norms.

The Integrated Spiritual Intelligence Scale

This scale was developed by Amram and Dryer and consists of 45 items that are scored from one to six (1 point for "never or almost never," 2 for "very infrequently," 3 for "somewhat infrequently," 4 for "somewhat frequently,"

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5 for “very frequently,” and 6 for “always or almost always”). The seven general components of the scale include consciousness (awareness, the ability to handle different situations with a high level of awareness, going beyond a simple logical view by seeing others’ point of view as well), grace (paying attention to the beauty around us, a sense of appreciation and gratitude, the ability to take satisfaction in daily activities), internal orientation (awareness and understanding about internal values and operating independently of the conditions prevailing in the community), meaning (a deeper sense of purpose and work, making efforts for something beyond material gain, and understanding the meaning of life by serving others), existence and personality (assessment and decision-making based on insights beyond common ideas and becoming knowledgeable through connecting to one’s true nature), truth (accepting the truth, knowing about experiences, optimism, and self-acceptance) and transcendence (holiness and purity, empathizing with others, being holy and spiritual and having connection to a sacred power, and practicing to reflect on actions).¹⁵

Statistical analysis was performed with SPSS version 18 (Inc., Chicago, IL, USA). The mean scores of personality traits were compared between the dental and the medical students using independent *t*-tests. The mean scores of personality traits and spiritual intelligence were compared between male and female medical students using the independent *t*-test. Pearson’s correlation coefficient was used to determine the relationship between spiritual intelligence and personality traits. Finally, a multiple hierarchical regression model (MANOVA; enter method) was used to find the predictors of spiritual intelligence. The variables included in the model were those that showed a significant correlation with spiritual intelligence in the previous bivariate association. The criterion or dependent variables were the five dimensions of personality traits.

RESULTS

Of the total of 240 participants with a mean age of 22.84 (age range: 19–32), 152 participants (63.30%) were male, and 88 (37.70%) were female. Table 1 presents the means and standard deviations of the scores of the personality traits and spiritual intelligence in the dental and medical students by field of study. The MANOVA showed significantly higher extraversion scores in the dental than the medical students when comparing the means of the Big Five personality traits ($P < 0.05$). The independent *t*-test was also used to compare spiritual intelligence in the two groups, and the *t*-test was significant at the 0.05 level. The descriptive statistics revealed a higher spiritual intelligence in the dental students compared to the medical students ($P < 0.01$).

Table 2 presents the means and standard deviations of the scores of spiritual intelligence and personality traits in the students by gender. The mean of spiritual intelligence was significantly higher in men than women.

As shown in Table 3, regarding the relationship between gender and personality traits, neuroticism and agreeableness had a significant negative correlation with gender and a significant positive correlation between spiritual intelligence and gender. This table shows that conscientiousness had

Table 1: Comparison of personality and spiritual quotation between medical and students

Variables	Mean±SD		<i>P</i>
	Dental students	Medical students	
Neurosis	35.56±3.68	35.57±3.45	0.986
Extroversion	36.74±2.66	35.95±2.79	0.026
Openness to experience	36.52±3.69	36.89±3.83	0.441
Agreeableness	38.93±6.22	40.03±4.90	0.133
Consciousness	39.02±8.94	39.89±7.32	0.403
Spiritual quotation	220.12±78.63	191.08±65.18	0.004

SD=Standard deviation

Table 2: Comparison of personality and spiritual intelligence between women and men of medical health students

Variables	Mean±SD	
	Men	Women
Neurosis	46.00±3.57	34.81±3.57
Extroversion	36.29±2.08	36.44±2.67
Openness to experience	36.91±3.58	36.35±4.04
Agreeableness	40.06±4.92	38.48±2.56
Consciousness	40.20±7.11	38.16±9.42
Spiritual quotation	191.89±78.63	229.27±83.25

SD=Standard deviation

Table 3: Correlation between personality and spiritual intelligence with gender of the students

	1	2	3	4	5	6
Gender						
Neurosis	−0.16*					
Extroversion	0.027	0.499**				
Openness to experience	−0.017	0.506**	0.469**			
Agreeableness	−0.136	0.666**	0.232**	−0.471**		
Consciousness	−0.122*	0.525**	0.333**	−0.394**	0.845**	
Spiritual quotation	0.245**	−0.037**	0.362**	−0.364**	−0.444**	−0.452**

* $P < 0.05$, ** $P < 0.01$

the highest negative correlation with spiritual intelligence, followed by agreeableness and openness. Extraversion had a significant positive correlation with spiritual intelligence. Finally, neuroticism showed the lowest negative correlation with spiritual intelligence.

The results of the multivariate regression analysis [Table 4] revealed that extraversion ($\beta = 0.330$) was positively associated with spiritual intelligence in the students. Openness to experience ($\beta = -0.581$), agreeableness ($\beta = -0.433$), and conscientiousness ($\beta = -0.415$) were negatively associated with spiritual intelligence. However, neuroticism was not associated with spiritual intelligence.

DISCUSSION

This study was conducted to assess personality traits and spiritual intelligence in medical and dental students. To the best of our knowledge, this is the first study on the associations between personality traits and spiritual intelligence for medical and dental students. The results show that extraversion is higher in dental students compared to medical students while no significant differences were observed between them in terms of the other four other personality traits, namely neuroticism, openness, conscientiousness, and agreeableness. One study reported similar personality traits in dental and medical students.¹⁶ On contrary, the findings of this study, a study in China showed that introversion is more common in dental students.¹⁷ To explain the present findings, it should be noted that the

four personality traits of neuroticism, conscientiousness, agreeableness, and openness may be similar in dental and medical students because the passing grade for the university entrance exam and academic stress¹⁸ are identical for the two majors and people who study these disciplines tend to have the same personality traits.

The mean score of spiritual intelligence was higher in the dental students than the medical students. A few studies have examined spiritual intelligence in dental or medical students. Two factors explain the higher mean score of spiritual intelligence in the dental students compared to the medical students examined in this study. First, the dental students had a higher mean age than the medical students, and as suggested by Valman, the mean score of spiritual intelligence increases with age.¹⁹ Second, the dental students had higher extraversion compared to the medical students, and as research suggests a positive correlation between spiritual intelligence and extraversion, the higher spiritual intelligence observed in this study in the dental students may be attributed to their extraversion.

The present study showed that neuroticism and agreeableness have a low but significant correlation with gender. The present findings are consistent with the results obtained by some previous research.^{20,21} To explain the present findings, it should be noted that Buss²² found that neuroticism and agreeableness have a genetic basis and are the result of compliance for selecting under pressure that differs between the genders. Costa *et al.* also found that the gender differences observed in neuroticism and agreeableness are rooted in biological and evolutionary factors.²⁰

The present study also revealed a correlation between spiritual intelligence and gender in medical health students, as the female dental students had higher spiritual intelligence compared to the male dental students. In the preliminary development and validation of their spiritual intelligence tool, Amram and Dryer showed that gender and spiritual intelligence are connected and that there is a stronger correlation in the case of women. In explaining the findings of the study, it can be argued that the religious culture of Iran has a stronger effect on the daily life of women compared to that of men.¹⁵

According to the present findings, openness, agreeableness, and conscientiousness were negatively associated with spiritual intelligence in medical and dental students. However, extraversion was not associated with spiritual intelligence. The present findings are inconsistent with those obtained by Saroglou *et al.*, who showed that spirituality is positively correlated with extraversion, agreeableness, and conscientiousness, but negatively with neuroticism.²³ On the other hand, one study found no significant relationships between spiritual intelligence and personality traits.²⁴ In explaining this inconsistency, it can be argued that, unlike the

Table 4: Predictors of spiritual intelligence with multiple regression analysis

Step	Variables	B	Standardized B	t	Significant
1	Constant	367.686	-	17.353	0.001
	Conscientiousness	-4.1	-0.452	-7.808	0.001
2	Constant	918.124	-	21.014	0.001
	Conscientiousness	-6.403	-7.704	14.864	0.001
	Openness to experience	-12.529	-0.641	13.352	0.001
3	Constant	449.867	-	7.033	0.001
	Conscientiousness	-7.029	-0.773	-18.896	0.001
	Openness to experience	-9.463	-0.484	-10.904	0.001
	Extroversion	10.465	0.392	9.064	0.001
4	Constant	680.635	-	9.793	0.021
	Conscientiousness	-3.78	-4.415	-6.093	0.001
	Openness to experience	-11.368	-0.581	-13.252	0.001
	Extroversion	8.815	0.330	8.011	0.001
	Agreeableness	-5.802	-0.443	-6.345	0.001

present study, those studies used the ability model of spiritual intelligence and have consequently administered task-based performance tests of spiritual intelligence. The major difference between task-based tests and the self-assessment tests and scales developed to measure spiritual intelligence used in the present study is that the latter have a significant relationship with some personality traits, while performance tests and scales correlate and overlap with tests that assess general intelligence. How can we explain above findings? Very little is known about the relationship between the five-factor models of personality. First, the relationship between spirituality and spirituality with origins as religious behavior is associated with temperament.²⁵ Second, spirituality may be associated with low openness.²³

Despite its strengths, the present study has certain limitations. First, a large number of the students (20%) did not respond to our invitation, and this attrition may have affected the conclusion. Second, the study method was correlational, and cause-effect conclusions cannot be drawn. Further studies are recommended to use empirical methods for better understanding the effect of personality traits on spiritual intelligence in dental students.

CONCLUSION

Some personality traits were associated with spiritual intelligence in medical and dental students. These findings suggest that improving the spiritual intelligence of medical and dental students requires further attention to personality traits. Medical and dental schools should consider the more dominant personality trait (i.e., extraversion) of their students in devising theoretical and clinical teaching methods and should encourage group rather than individual class participation. A collaborative planning for education and cultural training in dental schools can help improve the academic and clinical performance of medical and dental students. Extraversion and spirituality can be mutually accomplished in medical and dental students by promoting their spiritual intelligence, and a greater improvement in mental, academic, and clinical performance can thus be achieved.

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Conflicts of interest

There are no conflicts of interest.

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