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The relationship between empathy and personality traits in Saudi medical students

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Abstract:

BACKGROUND: Empathy is regarded as a fundamental personal attribute for in-training and in-practice doctors. Several factors may play a significant role to facilitate or prevent the ability of doctors' empathy toward their patients. The objective of the present study is to investigate the relationship of empathy with personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) among undergraduate medical students.

MATERIALS AND METHODS: This study was based on a correlational, cross-sectional design and was conducted from January 2020 to April 2020. The sample consisted of 301 undergraduate medical students studying in different medical colleges situated in Riyadh, Saudi Arabia. Personal information form, the big-five personality inventory, and the interpersonal reactivity index scales were administered. Obtained data were analyzed by applying several methods such as mean, standard deviation, Mann–Whitney *U* test, Pearson's correlation coefficient, and multivariable linear regression.

RESULTS: Regression analysis revealed that personality dimensions accounted for 10–19% of the variance in scores of empathy sub-dimensions of perspective-taking, empathetic concern, fantasy, and personal distress. Agreeableness was found to be associated with empathetic concern and perspective-taking. Openness to experience was found to be significantly related to perspective-taking and fantasy, whereas extraversion was negatively associated with perspective-taking. Neuroticism had an association with personal distress, empathetic concern, and fantasy. Additionally, no gender difference was observed and students with people-oriented specialty preferences showed significantly higher scores on empathy sub-domains than technology-oriented students.

CONCLUSION: This study confirmed that personality dimensions play a notable role to predict empathetic behaviors among Saudi undergraduate medical students. This study would help to design individualized strategies by incorporating personality dimensions in the training program to enhance empathetic behavior among medical students.

Keywords:

Big five model, empathy, personality, Saudi medical students

Introduction

Empathy has been recognized as an integral factor for successful doctor–patient relationships. Empathetic communication appeared hallmark not only for improved healthcare outcomes but also for healthcare providers' well-being. In the clinical context, empathy denotes

the capacity to understand the condition, perspective, and feelings of patients, as well as the skill to therapeutically communicate this understanding and incorporate it into clinical decision-making.^[1,2] It is empirically evident that empathy is learnable, however, contingent on the personality dimensions of the learner.^[3,4] It is proposed that personality factors play an important role in clinician's training as indicated that 35% of the variance in clinician's performance is based

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on intellectual abilities, whereas after adding personality-related information common variance increased to 75%.^[5]

Five-factor model of personality influences empathetic behaviors across cultures regarding medical students as well as the general population. For instance, empathy in Chinese medical students was found to be strongly associated with agreeableness, whereas personal distress was associated with neuroticism.^[4] Another study conducted in four countries on general population reported agreeableness and conscientiousness as determining factors of affective and cognitive dimensions of empathy measured by Interpersonal Reactivity Index designed to assess the characteristics of empathic behavior Index as well as general empathy score measured by the Empathy Quotient used to measure empathy.^[6] Contrary, a study carried out with Japanese medical students revealed no association of empathy with openness to experience, neuroticism, and conscientiousness, whereas only agreeableness was found to be weakly correlated with scores of empathy.^[7] Similarly, previous studies also showed mixed results, specifically in the context of sociodemographic and academic factors such as gender and specialty preference. A number of studies revealed a higher level of empathy among women and students who preferred a people-oriented specialty.^[8,9] In contrast, no gender difference^[10] and a higher level of empathy were observed among males^[11] and no association was found between empathy and specialty preference.^[10] These mixed results highlight the underlying role of various psychological and socio-cultural influences at the level of empathy, and its determining factors need to be studied in a specific context.

The above-mentioned literature indicates that knowledge in medicine is important for physicians to be proficient in their jobs indeed, but without empathy, the nobility of this profession might lose its meaning. Despite its importance and past inconsistent findings regarding empathy and its relation to personality traits, relevant studies are still underrepresented in the current literature across cultures and have also not been conducted in the context of Saudi Arabia yet. Considering this fact, the objective of this study was to seek the relationship between empathy and personality traits among undergraduate Saudi medical students. It was also aimed to explore gender differences and specialty preferences in the future with respect to study variables to ameliorate career success and experience with patients among future doctors.

Materials and Methods

Study design and setting

This study was based on a cross-sectional correlational design. The study was conducted between January 2020

and April 2020 at Princess Nourah Bint Abdulrahman University, Saudi Arabia.

Study participants and sampling

The sample of the present study consisted of 301 students including 107 males and 194 females. Participants were selected using convenient sampling and their ages ranged from 18 to 24 years. Students enrolled in different medical colleges situated in Riyadh, Saudi Arabia, were included in this study. Students who were not willing to share the information were excluded from the study.

Data collection tool and technique

A personal information form was designed to get information about students' age, gender, year, and specialty preference for the future that student wants to opt. Questions regarding specialty preference were based on Hojat's classification,^[12] which divided the specialty into two categories as people-oriented specialties and technology-oriented specialties. The big five inventory (BFI) developed by John and Srivastava^[13] was used to assess interindividual differences reflective of five dimensions of personality named as extraversion, agreeableness, conscientiousness, neuroticism, and openness. These 44 items were scored by the respondent on a 5-point scale ranging from 0–6. The BFI has good alpha reliability ranging from 0.74 to 0.92 and validity coefficients.^[14] The Interpersonal Reactivity Index^[15] is a self-report scale designed to assess the characteristics of empathic behavior. This consisted of 28 statements to measure four different aspects of empathy named as perspective taking (PT), fantasy (FS), empathic concern (EC), and personal distress (PD). Respondents scored each item using the 5-point Likert scale. A higher level of empathy was determined on the basis of a higher score on each sub-domain. The Cronbach alpha of IRI subscales ranged from 0.68 to 0.79 and test-retest reliability showed from 0.61 to 0.81.^[15] The IRI also showed evidence of content and factorial validity.^[15]

Descriptive statistics of demographic characteristics and empathy were calculated by calculating the number, percentage, mean, and standard deviation. Differences in the scores of all dimensions of empathy by gender and specialty preference were analyzed by using the Mann–Whitney *U* test. Pearson correlation coefficient was applied to assess the correlation between empathy and personality traits. Multivariable linear regression analysis was computed to analyze the effect of personality dimensions as an independent variable on empathy. For analysis, an alpha level of 0.05 was selected. Data were analyzed using SPSS-23.0 (Armonk, NY: IBM Corp.).

Ethical consideration

This study was carried out after getting approval from

the institutional review board of Princess Nourah Bint Abdulrahman University, Saudi Arabia (200073). All ethical standards were approved by the institutional review board of Princess Norah Bint Abdulrahman University, Saudi Arabia, and were followed in study protocols and procedures.

Results

As shown in Table 1, more females (64.5%) as compared to males (35.5%) participated in this study. Their age ranged from 18 to 24 years with a mean age of 22 years. Among them, 185 students (61.5%) described to opt people-oriented specialties in the future, 67 students (22.3%) wanted to opt for technology-oriented specialties, whereas the remaining 49 students (16.3%) did not mention any specific field of interest.

As illustrated in Table 2, no gender difference was observed in all subscales of empathy. Regarding specialty preference, empathetic concern and fantasy were found to be higher among students who preferred to opt people-oriented specialty in the future ($P < 0.01$).

Table 3 provides a summary of correlational analyses, indicating statistically significant correlation of neuroticism with personal distress ($r = 0.423, P < 0.01$), empathetic concern ($r = 0.147, P < 0.05$), and fantasy ($r = 0.145, P < 0.05$). Personality dimension of openness to experience was found to be correlated with fantasy ($r = 0.255, P < 0.01$) and perspective taking ($r = 0.195, P < 0.01$). Consciousness was found to be negatively correlated with personal distress ($r = 0.179, P < 0.01$).

Table 1: Demographic characteristics of the study sample (n=301)

Variables	n	%
Gender		
Male	107	35.5
Female	194	64.5
Mean Age±for total sample	22.19±1.47	
Specialty preference		
People-oriented	185	73.4
Technology-oriented	67	26.6

N-Numbers, %-Percentages, SD-Standard Deviation

Table 2: Descriptive analysis of study variables

Variables	PT (Mean±SD)	FS (Mean±SD)	EC (Mean±SD)	PD (Mean±SD)
Total sample	17.76 (4.13)	17.85 (5.26)	18.80 (4.58)	14.66 (4.25)
Male	18.29 (4.50)	17.52 (5.74)	19.17 (4.49)	14.25 (3.83)
Female	17.47 (3.89)	18.03 (4.99)	18.59 (4.62)	14.89 (4.47)
P	0.065	0.398	0.323	0.144
People-oriented specialty	18.45 (4.07)	18.65 (5.40)**	19.56 (4.62)**	15.10 (4.03)
Technology-oriented specialty	16.90 (3.84)	16.28 (4.80)**	16.79 (3.86)**	14.32 (4.19)
P	0.327	0.007	0.000	0.740

** $P < 0.01$

Extraversion appeared as negatively associated with personal distress ($r = -0.127, P < 0.05$) and perspective taking ($r = -0.119, P < 0.05$). Agreeableness was found to be significantly associated with empathic concern ($r = 0.284, P < 0.01$) and perspective taking ($r = 0.204, P < 0.01$).

Obtained results, as shown in Table 4, suggested that personality dimensions accounted for 10–19% of variance in scores of empathy sub-dimensions. Openness to experience ($\beta = 0.207, P < 0.01$) and agreeableness ($\beta = 0.218, P < 0.01$) were found to be significantly related to perspective taking, whereas extraversion ($\beta = -0.181, P = .002$) was negatively related to perspective taking. Openness to experience ($\beta = 0.252; P < 0.01$) and neuroticism ($\beta = 0.167, P = .005$) showed a positive association with empathy subscale of fantasy. Agreeableness ($\beta = 0.332; P < 0.01$) and neuroticism ($\beta = 0.196, P < 0.01$) were found to be associated with empathic concern. Neuroticism was the only trait that had an association with personal distress ($\beta = 0.414, P < 0.01$).

Discussion

This study examined the association of empathy with personality dimensions, additionally, the gender difference in the level of empathy, and specialty preference in the future among Saudi medical students were also explored. Overall, obtained findings suggested that personality traits are associated with different aspects of empathetic behaviors. Specifically, agreeableness had a predictive association with empathetic concern and perspective-taking. These findings are in accordance with a previous study indicating agreeableness as a consistent predictor of empathetic concern and perspective-taking among medical students.^[4] Another cross-cultural study conducted in Spain, Germany, China, and the United State of America suggested agreeableness as an important and consistent predictive factor accounting for perspective-taking and empathetic concern.^[6] Logically, individuals including medical students who are agreeable, kind, considerate, and compassionate are more likely to infer others' points of view deliberately, more likely to be open, and

Table 3: Correlation between empathy and personality dimensions

	O	C	E	A	N
IRI-PT	0.195**	-0.007	-0.119*	0.204**	-0.014
IRI-FS	0.255**	0.005	-0.025	0.082	0.145*
IRI-EC	0.017	0.042	-0.068	0.284**	0.147*
IRI-PD	-0.020	-0.179**	-0.127*	-0.040	0.423**

**P<0.01 level; *P<0.05 level

Table 4: Multivariable linear regression between empathy and personality dimensions

	Beta	SE	P	Multiple R ²
IRI-PT				0.116
O	0.207	0.041	<0.01	
C	-0.070	0.042	231	
E	-0.181	0.047	0.002	
A	0.218	0.048	0.000	
N	-0.032	0.037	0.588	
IRI-FS				0.100
O	0.252	0.053	<0.01	
C	0.041	0.054	0.487	
E	-0.039	0.061	0.511	
A	0.077	0.062	0.191	
N	0.167	0.048	0.005	
IRI-EC				0.131
O	-0.009	0.045	0.870	
C	0.002	0.046	0.978	
E	-0.055	0.052	0.342	
A	0.332	0.053	<0.01	
N	0.196	0.041	<0.01	
IRI-PD				0.198
O	0.002	0.040	0.966	
C	-0.109	0.041	0.049	
E	-0.007	0.046	0.905	
A	0.071	0.047	0.201	
N	0.414	0.037	<0.01	

empathetic toward others' emotions, and thus more concerned about their well-being.^[16,17,18]

Openness to experience appeared to be significantly linked with perspective taking and fantasy in consistent with previous studies.^[4,5] People having a higher level of openness to experience might also have tendencies of creativity, curiosity, divergent ideas, fantasy, and the inclination of being more empathetic.^[19] Thus, medical students who are open to experience may be more flexible to understand patient's perspectives as well as be imaginative by putting themselves in others' situations to understand their life circumstances in a better way.

Neuroticism was found to be significantly associated with personal distress, empathetic concern, and fantasy corroborated by past studies.^[18,20,21] This association might be explained by the pattern that people having a higher level of neuroticism are sensitive toward others' distress,^[22] prone to engage in prosocial fantasizing

that leads to be more helpful toward others denote to characteristics of empathetic disposition.^[23,24] Hence, the neuroticism trait facilitates being more sensitive toward others' feelings; consequently, they become more compassionate and considerate of others' sufferings.

Extraversion was found to be negatively associated with perspective-taking in line with a study conducted on medical students in Spain.^[20] One possible explanation is though extraversion is a people-oriented conversational style,^[25] it is also associated with talkativeness and attention-seeking behaviors; consequently, people having higher extraversion tendencies might lack positive social characteristics.^[26] It can be inferred from these findings that extraversion tendencies may interfere with the listening ability of people and as a result, impede getting along with others, which might lead to halting empathetic behaviors.

Additionally, the results of the current study demonstrated that there was no statistically significant gender difference in all dimensions of empathy, confirming the studies conducted previously.^[22] Further, medical students who showed a preference for people-oriented specialties scored higher on empathetic concern and fantasy dimensions of empathy, as found in past studies.^[20,27]

Limitations and recommendations

There are certain limitations of the current study. One of the limitations was the use of self-report measures to assess personality dimensions and empathy levels that can cause response bias. More studies based on cross-sectional design are needed; therefore, causal inferences cannot be drawn on the basis of these findings. In the future, longitudinal and observational studies can be conducted to further extend and explain the findings of this study. Obtained results cannot be generalized to medical students in other parts of Saudi Arabia; yet, findings can be used as the starting point for further comprehensive studies by targeting larger samples from different parts of the country.

Despite limitations, the findings of the current study add to the existing literature by establishing that certain big-five traits have a predictive association with particular aspects of empathetic behaviors in Saudi Arabia. Yet, equivocal previous findings and paucity of studies on this topic in Saudi Arabia make it a difficult but desirable goal to develop a valid program that can increase students' empathy within the local milieu. Using the findings of this study, clinical skill trainings can be ameliorated by identifying and incorporating personality dimensions during training in medical colleges and while choosing any specialty later. Adjunctive methods of training can be designed

and implemented to polish personality-based strengths to improve communication skills in doctor–patient relationships.

Conclusion

In conclusion, study findings indicated the association between empathy and personality traits among Saudi undergraduate medical students. Additionally, no gender difference was found and students who showed interest in people-oriented specialties demonstrated a high level of different aspects of empathic behaviors. These findings would help to design individualized training programs based on personality traits to promote empathetic behavior among students during medical education in the Saudi cultural context.

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Conflicts of interest

There are no conflicts of interest.

References

- Halpern J. What is clinical empathy? *J Gen Intern Med* 2003;18:670-4.
- Mercer S, Reynolds W. Empathy and quality of care. *Brit J Gen Pract* 2002;52:9-13.
- Drdla S, Loffler-Stastka H. Influence of conversation technique seminars on the doctoral therapeutic attitude in doctor-patient communication. *Wien Klin Wochenschr* 2016;128:555-9.
- Song Y, Shi M. Associations between empathy and big five personality traits among Chinese undergraduate medical students. *PLoS One* 2017;12. doi: 10.1371/journal.pone.0171665.
- Walton HJ. Personality assessment of future doctors. *J R Soc Med* 1987;80:27-30.
- Melchers MC, Li M, Haas BW, Reuter M, Bischoff L, Montag C. Similar personality patterns are associated with empathy in four different countries. *Front Psychol* 2016;7:290.
- Abe K, Niwa M, Fujisaki K, Suzuki Y. Associations between emotional intelligence, empathy and personality in Japanese medical students. *BMC Med Educ* 2018;18:47.
- Cicek E, Yilmaz A, Aslanhan H. Evaluation of empathy and biopsychosocial approaches of medical faculty assistant doctors. *J Edu Health Promot* 2019;8:214.
- Santos MA, Grosseman S, Morelli TC, Giuliano IC, Erdmann TR. Empathy differences by gender and specialty preference in medical students: A study in Brazil. *Int J Med Educ* 2016;7:149-53.
- Tariq N, Rasheed T, Tavakol MA. quantitative study of empathy in Pakistani medical students: A multicentered approach. *J Prim Care Community Health* 2017;8:294-9.
- Yeo S. Differences and changes in the empathy of Korean medical students according to gender and vocational aptitude, before and after clerkship. *Korean J Med Educ* 2019;31:343-55.
- Hojat M, Gonnella JS, Nasca TJ, Mangione S, Vergare M, Magee M. Physician empathy: Definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry* 2002;159:1563-9.
- John OP, Srivastava S. The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In: Pervin LA, John OP, editors. *Handbook of Personality: Theory and Research*. 2nd ed. New York: Guilford Press; 1999.
- Gosling SD, Rentfrow PJ, Swann WB. A very brief measure of the Big-Five personality domains. *J Res Pers* 2003;37:504-28.
- Benet-Martinez V, John OP. Los Cinco Grandes across cultures and ethnic groups: Multi-trait multi-method analysis of the Big Five in Spanish and English. *J Pers Soc Psychol* 1998;75:729-50.
- Davis CM. What is empathy, and can empathy be taught? *Phys Ther* 1990;70:707-11.
- Williamsons JM. *Teaching to Individual Differences in Science and Engineering Librarianship*. United States: Elsevier; 2017.
- Costa P, Alves R, Neto I, Marvao P, Portela M, Costa, MJ. Associations between medical student empathy and personality: A multi-institutional study. *PLoS One* 2014;9:e89254.
- Magalhaes E, Costa P, Costa MJ. Empathy of medical students and personality: Evidence from the Five-Factor model. *Med Teach* 2012;34:807-12.
- Guilera T, Batalla I, Forne C, Soler-Gonzalez J. Empathy and big five personality model in medical students and its relationship to gender and specialty preference: A cross-sectional study. *BMC Med Educ* 2019;19:57.
- De-Aguiar CS, Formiga NS, Cantinilo A. Personality traits and empathic abilities: A predictive study on medical students. *Bol Acad Paul Psicol* 2017;37:129-38.
- Habashi MM, Graziano WG, Hoover AE. Searching for the prosocial personality: A Big Five approach to linking personality and prosocial behavior. *Pers Soc Psychol Bull* 2016;42:1177-92.
- Kearns PO, Tyler JM, Graziano WG. More than fantasy: Prosocial daydreams relate to prosocial dispositions and behaviour. *Int J Psychol* 2020. doi: 10.1002/ijop.12673.
- Moll J, Krueger F, Zahn R, Pardini M, Oliveira-Souza R, Grafman J. Human fronto-mesolimbic networks guide decisions about charitable donation. *PNAS* 2006;103:15623-8.
- Villaume WA, Bodie GD. Discovering the listener within us: The impact of trait-like personality variables and communicator styles on preferences for listening style. *Inter J List* 2007;21:102-23.
- Grant AM. Rethinking the extraverted sales ideal: The ambivert advantage. *Psychol Sci* 2013;24:1024-30.
- Guilera T, Batalla I, Soler-Gonzalez J. Empathy and specialty preference in medical students. Follow-up study and feedback. *Med Educ* 2018;19:153-61.