

Original article

Physicians' Personality Traits as Predictors of Empathy in the Health Context

Dejan Dobrijević^{1,2}, Mina Karaman¹, Tatjana Krstić¹

¹University of Novi Sad, Faculty of Medicine, Novi Sad, Serbia

²Institute for Children and Youth Health Care of Vojvodina, Novi Sad, Serbia

SUMMARY

Introduction/Aim. Empathy is pivotal in healthcare, enhancing patient-provider relationships and healthcare outcomes. This study explores how empathy relates to the Big Five personality traits among Serbian physicians.

Methods. A cross-sectional survey of 304 Serbian physicians (37.5% male, 62.5% female; mean age 37.38 years) was conducted using online questionnaires from May to August 2023. The Jefferson Empathy Scale (JSE) measured empathy levels, and the Big Five Inventory (BFI) assessed personality traits (Openness to Experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism). Statistical analyses, including descriptive statistics and regression using SPSS, examined associations between personality traits and empathy scores.

Results. Significant correlations between empathy and specific personality traits were found, suggesting a relationship between personality traits and empathetic behavior among physicians. Agreeableness ($\beta = 0.298$) and Openness to Experience ($\beta = 0.133$) emerged as significant positive predictors of empathy.

Conclusion. Understanding how personality traits are related to empathy is crucial for enhancing patient care and professional development in healthcare. This study underscores the need to integrate empathy-promoting strategies into medical training to cultivate compassionate healthcare providers.

Keywords: empathy, Big Five personality traits, healthcare providers, medical education

Corresponding author:

Dejan Dobrijević

e-mail: dejan.dobrijevic@mf.uns.ac.rs

INTRODUCTION

Empathy is a fundamental aspect of emotional intelligence, which involves the capacity to recognize, understand and appreciate someone else's emotions, experiences, and perspectives. Therefore, empathy is a foundational aspect of healthy and positive social interactions. It is crucial in social relations for numerous reasons, such as building trust and rapport, strengthening relationships, effective communication, conflict resolution, emotional support, strengthening community and social bonds, enhancing leadership skills, promoting pro-social behavior, etc. Overall, it enables individuals to see beyond their own perspectives, appreciate the experiences of others, and create a more compassionate and understanding world (1, 2).

In a health context, empathy is a cornerstone of patient-centered care, where healthcare providers prioritize understanding the emotions and concerns of their patients. Dealing with health issues can be emotionally taxing. Empathetic healthcare providers can help alleviate anxiety and stress by providing emotional support and understanding. It helps create a more trusting and supportive environment for patients, leading to better healthcare outcomes (3).

Differing levels of empathy can be attributed to several factors, including individual personality (4). Personality encompasses the distinct combination of qualities, behaviors, and thought patterns that make an individual unique. The Big Five model is widely used in personality psychology and has practical applications in personality assessment. This model includes five broad dimensions of personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (5). Openness to experience reflects a person's openness to new experiences, ideas, and intellectual curiosity. Individuals high in openness tend to be imaginative, creative, and open-minded, while those low in openness are more conventional and prefer routine and familiarity. Conscientiousness relates to a person's level of self-discipline, organization, and responsibility. Highly conscientious individuals are dependable, punctual, and goal-oriented, while those low in conscientiousness may be more spontaneous and less focused on long-term planning. Extraversion refers to a person's level of sociability, assertiveness, and preference for social interaction. Extroverts are

outgoing, energetic, and enjoy being around others, whereas introverts are more reserved, introspective, and often prefer solitary activities. Agreeableness reflects a person's tendency to be compassionate, cooperative, and considerate of others' feelings. People high in agreeableness are empathetic and nurturing, while those low in this trait may be more competitive and assertive. Neuroticism, also called emotional stability, measures the extent to which a person experiences negative emotions such as anxiety, stress, and mood swings. Individuals high in neuroticism tend to be more emotionally sensitive and prone to experiencing distress, while those low in neuroticism are more emotionally resilient and stable (6, 7).

A multi-center four-country study revealed substantial evidence, linking specific personality traits patterns to empathy. Specifically, agreeableness and conscientiousness emerged as the most significant predictors of affective and cognitive empathy (8). According to a study conducted with university students, it was found that agreeableness, openness, conscientiousness, and extraversion could serve as potential indicators of empathy (9). In another study involving medical students, researchers identified a significant correlation between empathic concern and agreeableness (10). Despite the Big Five model of personality being a useful framework for explaining individual variations in human experience and behavior, its association with measures of empathy remains not entirely understood (5).

On the other hand, the recent study from Krasnov et al. (11) found that empathy did not integrate with emotional intelligence traits in the personality profiles of medical doctors during the COVID-19 pandemic. It suggests that distancing from personal experiences in interpersonal relationships may be necessary for doctors to regulate their professional responsibilities during such emotionally charged times.

The aim of the study was to investigate the associations between empathy and the Big Five personality traits among Serbian physicians. Specifically, our aim was to investigate if we can predict the level of empathy in physicians based on personality traits.

MATERIAL AND METHODS

This cross-sectional study was conducted via an online questionnaire between May and August 2023. The sample consists of 304 Serbian physicians.

Sample characteristics

The study included a total of 304 participants, with a gender distribution of 114 males (37.5%) and 190 females (62.5%). Age ranged from 25 to 66 years old, with a mean of 37.38 years.

Instruments

Jefferson Empathy Scale (JSE)

The JSE was employed as a validated instrument to assess empathy levels among study participants. It is a self-report questionnaire developed to assess an individual's empathic tendencies. Scoring of the JSE involves calculating a total empathy score based on the participant's responses to the individual items. The responses are scored on a scale from 1 to 7. The total score is used to categorize participants into different levels of empathy.

Big Five Inventory (BFI)

The BFI is a widely adopted psychometric tool used to measure an individual's personality traits across five broad dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. It consists of a series of items, each designed to assess a specific aspect of an individual's personality. Respondents are asked to rate their level of agreement or disagreement with each statement on the Likert scale. On a Likert scale, the first point typically represents the lowest level of agreement or intensity, such as "strongly disagree" or "never," while the last point represents the highest level, like "strongly agree" or "always." The total score is used to categorize participants into different types of personality.

Statistical analysis

Descriptive statistics were computed to summarize participant characteristics such as marital

status, number of children, workplace sectors, and medical specializations. Independent samples t-tests were conducted to examine potential differences in empathy scores across gender, prior communication skills training, recent psychological support seeking, and types of medical specialization. Additionally, regression analysis was performed to investigate the predictive relationship between personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) and empathy scores. SPSS (Statistical Package for the Social Sciences) was utilized for all statistical analyses.

Ethical considerations

The study protocol was approved by the Ethics Committee of the Faculty of Medicine, University of Novi Sad, Serbia. Informed consent was obtained from all participants.

RESULTS

The study included a total of 304 participants, with a gender distribution of 114 males (37.5%) and 190 females (62.5%). Age ranged from 25 to 66 years old, with a mean of 37.38 years. Further sociodemographic details are presented in Table 1.

Based on the sociodemographic data presented in Table 1, the majority of participants are either married or in a committed relationship, have no children, and are employed within tertiary healthcare institutions. Additionally, their employment is primarily within the public sector of the Republic of Serbia. Notably, a significant portion of the sample is either currently enrolled in a specialization program or has already completed one. The distribution of participants across these specializations is further detailed in Table 2.

Among the total participants, only 86 (28.3%) reported receiving any form of communication skills training during their education. When asked about perceived adequacy of time for reliable patient diagnosis and/or treatment, 134 participants (44.1%) responded affirmatively. Furthermore, 47 participants (15.5%) out of the total sample sought psychotherapy or some form of psychological support within the past six months (Table 1).

Table 1. Sociodemographic data

		N	%
Marital status	Divorced	15	4.9 %
	Single	53	17.4 %
	Married	149	49.0 %
	In a relationship	86	28.3 %
	Widowed	1	0.3 %
Number of children	Three or more children	7	2.3 %
	Two children	67	22.0 %
	One child	59	19.4 %
	No children	171	56.3 %
Workplace	Primary healthcare institution	70	23.0 %
	Secondary healthcare institution	60	19.7 %
	Tertiary healthcare institution	174	57.2 %
Employment sector	Public sector	252	82.9 %
	Private sector	26	8.6 %
	Both public and private sectors	26	8.6 %
Work location	Republic of Serbia	289	95.1 %
	Bosnia and Herzegovina	8	2.6 %
	Montenegro	2	0.7 %
	Croatia	1	0.3 %
	Germany	4	1.3 %
Specialization	Unspecialized (general practitioner)	42	13.8 %
	Currently undergoing specialization	149	49.0 %
	Completed specialization	113	37.2 %
Communication skills training	Yes	86	28.3 %
	No	218	71.7 %
Sufficient time for patients?	Yes	134	44.1 %
	No	170	55.9 %
Personal psychotherapy (past 6 months)	Yes	47	15.5 %
	No	257	84.5 %

Prior to conducting the main analyses, descriptive statistics for the study variables were assessed, as presented in Table 3. Based on the skewness and kurtosis values, the normality of the data distributions for these variables can be inferred. This fulfills the prerequisite for conducting further analyses. Cronbach's alpha is reported for each dimension, ranging from 0.647 (Neuroticism) to 0.806 (Extraversion), indicating acceptable to good internal consistency for the scales.

To assess potential differences in empathy scores between genders, participants with prior communication skills training and those without, individuals who sought psychological help in the last

six months and those who did not, and participants in surgical and non-surgical specialties, independent samples t-tests were conducted for each variable (Table 4). An independent samples t-test revealed a significant difference in empathy scores between males ($M = 5.11$, $SD = .79$) and females ($M = 5.33$, $SD = .69$); $t(302) = -2.457$, $p = .015$. Females reported significantly higher empathy scores than males. An independent samples t-test did not reveal a significant difference in empathy scores based on the personal psychotherapy, communication skills and type of specialization (Table 4).

To investigate how personality traits contribute to explaining empathy, a linear regression

Table 2. Specializations

	N	%
<i>Surgical specializations</i>	45	17.3
Anesthesiology, Reanimatology and Intensive Care Medicine	26	10.0
Anesthesiology, Reanimatology and Intensive Care Medicine, Clinical Pharmacology	1	0.4
Pediatric Surgery	4	1.5
Neurosurgery	1	0.4
General Surgery	1	0.4
General Surgery, Abdominal Surgery	1	0.4
Orthopedic Surgery and Traumatology	4	1.5
Orthopedic Surgery and Traumatology, Pediatric Surgery	1	0.4
Plastic, Reconstructive and Aesthetic Surgery	3	1.2
Urology	3	1.2
Vascular Surgery	1	0.4
<i>Non- surgical specializations</i>	215	82.7
Dermatology and Venereology	4	1.5
Child and Adolescent Psychiatry	1	0.4
Child Neurology	1	0.4
Epidemiology	5	1.9
Physical Medicine and Rehabilitation	16	6.2
Gynecology and Obstetrics	5	1.9
Hygiene	4	1.5
Infectious Disease Medicine	2	0.8
Internal Medicine	58	22.3
Medical Oncology	1	0.4
Public Health	1	0.4
Clinical Biochemistry	5	1.9
Clinical Pharmacology	2	0.8
Medical Microbiology	1	0.4
Neurology	5	1.9
Ophthalmology	11	4.2
General Medicine	7	2.7
Otolaryngology (Ear, Nose & Throat)	5	1.9
Pathology	1	0.4
Pediatrics	31	11.9
Pediatrics, Child Neurology	1	0.4
Psychiatry	28	10.8
Radiation Oncology	7	2.7
Radiology	6	2.3
Social Medicine	2	0.8
Sports Medicine	1	0.4
Emergency Medicine	3	1.2

Table 3. Descriptive statistics for study variables

	Min	Max	M	SD	Skewness	Kurtosis	α
Empathy	1.60	6.60	5.25	.73	-.611	.943	.775
Extraversion	1.13	5.00	3.60	.69	-.326	.089	.806
Agreeableness	1.00	5.00	4.04	.60	-.706	1.364	.788
Conscientiousness	1.00	5.00	3.90	.57	-.802	2.445	.790
Neuroticism	1.50	4.50	2.89	.56	-.050	-.076	.647
Openness to Experience	1.40	4.60	3.58	.51	-.373	.531	.665

Table 4. Independent samples *t*-tests for empathy scores

		\bar{x}	SD	t	p
Gender	Male	5.11	.79	-2.457	.015
	Female	5.33	.69		
Personal Psychotherapy (Past 6 Months)	Yes	5.39	.70	-1.459	.146
	No	5.22	.74		
Communication skills training	Yes	5.28	.72	-.441	.660
	No	5.24	.74		
Type of specialization	Surgical	5.23	0.706	.177	.860
	Non-surgical	5.25	0.726		

Table 5. Regression coefficients for predicting empathy

	B	β	p
Extraversion	.068	.064	.304
Agreeableness	.364	.298	.000
Conscientiousness	.041	.032	.625
Neuroticism	-.037	-.028	.621
Openness to Experience	.190	.133	.047

analysis was conducted. Personality traits were entered as predictors, and empathy served as the criterion variable. The results of the analysis were statistically significant ($R = .451$; $F(5,298) = 15.18$; $p < .001$). The model explained 20.3% of the variance in empathy scores. Individual contributions of the predictor variables to the criterion are presented in Table 5. Agreeableness ($\beta = 0.298$) and Openness to Experience ($\beta = 0.133$) emerged as significant positive predictors of empathy.

DISCUSSION

Medical treatment is not only about medical knowledge and technical skills but also about reco-

gnizing and addressing the emotional and psychological aspects of a patient's experience, leading to more compassionate and effective healthcare delivery. The foundation for establishing a therapeutic physician-patient relationship hinges on the physician's capacity to empathize with the patient (4).

The study included a diverse sample of healthcare professionals, predominantly from tertiary healthcare institutions within the public sector in the Republic of Serbia. This distribution reflects the broader healthcare landscape in the region, where a majority of practitioners are engaged in specialized fields within public institutions.

The findings revealed a notable gender difference in empathy scores, with females reporting

significantly higher levels of empathy compared to males. This result aligns with the existing literature suggesting that women tend to exhibit greater empathy in interpersonal interactions. Women generally exhibit greater empathy in interpersonal interactions due to a combination of biological, social, and cultural factors, including differences in brain structure, hormonal influences, and gender-specific socialization processes. This difference may have implications for patient care and provider-patient relationships within healthcare settings, highlighting potential areas for targeted training or intervention to enhance empathetic communication across genders (12).

Contrary to expectations, participation in communication skills training did not significantly affect empathy scores among healthcare professionals in our study. This finding contrasts with previous research indicating that communication training can improve empathy and patient outcomes. The discrepancy could be attributed to variations in training content, duration, or the individualized nature of empathy development (13, 14).

Similarly, the analysis did not find a significant difference in empathy scores between healthcare professionals who had sought personal psychotherapy or psychological support within the past six months and those who had not. This suggests that personal psychological well-being, at least within the timeframe examined, may not directly translate into heightened empathetic abilities in professional contexts among healthcare providers (15, 16).

Our study explored the relationship between empathy and personality traits, revealing that agreeableness and openness to experience were significant predictors of higher empathy scores. These traits emphasize characteristics such as altruism, cooperativeness, and receptiveness to new ideas and experiences. Traits like altruism, cooperativeness, and openness to new experiences foster empathy by promoting prosocial behavior, enabling a better understanding of others' feelings and needs, and facilitating emotional connections through active listening and compassion. The findings support previous research suggesting that personality plays a crucial role in shaping empathetic behaviors (17, 18).

The study's findings are subject to several limitations, including potential sample bias, reliance on self-reported data, and the constraints of a cross-sectional design that limits causal inferences.

The results of this study carry several practical implications for healthcare training and practice. Firstly, the gender difference in empathy underscores the importance of gender-sensitive training approaches that cater to the unique communication styles and empathetic tendencies of both male and female healthcare providers. Secondly, the non-significant effect of communication skills training on empathy suggests a need for reassessment and potential enhancement of existing training programs. Incorporating more experiential and context-specific training modules could better equip healthcare professionals with the skills necessary to navigate complex patient interactions empathetically. Lastly, future research could delve deeper into longitudinal studies to explore how changes in personal and professional circumstances affect empathy over time among healthcare professionals. Additionally, investigating the role of organizational culture and workplace environment in fostering empathetic behaviors could provide valuable insights into enhancing patient-centered care delivery.

CONCLUSION

The study identified significant associations between empathy levels and specific personality traits among Serbian physicians. These insights underscore the importance of integrating personality-aware interventions in medical education to foster empathy among healthcare providers. Understanding these dynamics can lead to enhanced patient-centered care and better healthcare outcomes overall. Further research could explore additional factors affecting empathy in healthcare settings, contributing to more effective training programs and supportive environments for both providers and patients.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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Osobine ličnosti lekara kao prediktori empatije u zdravstvu

Dejan Dobrijević^{1,2}, Mina Karaman¹, Tatjana Krstić¹

¹Univerzitet u Novom Sadu, Medicinski fakultet, Novi Sad, Srbija

²Institut za zdravstvenu zaštitu dece i omladine Vojvodine, Novi Sad, Srbija

SAŽETAK

Uvod/Cilj. Empatija u zdravstvu veoma je važna za poboljšavanje odnosa između bolesnika i pružalaca zdravstvenih usluga, kao i za krajnje rezultate zdravstvene zaštite. U ovoj studiji ispitivalo se kako je kod srpskih lekara empatija povezana sa velikih pet faktora ličnosti.

Metode. Sprovedeno je transversalno istraživanje koje je obuhvatilo 304 srpskih lekara (37,5% muškaraca, 62,5% žena; prosečna starost 37,38 godina); oni su popunjavali onlajn upitnike od maja do avgusta 2023. godine. Jefferson skala empatije (engl. *Jefferson Scale of Empathy* – JSE) merila je nivo empatije, dok je Skala velikih pet faktora ličnosti (engl. *Big Five Inventory* – BFI) služila za ocenjivanje osobina ličnosti (otvorenost ka iskustvu, savesnost, ekstraverzija, saradljivost, neuroticizam). Statističke analize, uključujući deskriptivnu statistiku i regresionu analizu pomoću SPSS softvera, istražile su veze između osobina ličnosti i empatije.

Rezultati. Utvrđene su značajne korelacije između empatije i specifičnih osobina ličnosti, što ukazuje na povezanost između osobina ličnosti i empatičnog ponašanja lekara. Saradljivost ($\beta = 0,298$) i otvorenost ka iskustvu ($\beta = 0,133$) pokazale su se kao značajni pozitivni prediktori empatije.

Zaključak. Razumevanje povezanosti osobina ličnosti sa empatijom ključno je za unapređenje nege bolesnika i profesionalnog razvoja u zdravstvu. U ovoj studiji istaknuta je potreba za integracijom strategija koje podstiču empatiju u medicinsko obrazovanje kako bi zdravstveni radnici stekli više znanja o empatičnim procesima.

Ključne reči: empatija, velikih pet faktora ličnosti, pružaoci zdravstvenih usluga, medicinsko obrazovanje