

EMPATHY AMONG PHYSICIANS, MEDICAL STUDENTS AND CANDIDATES

Agnieszka Bratek¹, Weronika Bulska², Magdalena Bonk², Mariusz Seweryn¹ & Krzysztof Krysta¹

¹Department of Psychiatry and Psychotherapy, Silesian Medical University, Katowice, Poland

²Students' Scientific Society, Silesian Medical University, Katowice, Poland

SUMMARY

Background: Empathy is one of the crucial personality traits for all medical professionals, including physicians. The importance of empathy in doctor-patient relationship cannot be overestimated, as it is beneficial for both sides. Regrettably, there is evidence for the decline in this trait over the course of medical studies.

Subjects and methods: The participants were 509 voluntary respondents: medical school candidates (16.1%), medical students (65%), medical trainees (9.8%), residents (6.3%) and specialists (2.8%). The Interpersonal Reactivity Index (IRI) was administered to them, which is a self-report tool measuring empathy.

Results: Gender difference in the IRI score was especially prominent – the mean score for female respondents was 59.83 points, while in men it was 51.16 point ($p < 0.001$). The level of empathy did not differ significantly in the sub-groups divided with regards to the stage of their medical career. However, the total IRI score in women was the highest in the group of doctors, while in post-graduated males it was the lowest. Age of the respondents correlated positively with the perspective taking sub-scale and negatively with the fantasy and personal distress sub-scales.

Conclusions: Empathy is a trait that is rarely being enhanced in medical students during their education. While empathy is crucial for the development of a satisfactory doctor-patient relationship, there is an urgent need to adopt educational programs aimed at reinforcing empathy in medical students.

Key words: empathy - medical students - Interpersonal Reactivity Index

* * * * *

INTRODUCTION

Empathy is commonly referred to as an ability to "put oneself in someone else's shoes". The problem of empathy in medical professionals was addressed for the first time in 1963 by William Osler, who claimed that doctors should objectively study patients' inner life, rather than share the suffering with them (Osler 1963). The concept has been further expanded by the members of The Society of General Internal Medicine, who defined clinical empathy as "the act of correctly acknowledging the emotional state of another without experiencing that state oneself" (Markakis 1999), to emphasize that empathy is an intellectual ability to understand and recognize other people's emotions rather than an emotion itself (Halpern 2003). This stays in line with the definition of cognitive empathy in medical practice, proposed by Hojat and colleagues: "Empathy is a predominantly cognitive (rather than emotional) attribute that involves an understanding (rather than feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to communicate the understanding" (Hojat 2001). Interestingly, some authors describe empathy as a complex construct which can be understood on four levels: emotive ("The ability to subjectively experience and share in another's psychological state or intrinsic feelings"), moral ("An internal altruistic force that motivates the practice of empathy"), cognitive ("The helper's intellectual ability to identify and understand another person's feelings and perspec-

tive from an objective stance") and behavioral ("Communicative response to convey understanding of another's perspective") (Morse 1992, Mercer 2002). Importantly, it should be emphasized that empathy should not be confused with sympathy, which is defined purely on an emotional level, as experiencing sorrow for other people's distress. Some authors point out that sharing suffering with patients can lead physicians to emotional fatigue and threatens objectivity (Halpern 2003), while empathy is being regarded as a key factor for a satisfying doctor-patient relationship. According to a recent systematic review, physician empathy is related to higher levels of patient satisfaction, enhanced adherence to treatment and even improved clinical outcomes (Kelm 2014). Empathy-related benefits for the physician include increased sense of well-being and reduced symptoms of burnout (Halpern 2003, DiLalla 2004, Larson 2005, Shanafelt 2005, West 2006, Thomas 2007). Regarding the important role of empathy in a medical career, it seems alarming that according to several studies there is a decline in students' empathy over the course of medical school (Hojat 2004, Chen 2007, Kataoka 2009), which was referred to as the phenomenon of "hardening of the heart" (Newton 2008). Empathy has also been acknowledged as gender dependent - female medical students are on average more empathetic than their male counterparts (Kataoka 2009, Suh 2012). According to our knowledge, there is a substantial lack of studies investigating empathy in medical students and professionals in Poland, therefore we decided to explore this important subject.

SUBJECTS AND METHODS

Sociodemographic characteristic of the participants

The participants were 509 voluntary respondents, 82 of which (16.1%) were medical school candidates, 331 (65%) were medical students, 50 (9.8%) were medical trainees, 32 (6.3%) were residents and 14 (2.8%) were specialists. In the group of students, 52 of them (15.7%) were during the first year of studies, 57 (17.2%) during the second, 75 (22.7%) during the third, 59 (17.8%) during the fourth, 36 (10.9%) during the fifth and 52 (15.7%) during the sixth year of medical studies. Females were predominant and constituted 77.4% of the study group (n=394). With regards to marital status, 246 (48.3%) of the respondents were single, 217 (42.6%) were in a relationship, 45 (8.8%) were married and one person (0.2%) was divorced. The vast majority of the respondents (n=493; 96.9%) was childless, 13 respondents (2.5%) had one child, 10 (2%) had two children and 3 (0.6%) had more than two children. The mean age of all the respondents was 23 ± 5 years, the mean age of females was 22.9 ± 4.7 years and the mean age of males was 23.3 ± 5.8 years.

Instruments and procedures

All the respondents were asked to fill a brief socio-demographic questionnaire and the Interpersonal Reactivity Index (IRI). IRI is a self-report tool developed by Davis (1980) which consists of 28 items answered on a 5-point Likert scale. The items are divided into four subscales: perspective taking („the tendency to spontaneously adopt the psychological point of view of others”), personal distress („measures ‘self-oriented’ feelings of personal anxiety and unease intense interpersonal settings”), empathic concern („assesses ‘other-oriented’

feelings of sympathy and concern for unfortunate others”) and fantasy („taps respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays”) (Davis 1983). We chose the IRI as it is characterized by high internal consistency and retest reliability.

Statistical analysis

Statistical analysis was conducted with Statistica v. 12 software. Continuous variables were compared using the Mann–Whitney U test. Categorical variables were compared by Chi square test. Correlations were evaluated using Spearman's rank correlation coefficient. A p value of <0.05 was considered significant.

RESULTS

Two main hypotheses of our study were that females are more empathetic than males and that empathy declines over the course of medical studies.

The first hypothesis has been confirmed, as the overall IRI score of female participants (59.83 points) was significantly higher than of their male counterparts (51.16 points) (Figure 1). The difference remained statistically significant ($p < 0.05$) when divided into the sub-scales of fantasy, perspective taking and empathic concern, however it was not significant for personal distress sub-scale ($p = 0.058$).

It was also observed that the level of empathy is fluctuating over the course of the medical career, however it does not significantly increase or decline (Figure 2). Addressing known gender differences, we performed separate analyses for males and females and found that however the changes in the IRI score remain insignificant, it gradually increases in female students, while it decreases in their male counterparts (Figure 3).

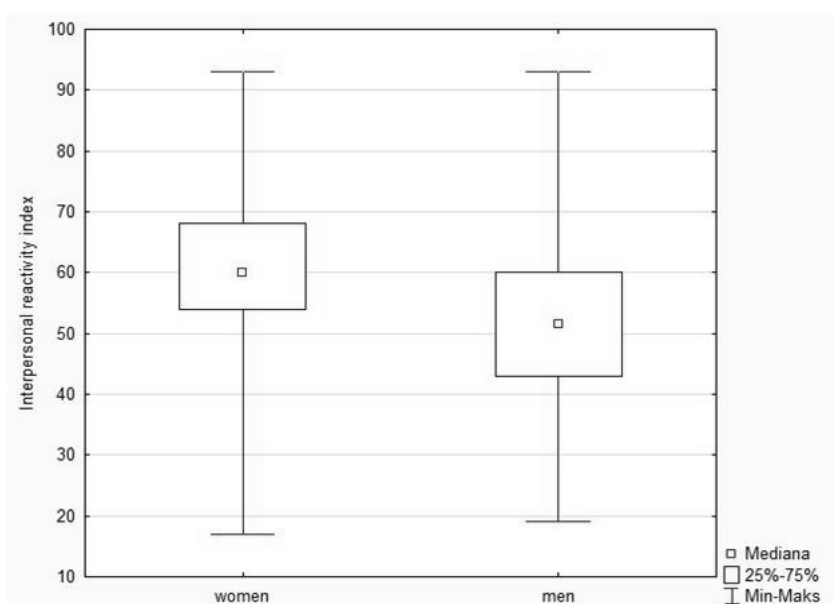


Figure 1. Correlation between the IRI score and gender. $P = 0.0000001$

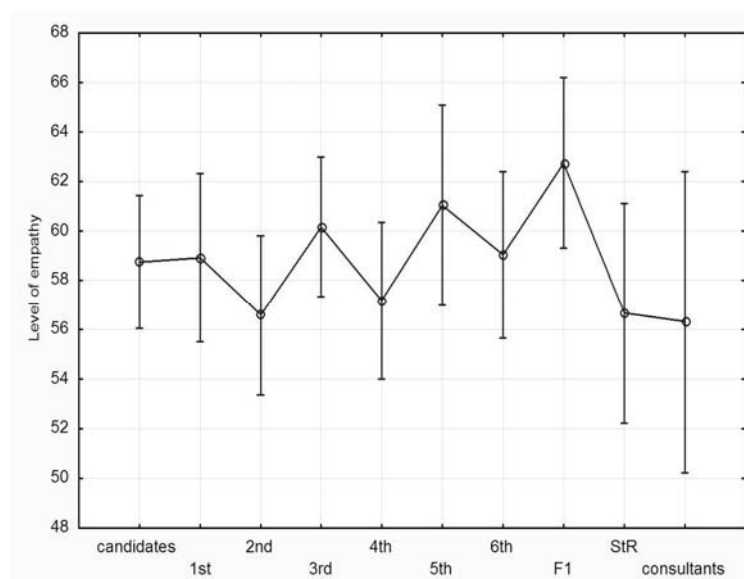


Figure 2. Changes in the IRI score over the course of medical studies and professional career

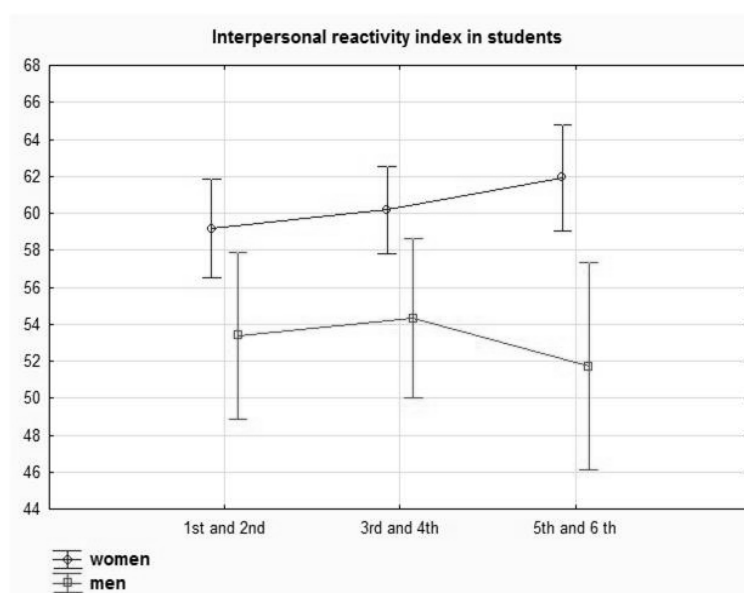


Figure 3. Changes in empathy level in medical students with regards to gender

We also assessed the changes in the IRI score when divided into the four subscales. No significant correlation was found in male students. However, in female students there were significant changes in perspective taking sub-scale – this ability gradually increased over the course of medical studies.

We also conducted a detailed analysis of empathy in the group of doctors, divided into the subgroups of medical trainees, residents, and registered specialists. The overall IRI score remained at the same level, but the results for fantasy subscale differed significantly between the subgroups. The level of fantasy decreased over the course of medical career, which is also confirmed by a negative correlation between the age and the score of fantasy subscale, which means that the ability to imagine a hypothetical situation decreases with age. A negative correlation was also observed between age of physicians and the score of personal

distress subscale, which means that older doctors are less susceptible to being emotionally engaged in patients' suffering.

The secondary objective of our study was to establish whether there is a relationship between the IRI score and two sociodemographic factors – relationship status and having children. We found no correlation between those variables.

DISCUSSION

The vast majority of studies conducted within the last five years consistently report that female medical students and junior doctors are substantially more empathetic than their male counterparts (Magalhães 2011, Quince 2011, Tavakol 2011, Chen 2012, Bangash 2013, Hegazi 2013, Imran 2013, Mandel 2013, Wen 2013, Khademalhosseini 2014, Park 2014, Paro 2014, Shashikumar

2014). That observation was also confirmed in our study. We identified only one study in which the gender difference was found to be insignificant (Díaz Narváez 2014). There are several explanations for gender differences in the level of empathy. Some authors suggest, that observed differences might be largely due to cultural expectations about gender roles (Christov-Moore 2014). However, studies in non-human mammals (i.a. rats, mice and chimpanzees) confirm sex differences in empathy (Langford 2006, Ben-Ami Bartal 2011, Eppley 2013). On the neurobiological level, fMRI studies reveal gender differences in the inferior frontal cortex, which suggest the differences in male and female mirror neuron system (Schulte-Rüther 2008).

Regarding the changes in empathy over the course of medical career, there are discrepancies between the studies. Most of the authors report that it gradually declines (Chen 2012, Mandel 2013, Wen 2013, Díaz Narváez 2014, Khademalhosseini 2014, Park 2014, Shashikumar 2014, Youssef 2014). However, some studies report that the decline pertains only to the affective, and not the cognitive component of empathy (Quince 2014, Youssef 2014), which is consistent with our study: We observed that personal distress (an affective component) decreases while perspective taking (a cognitive component) increases with the progress of medical course, however the changes were not statistically significant. In our study it was found that the level of empathy is fluctuating over the course of the medical career, however it does not clearly decline, which is consistent with some of the previous studies (Quince 2011, Tavakol 2011, Bangash 2013, Imran 2013). It is worth noticing, that empathy is rarely being developed in medical schools, however it was found to be learnable (Georgi 2013). Empathy development training was found to be effective - Hegazi and Wilson (2013) reported that medical students who had completed personal and professional development courses had higher empathy scores than other students. Therefore, we believe that more emphasis should be put on enhancing this important ability in medical education programs.

CONCLUSIONS

Empathy, as measured with the IRI, slightly increases in women and decreases in men over the course of the medical career. However, empathy consists of several constructs. Various aspects of empathy evolve in the opposite directions: perspective taking increases, while fantasy and personal distress decline over time, which means that doctors feel less discomfort and annoyance to patients' suffering than medical students, which is positive as it prevents emotional exhaustion and burn-out. Increased perspective taking enables better understanding of patient's complains and establishing a satisfying patient-doctor relationship. Nevertheless, as empathy is an important trait for medical professionals, there is an urgent need to adopt educational programs aimed at enhancing empathy in medical students.

Acknowledgements: None.

Conflict of interest: None to declare.

References

1. Bangash AS, Ali NF, Shehzad AH, Haqqi S: Maintenance of empathy levels among first and final year medical students: a cross sectional study. *F1000Research* 2013; 2:157.
2. Ben-Ami Bartal I, Decety J, Mason P: Empathy and pro-social behavior in rats. *Science* 2011; 334:1427-30.
3. Chen D, Lew R, Herselman W, Orlander J: A cross-sectional measurement of medical student empathy. *Journal of General Internal Medicine* 2007; 22:1434-8.
4. Chen DC, Kirshenbaum DS, Yan J, Kirshenbaum E, Aseltine RH: Characterizing changes in student empathy throughout medical school. *Med Teach* 2012; 34:305-11.
5. Christov-Moore L, Simpson EA, Coudé G, Grigaityte K, Iacoboni M, Ferrari PF: Empathy: gender effects in brain and behavior. *Neurosci Biobehav Rev* 2014; 46: 604-27.
6. Davis MH: A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology* 1980; 10:85.
7. Davis MH: Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology* 1983; 44:113-26.
8. Díaz Narváez VP, Alonso Palacio LM, Caro SE, Silva MG, Castillo JA, Bilbao JL et al.: Empathic orientation among medical students from three universities in Barranquilla, Colombia and one university in the Dominican Republic. *Arch Argent Pediatr* 2014; 112:41-9.
9. DiLalla LF, Hull SK, Dorsey JK: Effect of gender, age, and relevant course work on attitudes toward empathy, patient spirituality, and physician wellness. *Teach Learn Med* 2004; 16:165-70.
10. Eppley TM, Suchak M, Crick J, de Waal FB: Perseverance and food sharing among closely affiliated female chimpanzees. *Primates* 2013; 54:319-24.
11. Georgi E, Petermann F, Schipper M: Are empathic abilities learnable? Implications for social neuroscientific research from psychometric assessments. *Soc Neurosci* 2014; 9:74-81.
12. Halpern J: What is clinical empathy? *J Gen Intern Med* 2003; 18:670-4.
13. Hegazi I & Wilson I: Maintaining empathy in medical school: it is possible. *Med Teach* 2013; 35:1002-8.
14. Hojat M, Mangione S, Gonnella JS, Nasca T, Veloski JJ, Kane G: Empathy in medical education and patient care. *Acad Med* 2001; 76:669.
15. Hojat M, Mangione S, Nasca TJ, Rattner S, Erdmann JB, Gonnella JS, Magee M: An empirical study of decline in empathy in medical school. *Med Educ* 2004; 38:934-41.
16. Imran N, Awais Aftab M, Haider II, Farhat A: Educating tomorrow's doctors: A cross sectional survey of emotional intelligence and empathy in medical students of Lahore. *Pak J Med Sci* 2013; 29:710-4.
17. Kataoka HU, Koide N, Ochi K, Hojat M, Gonnella JS: Measurement of empathy among Japanese medical students: psychometrics and score differences by gender and level of medical education. *Acad Med* 2009; 84:1192-7.

18. Kelm Z, Womer J, Walter JK, Feudtner C: Interventions to cultivate physicians empathy: a systematic review. *BMC Med Educ* 2014; 14:219.
19. Khademalhosseini M, Khademalhosseini Z, Mahmoodian F: Comparison of empathy score among medical students in both basic and clinical levels. *Journal of Advances in Medical Education & Professionalism* 2014; 2:88-91.
20. Langford DJ, Crager SE, Shehzad Z, Smith SB, Sotocinal SG, Levenstadt JS, Chanda ML, Levitin DJ, Mogil JS: Social modulation of pain as evidence for empathy in mice. *Science* 2006; 312:1967-70.
21. Magalhães E, Salgueira AP, Costa P, Costa MJ: Empathy in senior year and first year medical students: a cross-sectional study. *BMC Med Educ* 2011; 11:52.
22. Mandel ED & Schweinle WE: A study of empathy decline in physician assistant students at completion of first didactic year. *J Physician Assist Educ* 2012; 23:16-24.
23. Markakis K, Frankel R, Beckman H, Suchman A: Teaching empathy: it can be done. Working paper presented at the Annual Meeting of the Society of General Internal Medicine, San Francisco, Calif, April 29-May 1, 1999.
24. Mercer SW & Reynolds WJ: Empathy and quality of care. *Br J Gen Pract* 2002; 52(Suppl 1):9-12.
25. Morse J, Anderson G, Bottorff JL, Yonge O, O'Brien B, Solberg SM, McIlveen KH: Exploring empathy: a conceptual fit for nursing practice? *Image J Nurs Sch* 1992; 24:273-80.
26. Newton BW, Barber L, Clardy J, Cleveland E, O'Sullivan P: Is there hardening of the heart during medical school? *Academic Medicine* 2008; 83:244-9.
27. Osler W: *Aequanimitas*. Norton, New York, 1963.
28. Park KH, Roh H, Suh DH, Hojat M: Empathy in Korean medical students: Findings from a nationwide survey. *Med Teach* 2014; 3:1-6.
29. Paro HB, Silveira PS, Perotta B, Gannam S, Enns SC, Giaksa RR, Bonito RF, Martins MA, Tempski PZ: Empathy among medical students: is there a relation with quality of life and burnout? *PLoS One* 2014; 9:e94133.
30. Quince TA, Parker RA, Wood DF, Benson JA: Stability of empathy among undergraduate medical students: a longitudinal study at one UK medical school. *BMC Med Educ* 2011; 11:90.
31. Shanafelt TD, West C, Zhao X, Novotny P, Kolars J, Habermann T, Sloan J: Relationship between increased personal well-being and enhanced empathy among internal medicine residents. *J Gen Intern Med* 2005; 20:559-64.
32. Shashikumar R, Chaudhary R, Ryali VS, Bhat PS, Srivastava K, Prakash J, Basannar D: Cross sectional assessment of empathy among undergraduates from a medical college. *Med J Armed Forces India*. 2014; 70:179-85.
33. Schulte-Rüther M, Markowitsch HJ, Shah NJ, Fink GR, Piefke M: Gender differences in brain networks supporting empathy. *NeuroImage* 2008; 42: 393-403.
34. Suh D, Hong J, Lee D, Gonnella J, Hojat M: The Jefferson Scale of Physician Empathy: a preliminary psychometric study and group comparisons in Korean physicians. *Med Teach* 2012; 34:464-8.
35. Tavakol S, Dennick R, Tavakol M: Empathy in UK medical students: differences by gender, medical year and specialty interest. *Educ Prim Care* 2011; 22:297-303.
36. Thomas MR, Dyrbye LN, Huntington JL, Lawson KL, Novotny PJ, Sloan JA, Shanafelt TD: How do distress and well-being relate to medical student empathy? A multicenter study. *J Gen Intern Med* 2007; 22:177-83.
37. Wen D, Ma X, Li H, Liu Z, Xian B, Liu Y: Empathy in Chinese medical students: psychometric characteristics and differences by gender and year of medical education. *BMC Med Educ* 2013; 13:130.
38. West CP, Huschka MM, Novotny PJ, Sloan JA, Kolars JC, Habermann TM, Shanafelt TD: Association of perceived medical errors with resident distress and empathy. *JAMA* 2006; 296:1071-8.
39. Youssef FF, Nunes P, Sa B, Williams S: An exploration of changes in cognitive and emotional empathy among medical students in the Caribbean. *Int J Med Educ* 2014; 5:185-92.

Correspondence:

Agnieszka Bratek, MD

Department of Psychiatry and Psychotherapy

Independent Public Clinical Hospital No. 7 of Silesian Medical University

Ziółowa 45-47, Katowice, Poland

E-mail: agn.bratek@gmail.com