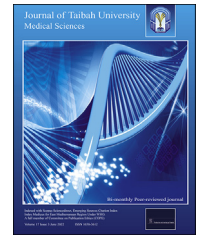




Taibah University
Journal of Taibah University Medical Sciences

www.sciencedirect.com



Original Article

In someone else's shoes, are all wearers the same? Empathy in multi-ethnic Asian medical students

Siaw-Cheok Liew, MBChB^{a,*} and Darlina H. Fadil Azim, MHSc^b

^a Department of Clinical Competence, Perdana University-Royal College of Surgeons in Ireland, Malaysia

^b Department of Psychology and Behavioural Science, Perdana University-Royal College of Surgeons in Ireland, Malaysia

Received 6 July 2021; revised 28 October 2021; accepted 10 November 2021; Available online 28 December 2021



المخلص

أهداف البحث: هناك اهتمام كبير للتأكد من النمط الفعلي لاكتساب مهارات التعاطف ولكن هذا الجانب لا يزال غير مستكشف إلى حد كبير في طلاب الطب الآسيويين. استكشفت هذه الدراسة سمة التعاطف لدى طلاب الطب الآسيويين من مستويات مختلفة من الأقدمية وبحثت في العلاقة بين سمة التعاطف لدى الطلاب وخلفيتهم الاجتماعية-الديموغرافية والاجتماعية-الاقتصادية.

طرق البحث: لاستكشاف سمة التعاطف، أكمل طلاب الطب من السنة الأولى إلى السنة الخامسة استبانات الطلاب الاجتماعية-الديموغرافية/الاقتصادية واستبانات منسب التفاعل بين الأشخاص المصدق عليه.

النتائج: سجل المشاركون أعلى درجات في الانشغالات التعاطفية وأدنى مستوى في مقياس الضائقة الشخصية. سجلت مشاركات الإناث درجات أعلى بشكل ملحوظ في المقاييس الفرعية للانشغالات التعاطفية والضائقة الشخصية والتخيلات. سجل المشاركون الذين ذهبوا إلى المدارس الثانوية الحكومية درجات أعلى في المقاييس الفرعية للانشغالات التعاطفية والضائقة الشخصية. المشاركون الذين ذكروا تفضيلهم للتخصص الذي يتطلب المزيد من التواصل مع المرضى سجلوا درجات أعلى في الانشغالات التعاطفية وأخذ المنظور.

الاستنتاجات: قد يكون لسماة التعاطف لدى طلاب الطب الآسيويين تأثيرات ثقافية تحددها الخلفية الجغرافية. يتم مشاهدة ملاحظات متسقة بشأن الميلان إلى سماة التعاطف المعرفي عند الإناث. وجدت هذه الدراسة أيضا أن سماة التعاطف تنبئ بخيارات تدريب تخصصات الدراسات العليا وأن هناك اختلافًا في سماة التعاطف لدى طلاب الطب خلال مراحل الدراسة المختلفة في كلية الطب.

الكلمات المفتاحية: التعاطف؛ منسب التفاعل بين الأشخاص؛ طلاب الطب الآسيويين؛ متعدد الأعراق؛ سمة التعاطف

Abstract

Objectives: Considerable research interest has been observed in ascertaining the actual pattern of empathy skill acquisition, but this aspect remains largely unexplored in Asian medical students. This study explored the empathy trait in Asian medical students from different levels of seniority and investigated the association between students' empathy traits and their socio-demographic and socio-economic backgrounds.

Methods: To explore the empathy trait, the Year 1 to Year 5 medical students completed the students' socio-demographic/economic and validated Interpersonal Reactivity Index (IRI) questionnaires.

Results: The participants scored highest in the empathetic concerns (EC) and lowest in the personal distress (PD) subscale. Female participants scored significantly higher on the EC, PD, and fantasy subscales. Participants who went to government high schools scored higher on the PD and EC subscales. Participants who stated a preference for specialisation that required more communication with patients scored higher on the EC and Perspective Taking subscales.

Conclusions: The empathy traits of Asian medical students may have cultural influences that are determined by their geographical background. Consistent observations regarding the inclination toward cognitive empathy traits in females were observed. This study also found that empathy traits are predictive of choices for postgraduate speciality training and that there is a difference in medical students' empathy traits during the different phases of study in medical school.

* Corresponding address: Department of Clinical Competence, Perdana University- Royal College of Surgeons in Ireland, Suite 9.2, 9th Floor, Wisma Chase Perdana Kuala Lumpur, 50490, Malaysia.
E-mail: ctinalsc@hotmail.com (S.-C. Liew)

Peer review under responsibility of Taibah University.



Production and hosting by Elsevier

Keywords: Asian medical students; Cognitive empathy; Empathy; Empathy trait; Interpersonal reactivity index

© 2021 Taibah University.

Production and hosting by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Hojat et al. defined empathy as ‘*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 this understanding*’. Empathy, which forms the basis of a successful patient–doctor interaction, is crucial for ensuring optimal health outcomes in patient care.¹

Clinical empathy is often classified into two subcategories: affective and cognitive. The cognitive aspect of empathy is a skill that can be learned and nurtured in medical schools. It is often described as the “detached concern” or “the ability to relate and understand the experiences of others without showing an emotional response”.^{2–4} The discussion on empathy remains a popular ongoing, highly debated topic in medical education research. There is considerable interest in research that aims to determine the association between the level of empathy in medical students from different years of study to ascertain the actual pattern of this skill acquisition. Previous research on the changes in the level of empathy in medical students as they progress in seniority during medical school remains inconclusive.^{5–13} The association between empathy and students’ performance in clinical competence assessment, emotional intelligence, and career choices has been determined with better certainty.^{3,14–17} However, similar research questions remain largely unexplored in Asian medical students.

Medical education in the Asian region under study is conducted solely in English. The assessment of communication skills in clinical examinations is conducted purely in English. However, medical students come from a wide variety of ethnic and educational backgrounds. Diverse academic and cultural backgrounds pose a significant challenge to students with non-English-based academic backgrounds and to those whose primary spoken language is not English. These students are also expected to be able to communicate empathy effectively in clinical assessments through English.

Research on the association between empathy level and gender has shown that females score higher on empathy scales than males.^{18,19} Evidence on the association between level of empathy and ethnicity, academic background, students’ future career specialisation, and their first spoken language remains scarce, especially in Asia.²⁰ Similarly, few studies have explored empathy type and socio-demographic factors such as the number of siblings in the family and order of birth. Limited studies could also be found on the correlation between empathy and the socioeconomic background of students.

This study was designed to investigate the empathy type of medical students from an Asian background. This study

aimed to fill in the gaps in the literature on the knowledge regarding the association between empathy and gender, ethnicity, educational background, first spoken language, career aspiration, number of siblings, order of birth in the family, and socioeconomic background of medical students residing in this region in Asia.

Materials and Methods

Participants and setting

This cross-sectional study was conducted between September 2017 and October 2018. The participants in this study were students enrolled in a 5-year undergraduate medical programme. Participants were recruited via the availability sampling technique. All medical students (Years 1–5) were invited to participate in this research via face-to-face recruitment.

All medical students from Years 1–5 were invited to participate in this study. Incomplete questionnaires were excluded from this study.

Study instruments

The participants who consented to participate in the study were administered two questionnaires. Each questionnaire aimed to capture the (i) socio-demographic/economic background and (ii) the empathy trait of students.

(i) Independent variables

A purpose-built questionnaire on socio-demographic and socio-economic backgrounds was designed for this study. The questionnaire consisted of questions on gender, ethnicity, primary and high school education background, family background, seniority level in medical school, first spoken language (mother tongue), number of siblings, order of birth in the family, socioeconomic status, and future career aspirations.

(ii) Dependent variables

We used the validated Interpersonal Reactivity Index (IRI) questionnaire to investigate students’ empathy traits.²¹ The internal reliability of this instrument has a standardised alpha coefficient ranging from 0.70 to 0.78 in all of its four subscales. This 28-item questionnaire has four subscales that measure four different aspects of empathy. Empathetic concern (EC) measures emotional empathy; perspective taking (PT) measures cognitive empathy, that is, the ability to understand another person’s perspective; personal distress (PD) is the internalised self-focused response to others’ situation, and Fantasy Subscale (FS) measures the empathy displayed for fictional characters. This instrument was designed to measure multiple aspects of empathy, and each subscale was analysed separately. It is a continuous measurement rather than a measurement of the categorical (“low empathy” or “high empathy”) level of empathy. The validated IRI questionnaire was provided in English for the students to complete.

Sampling method

The study information was provided to each student cohort. All students from each cohort were invited to participate in a briefing session. Students were given thorough information regarding the study and options to participate in the research. The ability to withdraw at any point during the study was also discussed. The hard copies of the questionnaires were distributed to the participants who provided their consent. Participants were allotted 30–45 min to complete the questionnaires.

Statistical analysis

The data were tabulated and analysed using the Statistical Package for Social Sciences (SPSS) version 24.0 for Windows (IBM Corp, NY, USA). Descriptive analysis was conducted to examine demographic data, scale means \pm standard deviations (SD). Independent samples t-test and analysis of variance (ANOVA) were conducted to analyse the relationships between demographic variables and the four IRI scales. The post hoc analysis was then performed using the Tukey-Kramer test. The criterion for statistical significance was set at $p < 0.05$.

Results

Sample characteristics

Table 1 shows the sociodemographic backgrounds of the participants in this study. A total of 243 students participated in this study (95% response rate). The majority of the participants were female (63.4%), local students (97.5%), Indian ethnicity (45.3%), were in their final year of study (24.3%), went to a government school for their secondary education (90.9%), used English as their primary spoken language (46.1%), had a family household income of USD 1201–2400 per month (27.6%), had three siblings (29.6%), and were firstborn in the family (41.2%). Among career aspirations, “surgery” was chosen by the highest number (18.9%) of participants.

Empathy IRI scales

The participants reported the highest mean scores on the Empathic Concern (EC) scale (21.1 ± 4.32), followed by the Perspective Taking (PT) scale (19.6 ± 3.97), Fantasy Subscale (FS) (17.1 ± 5.98), and Personal Distress (PD) scale (14.1 ± 4.89). The PD scale was positively correlated with FS ($r = 0.18, p < 0.05$) and EC ($r = 0.184, p < 0.01$) scales. The FS scale had significant positive correlation with the PT ($r = 0.18, p < 0.01$) and EC ($r = 0.24, p < 0.01$) scales. The PT scale had a significant positive correlation with the EC scale ($r = 0.43, p < 0.01$).

Associations between empathy scales and demographic variables

To investigate the associations between IRI scales and demographic variables, t-tests and analysis of variance (ANOVA) were performed.

Table 1: Demographic data (N = 243).

Variable	Frequency, n (%)
Gender	
Female	154 (63.4)
Male	89 (36.6)
Ethnicity	
Chinese	54 (22.2)
Indian	110 (45.3)
Malay	61 (25.1)
Others	14 (5.8)
Year of study	
Year 1	50 (20.6)
Year 2	39 (16.0)
Year 3	41 (16.9)
Year 4	54 (22.2)
Year 5	59 (24.3)
Type of high school	
Government school	221 (90.9)
Private school	18 (7.4)
International school	1 (0.4)
Others	2 (0.8)
Primary language	
English	112 (46.1)
Malay	60 (24.7)
Chinese	34 (14.0)
Tamil	35 (14.4)
Others	1 (0.4)
Household income (USD)	
<720	37 (15.2)
721-1200	53 (21.8)
1201-2400	67 (27.6)
2401-4800	50 (20.6)
>4801	28 (11.5)
Number of siblings	
0	11 (4.5)
1	28 (11.5)
2	62 (25.5)
3	72 (29.6)
4	43 (17.7)
5	20 (8.2)
6	4 (1.6)
8	2 (0.8)
Child no.	
1	100 (41.2)
2	79 (32.5)
3	39 (16.0)
4	17 (7.0)
5	5 (2.1)
8	1 (0.4)
Field to specialize in	
Anaesthesiologist	7 (2.9)
Cardiologist	25 (10.3)
Dermatologist	10 (4.1)
Endocrinologist	3 (1.2)
Family physician	10 (4.1)
Neurologist	9 (3.7)
Obs and Gynae	27 (11.1)
Pathologist	5 (2.1)
Paediatrician	30 (12.3)
Psychiatrist	12 (4.9)
Radiologist	4 (1.6)
Surgeon	46 (18.9)
Others	51 (21.0)

Gender and empathy

An independent sample t-test indicated that PD mean scores were significantly higher for female participants (15.3 ± 4.29) than for male participants (11.9 ± 5.14), and with medium effect size, $t(241) = 5.52$, $p < 0.001$, $d = 0.72$. According to Cohen (2013), $d = 0.2$ is considered small, $d = 0.5$ represents medium effect and $d = 0.8$ is a large effect.²²

The FS mean scores were also significantly higher for female participants (17.73 ± 6.11) than for males (16.0 ± 5.62), with a low effect size, $t(241) = 2.19$, $p = 0.029$, $d = 0.29$. As for EC scores as well, female participants' mean scores (21.5 ± 4.23) were significantly higher than those of male participants (20.3 ± 4.39), with low effect size, $t(241) = 2.18$, $p = 0.030$, $d = 0.29$. PT scores between female and male participants were not significantly different ($p = 0.640$).

Ethnicity and empathy

Analysis of variance (ANOVA) showed a main effect of race on PD empathy scores, $F(3, 235) = 7.223$, $p < 0.001$, $\eta^2 = 0.084$. Post hoc analyses using the Tukey–Kramer test indicated that PD mean scores were lower for races other than Indian ($p = 0.006$), Chinese ($p = 0.001$), and Malays ($p < 0.001$). PD scores did not differ significantly between Indians and Chinese ($p = 0.598$), between Indians and Malays ($p = 0.077$), and between Chinese and Malays ($p = 0.775$).

Year of study and empathy

Analysis of variance (ANOVA) showed a main effect of year of study on PD empathy scores, $F(4, 238) = 2.407$, $p = 0.050$, $\eta^2 = 0.039$. Post hoc analyses using the Tukey–Kramer test indicated that PD mean scores were significantly higher for students in Year 3 than for students in Year 1 ($p = 0.031$). There were no other significant differences between students in all other years on the PD scale. There was also no significant effect of year of study on the other scales (FS [$F(4,238) = 0.088$, $p = 0.986$], PT [$F(4,238) = 1.396$, $p = 0.236$], and EC [$F(4,238) = 0.736$, $p = 0.568$]).

Type of high school and empathy

An independent sample t-test indicated that the mean PD scores were significantly higher for participants who went to government high schools (14.3 ± 4.72) than for those who went to other types of high schools (11.73 ± 6.01), and with medium effect size $t(241) = 2.379$, $p = 0.018$, $g = 0.53$. Hedges' g is calculated for effect size since the sample size is different for both groups.⁴⁹

The EC mean scores were also significantly higher for students of government high schools (21.3 ± 4.20) than for those who went to other high schools (18.8 ± 4.92), with medium effect size, $t(241) = 2.632$, $p = 0.009$, $g = 0.59$. There were no significant associations between the two groups of students on the FS and PT scales.

Primary language and empathy

Analysis of variance (ANOVA) showed a main effect of primary language on the PD empathy scores, $F(3, 237) = 6.884$, $p < 0.001$, $\eta^2 = 0.080$, and also on the EC scores, $F(3,237) = 60.267$, $p = 0.021$, $\eta^2 = 0.040$.

For the PD scale, post hoc analyses using the Tukey–Kramer test indicated that PD mean scores were

significantly higher for students whose primary language was English than those whose primary language was Malay ($p < 0.001$). As for EC, those whose primary language was Malay had higher mean scores than students whose primary language was Chinese ($p = 0.011$). There were no other significant effects of other primary languages on other empathy scales.

Household income, number of siblings, order of birth and empathy

Analysis of variance (ANOVA) did not find any significant relationship between household income, number of siblings, and birth order with empathy scales.

Choice of career option/specialisation and empathy

The specialities were divided into those who would generally require more communication with patients than those who require less communication with patients.²³ An independent sample t-test found that the PT and EC scales were significantly associated with the field of specialisation. PT mean scores were significantly higher for participants who preferred fields with more patient communication (19.9 ± 3.77) than for those with less patient communication (18.6 ± 4.30), with a small effect size, $t(237) = 2.227$, $p = 0.027$, $g = 0.34$. EC mean scores were also higher for participants who preferred fields with more patient communication (21.4 ± 3.90) than for those with less patient communication (20.0 ± 5.35), with small effect size, $t(237) = 2.092$, $p = 0.038$, $g = 0.34$.

Discussion

This study explored medical students' empathy traits and compared them with their socio-demographic and socio-economic backgrounds. Our findings revealed that students in this study scored highest in the IRI-EC and lowest in the IRI-PD level. The IRI-EC level was positively correlated with IRI-PT, FS, and PD levels. The results showed that the IRI-EC, PD, and FS were associated with women. The IRI-EC and PT were associated with medical students' choice of future career specialisation. The IRI-PD was associated with the medical students' year of study or seniority level in medical school.

It has been hypothesised that two forms of empathetic behaviour exist: affective and cognitive. In affective empathy, the response is usually emotional to the experiences of others. Cognitive empathy includes the ability to reflect, understand, and adopt others' roles, predicaments, thoughts, and feelings. Affective empathy is termed sympathy and cognitive empathy is termed empathy. In the literature, research utilising the IRI scales and other empathy scales have shown varying results regarding the correlation between levels of empathy in medical students with gender, career aspirations (technology-driven vs. people-orientated speciality), and year of study. While some studies found a correlation between empathy scores and these parameters, many others documented non-significant correlations.^{24–29} Our study found that several sociodemographic variables were associated with both IRI-EC and IRI-PD empathy traits. To put the findings into perspective, an understanding of these associations between empathy and sociodemographic background can help inform more effective training

to cultivate cognitive empathy (IRI-EC) in medical students. In our study, for example, more sensitivity can be paid to students in Year 3 of their study, where the IRI-PD empathy trait was seen in greater abundance when compared to those in Year 1 of the study. The transition into the clinical phase in Year 3 exposes medical students to real patients in the hospital for the very first time, whereas previously, clinical training was performed in a safe simulated environment on campus. In Year 3, students may have been exposed to real-life situations or scenarios, in which these circumstances would have commanded more emotional attentiveness from the medical students; that is, their ability to cope with the situations and express empathy. Among others, Davis's theoretical framework which proposed the importance of allowing a person to express personal distress as a part of the processes that helps generate quality delivery of empathetic response could serve as a model to provide an important reference in the designing of training programs for these medical students.³⁰

Earlier studies in this field have documented that the IRI instrument has been successfully applied in previous studies on physicians' populations to measure empathy levels. The IRI subscales were previously studied, and some subscales were found to be correlated with androgyny. Previous studies have documented that physicians who scored highly on androgyny displayed the ability to utilise technology and had excellent patient-centred interpersonal communication.³¹ In a study by Nightingale et al., it was shown that physicians with higher androgyny scores were those that selected the empathetic rather than the sympathetic options in the IRI scale.³² The IRI-EC and IRI-PT (empathetic domains) were positively correlated with physician androgyny. The IRI-PD (sympathetic domain) was found to be either uncorrelated or negatively correlated with androgyny.³¹ The use of rapid assessment instruments in the screening of empathy traits in medical schools is rarely undertaken despite the importance of empathetic skills to be taught in medical education. Knowing that cognitive empathy (IRI-EC and PT) can be taught and learned, medical schools can perform rapid assessments of the empathy traits of their medical students and explore the possibilities in which empathy teaching can be tailored and incorporated into the medical curriculum. The whole process of assessment and training should start to unfold as and when a student enters medical school. Adequate "empathy" training at the undergraduate level will prepare medical students better for more androgynous practice when they graduate.

Participants in this study scored the highest in the IRI-EC and lowest in the IRI-PD subscale. These findings may be of cultural relevance.³³ This finding that IRI-EC is highest in our sample population is consistent with the report by Siu and Shek, who documented higher IRI-EC and IRI-PT scores in the Chinese population.³⁴ Our findings are contradictory to a cross-cultural study conducted by Birkett, who compared the level of empathy among Chinese (Eastern culture) and American (Western culture) undergraduates.³⁵ The study found that American students scored significantly higher on the IRI-EC and IRI-FS subscales, and the Chinese students scored higher on the IRI-PD subscale. The IRI-PD captures personal discomfort and anxiety when witnessing others experiencing negative

experiences. Palladino et al. demonstrated a significant negative correlation between psychological flexibility and the IRI-PD. Physicians with less psychological flexibility are less able to acknowledge their negative thoughts and are less able to respond to patients empathetically or in a non-judgmental manner.³⁶ The reason for these results could be twofold: (i) the results documented by Birkett³⁵ are consistent with a report by de Greck et al.³⁷ because the study population in both these studies were derived from similar geographical backgrounds (study population of Asian ethnicity but living in the western part of the world). Greck et al.³⁷ explained that Asian cultures that embrace an interdependent lifestyle value tend to value harmony. Thus, individuals from this cultural background are more overwhelmed when they encounter negative emotions and are more likely to react to these emotions in a manner that causes personal distress³⁷; (ii) homegrown Asian medical students in our study (study population of Asian ethnicity and living in the eastern part of the world) were nurtured in a homogenous environment with peers in a similar cultural background and were derived from a geographical background similar to Siu and Shek.³⁴ Given the similarity in the eastern cultural influence of collectivism and familism in this part of the world, it is very likely that the similarity in findings seen in our study and that of Siu and Shek³⁴ was due to the influence of this cultural environment on the participants.

Similar to Guilera et al.'s³⁹ findings, we also observed gender differences in empathy levels. In both these studies, women were found to have a significantly higher empathy level in the IRI-FS and IRI-EC domains. Unlike Guilera et al.'s³⁹ study, our study also demonstrated a significantly higher IRI-PD level in female medical students. It is less reassuring to observe that IRI-PD, a domain of affective empathy, which is correlated with lesser androgyny and psychological flexibility, is significantly associated with women in this study. The IRI-PD is also a scale that reflects the presence of anxiety during interpersonal relationships.³⁸ It is equally important to consider results that are reflected in the affective scales of the IRI instrument, such as the IRI-PD. This is so that holism in approach to the well-being of students is preserved, so as to be able to accurately capture and address any concerns in medical students, such as anxiety and other psychological functioning.³⁹ Furthermore, more ethnographic research could be undertaken before a conclusion can be made regarding the differences in empathetic traits and levels between genders.

Another interesting finding from this study was the association between medical students with cognitive empathy traits (IRI-EC and IRI-PT) and their preference for people-oriented specialities as their future career choices. Empathy is described as an attribute that is pertinent to interpersonal relationships.⁴⁰ The significant correlation between empathy and medical students' choice of career specialisation that promotes interpersonal relationships in its day-to-day operation can be seen as an expected phenomenon. Hojat et al. described it as a reasonable deduction to expect medical students who have chosen people-oriented specialities to be more adaptive in their interpersonal relationships when compared to those who have opted for technology-orientated or procedure-orientated specialities.⁴¹ However,

many other factors can also contribute to the selection of students' postgraduate speciality training, such as peer and family influence, market demands, and educational experience, which should also be included in the analysis of a replicated study in the future to assess the generalisability of the findings in the sample of Asian medical student communities residing in this region.

Moore reiterated that patient-centred communication may be closely linked to cultural and language differences.⁴² Hashim et al. reported that medical students who have English as a second language have difficulty expressing empathy in English-medium medical education.⁴³ In our study, we found that students who reported English as their primary language were associated with IRI-PD traits. However, our study did not assess the ability of medical students to express empathy in a simulated or real patient context. Given that the ability to express empathy in a second language may be culturally dependent, further research is warranted to decipher the relationship between empathy traits, level, and the ability of students to verbally express empathy in English among medical students who speak English as a second language.

There are reports in the literature that documented the association between empathy level and socio-economic status, although we did not find any significant correlation between the empathy level of our students and socio-economic status. Previous research has found a positive correlation between low socio-economic status and a higher level of empathy, better prosocial behaviour, and an exceptional ability to determine others' emotional states.^{44–46} Varnum et al. investigated the association between empathy level and socioeconomic status using the neural empathetic responses of participants in the study to images of others in pain.⁴⁷ Interestingly, the study reported that people with higher socio-economic status self-reported a higher empathy level but had lower empathetic responses to pain in the experiment.

These results serve as an essential contribution to medical education, that is, in the contribution to knowledge in empathy research and provide evidence to the literature on cross-cultural differences in empathy findings among undergraduate medical students. However, this study has a few limitations. This study was conducted in only one institution. Therefore, the results should be interpreted with caution, as they may not be an accurate representation of culturally inclined findings and may not have real validity or generalisability. Although the use of the well-established questionnaire contributed to the internal validity of the results presented in this study, the use of self-administered questionnaires, nonetheless, has always been questioned on whether it could produce the true intended validity.²¹

Additional qualitative research is likely needed to understand students' perspectives regarding their understanding of empathy and their predicted empathy traits. Similarly, a longitudinal study in this aspect to be conducted in several institutions in this region may be useful to elucidate useful information to ascertain the actual influence that cultural diversity has on empathy. This study also provides some evidence to support further research on targeted educational programs that can be designed to nurture and enhance empathy among medical students from different social and cultural backgrounds.

Conclusion

This study's results imply that empathy traits are associated with cultural differences which may vary with geographical background, and these aspects are of great importance to be explored in-depth in future studies. Gender differences with a female predilection for empathy traits have been consistently reported. The findings that the IRI-EC and IRI-PT (cognitive empathy) are associated with preference for people-orientated specialities suggests that empathy traits can be seen as a predictive likelihood of medical students' future career choices. There was an apparent difference in empathy traits during the course of the study. A need for closer attention to be paid to students' empathetic capacity at the transition stage of their study (from pre-clinical to clinical phase) was evident in this study.

It is recommended that medical schools assess empathy traits in their medical students and start empathy training via communication skills training⁴⁸ early in the curriculum (be it in the form of simulation or interaction with real patients), that is, start from Year 1 of medical school. The inclusion of a module or programme with exposure to early patient contact where students could interact and listen to patients and their predicaments would assist them in building professional identity, understanding the patients, and practising empathetic communication skills at an early stage. Medical schools should continue with the monitoring of medical students' competency in empathetic communication and their empathy traits, even during the later years of the programme, as the medical students gain seniority. Remediation in communication skills and motivational workshops should be provided to those who have shown a decline in empathetic awareness and response ability even when these students have achieved a senior phase in medical school. The inclusion of self-reflection activities via narrative writing, mindfulness, and appreciative enquiry will complement the clinical sessions and are needed to ascertain the thought process and the degree of self-realisation regarding the empathetic awareness of these students. The new concept of self-empathy, which was first considered beneficial in optimising self-care and well-being, and subsequently, believed to effectively aid medical students in their empathetic responses to patients, could be widely introduced in medical schools.

Source of funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

Ethical approval was obtained from the Institutional Review Board at the Perdana University on 27 March 2017 and the approval number is PUIRBHR0154. Informed

consent was obtained from all participants after the aim of the study was explained.

Authors contributions

SCL conceived and conceptualised the study design DHFA analysed the data. All authors interpreted the data, prepared, revised, and approved the final draft of the manuscript. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

References

- Hojat M, Louis DZ, Markham FW, Wender R, Rabinowitz C, Gonnella JS. Physicians' empathy and clinical outcomes for diabetic patients. *Acad Med* 2011 Mar; 86(3): 359–364.
- Hemmerdinger JM, Stoddart SD, Lilford RJ. A systematic review of tests of empathy in medicine. *BMC Med Educ* 2007 Dec; 7(1): 24.
- 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 Sep; 159(9): 1563–1569.
- Neumann M, Bensing J, Mercer S, Ernstmann N, Ommen O, Pfaff H. Analyzing the “nature” and “specific effectiveness” of clinical empathy: a theoretical overview and contribution towards a theory-based research agenda. *Patient Educ Couns* 2009 Mar; 74(3): 339–346.
- Costa MJ, Costa P, Magalhães E. Response to “are personality traits really weak/moderate predictors of empathy?”. *Med Teach* 2013 Jul; 35(7): 611–612.
- Ferreira-Valente A, Monteiro JS, Barbosa RM, Salgueira A, Costa P, Costa MJ. Clarifying changes in student empathy throughout medical school: a scoping review. *Adv Health Sci Educ* 2017 Dec; 22(5): 1293–1313.
- Hegazi I, Wilson I. Maintaining empathy in medical school: it is possible. *Med Teach* 2013 Dec; 35(12): 1002–1008.
- Hong M, Lee WH, Park JH, Yoon TY, Moon DS, Lee SM, et al. Changes of empathy in medical college and medical school students: 1-year follow up study. *BMC Med Educ* 2012 Dec; 12(1): 122.
- Neumann M, Edelhäuser F, Tauschel D, Fischer MR, Wirtz M, Woopen C, et al. Empathy decline and its reasons: a systematic review of studies with medical students and residents. *Acad Med* 2011 Aug; 86(8): 996–1009.
- Ponnamperuma G, Yeo SP, Samarasekera DD. Is empathy change in medical school geo-socioculturally influenced? *Med Educ* 2019 Jul; 53(7): 655–665.
- 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 Dec; 11(1): 90.
- Spatoula V, Panagopoulou E, Montgomery A. Does empathy change during undergraduate medical education? – a meta-analysis*. *Med Teach* 2019 Aug 3; 41(8): 895–904.
- Wellbery C, Barjasteh T, Korostyshevskiy V. Medical students' individual and social empathy: a follow-up study. *Med Teach* 2019 Jun 3; 41(6): 656–661.
- Chen DCR, Pahilan ME, Orlander JD. Comparing a self-administered measure of empathy with observed behavior among medical students. *J Gen Intern Med* 2010 Mar; 25(3): 200–202.
- Satterfield JM, Hughes E. Emotion skills training for medical students: a systematic review. *Med Educ* 2007 Oct; 41(10): 935–941.
- Tavakol S, Dennick R, Tavakol M. Empathy in UK medical students: differences by gender, medical year and specialty interest. *Educ Prim Care* 2011 Jan; 22(5): 297–303.
- Winefield HR, Chur-Hansen A. Evaluating the outcome of communication skill teaching for entry-level medical students: does knowledge of empathy increase? *Med Educ* 2000 Feb; 34(2): 90–94.
- Hojat M, Shannon SC, DeSantis J, Speicher MR, Bragan L, Calabrese LH. Empathy in medicine national norms for the Jefferson scale of empathy: a nationwide project in osteopathic medical education and empathy (POMEE). *J Osteopath Med* 2019 Aug 1; 119(8): 520–532.
- Hojat M, Gonnella JS, Nasca TJ, Mangione S, Veloksi JJ, Magee M. The Jefferson Scale of Physician Empathy: further psychometric data and differences by gender and specialty at item level. *Acad Med* 2002 Oct; 77(Supplement): S58–S60.
- Hojat M, DeSantis J, Shannon SC, Speicher MR, Bragan L, Calabrese LH. Empathy as related to gender, age, race and ethnicity, academic background and career interest: a nationwide study of osteopathic medical students in the United States. *Med Educ* 2020 Jun; 54(6): 571–581.
- Davis MH. Measuring individual differences in empathy: evidence for a multidimensional approach. *J Pers Soc Psychol* 1983 Jan; 44(1): 113–126.
- Cohen J. *Statistical power analysis for the behavioral sciences*. Academic Press; 2013.
- Manuel RS. Person-oriented versus technique-oriented specialties: early preferences and eventual choice [Internet]. *Med Educ Online* 2009; 14 [cited 2021 Jun 29]. Available from: <http://med-ed-online.net/index.php/meo/article/view/4504>.
- Baer RA, Smith GT, Hopkins J, Krietemeyer J, Toney L. Using self-report assessment methods to explore facets of mindfulness. *Assessment* 2006 Mar; 13(1): 27–45.
- Bond FW, Hayes SC, Baer RA, Carpenter KM, Guenole N, Orcutt HK, et al. Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: a revised measure of psychological inflexibility and experiential avoidance. *Behav Ther* 2011 Dec; 42(4): 676–688.
- Downey RG, King CV. Missing data in Likert ratings: a comparison of replacement methods. *J Gen Psychol* 1998 Apr; 125(2): 175–191.
- Hammer RR. An education that pierces what the knife cannot: a student perspective. *Anat Sci Educ* 2010 Jun; 3(3): 151–153.
- Hojat M, Mangione S, Kane GC, Gonnella JS. Relationships between scores of the Jefferson scale of physician empathy (JSPE) and the interpersonal reactivity index (IRI). *Med Teach* 2005 Nov; 27(7): 625–628.
- Mead N, Bower P. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med* 2000 Oct; 51(7): 1087–1110.
- Davis MH. Empathy: a social psychological approach [Internet]. In: Davis MH, editor. 1st ed. Routledge; 2018 [cited 2021 Oct 26]. Available from: <https://www.taylorfrancis.com/books/9780429962448>.
- Yarnold PR, Bryant FB, Nightingale SD, Martin GJ. Assessing physician empathy using the interpersonal reactivity index: a measurement model and cross-sectional analysis. *Psychol Health Med* 1996 Jun; 1(2): 207–221.
- Nightingale SD, Yarnold PR, Greenberg MS. Sympathy, empathy, and physician resource utilization. *J Gen Intern Med* 1991 Oct; 6(5): 420–423.

33. 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 Mar 8; 7 [Internet] [cited 2021 Jun 29]. Available from: <http://journal.frontiersin.org/Article/10.3389/fpsyg.2016.00290/abstract>.
34. Siu AMH, Shek DTL. Validation of the interpersonal reactivity index in a Chinese context. **Res Soc Work Pract** 2005 Mar; 15(2): 118–126.
35. Birkett MA. Self-compassion and empathy across cultures: comparison of young adults in China and the United States. **Int J Res Stud Psychol** 2013 Oct 28; 3(1) [Internet] [cited 2021 Jun 29]. Available from: <http://consortiacademia.org/10-5861jrsp-2013-551/>.
36. Palladino CL, Ange B, Richardson DS, Casillas R, Decker M, Gillies RA, et al. Measuring psychological flexibility in medical students and residents: a psychometric analysis. **Med Educ Online** 2013 Jan; 18(1): 20932.
37. de Greck M, Shi Z, Wang G, Zuo X, Yang X, Wang X, et al. Culture modulates brain activity during empathy with anger. **NeuroImage** 2012 Feb; 59(3): 2871–2882.
38. Davis M. A multidimensional approach to individual differences in empathy. **JSAS Cat Sel Doc Psychol** 1980; 10: 85.
39. Guilera T, Batalla I, Soler-González J. Empathy and specialty preference in medical students. Follow-up study and feedback. **Educ Médica**. 2018 Oct; 19: 153–161.
40. Hojat M, Gonnella JS, Mangione S, Nasca TJ, Veloski JJ, Erdmann JB, et al. Empathy in medical students as related to academic performance, clinical competence and gender: empathy in medical students. **Med Educ** 2002 Jun; 36(6): 522–527.
41. Hojat M, Zuckerman M, Magee M, Mangione S, Nasca T, Vergare M, et al. Empathy in medical students as related to specialty interest, personality, and perceptions of mother and father. **Personal Individ Differ** 2005 Nov; 39(7): 1205–1215.
42. Moore M. What does patient-centred communication mean in Nepal?: international Perspectives. **Med Educ** 2007 Nov 28; 42(1): 18–26.
43. Hashim MJ, Major S, Mirza DM, Prinsloo EAM, Osman O, Amiri L, et al. Medical students learning communication skills in a second language : empathy and expectations = تعلم مهارات التواصل بلغة ثانية عند طلاب الطب : التعاطف و التوقعات. **Sultan Qaboos Univ Med J** 2013 Feb; 13(1): 100–106.
44. Kraus MW, Côté S, Keltner D. Social class, contextualism, and empathic accuracy. **Psychol Sci** 2010 Nov; 21(11): 1716–1723.
45. Piff PK, Stancato DM, Cote S, Mendoza-Denton R, Keltner D. Higher social class predicts increased unethical behavior. **Proc Natl Acad Sci Unit States Am** 2012 Mar 13; 109(11): 4086–4091.
46. Stellar JE, Manzo VM, Kraus MW, Keltner D. Class and compassion: socioeconomic factors predict responses to suffering. **Emotion** 2012 Jun; 12(3): 449–459.
47. Varnum MEW, Blais C, Hampton RS, Brewer GA. Social class affects neural empathic responses. **Cult Brain** 2015 Jun; 3(2): 122–130.
48. Kataoka H, Iwase T, Ogawa H, Mahmood S, Sato M, DeSantis J, et al. Can communication skills training improve empathy? A six-year longitudinal study of medical students in Japan. **Med Teach** 2019 Feb 1; 41(2): 195–200.
49. Hedges LV. Distribution theory for Glass's estimator of effect size and related estimator. **J Educ Stat** 1981; 6(2): 107–128.

How to cite this article: Liew S-C, Fadil Azim DH. In someone else's shoes, are all wearers the same? Empathy in multi-ethnic Asian medical students. *J Tai-bah Univ Med Sc* 2022;17(3):498–505.