ORIGINAL ARTICLE

Malaysian Medical Students' self-reported Empathy: A cross-sectional Comparative Study

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SUMMARY

Objectives: The objective of this study was to compare empathy levels between first year and second year medical students at a Malaysian University.

Setting: A Malaysian University offering undergraduate medicine.

Participants: 204 undergraduate medical students were included in the data analysis (122 first years, and 102 second years).

Main outcome measure: Self-reported empathy scores using the Jefferson Scale of Physician Empathy (Student Version) JSPE-S.

Results: The mean empathy score for first year students was 112.1(SD=10.7). This was significantly higher (p<0.038; d=0.31) than second year students (mean=108.8, SD=10.4). No significant difference relating to gender was identified.

Conclusion: Cross-sectional results from this study found that that there were differences in self-reported empathy scores between year one and year two students. Further research is required to ascertain if these differences are maintained as students' progress thought their medical degree, and whether other factors such as internships, medical rotations or clinical supervision have any impact of medical students' empathy levels.

INTRODUCTION

The definition of empathy is ambiguous.[1-4] It is commonly accepted as the ability to stand in the shoes of another and consider the world from their perspective,[5] and the precursor to truly understanding another.[6] Unlike sympathy, empathy is described as a predominantly cognitive attribute.[4] In healthcare, it relies on an understanding of patient experiences and perspectives, in conjunction with the ability to communicate this understanding back to the patient.[4]

In the medical setting, empathy is central to a meaningful patient–doctor relationship.[1,5,7-12] Without it, trust is not assured,[13] patient satisfaction is limited,[8] compliance is hindered[8] and outcomes are compromised.[7,8]

Several studies have reported that empathy in the medical setting is positively associated with a patient's feeling of importance,[14] and physician's accuracy of diagnosis[15] and prognosis.[16] It is reported that it also improves a patient's perception of being helped,[17] increases patients' empowerment18 and enhances patients' perception of their social support network.[2,18] Empathy in patient care is also positively associated with lower litigation rates.[19,20]

Two recent studies reported that empathy is significantly associated with positive clinical outcomes. Hojat *et al.* found that the diabetic patients of physicians with higher empathy levels were more likely to have good control of Haemoglobin A1c than the patients of physicians whose empathy levels were lower.[7] Similarly, Del Canale *et al.* found that diabetic patients of physicians with high empathy levels reported fewer acute metabolic complications than the patients of physicians with lower empathy levels.[8] The practical impact of these findings is significant. They reiterate the importance of empathy in the medical setting and the potential it has to optimise patient well-being and clinical outcomes. There is scope to suggest that these positive effects as a result of empathic behaviour may very well lower financial demands on healthcare systems.

The original Jefferson Scale of Physician Empathy (JSPE) has received recognition worldwide as an effective instrument for measuring empathy. Several variations have been created to accommodate students (JSPE S) and health care providers other than physicians. By 2009 the JSPE had been translated into 25 languages ranging from Belgian to Turkish.[5] Further, by 2012, it had been translated into an additional 17 languages and is now said that there are 42 versions in use in sixty countries around the world.[3]

Through use of the JSPE-S the impact of empathy in the health care setting has been considered world-wide. Several papers identified that the empathy levels of American medical students declined as they progressed through their studies.[4,11,21] This trend was also noted amongst Iranian medical students.[22] In contrast, Kataoka *et al.* noted that Japanese medical students reported increased empathy levels as they progressed through medical school. 5Similarly, Hong *et al.* reported that the empathy levels of South Korean medical students increased over a one year period.[23] Suh *et al.* reported a mean score of 98.2 (SD=12.0) on the Korean version of the JSPE-S, which was identified as being lower than the reported mean scores of American and Italian

physicians.[24] Berg *et al.* noted that while there was no statistically significant difference between the empathy levels of American medical students who reported as 'white' compared to those who reported as Asian American, the simulated patients used in the study rated 'white' students higher on the JSPE-S than Asian American students.[1]

Given the findings above, it is worth investigating whether cultural influences and practices might impact self-reported empathy levels. This could include learning practices, attitudes towards education, relationships between physician and patient, and traditional roles within families and communities. Suh *et al.* suggests that "the disparity between Korean physicians and physicians from other countries may be explained by differences in the culture of medical education and medical practice". They suggest that cross-cultural differences in physician empathy be explored.[24]

Culture, which is often as obtuse in its definition as empathy, is defined, for the purposes of this paper as "networks of knowledge consisting of learned routines of thinking, feeling, and interacting with other people, as well as a corpus of substantive assertions and ideas about aspects of the world [which are shared] among a collection of interconnected individuals who are often demarcated by race, ethnicity or nationality".[25] The objective of this study was to compare empathy levels between first year and second year medical students at a Malaysian University.

MATERIALS AND METHODS
Design
A cross-sectional paper-based questionnaire design was used.

Participants
The participants were students enrolled in years one and two of the medical degree at Jeffrey Cheah School of Medicine and Health Sciences, Monash University, Malaysia. The Bachelor of Medicine and Bachelor of Surgery (MB, BS) is a five-year undergraduate degree and is accredited by the Australian Medical Council. There were 122 year one and 102 year two students eligible for inclusion in the study. Inclusion criteria for the study were being enrolled on a full time and consenting to take part in the study.

Instrumentation
The study used a standardised self-reporting scale: JSPE-S which is a self-reported measure of medical students' attitudes towards empathy. It is a 20-item scale that uses a 7-point Likert-scale (1=strongly disagree and 7=strongly agree). The JSPE-S is a valid and reliable measure of empathy.[26] A short demographic questionnaire was also included.

Procedures
Students were provided with an explanatory statement and were informed that participation was voluntary and matched by identification for follow-up. The questionnaires took students approximately 10 minutes to complete and consent was implied by its completion.

Data Analysis
The SPSS program (Statistical Package for the Social Sciences Version 20.0, SPSS Inc., Chicago, Illinois, U.S.A.) was used for data storage, tabulation, and the generation of descriptive and inferential statistics. Descriptive statistics means (M) and standard deviations (SD) were used to summarise the demographic data. Inferential statistics using independent samples t-tests were used to compare the differences between year levels and gender. All tests were two tailed with the results considered statistically significant if the p value is < 0.05; effect sizes *(d)* were also calculated for quantifying the differences between mean scores.

Ethics
Approval from the Monash University Human Ethics in Research Ethics was obtained before commencement of the project. Permission was gained from the head of school to approach students about completing the survey during a regularly scheduled class. Participants were given a brief overview of the project and were asked to participate on a voluntary basis. The self-administered questionnaire was distributed during a scheduled class by a non-teaching member of staff.

RESULTS
Demographics
A total 122 first year and 71 second year medical students from Jeffrey Cheah School of Medicine and Health Sciences, Monash University, Malaysia participated in the study. This represents a response rate of 100% for year one students and 70 % for year two students. Over half of first year participants (55.7%) were female, as were 59.2% of second year students. Seventy percent of first year students identified to be of Chinese descent, as did 49.3% of second year students. The most common religious denomination was Buddhism - 41.8% amongst first year students and 28.2% amongst second years. The median age for year one students was 20 (range 17-20) as was for year 2 students (range 18-30).

Apart from religious denomination, other factors examined were in relation to being the eldest child in their family; 40.2% of first year students reported being the eldest child, as did 40.8% of second year students. Considering whether having a disabled family member or having cared for a disabled family member in the past - 12.3% of first year and 25.4% of second year students reported doing so.

Empathy Scores
The mean empathy score for first year students was 112.1 (SD=10.7). This was statistically higher with moderate effect size than second year students 108.8 (SD=10.4) (p<0.038; d=0.31). With regard to gender, the decline in empathy levels from first year to second year was seen both males (M=110.5 versus M=109.2; p=0.07) and females (M=114.0 versus M=108.1; p=0.64) though not statistically significant.

The internal consistency of the JSPE-S using Cronbach alpha coefficients was: year one α=.70, and year two: α=.70. These results suggest the JSPE-S has adequate internal reliability.[27]

Table I: Distribution of participant demographics: year 1 and year students

	Year 1		Year 2	
	N=	%	N=	%
Gender				
Male	54	44.3	42	59.2
Female	68	55.7	29	40.8
Are either of your parents a medical doctor?				
Yes	21	17.2	14	19.7
No	101	82.8	57	80.3
Are you the eldest child in family?				
Yes	49	40.2	29	40.8
No	73	59.8	42	59.2
Have you cared for a person with permanent disability in your family, now or in the past?				
Yes	15	12.3	18	25.4
No	107	87.7	53	74.6
Are you an international student?				
Yes	11	9	8	11.3
No	111	91	63	88.7
What ethnic group do you belong to?				
Chinese	86	70.5	49.3	49.3
Indian	23	18.9	25.4	25.4
Malay	1	.8	9	12.7
Other	12	9.8	9	12.7
What is your religious denomination?				
Christianity	43	35.2	18	25.4
Buddhism	51	41.8	20	28.2
Islam	5	4.1	13	18.3
Hinduism	13	10.7	13	18.3
Other	10	8.2	7	9.9

DISCUSSION

The objective of this study was to compare empathy levels between first year and second year medical students at a Malaysian University. The self-reported empathy levels of medical students at a Malaysian university declined significantly from first year to second year. This decline appears to an international phenomena with a number of studies also noting similar findings involving American medical students[4,11,21] and Iranian medical students.[22]

Hojat et al. noted a significant decline in the empathy levels of American medical students in the third year of their study.[4] They suggested that causal factors for this decline included: a lack of role models, a high volume of material to learn, time pressure and related stresses. It was also suggested that an over-reliance on diagnostic and therapeutic technology limited student awareness of the importance of human interaction in the medical setting.[4] Similarly, the shift towards a 'market driven' healthcare system was thought to be instilling the idea that empathy exists outside the realm of evidence-based medicine.[4]

Demanding patients, lack of appreciation, fear of making mistakes, sleep loss and a hostile environment were reported by students as factors contributing to declining empathy levels.[4] Interestingly, another major concern for students was the bureaucratic side of medicine. Hojat et al. reported one students saying "I'm convinced it's easier to be a doctor in rural third world countries, without all the malpractice, insurance and reimbursement issues of the USA".[4]

Chen et al. identified a significant decline in empathy levels between second and third year medical students at Boston University School of Medicine (BUSM) which is based on a four-year curriculum (two years of preclinical) and two years of clerkships.[11] This decline correlated with the commencement of clinical rotations in third year. A total of 658 students participated in the cross-sectional study, which identified a mean JSPE-S score for first year students: 118.5, second year students: 118.2, third year students: 112.7and fourth year students: 106.6. It is suggested that an 'acculturation phenomenon' may contribute to the decline in empathy levels observed; when medical students are overwhelmed by the stresses and emotions of their practise, they become less empathetic in order to cope and remain effective in their tasks.[11]

The findings of Chen et al. supported earlier findings that empathy levels declined when clinical placements commenced.[21] This longitudinal cohort study included 1162 students at BUSM, a university which practises and integrates the traditional curriculum of two years preclinical study followed by two years of clinical clerkships and electives. Results found that empathy levels declined from second year through to fourth year.[21]

Shariat & Habibi used a Persian translation of the JSPE-S to review the empathy levels of 1187 medical students from 17 different universities in what is thought to be the largest empathy-based study using the JSPE-S conducted in one country.[22] Iranian medical training typically involves three years of on-clinical training, followed by two and a half years of clinical training and one and a half of interning.[22] The cross-sectional study identified declining empathy levels as students progressed through their studies, suggesting that declining empathy levels amongst medical students as they progress through their studies is not just a Western phenomenon.[22]

In contrast, papers examining the empathy levels of Japanese, South Korean and Portuguese medical students noted an increase in empathy levels as students progressed through their studies.[5,12,23] Kataoka et al. included 400 medical students from the Okayama University Medical School in Japan, of which 68.8% were male.[5] Using a Japanese translation of the JSPE-S, they identified the mean JSPE-S score of all participants to be 104.3 (SD=13.1). A significant increase in empathy levels as students progressed through their studies was identified.[5]

Similarly, Hong et al. considered the empathy levels of medical school and medical college students, hoping to determine a correlation between the two systems of education.[23] This included data from 334 students using a

Korean edition of the JSPE-S. A significant increase in empathy levels was identified as students progressed through their study. In a cross-sectional study, Magalhães et al. compared the empathy levels of 356 first year medical students with 120 final year students at a Portuguese medical school, using a Portuguese adaptation of the JSPE-S. [12] The empathy levels of final year students were found to be significantly higher than those of first year students. These contrary findings suggest that future cross-cultural benchmarking and comparisons should be considered between different institutions.

Cultural differences may contribute to the variation in the empathy scores of medical students considered above. Most Japanese patients, for example, like their physicians to be unemotional.[5] Similarly, Japanese patients tend not to express their feelings and emotions[5] and in Korea, suppression of one's feelings is considered a virtue.[24] Suh et al. describes the East Asian physician–patient relationship as a "vertical" relationship, wherein "words from physicians are considered as compulsory orders which have to be obeyed", which is not necessarily true of western culture.[24] In Brazil for example, paternalistic behaviour remains common amongst doctors and medical students, despite reforms in the Medical Ethics Code in the late 1990s.[28] In Romania, the medical education model encourages clinical neutrality and detached concern.[10] It also emphasises a biomedical model of disease.[10]

Interestingly, Kataoka et al. noted that physicians living with or close to their parents reported significantly higher empathy levels than those who lived alone or with their spouse.[3] It would be worth further exploring this element of cultural practice. Medical school programs vary from country to country, a factor which might influence empathy levels.[23] In Korea, most medical colleges consist of two years of pre-medical education followed by four years of medical training.[23] This is a relatively new model, not dissimilar to that practised in the US.[23] At the São Paulo University in Brazil, students undertake a six year program. Clerkships take place in the final two years of study which involves supervised, hands on training in university hospitals.[28] In Japan, students complete six years of medical training.[5]

The amount of patient contact and the time at which is taken during the course of study may very well impact student empathy levels. The age of the student and the background from which they come may also influence empathy levels. BUSM, for example, is well known for its variable admission pathways: students can enter via the Liberal Art/Medical Education Program and the Engineering Medical Integrated Curriculum, among several others.[21] In contrast, students in Japan often enter university directly from high school, and focus heavily on science-based subjects, as is required for the medical school entrance examination.[5] Around this time, there is minimal focus on developing interpersonal or 'professional' skills, a factor which may explain why the empathy levels of Japanese medical students is lowest in the first year of their study.[5]

LIMITATIONS
This study includes a number of limitations. Firstly, the use of self-report measures is limited by responder bias and may not reflect actual feelings, attitudes and actual practice. Secondly, external validity is limited since the students were from one university. We are unsure if cultural adaptations on the JSPE-S need to be made for Malaysian medical students. Future psychometric appraisal will determine this. Fourth, while response rates were very good, non-response bias is evident with the second year cohort. Finally, while results showed differences in empathy scores, these differences should be viewed with some caution as they were cross-sectional and do not accurately show a true decline from one year to another.

CONCLUSION
Cross-sectional results from this study found that that there were differences in self-reported empathy scores between year one and year two students. No significant difference relating to gender was identified. Further research is required to ascertain if these differences are maintained as students' progress thought their medical degree, and whether other factors such as internships, medical rotations or clinical supervision have any impact of medical students' empathy levels.

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