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Assessment of Empathy Levels among Medical Students at International Medical University Post-Pandemic Using the Jefferson Scale of Empathy-Student Version.

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Abstract

The ability to be empathetic is the crucial component that leads to successful doctor-patient communication. The Movement Control Order (MCO) implemented during the COVID-19 outbreak has significantly affected the curriculum, particularly by limiting exposure to clinical settings with real patient encounters. This study aimed to examine the level of empathy among medical students at International Medical University (IMU) in the post-pandemic period. A cross-sectional study using the Jefferson Scale of Empathy-Student version (JSE-S) questionnaire was conducted. A total of 302 medical students, spanning both pre-clinical years (Semesters 1 to 5) and clinical years (Semesters 6 to 10), participated in the study. The mean empathy score was 110.90. Findings revealed significant associations between empathy scores and demographic factors, such as nationality ($p = 0.010$) and year of study ($p = 0.028$). The study also found significant associations between compassionate components and demographics, such as gender ($p = 0.016$), nationality ($p = 0.046$), and year of study ($p = 0.030$). No significant differences were found between pre-clinical and clinical years, suggesting that training via remote mode with simulated and real patients, without no exposure to clinical settings, potentially contributed to these results.

Keywords: *Compassionate components; empathy; JSE-S; medical student.*

Introduction

Empathy is a cognitive and affective process that enables individuals to understand and respond to others' emotional states, contributing to compassionate behaviour and moral agency [1]. It is also defined as the ability to emotionally understand others' experiences, pain concerns, and perspectives, combined with the capacity to communicate this understanding and an intention to help [2-5]. Empathy is divided into two primary types: affective empathy, which occurs following activation of mirror neurons and results in Person A 'mirroring the experience' of Person B, and cognitive empathy, which involves Person A recognizing that Person B's perspective is different from their own and attempting to understand this 'other' perspective cognitively [4]. Empathy is regarded as a crucial component that contributes to successful doctor-patient communication, as it involves the ability to empathize [3]. It entails understanding a patient's situation, perspective, and feelings and effectively communicating with them to gain insight into their perspective and experience [6]. For instance, students with a better understanding of patient perspectives, such as worries or concerns, may be better equipped to provide emotional support and information [7], ask appropriate questions at appropriate times, leading to more accurate symptom reports and diagnoses [2, 3, 7], and demonstrate curiosity about the patient's experience and story, thereby improving patient trust, satisfaction, and engagement with suggested treatments, and reducing anxiety for many patients [2, 7]. Additionally, healthcare professionals are perceived to be more competent and experience improved well-being, job satisfaction, and less burnout [2, 4, 7].

Medical schools have employed various strategies to develop empathy among medical trainees, including involvement with simulated patients, engagement in creative arts (such as creative writing, blogging, drama, poetry, fiction, and film) [8, 9], completion of reflective essays [10], communication skills training [11], participation in problem-based learning [12], interpersonal skills training [13], patient interviews, and empathy interventions [14]. Early exposure to clinical settings has also enhanced medical students' empathy [6]. However, imposition of the Movement Control Order (MCO) during the COVID-19 outbreak has significantly affected the curriculum, particularly exposure to clinical settings with real patient encounters. Consequently, online sessions utilizing simulated patients emerged as the only alternative to provide medical students with exposure to patient encounters during the MCO period at International Medical University (IMU). As a result, medical trainees may or may not have gained clinical empathy through interaction with simulated patients via remote mode. Hence, the study aimed to examine the empathy level among medical students at IMU in the post-pandemic era.

Methods

This study employed a cross-sectional quantitative design using convenience sampling. Ethical approval for the study was obtained from the IMU Joint Committee on Research and Ethics (reference number CSc-Sem6(02)2022). A total of 302 medical students responded to the online survey from August to October 2022. The online questionnaire was divided into two sections. The first section comprised respondents' socio-demographic data, including age, gender, semester, nationality, and religion. The second section consisted of 20 items from the Jefferson Scale of Empathy – Student Version (JSE-S). The JSE-S scale is divided into three subscales: Perspective taking (10 items), Compassionate care (8 items), and Walking in the patient's shoes (2 items). Each item was measured using a 7-point Likert scale, with 1 representing "Strongly Disagreed" and 7 representing "Strongly Agreed". The JSE-S score ranges from 20 to 140 points, with higher scores indicating greater levels of empathy. The JSE-S questionnaire is widely used

in various studies to measure clinical empathy in health professions students and healthcare practitioners [15). Permission to use the questionnaire was obtained from Thomas Jefferson University, the copyright holder. The internal consistency of the JSE-S was 0.709. Statistical analyses were performed using SPSS Version 28. All respondents' socio-demographics were analysed for descriptive data, including frequency (n), percentage (%), and standard deviation (SD). Items in the JSE-S were analysed for the overall mean score, mean score for respondents' overall score, and mean score between pre-clinical and clinical years. Chi-square, independent T-test, and ANOVA were used to analyse the statistically significant difference between the demographic variables and empathy score, with an acceptable significant p-value of <0.05.

Results

Participants' demographics

The minimum age was 17 years old, and the maximum was 32 years old, with a mean age of 21.18. There were 205 (67.9%) female, and 97 (32.1%) male respondents. The majority (n = 226, 74.8%) were Malaysian, while the remaining 76 (25.2%) were non-Malaysian, hailing from countries such as Singapore, Sri Lanka, India, Bangladesh, Maldives, Australia, and New Zealand. In terms of religious affiliation, the majority (n = 111, 36.8%) were Buddhist, followed by Catholic/Christian/Methodist (n = 61, 20.2%), Muslims (n = 59, 19.5%), and Hindus (n = 51, 16.9%). A smaller number of respondents identified as other religions (Agnostic, Taoism, and Sikhism), totalling 20 (6.6%). Regarding the academic year, the majority (n = 109, 36.1%) were Year 1 students, followed by Year 2 students (n = 61, 20.2%), Year 3 students (n = 78, 25.8%), Year 4 students (n = 26, 8.6%), and Year 5 students (n = 28, 9.3%). Furthermore, the majority (n = 199, 65.9%) of the respondents were pre-clinical years (Semester 1 to 5) medical students, while the remaining 103 (34.1%) were clinical years students (Semester 6 to 10) (as shown in Table 1).

JSE-S score among participants

With a total score of 140, the highest JSE-S score was 132, while the lowest was 77, with an overall mean score of 110.90 (SD = 9.28) as shown in Table 2. Most (n = 20, 6.6%) of the respondents scored 114. The mean score for perspective-taking was 60.21 out of 70 (SD = 0.62), compassionate care was 41.18 out of 56 (SD = 1.24) and walking in the patient's shoe was 7.87 out of 14 (SD = 1.24).

JSE-S score and participants' demographics

The mean JSE-S score was found to be higher with an increase in the age group; respondents aged 25 and above scored the highest mean of 115.67, followed by those aged between 21 and 24 who scored a mean of 109.87, and those aged between 17 and 20 who scored a mean of 108.13. However, no significant difference was found between the age groups. The mean JSE-S score for female participants was slightly higher than for male participants (109.56 versus 108.66), but the difference was not statistically significant. There was a significant difference between genders in Compassion components, $X^2(33, N=302) = 52.70$, $p = 0.016$. Participants from Malaysia exhibited a higher mean JSE-S score compared to non-Malaysian participants (p value < 0.05). Significant differences were found between nationality in scoring overall empathy, $X^2(52, N = 302) = 78.72$, $p = 0.010$, and compassionate components, $X^2(32, N = 302) = 46.61$, p = 0.046). In terms of religion, Sikhism respondents achieved the highest mean score for JSE-S (120.00), while Hinduism respondents attained the lowest mean score (106.26). Other religions scored ranging from 107.80 to 112.00, such as Taoism (112.00), Agnostic (111.94), Buddhist (110.84), Catholic/Christian/Methodist (108.05), and Muslim (107.80). No significant difference was observed between religions. The mean score for Year 1 students was 107.07, Year 2 was 111.05, Year 3 was 109.01, Year 4 was

109.46, and Year 5 students scored 114.50. A significant difference was found between the years of study in scoring the sum of JSE-S items (p=0.028) and compassionate components (p=0.030), with Year 5 students scored higher than Year 1, 2, 3, and 4 students. Respondents from the clinical year scored slightly higher (110.39) than respondents from the pre-clinical year (108.69). However, no significant difference was found between the pre-clinical and clinical years (as shown in Table 2).

Discussion

The mean JSE-S score in the current study (110.90) showed a slight decrease compared to a study conducted at IMU in 2015 (112.7) [16]. The decline could have been influenced by the limited clinical exposure experienced during the COVID-19 outbreak and the ensuing MCO. However, the current study's mean score was higher when compared to medical students from another private university in Malaysia, with a mean of 106.2 [17]. Additionally, it exceeded scores in other professions, such as dental students with a mean of 84.11, where scores ranging from 22.05 to 133.35 [17], and pharmacy students with a mean of 83.02, where scores ranging from 46.05 and 113.25 [18]. Consistent with the study conducted at IMU about ten years ago [16], no significant difference was found between age groups. An interesting finding contradicting previous study revealed no significant difference was found between genders in the JSE-S score. Although a systematic review indicated that females tended to exhibit higher empathy scores across 18 out of 27 studies [19], a 2019 study found a significant difference in the compassion component between genders (p=0.0001) [20], aligning with our current findings (p=0.016). Moreover, another study found a significant difference between Agnostics and followers of religions (p=0.0001); those who followed a religion scored higher compared to Agnostics [21]. Interestingly, in the current study Agnostics scored higher than a few other religions in IMU, suggesting that religion may not influence empathy among medical students in IMU; this consistency was seen in previous IMU study done in 2015 [16]. Furthermore, a significant difference was found between nationalities in the overall empathy score and compassionate components, suggesting that compassion could be influenced by Malaysia's multiracial and multicultural nature, leading to higher compassion compared to other countries. Findings showed that the JSE-S score decreased in third-year medical students (109.01), increased in fourth-year students (109.46), and reached the highest among fifth-year medical students (114.5). This result corresponded to a study conducted 20 years ago at Boston University School of Medicine, which found that there was an increase in the mean score for empathy level from third year (107.04) to fifth-year students (118.0) [22]. Another longitudinal study conducted in 2018 showed similar findings, with empathy declining in the third year and increasing in the fourth and fifth years of the course (p=< 0.001) [23]. The previous study at IMU revealed that the empathy score increased after the third year of training, aligning with our current findings; however, the previous study omitted analysis of years one to three [16]. The decline in the third year of the study could potentially be caused by the transition from pre-clinical to clinical studies, which involved massive changes in course expectations, such as transitioning from guided learning to independent learning, from basic and uncomplicated medical course content to complicated and specialized topics, and from simulated to real patient interactions. A study conducted at Ajou University School of Medicine, Suwon, Republic of Korea, in 2018 found a significant difference between pre-clinical and clinical years (p=<0.005). The suggested reason might be due to exposure to clinical practice [6]. However, the current study findings showed no significant difference between the pre-clinical and clinical years. Therefore, training via remote mode with simulated and real patients, without

exposure to clinical settings, potentially contributed to these results.

Conclusion

The study aimed to investigate the level of empathy among medical students at IMU post-pandemic period. The level of empathy was found to have slightly decline compared to the study conducted at IMU nearly ten years ago. The study revealed no significant differences between gender and religion regarding empathy levels, which contradicted previous findings. Malaysians scored higher on empathy levels than non-Malaysians, which could be attributed to Malaysia's multiethnic and multicultural nature. The insignificant differences between pre-clinical and clinical years suggested that limited exposure to clinical settings during the pandemic may have influenced these results. This finding suggests that exposure to actual patients in a clinical setting contributed to the cultivation of empathy among medical students. Future research could further explore the role of clinical experience and how it contributes to empathy.

Limitation

The research findings represented only the IMU medical students. Since this is a cross-sectional study design, all findings were not intended for generalization or to establish cause-and-effect relationships. The data were collected through self-administered questionnaires; hence, they were subject to recall bias. There was an unequal distribution of students across different years of study, which could impact the representativeness of the findings for each year.

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Table 1. Respondents' demographic

Respondents' demographic		**n (%)**
Age	17-20	124 (41.1)
	21-24	172 (57.0)
	>25	6 (1.9)
Gender	Male	97 (32.1)
	Female	205 (67.9)
Nationality	Malaysian	226 (74.8)
	Non-Malaysian	76 (25.2)
Religion	Buddhist	111 (36.8)
	Catholic/Christian/Methodist	61 (20.2)
	Muslim	59 (19.5)
	Hinduism	51 (16.9)
	Agnostic	16 (5.2)
	Taoism	2 (0.7)
	Sikhism	2 (0.7)
Year of study	1	109 (36.1)
	2	61 (20.2)
	3	78 (25.8)
	4	26 (8.6)
	5	28 (9.3)
Pre-clinical year (Semester 1 to 5)		199 (65.9)
Clinical year (Semester 6 to 10)		103 (34.1)

Footnote: Table 1 illustrated the respondents' demographic, including age group (between 17 to 20 years old, 21 to 24 years old, and older than 25 years old), gender (either male or female), nationality (either Malaysian or non-Malaysian), religion (Buddhist, Catholic/Christian/Methodist, Muslim, Hinduism, Agnostic, Taoism, and Sikhism), year of study (Year 1 to Year 5), and preclinical (Semester 1 to 5) and clinical year (Semester 6 to 10).

Table 2. Mean score for JSE-S score and JSE-S components

Respondents' demographic		**Mean JSE-S (140)**	**Mean Perspective-taking (70)**	**Mean Compassionate (56)**	**Mean Walking in the patient's shoe (14)**
Overall		110.90	60.21	41.18	7.87
Age	17-20	108.13	59.46	40.69	7.98
	21-24	109.87	60.63	41.44	7.80
	>25	115.67	63.67	44.50	7.50
p-value		0.184	0.108	0.393	0.770
Gender	Male	108.66	59.90	40.90	7.87
	Female	109.56	60.36	41.33	7.87
p-value		0.580	0.784	*0.016**	0.414
Nationality	Malaysian	109.91	60.23	41.77	7.91
	Non-Malaysia	107.04	60.14	39.22	7.68
p-value		*0.010**	0.673	*0.046**	0.199
Religion	Buddhist	110.84	60.68	41.94	8.23
	Catholic/Christian/Methodist	109.05	59.65	41.49	7.91
	Muslim	107.80	59.27	40.85	7.68
	Hinduism	106.26	60.72	38.02	7.51
	Agnostic	111.94	60.75	44.19	7.00
	Taoism	112.00	61.00	44.00	7.00
	Sikhism	120.00	63.50	47.50	9.00
p-value		0.552	0.194	0.251	0.087
Year of study	1	107.07	59.53	39.69	7.85
	2	111.05	60.84	42.31	7.90
	3	109.01	59.87	41.24	7.90
	4	109.46	60.58	41.23	7.65
	5	114.50	62.11	44.39	8.00
p-value		0.028*	0.306	0.030*	0.990
Pre-clinical year (Semester 1 to 5)		108.69	60.10	40.67	7.92
Clinical year (Semester 6 to 10)		110.39	60.43	42.18	7.78
p-value		0.231	0.302	0.093	0.685

**p*-value=<0.05

Footnote: Table 2 illustrates the mean score for JSE-S score and JSE-S components, including perspective taking, compassionate, and walking in the patient's shoe.

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