

Assessing Empathy Levels among Medical Students at Sultan Qaboos University in Sultanate of Oman

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Abstract

Aim and objectives: This study aims to identify the level of empathy and the factors that affect empathy among medical students at SQU.

Background: Empathy plays a crucial role in building a solid doctor-patient relationship. It has various definitions, but generally, it is known to be an essentially effective mode of understanding.

Subjects and Methods: A prospective cross-sectional study was conducted among 500 medical students from first to seventh year at SQU in the academic year 2019-2020. Data was collected using the Interpersonal Reactivity Index (IRI) survey of 28 questions. Both descriptive and tests of association were conducted using SPSS.

Results: The sample included 188 males and 312 females. The IRI was subcategorized into its four sub-scales, Mean±SD was obtained for each sub-scales, Empathic Concern (18.73±4.54), Perspective Taking (PT) (17.75±4.04), Personal Distress (PD) (14.95±4.44), and Fantasy Scale (FS) (17.54±5.26). The study found that empathy scores decreased in all IRI sub-scales among clinical students compared to pre-clinical students with a significant decrease in FS and PD scales. It also found an insignificant reduction in PT, EC, and PD scales and an insignificant increase in FS scale in pre-clinical and clinical students who chose technology-oriented specialties.

Conclusion: This study shows that there is a lower score of empathy level among SQU medical students in comparison to other countries. The development of good empathy levels is essential in providing good healthcare and enhancing communication between the physician and his/her patients.

Keywords: empathy, interpersonal reactivity index, pre-clinical, clinical, medical students

Introduction

The patient-doctor relationship has a significant contribution to the outcome of health care services. One of the most important doctor's qualities is empathy. There are plenty of definitions for empathy, but broadly, it is considered an essential effective mode of understanding [1]. There are two primary components of empathy, cognitive and affective. Cognitive empathy is the ability to understand the feeling of others [2] and take their perspective [3]. In contrast, affective empathy is an emotional reflection of cognitive empathy [4]. Neurological studies evidence that the brain pain areas are stimulated while watching someone else's pain [5][6].

Considering the outcomes and consequences of empathy, it has a very high value in a doctor's personality as it eases the communication process between the doctor and his patients; hence, it increases the levels of trust [7]. Due to the solid doctor-patient relationship, patients tend to open up

themselves and tell their symptoms and history accurately, eventually resulting in a more accurate diagnosis [8]. Furthermore, it has been found that empathy itself plays a significant role in improving the therapy outcome as it relaxes the patients, relieves their anxiety [9], and facilitates adherence to therapy [8]. As previous studies stated, plenty of factors contribute to the level of empathy a doctor might have. Those factors are; gender, the number of study years, community, parents' marital status, future specialization, and other factors.

Clinical empathy is an essential component of professionalism in medical practice and is very necessary for the future of health. Apart from age, gender, and culture, several factors can improve and maintain clinical empathy in medical students, such as undergraduate courses about the context and timing of clinical experience and communication skills training.

Material and Methods:

Study design and data collection

This is a cross-sectional study conducted among 500 medical students at SQU, from 1st to last year, from both genders during the academic year 2019-2020. We randomly selected a group of medical students from the medicine and health science college at SQU to participate in a pilot study by completing the Interpersonal Reactivity Index (IRI). IRI survey consisted of 28 questions (9 negatively worded) that were subdivided into four subscales which are, Perspective Taking (PT), Empathic Concern (EC), Personal Distress (PD), and Fantasy Sale (FS) as attached in index 1. Then we received their feedback on the clarity of the questions and any suggested modifications. Ethical approval was obtained from the Medical Research Committee at SQU in October 2019 (#1994). Data collection started using IRI and specifically designed a data collection sheet about the student's age, gender, year of study, and if the students live alone or with their families.

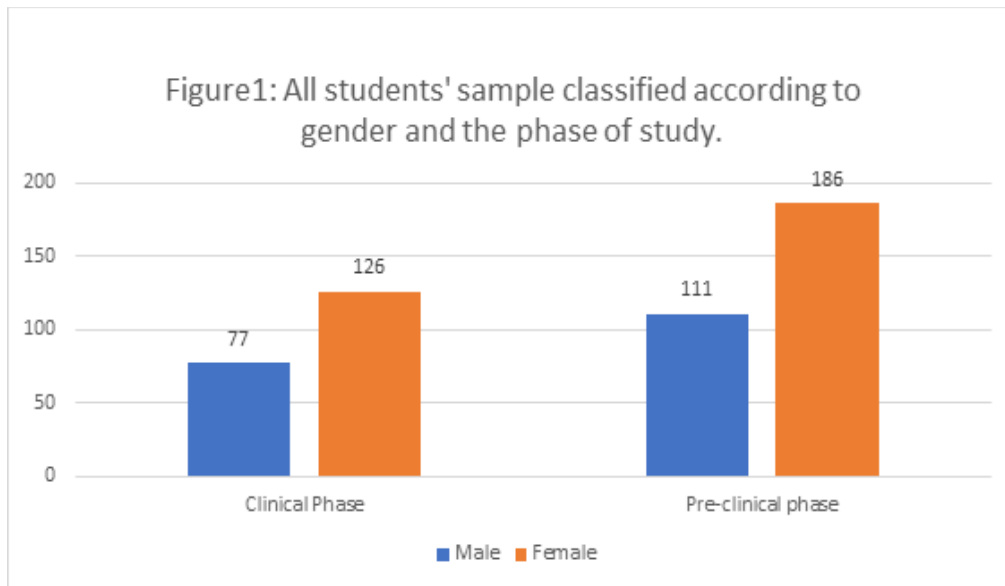
Data analysis

After conducting the survey, data was created and analyzed using the Statistical Package for Social Sciences (SPSS) (23rd version). The categorized variables were displayed in the form of percentages in frequency tables and bar charts. For comparing continuous variables (mean) of two categorized variables, the Mann-Whitney U test was used. A P-value of <0.05 was considered statistically significant.

Results

Demographic characteristics

The questionnaire was completed by 500 medical students who were accepted to participate in this study. There were 188 (37.6%) males and 312 (62.4%) females. Regarding the phases of the study, there were 297 (59.4%) students in the pre-clinical phase and 203 (40.6%) students in the clinical phase (Figure1).



Level of empathy among medical students at SQU.

The IRI was subcategorized into its four sub-scales, EC, PT, PD, and FS. Then Mean±SD was obtained for the sub-scales as shown in Table (1).

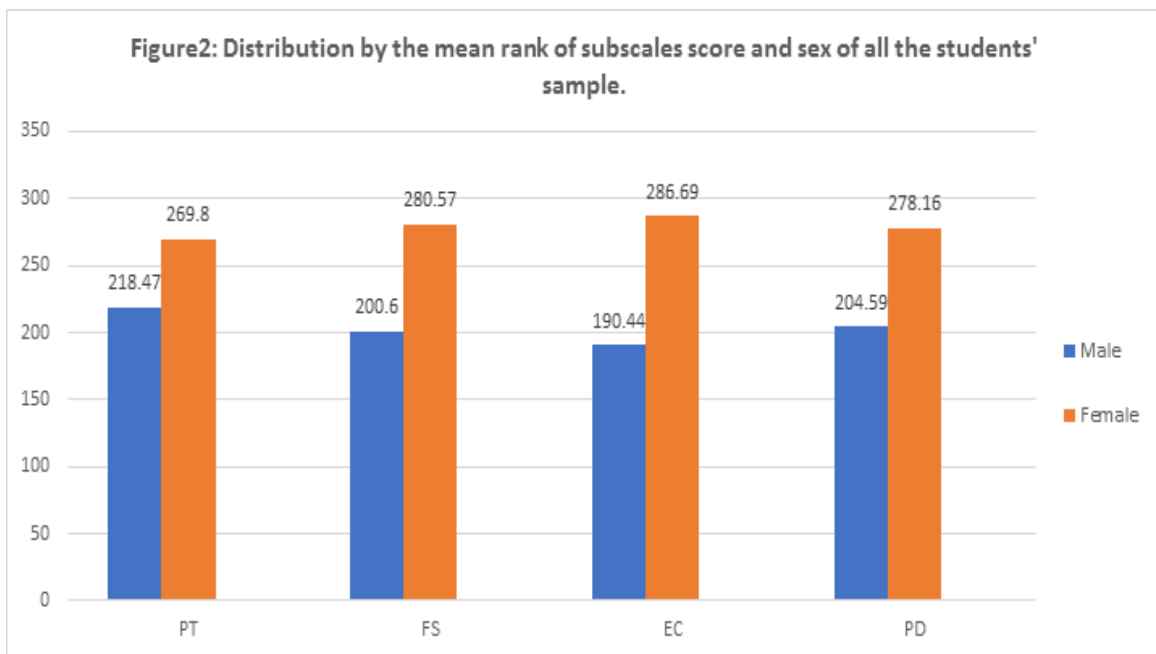
	Perspective Taking (Mean±SD)	Personal Distress (Mean±SD)
Empathic Concern	17.75±4.04	14.95±4.44
	18.73±4.54	

Table 1: Mean and SD of four subscales among SQU medical students

Gender and level of empathy among SQU medical students

The mean rank of scores on these sub-scales was categorized according to gender (Figure. 2 with a significant P-value (*p*-value<0.05) in all four

sub-scales. So, in conclusion, all the four sub-scales were higher in female medical students than male medical students.



We further classified each gender according to the study phase, as shown in Tables 2 and 3. Female medical students still had higher empathy levels in all four sub-scales when we separated the data according to the study phase, with a significant *p*-value ($P < 0.05$) which was less than 0.05. There

was an exception of perspective-taking among pre-clinical students, which showed no significant difference between males and females, yet females had a slightly higher score (p -value = 0.469).

	Gender	Mean Rank	P-Value
Perspective Taking	Male	144.35	0.469
	Female	151.78	
Fantasy	Male	116.64	<0.05
	Female	168.31	
Empathic Concern	Male	120.01	<0.05
	Female	166.30	
Personal Distress	Male	128.75	0.002
	Female	161.09	

Table 2: Distribution by the mean rank of subscales score and gender in Pre-clinical students

	Gender	Mean Rank	P-Value
Perspective Taking	Male	74.91	<0.05
	Female	118.56	
Fantasy	Male	83.68	0.001
	Female	113.19	
Empathic Concern	Male	70.97	<0.05
	Female	120.96	
Personal Distress	Male	75.31	<0.05
	Female	118.31	

Table 3: Distribution by the mean rank of subscales score and gender in clinical students

IRI sub-scales and phase of the study:

Medical students were divided into two main groups according to their study curriculum at the College of Medicine at SQU: pre-clinical students (first through the fourth year) and clinical students (fifth through the seventh year). To compare the two groups and find the association between the phase of the study and IRI sub-scales, we used the Mann-Whitney U test. Table 4 below compares the mean rank of the four sub-scales of IRI between the two groups. There was a significant decrease (p

<0.05) in Fantasy scale mean among clinical students (226.69) compared to pre-clinical students (266.78). Similarly, there was a significant drop ($p < 0.05$) in the mean Personal distress score among clinical students (222.7) compared to pre-clinical students (269.45). Perspective-taking scale decreased among clinical students (238.94) compared to pre-clinical students (258.40), but the decrease was not significant between the two groups. Empathic concern score was insignificantly less among clinical students (240.27) than pre-clinical students (257.49).

IRI sub-scales	Pre-clinical Students mean rank	clinical Students mean rank	P Value
Perspective	258.40	238.94	0.138

Taking			
Fantasy	266.78	226.69	0.002*
Empathic Concern	257.49	240.27	0.189
Personal Distress	269.45	222.77	P<0.0005*

*P-value < 0.05 is considered significant

Table 4: Distribution of pre-clinical and clinical medical students and IRI scales

IRI sub-scales mean and speciality of choice:

The Mann-Whitney U test was used to compare and find out the association between IRI sub-scales mean scores and the present preferable medical specialty among pre-clinical and clinical medical students.

For pre-clinical students, table 5 shows the mean scores of perspectives

taking, Empathic concern and Personal distress scales to be insignificantly (p > 0.05) higher among those who preferred people-oriented specialties. On the other hand, the Fantasy means the score was insignificantly (p > 0.05) higher among those who chose technology-oriented specialties.

	People oriented specialties mean rank	Technology oriented specialties mean rank	P Value
IRI sub-scales			
Perspective Taking	98.28	93.74	0.570
Fantasy	90.46	101.48	0.168
Empathic Concern	98.44	93.59	0.543
Personal Distress	99.40	92.64	0.397

*P-value < 0.05 is considered significant

Table 5: IRI sub-scales and speciality of choice among pre-clinical students

Table 6 below shows the association between the IRI and the future specialty of choice. Perspective-taking, empathic concern, and personal distress Fantasy means the score was insignificantly higher among those who preferred people-oriented specialties mean scores were

insignificantly higher among those who chose technology-oriented things. The Fantasy means the score was insignificantly higher among those who preferred people-oriented specialties.

	People oriented specialties mean rank	Technology oriented specialties mean rank	P Value
IRI sub-scales			
Perspective Taking	79.63	87.35	0.312
Fantasy	82.56	82.39	0.982
Empathic Concern	81.08	84.89	0.619
Personal Distress	80.28	86.25	0.434

*P-value < 0.05 is considered significant

Table 6: IRI sub-scales and speciality of choice among clinical students

The phase of the study and preferred speciality:

The bar chart below represents the distribution by percentage of students in both phases and their preferred groups of medical specialties. Among pre-clinical medical students, 31.99% of them were people-oriented specialties, and 32.32% preferred technology-oriented specialties, whereas 35.69% did not choose a specialty. For the clinical phase group of students, 50.74% preferred people-oriented specialties, and 30.05% chose technology-oriented specialties, whereas 19.21% did not decide which specialty they wanted. There was a higher preference for people-oriented specialties among clinical students (1.7 times higher) than pre-clinical students. There was a slightly higher preference for technology-oriented specialties among clinical medical students. There was a higher

proportion of pre-clinical students who were unsure of which specialty they prefer to join (35.69%) compared to only 19.21% of clinical students.

Gender and preferred speciality:

In the pre-clinical phase, as shown in graph 1, females (32.26%) were more interested in people-oriented specialties than males (31.53%). Males were more interested in technology-oriented specialties (35.14%) than females (30.65%). Out of this group, 33.33% of males and 37.1% of females did not decide what specialty to choose. In the clinical phase, as shown in graph 2, females' proportion was higher (53.17%) for the people-oriented specialties than that of males (46.75%). More males (32.47%) chose this group for the technology-oriented specialties than females (28.57%). There were 20.78% of males and 18.25% of females remained not decided.

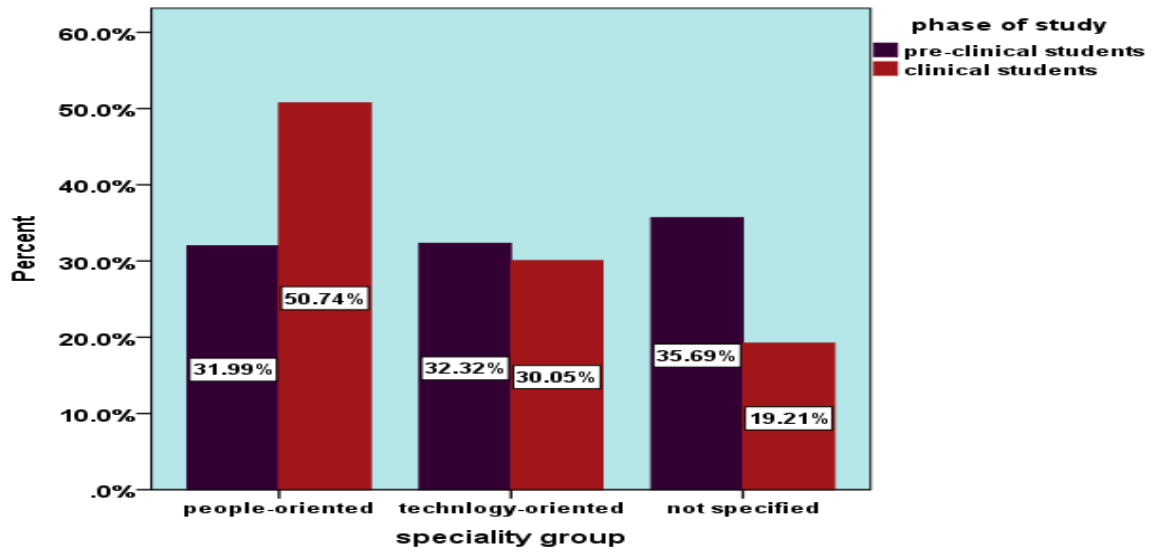


Figure 3: Distribution of the specialty preferences among pre-clinical and clinical students

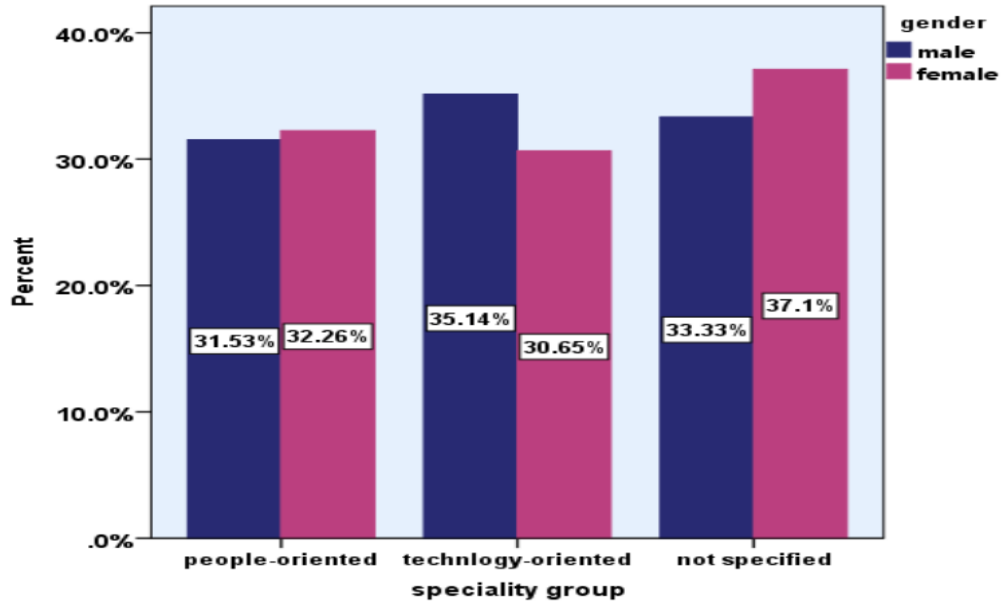


Figure 4: Pre-clinical students

Male and female distribution according to their present specialty preference

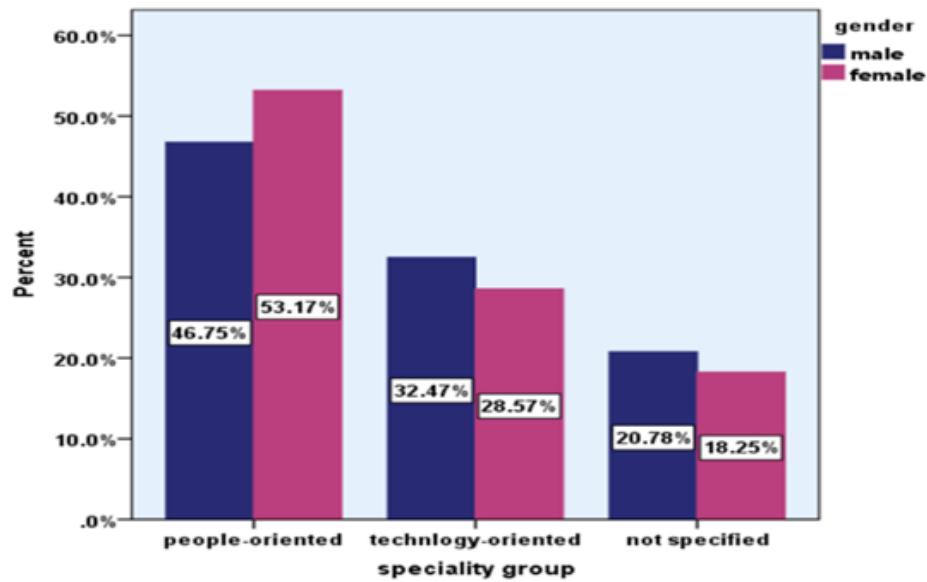


Figure 5: Clinical student

Discussion

This study is the first of its kind in the Sultanate of Oman. It aimed to assess the level of clinical empathy among SQU medical students and to determine the relationship between the gender and the level of clinical empathy.

After we obtained the mean and SD among SQU medical students, we compared our results with other countries that used the IRI survey in their data collection: United Kingdom (UK), New Zealand, and Ireland. SQU medical students had lower scores in EC (18.73 ± 4.54) comparing to UK (21.18 ± 4.03), New Zealand (20.93 ± 4.20), and Ireland (21.15 ± 4.02). Moreover, SQU medical students had a lower score in PT (17.75 ± 4.04) than medical students in the UK (19.35 ± 4.28), New Zealand (19.04 ± 4.47), and Ireland (19.16 ± 4.34). In PD, SQU medical students get a higher score (14.95 ± 4.44) compared to UK (10.96 ± 4.54), New Zealand (11.88 ± 4.47), and Ireland (10.51 ± 5.11), with a significant p -value in all these sub-scales ($P < 0.05$) [10].

Through these results, we have found that SQU medical students have lower scores in EC and PT than medical students in UK, New Zealand, and Ireland. As explained previously, PT assesses how someone can perceive the other person's point of view, while EC considers others' feelings and concerns. So, both are essential to help in communication, understanding, and dealing with the patients. On the other hand, SQU medical students got higher personal distress scores than UK, New Zealand, and Ireland. PT measures personal feelings of anxiety and its inability to deal with emergencies [10], which medical students consider undesirable characteristics. This has been said; although empathy is an essential part of being a good doctor, emotional balance is also necessary. Therefore, they should not become too emotional in emergencies.

This also can be explained based on the nature of our medical education at the university. Our medical education is more science-oriented. So, communication and empathic skills training aspects have received less attention. As a result, students focus more on theoretical knowledge, and become less interested in empathic skills, while.

Many reasons explain the differences found in empathy between medical students at SQU and other countries. For example, Social differences and living with parents until a late age makes students in our university less dependent on themselves. Thus, as a result, makes they are in a difficult

position when exposed to emergencies. Moreover, patients in our society tend to refuse to talk and open up about their secrets and private lives, making it difficult for medical students to understand what they are going through.

Those skills are now considered a significant part of all UK medical schools [10]. Furthermore, a European medical education guide suggests that assessing and enhancing empathy must be considered an educational aspect, not just a desirable thing [11].

Gender and level of empathy among SQU medical students

This study reported a higher overall empathy level among female medical students at SQU. This result was similar to other studies in areas such as Kuwait and Saudi Arabia [12]. Similar results were obtained in UK, New Zealand, and Ireland, in which all used IRI in their studies. (Quince *et al.*, 2016). Generally speaking, several factors can explain a higher empathy level of females compared to males. Firstly, neural evidence showed that the areas responsible for empathy in the limbic system are more developed in females' brains than males' brains [6]. Secondly, the influence of society and the fact that everyone, including patients, expects to find more emotional behavior while dealing with females will make females more emotional to reach the satisfaction of their patients and patient's families.

When gender was classified according to the phase of the study, it showed the same results as the general classification, with the exception of PT in which there was no significant difference between males and females in pre-clinical students. The PT assesses the other person's point of view [10]. The reason that can explain this result is not clear, but it might be explained that pre-clinical students have not understood the concept of dealing with patients and how to react with their opinions yet. So, they answered the questions without previous exposure to a similar situation. Furthermore, the sample size might play a critical role in the difference between the two groups.

Clinical empathy and year of study:

This study found that the mean empathy score was lower among the older students' group (clinical students) compared to the pre-clinical group, with a significant decrease in the Fantasy and personal distress scales and insignificant reduction in the perspective-taking and empathic concern scales. The nature of the curriculum is different among the two student groups. Pre-clinical students are not exposed to clinical practice, nor are

they used for the hospital settings, unlike clinical students, who regularly have hospital rotations and are very frequently exposed to real-life patients and are very used to the hospital atmosphere. Pre-clinical students mainly deal with clinical cases only in a theoretical manner. This difference between the two groups might explain the empathy level decrease in all IRI sub-scales. Clinical students' exposure to actual patients and their dealing with difficult situations contributed to their lower level of empathy. They undergo a lot of stress associated with night shifts, large studying materials, and many practice exams. A study showed that stress causing burnout is a significant reason to lower empathy among students [13]. Another possible outcome of the stress, along with the night shifts, is the lack of sleep. A study showed a decline in all the IRI subscales for empathy for interns who experienced lack of sleep with a significant decrease in the fantasy and personal distress subscales ($P=0.001$, $P=0.002$, respectively) [14]. Depression associated with stress can play a role in decreasing empathy levels as well. A study showed that the presence of depressive symptoms among students had a negative correlation with the empathy levels ($P<0.02$), and it was independent of gender [13]. A study done among dental students showed a decline in empathy among students exposed to the clinical settings compared to the first-year students [15]. Our study findings were consistent with those of the Iraq study regarding higher empathy levels among pre-clinical students [16]. It was also compatible with the King Abdulaziz University study findings [12].

Clinical empathy and specialty preference:

In this study, it was observed that there was an insignificant decrease of perspective-taking, empathic concern, and personal distress scales among pre-clinical medical students for those who preferred technology-oriented specialties. The fantasy score was insignificantly increased among the technology-oriented group compared to the people-oriented. For clinical students, an insignificant increase in the perspective-taking, empathic concern, and personal distress scales was noticed among students who chose technology-oriented specialties. The fantasy score was insignificantly increased among the people-oriented group. Pre-clinical students generally showed a higher preference for technology-oriented medical specialties than clinical students (32.32% versus 30.05%). Clinical students' selection for people-oriented specialties was higher than pre-clinical students (50.74% versus 31.99%).

The results in our study opposed the findings of Iraq study in which the students' group with the higher empathy scores had a higher preferability for people-oriented specialties [16]. Another study found that higher empathy levels were associated with a preference for people-oriented medical specialties [17]. People-oriented specialties require a frequent contact with the patients, so that indeed requires a certain level of empathy and emotional intelligence, and social skills to provide the best care possible. On the other hand, technology-oriented specialties where the physician is mainly dealing with objects and devices, so they do not require a high level of empathy.

Limitations

The limitations of this study encompass the absence of a cut-off point in IRI to classify empathy levels high and low levels to know precisely where SQU medical students are located on this scale. Additionally, although Arabic countries conducted the same type of study, they used the Jefferson scale of empathy. Hence, we could not compare it with our study results statically, which might help us know more factors that can affect empathy level in the regional and cultural aspects. Moreover, other countries such as the UK, Ireland, and New Zealand didn't include the FS in their studies, so results couldn't be compared statistically to find any relationship between the level of empathy among medical students at SQU and other countries based on the FS.

Conclusion

The development of good empathy levels is essential in providing good healthcare and enhancing communication between the physician and their patients. This study shows that there is a lower score of empathy level among SQU medical students in comparison to other countries. Hence, those skills should be improved and educated. Further researches need to be conducted in this field to determine other factors that can help to improve the overall process of health care delivery to patients, as well as to monitor the effect and the efficiency of educational programs at SQU in developing empathy skills.

Acknowledgment:

None.

Conflicts of interest:

None.

References:

- Halpern, J. (2003) What is clinical empathy? *Journal of General Internal Medicine*, 18(8): 670–674.
- Baron-cohen, S. and Wheelwright, S. (2004) The Empathy Quotient: An Investigation of Adults With Asperger Syndrome The Empathy Quotient: An Investigation of Adults with Asperger Syndrome or High Functioning Autism, *Journal of Autism and Developmental Disorders*, 34: 163–175.
- Rameson, L. T. and Lieberman, M. D. (2009) Empathy: A Social Cognitive Neuroscience Approach, *Social and Personality Psychology Compass*, 3(1): 94–110.
- Reniers, R., Corcoran, R., Drake, R., Shryane, N. and Völlm, B. (2011) The QCAE: A Questionnaire of Cognitive and Affective Empathy, *Journal of Personality Assessment*, 93(1): 84–95.
- Li, D., Xu, H., Kang, M. and Ma, S. (2018) Empathy in Chinese eight-year medical program students: Differences by school year, educational stage, and future career preference, *BMC Medical Education*, 18(1): 1–9.
- Christov-moore, L., Simpson, E. A., Grigaityte, K., Iacoboni, M., Ferrari, P. F. (2016) Empathy: Gender effects in brain and behavior.
- Yu, J., Lee, S., Kim, M., Lim, K., Chang, K. and Lee, M. (2019) Relationships Between Perspective-Taking, Empathic Concern, and Self-rating of Empathy as a Physician among Medical Students, *Academic psychiatry: the Journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*, Academic Psychiatry, 1–4.
- Costa, P., Carvalho-filho, M. A., Schweller, M., Thiemann, P., Salgueira, A. (2017) Academic medicine: journal of the Association of American Medical Colleges, *Academic Medicine*, 92(6): 860–867.
- Hirsch, E. M. (2007) Virtual The role of empathy in medicine: a medical student's perspective, *American Medical Association Journal of Ethics*, 9(6): 423–427.
- Quince, T., Thiemann, P., Benson, J. and Hyde, S. (2016) Undergraduate medical students' empathy: current perspectives, *Advances in Medical Education and Practice*, 7: 443–455.
- Hojat, M., Shannon, S. C., Desantis, J., Speicher, M. R., Bragan, L. and Calabrese, L. H. (2019) National Norms for the Jefferson Scale of Empathy: A Nationwide Project in Osteopathic Medical Education and Empathy (POMEE), *The Journal of the American Osteopathic Association*, 119(8): 520–532.
- Ayuob, N. N., Alharthi, M., Alahmadi, G., Bokhary, D. and El Deek, B. (2016) Is the Empathy Level of Medical Students at

- KAU Changeable along their Study Years? What is behind this Change? Is the Empathy Level of Medical Students at KAU Changeable along their Study Years? What is behind this Change? *Medicine Science*, 5(2): 485– 495.
13. Thomas, M. R., Dyrbye, L. N., Huntington, J. L., Lawson, K. L., Novotny, P. J., Sloan, J. A. and Shanafelt, T. D. (2007) How do distress and well-being relate to medical student empathy? A multicenter study, *Journal of General Internal Medicine*.
 14. Rosen, I. M., Gimotty, P. A., Shea, J. A. and Bellini, L. M. (2006) Evolution of sleep quantity, sleep deprivation, mood disturbances, empathy, and burnout among interns, *Academic Medicine*.
 15. Sherman, J.J., Cramer, A. (2005) Measurement of changes in empathy during dental school. (Article), *Journal of dental education*.
 16. Raof, A. M. and Yassin, B. A. (2016) Measuring empathy levels among Kurdish medical students in Erbil City, Iraq cross-sectional study, *Sultan Qaboos University Medical Journal*, 16(1): e62–e67.
 17. Newton, B. W., Savidge, M. A., Barber, L., Cleveland, E., Clardy, J., Beeman, G. and Hart, T. (2000) Differences in medical students' empathy, *Academic Medicine*.

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