Original Research Article

EMPATHY IN CARIBBEAN MEDICAL STUDENTS ASSESSED USING THE TORONTO EMPATHY QUESTIONNAIRE

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ABSTRACT

Introduction: Empathy is the emotional process to understand a patient's state of being and current emotion. Empathy, through humanization of medical students, plays an important role while learning and practicing the art of medicine. Our study aims to quantify empathy as an indicator of humanization, in medical students throughout their education.

Subjects and Methods: A cross-sectional questionnaire survey was performed on basic medical and clinical science students at Avalon University School of Medicine, Curacao. Standard Toronto Empathy Questionnaire [TEQ] was utilized to quantify the empathy.

Results: Average TEQ scores of the basic students in MD1 - MD4 were 51.55 ± 4.16, 49.42±3.58, 46.72±4.60, 48.86±6.17 respectively. Overall TEQ scores were slightly higher in basic science students in comparison to the clinical students (48.82 ± 5.12 vs 48.74 ± 4.01, P=0.46).

Conclusions: Empathy scores were higher in basic science medical students in comparison to the clinical students. Lack of progression of empathy amongst medical students needs to be addressed. We recommend medical schools to adapt and instill the virtue of empathy in the course curriculum.

KEY WORDS: Empathy, Medical students, Medical Education, Curriculum, Cross Sectional Study.

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INTRODUCTION

Empathy is an emotional interaction between people. Based on the Society of General Internal Medicine, clinical empathy is "the act of correctly acknowledging the emotional state of another without experiencing it oneself" [1]. A crucial aspect of a physician is the possession of moral and ethical core values namely, empathy for their peers and patients [2]. It is important to properly acknowledge the patient's emotional state of being by visualizing and auditing the external information, reasonably identifying the patients' complaint, and understanding their emotions [3]. An ideal doctor-patient relationship depends on the ability of a physician to understand, and respond adaptively to patients' behavior with appreciation of their perspective.

Medical education should support noble initiatives of humanizing the students throughout their basic and clinical years. But it is difficult to assess whether the virtue of empathy has evolved

as the students' progressed through their curriculum. This study, therefore, aims to quantify the empathy in medical students who are in basic medical science studies at a Caribbean medical school and compare it with their clinical counterparts using an established set of empathy questionnaires. It is based on the hypothesis that medical students tend to become progressively empathetic as they progress forward in their education.

SUBJECTS AND METHODS

A cross-sectional questionnaire survey and the comparative study of the corresponding empathy scores was conducted at the various levels of basic and clinical sciences at Avalon University School of Medicine (AUSOM) in Willemstad, Curacao from August - December, 2018. AUSOM is a Caribbean medical school located on the island of Curacao and clinical clerkships are done at various teaching hospitals across the U.S.A. The length of the Doctor of Medicine (M.D) program at AUSOM is four-years. The first two years of the program covers all basic sciences, which include MD1, MD2, MD3 and MD4 semesters. The last two years of the program covers clinical clerkships. All four basic science semesters (MD1- MD4) students at the university on the island of Curacao and clinical students in their clinical clerkships at the partner hospitals in U.S.A. were invited for the voluntary participation in the survey.

Toronto Empathy Questionnaire (TEQ): We opted to use the Toronto Empathy Questionnaire (TEQ) developed by Spreng *et al.* (4) with proven internal validity and test-retest reliability. The TEQ shows four dimensions: social self-confidence, even-temperedness, sensitivity and nonconformity. TEQ is a 16-question composite positive (8 questions) and negative (8 questions) scored item with 5-point Likert type scale: 0 - never, 1 - rarely, 2 - sometimes, 3 – often, and 4 - always.

The positively worded items are: 1, 3, 5, 6, 8, 9, 13, 16 and the negatively worded items: 2, 4, 7, 10, 11, 12, 14, 15. A reversed score was used for these negative questions: 0 - always, 1 - often, 2 - sometimes, 3 - rarely and 4 - never. Obtained results were summed to derive the total score.

Ethical consideration: Study was approved by the Ethics and Research Committee, AUSOM. A voluntary informed consent was obtained from all the participants. Data was collected and tabulated using Microsoft Excel. The collected data were represented by mean ±standard deviation, median and mode through Stata 15 (Stata©). Student "t" test was used to compare the final continuous quantitative scores obtained. A significance level of $p < 0.05$ is taken as per the standard statistical norms.

RESULTS

A total of 220 students received the survey form and A total of 132 students responded (response rate is 60%) to TEQ of which 62 were basic science and 70 were clinical students as outlined in Table-1.

Table 1: Sample size of the students in basic science and clinical years during Aug-Dec 2018.

Semester		Total	Male	Females
Basic Science	MD1	11	5	6
	MD2	12	8	4
	MD3	18	11	7
	MD4	21	9	12
Clinical Years		70	39	31

Table 1: Average TEQ scores of the basic science students in MD1 - MD4 were 51.55 ± 4.16, 49.42±3.58, 46.72±4.60, 48.86±6.17 respectively (Table-2). Clinical students TEQ scores were slightly lower in comparison to the basic science students (48.74 ± 4.01 vs 48.82 ± 5.12, P=0.46). Overall, female students had higher scores in comparison to the male counterparts (49.14±4.78 vs 48.55±5.46, P=0.325).

Table 2: Summary Toronto Empathy Questionnaire scores of preclinical and clinical students.

Toronto Empathy Questionnaire (TEQ) scores							
Semester		N (students)	X (Total score)	Mean ± SD	Median	Mode	Variance
Basic Science	MD1	11	567	51.55 ± 4.16	51	48	17.27
	MD2	12	593	49.42±3.58	50	50	12.81
	MD3	18	841	46.72±4.60	46	46	21.15
	MD4	21	1026	48.86±6.17	48	48	38.13
	Total	62	3027	48.82±5.12	49	49	26.25
Clinical Years		70	3412	48.74±4.01	49	48	20.86

Table 3: TEQ Question themes to evaluate the differences between preclinical and clinical student response on various components of empathy.

Question	Theme	Basic Science	Clinical Science	Diff (SE)	P-value (95% CI)
01 - 04	Emotional perceptions of self and others	3.12±0.95	3.23±0.91	0.11 (0.16)	0.4984 (-0.21 to 0.40)
8	Emotional comprehension in others	3.79±0.91	3.94 ±0.72	0.15 (0.14)	0.293 (-0.13 to 0.43)
2,7,10,12,15	Assessment of emotional state and demonstration of appropriate behavior and sensitivity	2.43 ±1.05	2.13±1.04	-0.3 (0.18)	0.1021 (-0.66 to 0.06)
3,6,9,11	Generalized emotional arousability	3.44±1.01	3.61±0.81	0.17 (0.16)	0.2857 (-0.14 to 0.48)
5,14,15	Altruism	2.84±1.09	2.59±0.86	-0.25 (0.17)	0.1438 (-0.59 to 0.09)
13	High level empathic response	3.89 ±0.93	4.04 ±1.01	0.15 (0.17)	0.3785 (-0.19 to 0.49)

Table 4: Descriptive statistics for each TEQ items obtained from basic science students.

Toronto Empathy Questionnaire (TEQ)	Scores					
	Mean ± SD	95% CI	Median	Mode	Min	Max
1. When someone else is feeling excited, I tend to get excited too.	3.13 ±0.95	2.89 - 3.37	3	3	1	5
2. Other people's misfortunes do not disturb me a great deal.	2.79 ±0.87	2.57 - 3.01	3	3	1	5
3. It upsets me to see someone being treated disrespectfully.	4.23 ±0.84	4.01 - 4.44	4	5	1	5
4. I remain unaffected when someone close to me is happy.	2.32 ±1.13	2.04 - 2.61	2	2	1	5
5. I enjoy making other people feel better.	4.19 ±0.96	3.95 - 4.44	4	5	1	5
6. I have tender, concerned feelings for people less fortunate than me.	3.71 ±1.08	3.44 - 3.98	4	4	1	5
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else.	2.10 ±0.89	1.87 - 2.32	2	2	1	5
8. I can tell when others are sad even when they do not say anything.	3.79 ±0.91	3.56 - 4.02	4	4	1	5
9. I find that I am "in tune" with other people's moods.	3.23 ±0.98	2.98 - 3.48	3	3	1	5
10. I do not feel sympathy for people who cause their own serious illnesses.	2.57 ±1.15	2.27 - 2.86	2	2	1	5
11. I become irritated when someone cries.	2.57 ±1.14	2.28 -2.85	2.5	3	1	5
12. I am not really interested in how other people feel.	2.29 ±1.01	2.03 - 2.55	2	3	1	5
13. I get a strong urge to help when I see someone who is upset.	3.89 ±0.93	3.65 - 4.12	4	4	1	5
14. When I see someone being treated unfairly, I do not feel very much pity for them. sample may be found	1.92 ±0.98	1.67 - 2.17	2	1	1	5
15. I find it silly for people to cry out of happiness.	2.40 ±1.32	2.07 - 2.74	2	1	1	5
16. When I see someone being taken advantage of, I feel kind of protective towards him\her.	3.71 ±1.05	3.44 - 3.98	4	4	1	5

Table 5: Descriptive statistics for each TEQ items obtained from clinical students.

Toronto Empathy Questionnaire (TEQ)	Scores					
	Mean ± SD	95% CI	Median	Mode	Min	Max
1. When someone else is feeling excited, I tend to get excited too.	3.63 ±0.98	3.40 - 3.86	3.5	3	1	5
2. Other people's misfortunes do not disturb me a great deal.	2.91 ±1.10	2.65 - 3.18	3	3	1	5
3. It upsets me to see someone being treated disrespectfully.	4.53 ±0.68	4.37 - 4.69	5	5	1	5
4. I remain unaffected when someone close to me is happy.	1.86 ±0.89	1.65 - 2.07	2	2	1	5
5. I enjoy making other people feel better.	4.60 ±0.81	4.41- 4.79	5	5	1	5
6. I have tender, concerned feelings for people less fortunate than me.	4.26 ±0.77	4.07 - 4.44	4	4	1	5
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else.	1.80 ±0.99	1.57 - 2.04	2	1	1	5
8. I can tell when others are sad even when they do not say anything.	3.94 ±0.72	3.77 - 4.12	4	4	2	5
9. I find that I am "in tune" with other people's moods.	3.69 ±0.77	3.50 - 3.87	4	4	1	5
10. I do not feel sympathy for people who cause their own serious illnesses.	2.43±1.10	2.17 - 2.69	2.5	3	1	5
11. I become irritated when someone cries.	1.96 ±1.01	1.72 - 2.20	2	1	1	5
12. I am not really interested in how other people feel.	1.91 ±1.15	1.64 - 2.19	2	1	1	5
13. I get a strong urge to help when I see someone who is upset.	4.04 ±1.01	3.80 - 4.29	4	5	1	5
14. When I see someone being treated unfairly, I do not feel very much pity for them. sample may be found	1.56 ±0.93	1.34 - 1.78	1	1	1	5
15. I find it silly for people to cry out of happiness.	1.61 ±0.84	1.41 - 1.81	1	1	1	5
16. When I see someone being taken advantage of, I feel kind of protective towards him\her.	4.01 ±0.93	3.79 - 4.24	4	4	1	5

Table 2: Various components of empathy were compared between basic and clinical years' students (Table-3). Empathy perceptions, emotional comprehension, generalized emotional arousability were seen to be higher in clinical students with high-level empathic response than basic science students. Contrary, altruism was seen higher in basic science students.

DISCUSSION

Empathy is a trait intertwined with the practice of medicine. Although medical schools are expected to instill virtue of empathy in the students, there is still uncertainty whether students become more empathetic as they progress in medical curriculum. Quince T.A. *et al.* [2] showed no significant differences in the empathy scores amongst students at the beginning and at the end of the medical school. Contrary to the belief that empathy increases over the years, we noticed only a slight difference in the empathy scores throughout different semesters in the medical school and interestingly, scores of basic science students were higher than the clinical students, although the difference was not statistically significant. Our results concur with the results of Youssef et al. [5] who demonstrated similar observation with variation of empathy as the students progress through the medical school in the Caribbean. They found lower empathy scores of medical students during their final years of training, probably due to a change in the affective rather than the cognitive component of the empathy. They also showed that rather than failing to recognize the emotions being experienced by their patients in clinical rotations, students may be demonstrating a reduced emotional response in an attempt to preserve cognitive processing capacity to manage the challenges they must negotiate in this new environment. In our study, we measured only the affective component of empathy with TEQ, compared to the study by Youssef et al. [5] which measured both cognitive and affective components. Similarly, Youssef et al. [5] conducted the study at the University of the West Indies which follows five-year MBBS program similar to the UK, while our MD program is for four-year program similar to the US and Canada. Interestingly, most of the studies that are conducted in North America (US/Canada) have

shown decline in the empathy scores [6-8] similar to our study results.

Although empathy is an integral component of a physician's everyday tasks, many physicians might overlook this empathetic interaction owing to the burden of rigors medical training and stressful workload [9]. Ferreira et al. [10] did explain the possibility that cognitive component increase during the early years might be transient, eventually reaching a plateau, and then declining subsequently in clinical clerkships and beyond. Most of the cross-sectional studies included in the scoping reviews of Ferreira et al. [10] showed either higher empathy scores in the later years of the medical school or same empathy scores, whereas longitudinal studies did show either mixed-results or decline in empathy in the later years of the medical school. Our study, even though a cross-sectional study, demonstrated lower empathy scores in the clinical sciences which is the last two years of the medical program.

We also considered the impact of gender differences in the empathetic scoring. According to the Austin et al. [11], the empathy scores of male students increased between years 1 and 2, while scores of the female students declined in the same period. Contrary, Paro HB et al. [12] showed that female medical students had higher characters for empathic concern than male students. In our study female students had higher empathetic scores than males,' counterparts concurring with Paro HB et al. [12]. Based on our study objectives, no effort was made to analyze the observed gender differences. Because most studies use scale that captures the cognitive components of attitudes towards empathy, it is unclear how the other dimensions of empathy might change. We believe empathetic responses should be conditioned with cognitive processing to witness a long-term benefit. From a medical education perspective, administration should ensure that students not only receive training pertaining to empathy but also technical ability to improve their cognitive processing capacity in difficult working circumstances [5]. Medical schools, as frontline gatekeepers of physicians before the medical practice, play an important role in shaping the students' behavior.

Lack of improvement in the empathetic response in alignment with the progressive medical school curriculum needs to be addressed. There have been studies in the past to systematically incorporate humanization in the health science curriculum to humanize students for better supporting patients and their families [13]. Initial years in medical school seemed to be beneficial for empathy growth, which might be influenced by a ubiquitous presence of courses related to physician-patient interactions. As students constantly change their mind and behavior on how they approach and look at patients throughout their education, we should aim to incorporated empathy throughout the medical school curriculum from the very beginning to instill virtues in their beliefs. This is necessary to effectively humanize medical students and strengthen emotional attachment with the patients in the long run.

Limitations: Empathy is not merely the mechanical connection but the product of how the dialectical interaction occurs. Despite empathy being a subjective trait, self-reported empathy questionnaires can have potential bias as most of the questions are reflected upon personal perception in an ideal environment rather than one's actual behavior towards medicine [14]. Current theoretical notions of empathy emphasize the requirement for understanding others emotions to form an empathic response [15]. TEQ, although validated, only a small number of items assesses this ability to process emotions. Given that some questions were negatively worded, students might find it difficult to comprehend and score them. Therefore, we cannot exclude the possibility that many responses were unintendedly deviated from actual intentions. Although we included all these scores in final analysis to encompass individualistic empathetic traits, we acknowledge inconsistent responses might have a major influence or skew the overall outcome.

CONCLUSION

More than ever, humanization of doctors is crucial for a positive patient-doctor relationship in the rapidly changing context of the medical practice. Contrary to the belief that empathy increases over the years, there was no progression of mean TEQ empathetic scores from basic to clinical science in our study. We strongly recommend medical schools to revise their curriculum to instill the virtue of empathy in all the medical students.

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