

Assessment of Empathy Levels among Medical Students in a Nigerian University

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Abstract

Background: Empathy plays a fundamental role in a good patient-doctor relationship and has been demonstrated to significantly improve patient satisfaction and clinical outcomes. Hence, this study assessed the empathy levels of undergraduate clinical medical students of the University of Jos, Nigeria.

Method: Across-sectional study was carried out between January and March 2020 among 546 clinical students in the 4th to 6th years of training. A self-administered Jefferson Scale of Empathy-Student version questionnaire was used to collect data which were analyzed with SPSS version 23.0. At 95% confidence interval, a p-value <0.05 was considered statistically significant.

Result: More than half of the participants were male (337, 67.1%). The mean empathy score was 110.6 ± 17.7 . Females (115.1 ± 14.9) had a significantly higher mean empathy score ($P = 0.0001$) than the males (107.8 ± 18.8). The 22-24years age group had a significantly higher empathy score than those aged 25-27 years ($P < 0.001$). There was a significant difference ($P = 0.049$) in empathy levels between participants in the 4th and 5th years of training. Students who were undecided about their specialty preferences had a higher mean empathy score (111.9 ± 15.0) than those who preferred medicine (111.5 ± 16.9) or surgery (109.0 ± 19.8) related specialties respectively.

Conclusion: This study has demonstrated a relatively high mean empathy score influenced by both sex and age. Advancing level of training and continued interaction with patients did not seem to have much effect on empathy. Hence, empathy and patient-centered care should be included in the curriculum of undergraduate medical training.

Key words: empathy, medical student, patient, University, Nigeria

Introduction

The distinguishing hallmarks of medicine are compassion and professionalism.¹ Empathy is a major aspect of providing both professional and compassionate medical care and is a principal component of clinical competence.^{1,2,3} Empathy in patient care is the capacity to share and understand the inner experiences of others in relation to oneself, with the capability of the physician to communicate this understanding.⁴ It is fundamental to social interactions and building interpersonal relationships.^{4,5} A good doctor-patient relationship is important in patient care and empathy has been proven to improve management outcomes for both patients and doctors.^{5,6,7} Physicians who are empathetic are more able to obtain information and insights critical to patient care.¹ Thus, they are better equipped to alleviate patients' anxiety, address their concerns about treatment and motivate compliance, which in turn improves patient adherence to treatment and overall health outcome.¹

Studies have been conducted globally in the last 20 years to evaluate the empathy levels of both health professionals and students in the health professions.^{2,3,8-14} In the face of the awareness of the importance of physician empathy in health care, most of the literatures have found a fluctuation in empathy of undergraduate medical students and those in post-graduate training.^{8,10,15-17} Hence this study was conducted among undergraduate clinical medical students in the University of Jos to determine the level of empathy and factors influencing it.

Methodology

Study Setting

The study was conducted among clinical medical students of University of Jos, in Jos University Teaching Hospital. This is a

public tertiary health institution in north-central Nigeria that provides a wide range of general and specialist health services to both out-patients and in-patients within and outside the State. The medical training in the University of Jos is divided into the pre-clinical phase and the clinical phase. The pre-clinical phase consists of students from year one to year three where the students study Anatomy, Physiology, Biochemistry and Community Medicine.

The clinical arm of medical training is carried out in Jos University Teaching Hospital (JUTH) and consists of students from their fourth year to sixth year of medical training. The fourth year is when the medical students are introduced to clinical training and offer courses in Introductory Medicine and Surgery, Pathology and Pharmacology. The fifth-year medical students offer courses in Obstetrics and Gynaecology, Paediatrics and specialties such as Radiology, Anaesthesia, Ophthalmology, ENT, Community Medicine and Psychiatry. The sixth year is the exiting year where students undergo clinical rotations in Medicine and Surgery. Importantly, it is in these clinical years that the students get involved in patient care which includes clerking and interaction with patient where their empathetic orientation is essential.

Study design

This was a cross-sectional descriptive study conducted between January to March 2020 among undergraduate students in the Faculty of Clinical Sciences, College of Health Sciences, University of Jos undergoing their clinical rotation in Jos University Teaching Hospital, Jos, Plateau State, Nigeria.

Sample size determination

The sample size for this study was determined using the sample size estimation formula for descriptive cross-

sectional studies.¹⁸The parameters used in the sample size estimation for this study include the standard normal deviate at 95% confidence interval (CI) which was 1.96, the standard deviation of the mean empathy score from a previous similar study which was 19.6¹⁴ and the degree of accuracy of the study set at 0.05 giving a minimum sample size of 555 after application of correction for finite population using finite population correction formula.¹⁸

Sampling method

All University of Jos medical students on clinical rotations during the study period were eligible to participate in the study, while those who declined to give consent were excluded. Furthermore, a total population approach to sampling was applied where all eligible students on clinical rotation who provided consent on participation were sampled giving a total of 556 participants.

Data collection

The English version of the Jefferson Scale of Empathy-Student (JSE-S) version was adopted and used to collect data. This questionnaire has 20 items which assess the student's level of empathy. It uses a 7-point Likert scale (strongly disagree = 1, strongly agree = 7). Ten items, are positively worded while the other ten items are negatively worded. The positively worded statements are directly scored while the negatively worded items are reverse scored. The total score obtainable by each student ranges from a minimum of 20 to a maximum of 140. The JSE score obtained is directly proportional to the individual empathy level. Thus, a higher JSE score is suggestive of a positive empathic orientation in patient care.²The questionnaire was self-administered to all participating students after a detailed explanation and assurance of

confidentiality. All filled questionnaires were retrieved from the participants daily through the designated member of the research team allocated to each year of study.

Ethical consideration

Ethical approval and permission to conduct the research was sought and obtained from the ethical committee of Jos University Teaching Hospital, Jos, Nigeria, (JUTH/DCS/IREC/127/XXX/2146. Permission to use the Jefferson Scale of Empathy-Student (JSE-S) version was obtained from the Centre for Research in Medical Education and Health Care, Jefferson Medical College of Thomas Jefferson University, Pennsylvania, U.S.A. Informed consent was obtained from the participants.

Data analysis

Data were analyzed using IBM SPSS Version 23.0 statistical software package. The empathy score was summarized using mean and standard deviation after demonstration of fulfillment of normality. Qualitative variables such as sex, year of study and desired specialty were presented as frequencies and percentages. T-test and analysis of variance (ANOVA) were used to determine the difference in mean empathy scores across the socio-demographic characteristics of the students. A 95% confidence interval was used in this study and a P -value < 0.05 was considered statistically significant.

Results

Demographics

A total of 546 respondents participated in the study out of a population of 556 students in the clinical years, undergoing clinical rotations. This gave a response rate of 98.2%. The participants comprised of 337(67.1%) male students, with 235

(43.0%) of the respondents between the ages of 22-24 years. In this study, 264 (48.4%) of the respondents were in the final year class. Most of the students (78.2%) indicated a specialty preference with the rest undecided as shown in Table

Empathy scores of participants using the JSE-S

The descriptive statistics for the mean score for all 20-items on the JSE are shown in Table 2. The mean empathy score of all the clinical students was 110.6± 17.7. Figure 1 displays the distribution of the empathy scores among the respondents. More of the respondents had empathy scores between 120 and 124. In Table 3 are shown the mean empathy scores by sex, age, year of training and specialty preferences. There was a statistically significant difference ($P < 0.001$) between

the females' mean empathy score (115.1 ± 14.9) and that for the males (107.8± 18.8). The respondents in the 22-24 years age group had the highest empathy score (113.3 ± 15.1). A statistically significant difference was found in the mean empathy scores between the various age groups of the students ($P = 0.001$) with a significant difference ($P < 0.001$) between 22-24 years group and the 25-27 years group. The 4th year clinical students had the least empathy score of 108.5 ± 16.7. An increase in empathy level occurred in the subsequent 5th year students. Students who were undecided about their specialty preferences had a higher mean empathy score (111.9 ± 15.0) than those who preferred medicine (111.5 ± 16.9) or surgery (109.0 ± 19.8) related specialties respectively though not statistically significant.

Table 1: Demographics of Participants (n = 546)

Variable	Frequency (%)
Sex	
Female	209 (38.3)
Male	337 (61.7)
Age (in years)	
<22	61 (11.2)
22-24	235 (43.0)
25-27	153 (28.0)
28-30	63 (11.5)
>30	34 (6.2)
Year of training	
4th year	158 (28.9)
5th year	124 (22.7)
6th year	264 (48.4)
Specialty preference	
Medicine related	211 (38.6)
Surgery related	216 (39.6)
Undecided	119 (21.8)

Table 2: Descriptive statistics of JSE-S among Nigerian medical students (n = 546)

Parameter	Summary indices
Total mean	110.6
Standard deviation	17.7
Median (50%)	114.0
Mode	121.0
25% percentile	103.0
75% percentile	123.0
Range	27 – 139

Table 3: Mean empathy scores by characteristics of participants

Characteristics	Mean (SD)	Mean difference	95% CI	P value
Sex				
Female	115.1 (14.9)	7.370	4.362-10.378	<0.001*
Male	107.8 (18.8)			
Age (in years)				
<22	109.3 (13.2)	-	-	0.001**†
22 - 24	113.3 (15.1)			
25 – 27	106.1 (23.6)			
28 – 30	112.5 (13.2)			
>30	111.1 (14.8)			
Year of training				
4th year	108.5 (16.7)	-	-	0.049**‡
5th year	113.7 (13.8)			
6th year	110.3(19.7)			
Specialty preferences				
Medicine related	111.5 (16.9)	-	-	0.235**
Surgery related	109.0 (19.8)			
Undecided	111.9 (15.0)			

SD – standard deviation, CI – confidence interval

*T – test, **ANOVA

†Post hoc test - significant difference between age groups 22-24 and 25-27 ($P < 0.001$)

‡Post hoc - significant difference between 4th year and 5th year of training ($P = 0.044$)

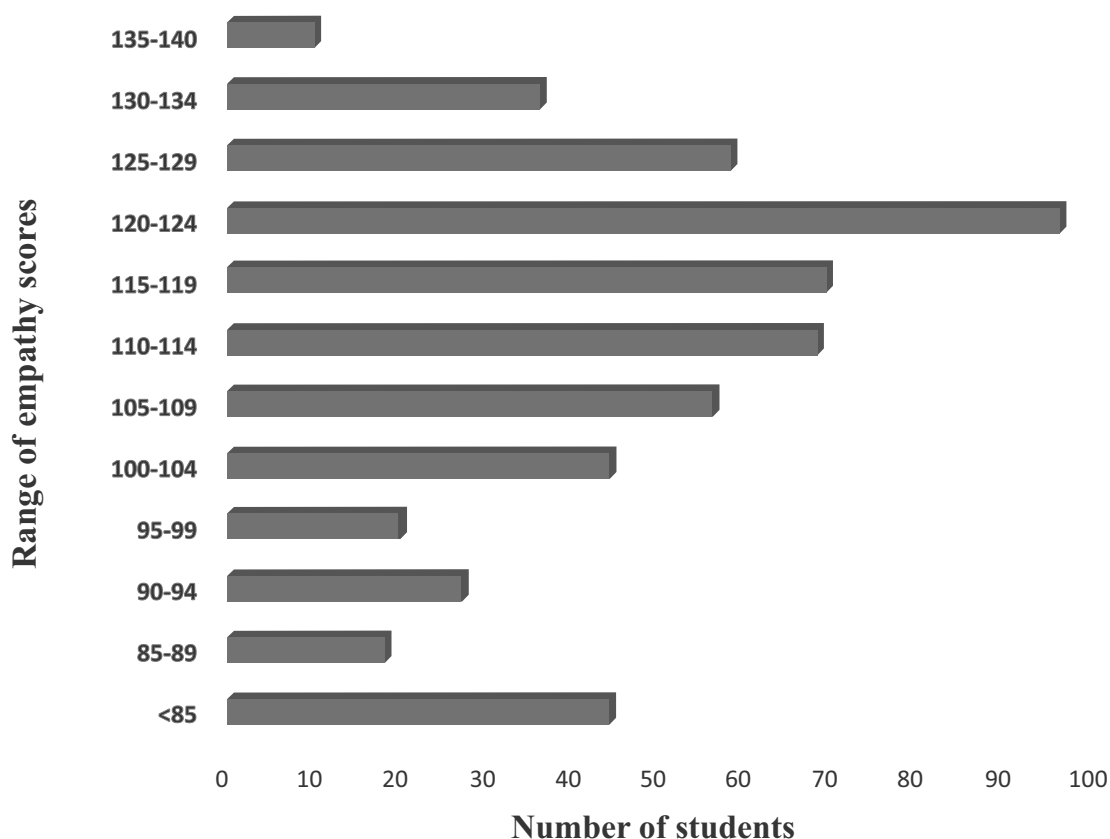


Figure 1: Distribution of JSE_S empathy scores among 546 undergraduate clinical medical students

Discussion

Empathy has been reported to improve treatment outcomes, reduce anxiety and facilitate satisfaction and treatment compliance.^{5,6,7} Physicians who are empathetic are more able to obtain information and insights critical to patient care.¹ The mean empathy score obtained among these medical students was less than scores obtained in studies among Portuguese¹⁷ and American¹⁹ medical students. This score is comparable to findings from studies in China,¹⁰ Italy,¹² South Africa²⁰ and Mexico²¹ but higher than those from studies conducted among Japanese¹¹ and Iranian¹³ medical students and a study among Nigerian dental students.¹⁴ Differences in socio-cultural norms, religion, beliefs and pedagogical methods have been put forward as possible factors for the

variations in empathy levels in different environments.^{10,13,14} These factors may affect the trait and expression of empathy in individuals.

Consistent with most literatures, females had significantly higher empathy level than the males in this study.^{2,3, 10,11, 17,19,20} A study in Iran however, did not find any statistically significant difference between the female and male scores.¹³ The higher empathetic trait of female students has been attributed to a few factors. It has been hypothesized that an evolutionary-biological sex characterisation in females makes them hard-wired with the ability to intuitively perceive the feelings of others and non-verbal expressions, thus with an observed tendency to be more caring and sensitive.^{22,23} Likewise, is the extrinsic factor of socialization which influence differences in gender role expectations and

interpersonal relationships.²⁴⁻²⁶ Thus, in most societies, females are easily able to exhibit humane, care-oriented traits and offer emotional support to patients compared to males who may exhibit less of these traits but tend towards control and problem-solving trait.^{4,22,25} There also seems to be a higher predilection among females to self-reported empathetic behaviour.²⁷

Age was another important factor which influenced the empathy scores of the students in this study, with the younger students exhibiting higher empathy scores. This is contrary to reports of higher empathy scores with older students.^{8,10,20}

The higher empathy scores in older students has been ascribed to more and broader life experiences which may impact positively on their understanding and perception.¹⁰ It is pertinent to note that in Nigeria, the instability in the Public education sector may result in an extension of the undergraduate medical training. Thus, students may find themselves getting older as undergraduates. This may give rise to disenchantment and fatigue which may erode the empathy levels of the students.

There was a significant difference in empathy levels between the different years of training. A fluctuation in empathy levels with advancing years of training was observed, with a significant increase in the level after a few months of interaction with patients followed by subsequent fall in empathy level in the last year of training. Thus, it seemed continued interactions with patients with advancing years of clinical training did not have a significantly positive effect on the empathy levels of the students. Other reports have also shown a lack of increase or decline in self-reported empathy in undergraduate medical students with advancing years of study.^{13,15,16} Certain factors such as lack of appropriate role

models,^{28,29} perception of belittlement and harrassement,³⁰ and partial sleep deprivation,³¹ may be responsible for this decline. The focus of modern medicine on the science of medicine to the detriment of the art of patient care is also believed to contribute to erosion of empathy.¹⁵ An increase or the absence of a decline in empathy may be attributable to yet unknown protective factors which may neutralise the impact of negative factors.¹⁵ Conversely, studies among Chinese¹⁰ and Portuguese¹⁷ students observed an increase in empathy level among the students in the higher classes. It was speculated by the authors of the Portuguese study that the inclusion of principles of humanism, patient-centred care, and training in communication skills in the curriculum might explain the higher empathy level in the senior class in their study.¹⁷

Literature has highlighted the higher empathy levels in medical students with a preference for people-oriented specialities as against technology/procedure-oriented specialities.^{3,4,15,17} Although, this study was able to detect a higher empathy level among the clinical students with a preference for medicine-related specialities (people-oriented specialities), it was not significantly different from those who preferred the surgery-related (technology-oriented) specialities. The difference between these preferences may be hinged on individual interpersonal skills.^{3,2} and the emphasis laid on communication and interpersonal skills in certain specialities during training.⁴

A limitation of this study is that this was a cross-sectional study and as such, changes in empathy score as the students progressed through different levels in clinical training could not be assessed. The self-reported level of empathy obtained might not translate to the actual empathy levels of the students in their interactions

with patients. Peer assessment, assessment by trainers and patient assessment are complementary methods to determine sympathy in students. As the study was carried out in a single university and among only clinical medical students, the findings might not be sufficiently generalizable for all medical students in Nigeria.

Conclusion

This study has demonstrated a relatively high mean empathy score influenced by both sex and age. Training in the humanities, communication and interpersonal skills should emphasize on empathy and patient-centered care in the undergraduate medical curriculum. This may help to enhance the development of empathetic traits in medical students.

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Conflicts of interest

The authors declare there were no conflicts of interest.

Authors' contributions

Tolulope O Afolaranmi, Priscilla Okhiabigie Ameh and Late Zuwaira I Hassan participated in the conceptualization and design of the study, literature review, analysis and interpretation of results, drafting and revising the manuscript, and final approval prior of submission for publication. Stephen Sani, Osinachi Chima Nwoke and Mary- Jane Ebonyi participated in the design of the study, literature review, analysis and interpretation of results, drafting and revising the manuscript and

final approval prior to submission for publication. All authors agreed to be accountable for the content of the work.

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