ORIGINAL ARTICLE

Teaching clinical empathy to undergraduate medical students of Dehradun: A quasi-experimental study

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Abstract

Background: Empathy, the aptitude to resonate with others‟ emotions, influences favourable doctor-patient relationship and treatment outcome. The clinical empathy comes a cropper for medical students as they stride towards the completion of medical course. Empathy is a docile characteristic; hence the lamentable dwindling of clinical empathy is amenable to prevention by specially designed targeted interventions. **Aims & Objectives**: To evaluate any change in empathy level of undergraduate medical students after an interactive audio-visual teaching session on clinical empathy **Material & Methods**: It was a pre-post quasi experimental study done on 328 undergraduate medical (MBBS) students of Dehradun by using Jefferson Scale of Empathy- Medical Student Version (JSPE-S) with pre-test and post-test separated by an interval of one month after an interactive audio-visual teaching session on clinical empathy. **Results**: There was statistically significant improvement in overall mean empathy scores from 99.01(±12.9) to 109.33(±12.8) with a large effect size (Cohen‟s d = 1.1). Statistically significant improvement in empathy level was seen irrespective of gender, age, MBBS year and area of interest for future speciality with large effect sizes of >0.8. **Conclusion**: Clinical empathy can be improved during the years of medical education by specifically designed interventions.

Keywords

Empathy; Medical Students; Pre-Post Quasi-Experimental; Jefferson Scale of Empathy- Medical Student Version (JSPE-S).

Introduction

“We have to teach empathy as we do literacy” - Bill Drayton

Empathy, the aptitude to resonate with others‟ emotions, influences favourable doctor-patient relationship and treatment outcome (1). Empathy in

medical context is clinical empathy, i.e., empathy of health care professionals for the patient (2). Clinical empathy comes with enticing packages of patients‟ as well as doctors‟ satisfaction, upgraded diagnosis and management, better patient compliance, reduced medico-legal issues and an overall reform in clinical outcome (3-6). But many studies have shown decline in empathy with increasing clinical exposure (7-14). Hence, it can be concluded that clinical empathy comes a cropper for medical students as they stride towards the completion of medical course.

Clinical empathy is a complex concept that has been explained by four dimensions by some researchers. These four dimensions are emotive, moral, cognitive and behavioural. The emotive dimension of clinical empathy connotes to the ability to understand patients‟ emotions by the clinician from their (patients‟) perspective. The moral component deals with the doctors‟ zeal and motivation to be empathetic to patients. The cognitive dimension denotes the intellectual ability of the clinician to be empathetic. The fourth dimension, i.e., the behavioural dimension is the expression and reciprocation of those empathetic gestures and actions to patients. Hence, an improvement in empathy requires improvement in all the four dimensions of empathy (15-17).

Empathy, being a multidimensional concept, is an arduous task to measure and quantify. Measuring empathy is essential to carry out any intervention aimed at improving empathy level. Various empathy measurement scales have been used like IRI (Interpersonal reactivity index), BEES (Balanced Emotional Empathy Scale), ECRS (Empathy Construct Rating Scale), HRS (History-taking Rating Scale), AES (Accurate Empathy Scale) and JSE (Jefferson Scales of Empathy) (18).

Empathy is a more desired character for medical personnel than sympathy. There is a linear relationship between empathy and positive clinical outcome whereas for sympathy, this relationship is inverted U shaped. Hence, with increasing clinical empathy, clinical outcome keeps on improving but sympathy is beneficial only up to some extent, after which it has a negative impact on the desired patient outcome. Moreover, in contrast to sympathy, empathy can be easily improved by education (1). Researchers have tried different methods to teach and improve empathy, e.g. training in communication skills, indulgence in theatrical performance and medical literature courses, experimental learning by adopting patients‟ position to understand things form patients‟ perspective, self-care courses on personal wellness and spirituality (18, 19). Empathy is a docile characteristic; hence the lamentable dwindling of clinical empathy is amenable to prevention by specially designed targeted interventions. Inculcating clinical empathy in medical students has been placed among the learning objectives of medical college authorities in some countries (1) but this component has not received much attention by the Medical Council of India (MCI) and Indian Medical Colleges. The MCI has recently proposed a reform in medical education by including attitude and communication (ATCOM) skills but this field still requires much attention (20). Hence, this study was conducted in Indian context to evaluate whether the clinical empathy level of Indian undergraduate medical students is amenable to change by empathy education.

Aims & Objectives

To evaluate any change in empathy level of undergraduate medical students after an interactive audio-visual teaching session on clinical empathy.

Material & Methods

This pre-post quasi experimental study was conducted among undergraduate medical students of a reputed medical college of Dehradun (India). Ethical clearance was obtained for conducting this study. Jefferson Scale of Empathy- Medical Student Version (JSPE-S) was used to measure empathy levels after taking permission from the authors of this scale. JSPE-S is a validated questionnaire on a seven point Likert scale with 20 statements, 20 being the lowest and 140 being the highest possible score and it is one of the most widely used measures of empathy for medical students.

We were permitted to include a maximum of 400 students in our study. All the students of MBBS 1st, 2nd and 3rd years (out of a total of 450 students), who were present on the day of pre-test were included in the study after taking informed consent. Blank forms of JSPE-S were distributed to all the participants. Necessary instructions for completing the form and maintaining anonymity were given. Participants were instructed to complete the form within fifteen minutes after which the forms were collected and coded to maintain confidentiality.

The pre-test was followed by an interactive audio-visual teaching session on clinical empathy. A short video was shown to the participants that forced them to feel the emotions of patients in different situations in a hospital setting. It was followed by a discussion on the video by talking about the various scenarios shown and to improve patient care in all those. A teaching session using power point presentation on empathy, focussing on empathy in medical perspective, was then conducted. The basics of empathy, the difference between sympathy and empathy, clinical empathy, good doctor-patient relationship, empathetic patient care, etc. were elucidated. Finally tips to improve clinical empathy were given and its importance in patient care and clinical outcome was explained. This was followed by an open question answer session and at the end of the session, all the important points of the discussion were recapitulated for reinforcement. After one month of pre-test, post-test was conducted by using the same scale to measure empathy and by giving similar codes to participants as before for identification. Only those students who were present for both pretest and post-test with adequate response to items of JSPE-S (at least 16 complete responses out of 20, i.e. 80% response rate), were included for the final pre-post analysis making a sample size of 328.

Positively worded and negatively worded items were scored according to the guidelines given by the authors of JSPE-S. Data were entered in the 22nd version of SPSS software and analysed. Mean and standard deviation were calculated for the overall pre-test and post-test scores as well as separately for the sub-groups based on age, gender, professional year of MBBS and the area of future interest of specialty. The difference between the means of pretest and post-test scores were tested for statistical significance by paired t-test at 5% significance level. Cohen‟s d was calculated as a measure of effect size.

Results

A total of 328 undergraduate medical students of MBBS 1st, 2nd and 3rd years were included in this pre-post quasi experimental study on empathy using the Jefferson Scale of Empathy- Medical Student Version (JSPE-S). Figure 1 shows the distribution of the study subjects according to gender (Figure 1a), age (Figure 1b), MBBS year (Figure 1c) and area of interest for future specialty (Figure 1d). The female to male ratio of participants was 1.6, with maximum students (95.1%) less than 22 years of age, maximum representation was from 2nd year MBBS followed by 3rd year and 1st year. 42.7% of the participants wanted to do their specialization in surgical branches (including general surgery with/without further super specialization, ophthalmology, Obstetrics and gynaecology, otorhinolaryngology, orthopaedics, etc.), 40.5 % in medical branches (including internal medicine with/without further super specialization, paediatrics, psychiatry, etc), 8.2% technical branches (including pathology, microbiology, radiology, etc.) and 8.5% were undecided.

The means and standard deviations of pre-test and post-test empathy scores for all the 328 students were calculated. The pre-test mean for empathy scores was 99.01 with standard deviation 12.9 whereas the post-test mean increased to 109.33 with standard deviation 12.8. Paired t-test showed that the difference between the means of pre-test and post-test was statistically significant with p value <0.001. The effect size was seen by calculating Cohen‟s d, which came out to be 1.1

sample size. Cohen‟s d of

by the formula $t/\sqrt{N}$, where,

t‟ is the t statistic and „N‟ is the

>0.8 shows large effect (21), hence the effect size for overall improvement in empathy scores was large. (Table 1) To see the effect of the empathy education on the empathy scores in sub-groups, paired t-test was applied and separate effect sizes were calculated (Table 2). Irrespective of age, gender, year of MBBS education and area of interest for future specialty, there was statistically significant improvement in empathy scores by the intervention applied with large effect sizes (>0.8) for all the sub-groups

Discussion

In the present study, Jefferson Scale of Empathy-Medical Student Version (JSPE-S) was used to measure pre and post empathy levels after an interactive audio-visual teaching session on clinical empathy. Empathy scores were found to be significantly higher with large effect size irrespective of age of the participants, their gender, years of medical education and future area of interest for specialty. Some quantitative as well as qualitative pre-post studies on improving empathy in medical students and physicians have been performed at different places of the world. DiLalla et al. in 2004

showed that students who attended spirituality, wellness or empathy courses had higher empathy scores. They had used a non-validated tool for measuring empathy and the effect size was small (22). Literature and medicine course was used as an intervention in a pre-post study with experimental and control groups by Shapiro et al. in 2004 by using two tools, BEES (Balanced Emotional Empathy Scale) and ECRS (Empathy Construct Rating Scale). Moderate effect size was seen with BEES and no change was there with ECRS (23). Winefield et al. in the year 2000 showed a large pre-post effect size on providing communication skill workshop to preclinical medical students but they had used a non-validated survey for empathy (24). No significant change in empathy level was observed by Henry-Tillman et al. when preclinical medical students were made to accompany and assist a patient for a clinical visit but qualitative analysis of group discussion showed increase in empathy (25). Randomized controlled study was done by Kramer et al. by involving the experimental group of medical students in workshop on interpersonal skills (26). Interpersonal skills workshop was also used by Fine et al. and significant increase in empathy level was seen (27). Communication skills workshop by using audiotape was used for improving empathy in medical students by Sanson-Fischer et al. and Poole et al. (28, 29). Some qualitative studies have also shown increase in empathy level by literature and medicine course (23, 30). Qualitative analysis of case studies of students who had been hospitalized by Wilkes et al. showed improvement in empathy among those students (31). Attending theatrical performance was tried in a qualitative study by Shapiro et al. (23) and reflective writing seminar by Das Gupta et al. (32) with positive outcome in empathy. Therefore, similar to our study, most of the aforementioned studies have shown by different interventions that empathy is amenable to improvement among medical students.

Conclusion

This pre-post quasi experimental study showed statistically significant improvement in empathy level of undergraduate medical students with large effect size. This improvement was independent of age, gender, years of medical (MBBS) education and plans for choice of future specialty. Hence, it can be concluded that clinical empathy can be improved during the years of medical education by specifically designed interventions

Recommendation

The authors, based on their research, recommend further studies on improving clinical empathy among medical students by other medical colleges of India. Other methods of improving empathy levels and inclusion of control groups may be undertaken. Longitudinal studies with follow-up throughout the medical course and reinforcement studies could also be considered. The Medical Council of India and Indian Medical Colleges should consider empathy education in the teaching curriculum of medical students.

Limitation of the study

This was a small scale study, conducted among MBBS students of only one medical college and only one method, i.e., interactive audio-visual teaching session on clinical empathy, was applied as the intervention. Control groups were not included in this study.

Authors Contribution

All authors have contributed equally in this article.

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Tables

TABLE 1 COMPARISON OF PRE-POST EMPATHY SCORES

	Mean (±SD)	Mean difference	t statistic	p value	Effect size (Cohen's d)
Pre-test	99.01(±12.9)	-10.3 (±9.8)	-19.1	<0.001*	1.1
Post-test	109.33(±12.8)				
***Paired t-test**					

TABLE 2 COMPARISON OF PRE-POST EMPATHY SCORES ACCORDING TO GENDER, AGE, MBBS YEAR AND AREA OF INTEREST

		Test *	Mean (±SD)	Mean difference	t statistic	p value#	Effect size (Cohen's d)
Gender	Male (n=126)	T-1	96.36 (±11.8)	-5.5 (±6.1)	-10.3	<0.001	0.9
		T-2	101.91 (±11.2)				
	Female (n=202)	T-1	100.66 (±13.3)	-13.3 (±10.5)	-18.0	<0.001	1.3
		T-2	113.95 (±11.5)				
Age	<22 years (n=312)	T-1	99.31 (±13.0)	-10.2 (±9.9)	-18.2	<0.001	1.0
		T-2	109.49 (±12.9)				
	22-24 years (n=16)	T-1	93.26 (±9.5)	-13.0 (±7.8)	-6.6	<0.001	1.7
		T-2	106.22 (±9.3)				
MBBS year	1st (n=70)	T-1	99.09 (±12.3)	-9.4 (±9.2)	-8.6	<0.001	1.0
		T-2	108.49 (±12.9)				
	2nd (n=138)	T-1	100.72 (±12.9)	-10.2 (±10.5)	-11.4	<0.001	1.0
		T-2	110.96 (±12.5)				
	3rd (n=120)	T-1	97.00 (±13.1)	-10.9 (±9.3)	-12.9	<0.001	1.2
		T-2	107.94 (±13.0)				
Area of interest	Medical (n=133)	T-1	100.17 (±12.6)	-10.4 (±10.4)	-11.5	<0.001	1.0
		T-2	110.57 (±12.4)				
	Surgical (n=140)	T-1	98.58 (±13.3)	-9.8 (±9.1)	-12.7	<0.001	1.1
		T-2	108.38 (±12.7)				
	Technical (n=27)	T-1	95.53 (±12.9)	-8.8 (±7.3)	-6.2	<0.001	1.2
		T-2	104.33 (±14.1)				
	Undecided (n=28)	T-1	98.96 (±12.2)	-14.0 (±11.5)	-6.4	<0.001	1.2
		T-2	112.96 (±12.3)				
*T-1: Pre-test, T-2: Post-test; # Paired t-test							

Figures

FIGURE 1 DISTRIBUTION OF THE STUDY POPULATION ACCORDING TO GENDER (FIGURE 1A), AGE (FIGURE 1B), MBBS YEAR (FIGURE 1C) AND AREA OF INTEREST (FIGURE 1D)