

Empathy Level among the Medical Students of National Defence University of Malaysia Consuming Toronto Empathy Scale

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Abstract

Background: Multiple research articles were continuously emphasizing that constructive effects of empathy improve patient care. Medical professional bodies often talk that medical doctors need to be competent in clinical skills and empathetic. There was enormous demand from patients that doctors should be empathetic and motivate listeners. Therefore, medical educators became highly concern about the issue whether their students possess empathetic qualities. **The Aim of the Study:** To measure the empathy level among the medical students and to perform validation and reliability study of the Toronto Empathy Questionnaire (TEQ). **Materials and Methods:** This was a cross-sectional study among medical students of the Defence University of Malaysia to measure empathy level. The TEQ was utilized to collect data. The data were collected in early second half of 2017. The universal sampling method was adopted, and data were analyzed with IBM SPSS Software. **Results:** The current study population holds an average level of empathy. Female medical students had statistically significantly ($P = 0.001$) higher scores than their male friends. There no statistically significant differences observed in the TEQ score between the year of study ($P = 0.948$) and type of admission ($P = 0.065$). **Conclusion:** The current study respondents possess an average level of empathy. Educational intervention can be incorporated to enhance empathy level which sequentially promotes patient care.

Keywords: Empathy, Malaysia, medical students, Toronto empathy scale

INTRODUCTION

Humans are supportive and accommodating, much more than chimpanzees and other primates.^[1] The collective work attitude developed in the parenting practices was observed among apes' ancestors of the human being who lived a few million years ago. This kind of human collaboration – the joint baby-sitting of these apes – was the decisive moment that commanded to Homo sapiens being emotionally current human beings, skilled of reciprocated gratitude and considerate.^[1] Around 100,000 years back, the human brain and neural volume start augmented to trebled in size and utilized for social relation dimensions such as empathy, language, cooperative planning, altruism, parent-child attachment, social cognition, and the construction of the personal self in relationships.^[2] Thereafter, Charles Darwin wrote “all sentient beings developed through natural selection in such a way that pleasant sensations serve

as their guide, and especially the pleasure derived from sociability and from loving our families.”^[3] Empathy is the most imperative talent that leads to better accomplishment both in individual and professional issue and promotes to be happier when practiced.^[4] There is a range of “empathy, with pity at one end, empathy at the other and compassion and sympathy somewhere in between. Society needs to undergo an empathic revolution” if human being wants to continue as a species on this planet.^[5]

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The successful and effectual practice of medicine needs narrative mastery, that is, the “ability to acknowledge, absorb, interpret, and act” on the description of troubles of an individual patient. The medical doctors who accomplish their work with narrative competence, called narrative medicine, are recommended as a model for compassionate, understanding, tolerant, and effective practice of medicine. Espousing approaches such as “close reading of literature and reflective writing allows narrative medicine” to look at and irradiate four of medicine’s dominant narrative state of affairs: “physician and patient, physician and self, physician and colleagues, and physicians and society.”^[6] “The empathic component of medicine is what makes a physician special; without it medical doctors are highly trained computers.”^[7] Today, most medical schools because of myopically focus on medical education and prospectus which is wholesomely technical tactic obfuscate the human side of medicine and wear away empathy – the capability to comprehend and care about a patient compulsion.^[8] In the empathy levels of medical students diminishing as they become older.^[9,10] Several of them lose their devotion toward patients. Thereafter, converted to a technician, as through textbooks, laboratory experiments, and lectures; future doctors, acquire body parts, processes, and conditions; the hard science of medicine. Again, medical students, then submissively validate their knowledge through high order of professional examinations.^[8]

It has been often observed that at least 50% of medical students were burnout characterized by emotional collapse, skepticism and depersonalization, and reductions in personal success and usefulness.^[11,12] It has been observed medical students were higher level burnout as calculated utilizing the Maslach Burnout Inventory were associated with lower empathy scores as assessed consuming the Jefferson Scale of Physician Empathy-Student Version. Furthermore, professionalism climate instrument also revealed similar lower scores in medical students, residents, and faculty within the learning environment with more burnout individuals.^[13] Another study revealed that medical students possess higher empathy scores were significantly and positively linked with higher grades of clinical competence and especially with female medical students.^[14]

Pragmatic evidence authenticates and establishes significant associations with patients’ contentment with their medical doctors, interpersonal confidence, and acquiescence with physicians’ commendations.^[15] Another Argentine study reported that doctors were concern level was poor about their patients’ day to day difficulties and a lower potential to appreciate and comprehend patient misery standing on patients’ shoes.^[16] One British conducted in a Homoeopathic Hospital observed that patients’ comprehension regarding physicians’ empathy is pivotal to facilitate the interim and long-term improvement of patients’ health and overall well being.^[17] Similarly, another British study among general practitioners revealed that GPs’ empathy level had strategic significance on the patient to facilitate health outcomes equally

high and low hardship context.^[18] Another cross-sectional study among German cancer patients revealed that doctors’ empathy was significantly associated with averting depression and humanizing quality of life.^[19] The same also identified that doctors’ stress deleterious effect. Finally, this German study concluded that “empathy, as an outcome-relevant professional competence, needs to be assessed and developed more intensively in medical students and physicians.”^[19] Empathy is a multifaceted complex notion and expertise with cognitive, affective, and behavioral components.^[20-22] Clinical empathy is defined as “the ability to identify an individual’s unique situation (perspective, opinions, ideas, and feelings), to communicate that understanding back to the individual and to act on that understanding helpfully.”^[20] Thereafter, physician training on empathic expression with resulted in significant optimistic enhancements of up to 51% in empathic scores among the trained physicians in the study population.^[23] It has been concluded by another British study that doctors who possess and practice high quality of clinical empathy achieve greater rapport with their patients’ and acceptance clinical decisions.^[24] A large, well-powered recommended that optimistic, patient observation of physician’s “empathy had significant effects on reducing the extent and severity of the most common infectious disease on the planet.”^[25] This study also observed there was a significant change in the level Interleukin-8 and neutrophils count in those patients who score their doctors 50/50 on empathy, compassion and willingness to listen.^[25] Interleukin-8 and neutrophils have been considered as an important marker for viral infection.^[26,27] Therefore, it has been concluded a number research that doctors’ who possess with high empathetic quality their patients not only satisfied but also significantly decreases several disease biomarkers.^[28-30] Physician’s empathy was reported to enhance patient’s enablement,^[31] that in sequence give rise to better compliance with treatment and boosted health outcomes.^[32] Patient enablement denotes to the capacity of the patient to recognize, comprehend, and deal with their disease,^[33,34] and hereafter, empathy is an essential quality for all medical doctors, especially those who handle chronic illness patients.^[35] Research outcomes point out that medical students’ empathy scores were significantly associated with students’ clinical competence. The empathy level among medical students at the start of their studies in medical school was found statistically significantly related to future specialty preference and career choice.^[36-39] Hereafter, recommend that enlightening empathy during undergraduate studies by posing directed courses is essential for augmenting clinical skills.^[14,40]

The Toronto Empathy Questionnaire (TEQ) was developed to quantity professionally and consistently assess empathy.^[41] It has been reported that earlier instrument to measure empathy fail to accomplish great diverseness and multifariousness,^[42] but TEQ was formulated on the broadest level.^[41] The TEQ is 16-item five-point Likert type self-reported questionnaire assesses behavioral, emotional, cognitive, and physiological aspects of empathy in individuals in broadspectrum.

Furthermore, the survey form comprises avowals that incorporate an all-encompassing variety of qualities related with the theoretic features of empathy such as emotion comprehension and sympathetic physiological arousal to assess global empathy as the TEQ theorizes empathy as a first and foremost emotive and passionate drill.^[43-46] The scale assesses the frequency that the statements are considered true and ranges from 0 = never, 1 = rarely, 2 = sometimes, 3 = often to 4 = always).^[41] The TEQ has been utilized to conduct quite a lot of studies in several countries of North America, Europe, and the Caribbean Islands.^[43-54] The TEQ instrument has been recognized as a reliable questionnaire to assess empathy for different age groups which include adolescents, university students, adults, and general practitioners with satisfactory psychometric properties.^[43-51,54] This was intended to investigate abilities among medical students of National Defence University of Malaysia [Universiti Pertahanan Nasional Malaysia (UPNM)], the comparison between sexes and year of the study. Furthermore, to the best of the researchers' knowledge, there had been no study had been conducted regarding empathy level among medical students of UPNM utilizing TEQ instrument.

MATERIALS AND METHODS

Type of study

This was a cross-sectional study.

Place of study

The study was conducted in Faculty of Medicine and Defence Health (FPKP), UPNM (National Defence University of Malaysia), Kem Sungai Besi, 57000 Kuala Lumpur, Malaysia.

Study period

Data were collected from July 15, 2017 to September 14, 2017.

Source of population

Medical students of Session 2016–2017 of year I–V.

Sampling method

Universal sampling method was adopted as total population was small.

Data collection tool

The TEQ was utilized to collect the data.^[41] The necessary permission was obtained prior utilization the instrument. As universal sampling method was adopted and currently, FPKP has a total of 241 students from year I to V, thereafter, 241 questionnaires disturbed among the medical students of FPKP, UPNM. Medical students of the current study were explained vividly about research and data will be utilized for a research paper. Furthermore, students were informed that participation in the present study is the entirely voluntary basis and anonymous. Informed written consent was obtained along with data collection.

Data management and analysis

Statistical Package for Social Sciences (SPSS) software 21 (IBM Corporation, Armonk, NY, USA) collected were

analyzed using both descriptive and inferential statistics.

Ethical approval and financial support

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RESULTS

Out of 241 questionnaires distributed, 224 returned giving response rate 92.95%. Among the study respondents, 54% (121) and 46% (103) were male and female, respectively. Year-wise distribution was 21.9% (49), 19.2% (43), 17.9% (40), 13.8%, and 27.2% (61) were year-I, II, III, IV, and V, respectively. The study respondent ethnic distribution was 65.2% (146), 23.2% (52), 11.2% (25), and 0.4% (1) were Malay, Indian, Chinese, and others, respectively. The students were admitted 63.4% (142), 21.9% (49), and 14.7% (33) were as Cadet Officers, Civil Student, and Territorial Army, respectively [Table 1].

Details regarding descriptive statistics for the TEQ 16 items are depicted in Table 2. The higher median value was 4 and was found in the items 3 and 5. Niceties concerning about the internal consistency reliability for the TEQ 16 items are illustrated in Table 3. The Cronbach's alpha and convergent validity of the TEQ instrument was found 0.735 and 0.300–0.573, respectively [Table 4].

Table 1: Sociodemographic characteristics of study respondents (n=224)

Variables	n (%)
Sex	
Male	121 (54.0)
Female	103 (46.0)
Year of study	
I	49 (21.9)
II	43 (19.2)
III	40 (17.9)
IV	31 (13.8)
V	61 (27.2)
Ethnic	
Malay	146 (65.2)
Chinese	25 (11.2)
Indian	52 (23.2)
Others	1 (0.4)
Admitted as	
Cadet officer	142 (63.4)
Territorial army	33 (14.7)
Civil student	49 (21.9)
Grade	
A	81 (36.2)
B	123 (54.9)
C	20 (8.9)

Table 2: Descriptive statistics for the Toronto Empathy Questionnaire items^[41] of the current study

Items	Mean±SD	Median	Percentile 25	Percentile 75
1. When someone else is feeling excited, I tend to get excited too	2.56±0.77	2	2	3
2. <i>Other people's misfortunes do not disturb me a great deal</i>	2.38±0.87	2	2	3
3. It upsets me to see someone being treated disrespectfully	3.38±0.76	4	3	4
4. <i>I remain unaffected when someone close to me is happy</i>	2.80±0.91	3	2	3
5. I enjoy making other people feel better	3.41±0.70	4	3	4
6. I have tender, concerned feelings for people less fortunate than me	3.07±0.83	3	3	4
7. <i>When a friend starts to talk about his/her problems, I try to steer the conversation towards something else</i>	2.88±0.91	3	2	4
8. I can tell when others are sad even when they do not say anything	2.68±0.84	3	2	3
9. I find that I am "in tune" with other people's moods	2.33±0.90	2	2	3
10. <i>I do not feel sympathy for people who cause their own serious illnesses</i>	2.71±0.92	3	2	3
11. <i>I become irritated when someone cries</i>	2.69±0.93	3	2	3
12. <i>I am not really interested in how other people feel</i>	2.98±0.86	3	2	4
13. I get a strong urge to help when I see someone who is upset	2.90±0.83	3	2	3
14. <i>When I see someone being treated unfairly, I do not feel pity very much for them</i>	3.14±0.93	3	3	4
15. <i>I find it silly for people to cry out of happiness</i>	3.02±0.95	3	2	4
16. When I see someone being taken advantage of, I feel kind of protective towards him/her	2.91±0.84	3	2	4

Items in italics are reversed. SD: Standard deviation

Table 3: Internal consistency reliability for the Toronto Empathy Questionnaire items^[41] of the current study

Items	Cronbach alpha if item deleted
1. When someone else is feeling excited, I tend to get excited too	0.729
2. <i>Other people's misfortunes do not disturb me a great deal</i>	0.723
3. It upsets me to see someone being treated disrespectfully	0.722
4. <i>I remain unaffected when someone close to me is happy</i>	0.728
5. I enjoy making other people feel better	0.715
6. I have tender, concerned feelings for people less fortunate than me	0.720
7. <i>When a friend starts to talk about his/her problems, I try to steer the conversation towards something else</i>	0.740
8. I can tell when others are sad even when they do not say anything	0.728
9. I find that I am "in tune" with other people's moods	0.726
10. <i>I do not feel sympathy for people who cause their own serious illnesses</i>	0.726
11. <i>I become irritated when someone cries</i>	0.729
12. <i>I am not really interested in how other people feel</i>	0.713
13. I get a strong urge to help when I see someone who is upset	0.709
14. <i>When I see someone being treated unfairly, I do not feel pity very much for them</i>	0.717
15. <i>I find it silly for people to cry out of happiness</i>	0.718
16. When I see someone being taken advantage of, I feel kind of protective toward him/her	0.712

Items in italics are reversed

Table 4: Reliability and validity of overall

Domains	Cronbach's alpha	Convergent validity
Total score	0.735	0.300-0.573*

*Correlation is significant at the 0.01 level (two-tailed)

There was statistically significant ($P = 0.001$) differences was between sexes. Male (44.5 ± 6.4) respondents had significantly lower TEQ scores than female (47.4 ± 5.6) counterpart [Table 5]. Furthermore, there were no statistically significant ($P = 0.065$) differences observed [Table 5] between the TEQ scores of Cadet Officers (46.4 ± 6.2), Territorial Army (46.2 ± 6.1), and Civil students (44.0 ± 6.0). Similarly, there were no

statistically significant ($P = 0.948$) differences observed between the year of study [Table 6].

DISCUSSION

The current study response rate was 92.95%. It can be considered as adequate as it has been reported that "response rates approximating 60% for most research should be the goal of researchers and certainly are the expectation of the Editor and Associate Editors of the Journal."^[55] Another research revealed on an average 56%.^[56] The same study summarized nine research articles regarding response, and it was revealed lowest and highest was 32.6% and 75%, respectively, for the paper-based survey.^[56] Thereafter, the current study response

Table 5: Comparison of the total Toronto Empathy Questionnaire score by sex and admission category (n=224)

Variables	Sex (n=224)		P*	Admitted as (n=224)			P**
	Male (n=121)	Female (n=103)		Cadet officer (n=141)	Territorial army (n=33)	Civil student (n=49)	
Total score	44.5±6.4	47.4±5.6	0.001	46.4±6.2	46.2±6.1	44.0±6.0	0.065

Values were presented as mean±SD. *Independent t-test, **One-way ANOVA. SD: Standard deviation

Table 6: Comparison of Total Empathy Quotient score based on year of study (n=224)

Variables	Year I (n=49)	Year II (n=43)	Year III (n=40)	Year IV (n=31)	Year V (n=60)	P*
Total score	46.2±6.1	45.3±6.1	46.1±5.8	45.3±7.9	46.0±5.7	0.948

Values were presented as mean±SD. *P<0.05. One-way ANOVA. SD: Standard deviation

was high and can be explained as the study population and area was a military medical school, hence, discipline is a foremost issue for any military of this planet.^[57] “Women were taking 60% of medical school places in the UK, rising to 70% at some universities. Medical schools should do more to attract male students who are being heavily outnumbered by women with better A-level results and more convincing extramural skills.”^[58] More recently reported that “men are less likely than women to go to British universities, those who do are more likely to drop out, and those who complete their course are less likely to get a good degree, according to a Think Tank report.”^[59] Similarly, many paper-based research studies among medical students of Malaysia reported that the number of female medical students increased outnumbering male colleagues.^[60-62] In contrast to those earlier reports, the current study respondents’ male medical students were higher their female friends. This is very difficult to explain, but maybe a military medical school was less preferred by females. Malaysia is a federal constitutional monarchy and a multiconfessional country whose most professed religion is Islam and Malay as their ethnic group. Afterward, the current study findings regarding ethnic group and religion were in the same line of country’s sociodemographic profile.

Cronbach’s alpha the most frequently used to quantify the coefficient of reliability (or consistency).^[63] It was suggested that it is so convenient because easy to compute on every occasion a multi-item scale is administered. Cronbach’s alpha are extensively utilized since powerful manuscripts have recommended that it denotes adequately to assess reliability.^[64] “Coefficient α usually provides a good estimate of reliability because sampling of content is usually the major source of measurement error for static constructs and should be applied to all new measurement methods.”^[65] The current study found the Cronbach’s alpha was 0.709–0.740. The rules of thumb of Cronbach’s alpha: $\alpha \geq 0.9$, $0.9 > \alpha \geq 0.8$, $0.8 > \alpha \geq 0.7$, $0.7 > \alpha \geq 0.6$, $0.6 > \alpha \geq 0.5$, and $0.5 > \alpha$ were considered as excellent, good, acceptable, questionable, poor, and unacceptable, respectively.^[66-68] Cronbach’s alpha of this study was within the range of acceptable level and very similar to the original study.^[41] Convergent validity is a subcategory

of construct validity and often used in sociology, psychology, and other behavioral sciences. Construct validity means that a test intended to quantify a construct (i.e., intelligence) is computing that construct. Convergent validity can able to substantiate two comparable constructs resemble with one another. On the other hand, discriminant validity displays that two measures that are unique constructs and easily differentiated.^[69,70] Most of the items correlate moderately to excellent to their own domain regarding the convergent validity of the current study ($P < 0.05$).^[71] Hereafter, the current study result designates the acceptable level of internal consistency reliability and convergent validity of the TEQ inventory. Accordingly, this questionnaire can be considered as reliable and valid for local Malaysian context.

The mean scores of the TEQ were found quite like the original overseas study and earlier another study.^[41,45] The female study respondents had significantly higher score than their counterpart. One longitudinal study concluded that “a greater empathic response in females than in males of the same age, differences growing with age.”^[72] Another study reported that women and those medical students intended to pursue the carrier to community-oriented specialty they possess higher empathy.^[38] Hereafter, the current study findings were in the same line of earlier study findings. Again, there was no significant difference observed in the TEQ scores type of admission and year of study. This can be explained by the following quote. “Humans are a cooperative species, capable of altruism and the creation of shared norms that ensure fairness in society. However, individuals with different educational, cultural, economic, or ethnic backgrounds differ in their levels of social investment and endorsement of egalitarian values.” As the current study population grown almost similar socioeconomic background, thereafter, UPNM medical students possess a nearly equal level of empathy. Finally, almost all the study population maintain at least average level of the TEQ score as 45 out of 64 points were considered an average level.^[41] Consequently, UPNM medical students had the average level of empathy. This was cross-sectional study, therefore, only denotes a snap-shot, not video film. Moreover, the study population was the only one University of Malaysia. More research is advocated to generalize the data and future policy development and intervention program.

CONCLUSION

The TEQ instrument was found valid and reliable for local Malaysian context. The UPNM medical students had average

empathy level. Educational intervention can be adapted to enhance better understanding of empathy which in turn improves patient care for ordinary Malaysian people.

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Conflicts of interest

There are no conflicts of interest.

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