The Relationship between Mental Health with the Level of Empathy Among Medical Students in Southern Thailand: A University-Based Cross-Sectional Study

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ABSTRACT

Objective: To determine the level of and factors associated with empathy among medical students.

Materials and Methods: This cross-sectional study surveyed all first- to sixth-year medical students at the Faculty of Medicines, Prince of Songkla University, at the end of the 2020 academic year. The questionnaires consisted of: 1) The personal and demographic information questionnaire, 2) The Toronto Empathy Questionnaire, and 3) Thai Mental Health Indicator-15. Data were analyzed using descriptive statistics, and factors associated with empathy level were assessed via chi-square and logistic regression analyses.

Results: There were 1010 participants with response rate of 94%. Most of them were female (59%). More than half (54.9%) reported a high level of empathy. There was a statistically significant difference in empathy levels between pre-clinical and clinical medical students; in regards to empathy subgroups (P-value < 0.001). The assessment of emotional states in others by demonstrating appropriate sensitivity behavior, altruism, and empathic responding scores among the pre-clinical group were higher than those of the clinical group. Multivariate analysis indicated that female gender, pre-clinical training level, and minor specialty preference were factors associated with empathy level. The protective factor that significantly improved the level of empathy was having fair to good mental health.

Conclusion: More than half of the surveyed medical students reported a high level of empathy. The protective factor that improved the level of empathy was good mental health. However, future qualitative methods, longitudinal surveillance, or long-term follow-up designs are required to ensure the trustworthiness of these findings.

Keywords: Empathy; factor; mental health; medical student (Siriraj Med J 2021; 73: 832-840)

INTRODUCTION

Empathy is the ability to feel or understand what another person is experiencing from within their frame of reference. It is the capability to place oneself in another's view. In the past, empathy was initially thought of as a unitary ability; thus, it was considered to consist of two components: a cognitive capacity that simplifies the meaning of the emotions of another person, an emotional aptitude that interprets the experience of the emotions of another person,[1] or both concurrently.[2,3] In recent studies, empathy has been defined as being underpinned by three components: emotional contagion, emotional disconnection, and cognitive empathy.[4,5]

However, empathy is an emotional experience between a spectator and a subject in which the spectator, based on auditory and visual clues, recognizes and temporarily perceives the subject's emotional condition.[6] To be acknowledged as empathic, the spectator must communicate this purport to the subject. During the beginning aspect of this stage, the spectator must not only recognize but also comprehend the bottom of the subject's emotions. Although, usually confounded with

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each other, sympathy and empathy are different. Sympathy is a position of emotional attentive, while empathy reflects emotional comprehension or the capability to recognize another person's emotional condition.[7,8]

Throughout medical school, the importance of empathy should be emphasized, because a successful treatment depends on an effective patient-physician interaction; of which empathy is a critical component. The physician who comprehends their patient on a personal status stands a better chance of perceiving and conducting empathy as well as healing said patient efficiently than the physician who does not have this level of comprehension.[9] It is considered that physicians should have effective communication skills that enable them to communicate their actual feelings or experiences to patients. Physicians who are poor communicators and cannot manifest their feelings properly are more prone to being misunderstood by patients and people around them. Even though some physicians cannot empathize properly, they may still be able to create a suitable reaction, because they understand how they should respond in given situations, and may possess excellent communication skills.[10,11] Besides this, the goal of medicine is not to simply cure the disease, but rather to treat the patient in a holistic sense by alleviating suffering of any kind; therefore, empathy is a key component of a physician's clinical skills.[12] When patients perceive that the physician understands their conditions, they may feel more content and willing to confide in the physician. The process of telling one's story can be therapeutic[13] and may also simplify the healing process.[14,15] Finally, empathy is advantageous to physicians as well; it reflects that they can attune to the psychosocial aspects of their patients.[16]

Even though empathy is very important for a good physician-patient relationship, previous studies have suggested that the empathy level may decline as medical students go through clinical training. It has, therefore, been proposed that the course of medical education or clinical training may impact empathy among medical trainees negatively.[17] Furthermore, it is a challenge for medical educators to ensure that empathy becomes a prominent component of medical professionalism.

The Division of Medical Education, Faculty of Medicine, Prince of Songkla University proposes nine core competencies for medical graduates. According to these competencies, empathy is one constituent of professional habits, communication, and interpersonal skills.[18,19] A prior study identified that most medical students at the Faculty of Medicine, Prince of Songkla University used adaptive coping strategies,[20] and when they were medical doctors, who worked at hospitals either in the restive or non-restive areas of the Southern Thailand insurgency, most of them were at normal levels of resilience.[21] However, limited data concerning empathy levels are available. In Thailand, only one study on empathy levels among medical students has been conducted in the past nine years (2012). It found that female medical students at the pre-clinical level had higher empathy scores than their male counterparts that were undergoing clinical-level training.[22] Therefore, it was deemed both interesting and helpful to study the level of empathy, and its associating factors among Thai medical students. This study provides useful information for the establishment of educational programs in the medical curriculum geared at enhancing medical professionalism among medical school graduates.

MATERIALS AND METHODS

After approval from The Human Research Ethics Committee of the Faculty of Medicine, Prince of Songkla University (REC: 63-456-3-4), this cross-sectional study surveyed all the first- to sixth-year medical students enrolled at the Faculty of Medicines, Prince of Songkla University, including the Hat Yai Hospital Medical Education Center and the Yala Hospital Medical Education Center, at the end of the 2020 academic year. There were 1075 medical students, who were categorized by academic year as follows: 192 1st-year, 190 2nd-year, 184 3rd-year, 174 4th-year, 181 5th-year, and 154 6th-year medical students. To be included, one had to meet the criteria of being a medical student, aged no less than 18 years and completing all the questionnaires in full. Meanwhile, those who were foreign students, who declined to participate, or decided to withdraw from the study were excluded.

Data collection

The data were collected as follows. The research assistant approached all the medical students in class and handed them an information sheet, which described the rationale for the study and the allotted time to complete the survey. They had at least 10-15 minutes to consider whether to join in the study or not. If they wished to participate, the research assistant distributed the questionnaires. Adhering to the policy of strict confidentiality, the signatures of the participants were not required, and they were informed that they retained the right to withdraw from the research at any time without having to provide any explanation or reason for doing so. All participants were allowed to finish, and return the questionnaires immediately or at a later time. They could submit the questionnaires via two options drop them in the case at the front of the classroom, or return and place them in the case located at the Psychiatry Department, protecting respondent

confidentiality was retained. Furthermore, the data were stored securely, and only the researcher could access them via a password.

Instruments

1) The personal and demographic information questionnaire consisted of questions related to age, gender, religion, hometown, income, cumulative GPA, medical school, history of substance use, physical or psychiatric illness, and specialty preference.

2) The Toronto Empathy Questionnaire (TEQ), which was used to evaluate empathy, consisted of 16 questions and employed a 5-point rating scale for each question. The item responses were scored according to the following scale for positively worded items: 0 (never), 1 (rarely), 2 (sometimes), 3 (often), and 4 (always). The same scale was used to reverse score negatively worded items. The scores of all 16 questions were summed, and they ranged from 0 to 64. Higher scores indicated high levels of self-reported empathy, while total scores below 45 were indicative of below-average empathy levels. The Cronbach's alpha coefficient for this tool was 0.85. Additionally, empathy was divided into six subgroups; perception of an emotional state in another that stimulates the same emotion in oneself; assessment of emotion comprehension in others; assessment of emotional states in others by indexing the frequency of behaviors demonstrating appropriate sensitivity; sympathetic physiological arousal; altruism; behaviors engaging higher-order empathic responding, such as pro-social helping behavior.[23]

3) The Thai Mental Health Indicator-15 (TMHI-15) consisted of 15 questions. The score of each question ranged from 1 to 4. The following scale was used to reverse score negatively worded items. The scores of all 15 questions were summed, and the total scores, which ranged from 15 to 60, were categorized as follows: less than 43 (poor mental health), 44-50 (fair mental health), and 51-60 (good mental health). The Cronbach's alpha coefficient for this tool was 0.7.[24]

Statistical analysis

Descriptive statistics; such as proportion, mean, and standard deviation (SD), or medians and inter-quartile ranges (IQR) were calculated. Bivariate and multivariate analyses using logistic regressions were employed to identify the association with level of empathy. The analyses were conducted using R version 3.4.1 (R Foundation for Statistical Computing). Statistical significance was defined as a p-value of less than 0.05.

RESULTS

Demographic characteristics

One thousand and ten first- to sixth-year medical students completed the questionnaires, from the total of 1075 students, who were approached; the response rate was 94%. The majority of them were female (59%), Buddhist (79.1%), and the accumulative GPA was 3.4 (3.1-3.6) (Table 1). Overall, the median age (IQR) was 21 years (20-23), and the income per month was 9,000 baht (6,500-10,000). No statistically significant differences in demographic data (gender, religion, and physical illnesses) between the pre-clinical and clinical groups of medical students were detected.

Empathy level

Using the Toronto Empathy Questionnaire, 554 participants (54.9%) reported a high level of empathy (Table 1). The median TEQ score (IQR) of all participants was 45 (41-49.7). The median TEQ scores (IQR) of the pre-clinical and clinical student groups were 49 (45.8-52) and 46 (42.2-50), respectively. Of the six TEQ subgroups, the assessment of emotion comprehension in others, behaviors engaging higher-order empathic responding, and altruism had the highest median scores (IQR) (3 (2-3), 3 (2-3), and 3 (2.7-3.7), respectively), whereas perception of an emotional state in another that stimulates the same emotion in oneself exhibited the lowest score (IQR) [2.5 (2-3)] (Table 2).

A statistically significant difference in the level of empathy, in terms of subgroups between the groups, was observed (P-value <0.001) (Table 1). Among the pre-clinical medical students, the empathy subgroups of assessment of emotional states in others by indexing the frequency of behaviors demonstrating appropriate sensitivity, behaviors engaging higher-order empathic responding, and altruism had higher scores than among those studying at the clinical level (Table 2).

Mental health

Using the Thai Mental Health Indicator-15 (TMHI-15), most participants reported fair to good mental health (51.2% and 27.4%, respectively), and only 216 (21.4%) respondents had poor mental health (Table 1). There was a statistically significant difference in mental health between the pre-clinical and clinical groups of medical students (P-value <0.001).

Concerning perceived stress, 920 (91.1%) participants reported having experienced stress within the previous year. The most common stresses were academic course work and examinations (92%), learning environment (38.9%), and living with friends (29.7%).

TABLE 1. Demographic characteristics, mental health, and level of empathy between two groups of medical students.

Variables	Total (n=1010)	Group N (%) Pre-clinical (n=544)	Clinical (n=466)	Chi² P-value
Gender				0.103
Male	409 (40.5)	207 (38.3)	202 (43.5)	
Female	596 (59.0)	334 (61.7)	262 (56.5)	
No answer	5 (0.5)			
Religion				0.569
Buddhism	799 (79.1)	433 (83.8)	366 (85.3)	
Other (Islam, Christianity, other)	147 (14.6)	84 (16.2)	63 (14.7)	
No answer	64 (6.3)			
GPA: median (IQR)	3.4 (3.1-3.6)	3.6 (3.3-3.8)	3.3 (3.0-3.5)	<0.001[a]
Home province				<0.001
Southern Region	905 (89.6)	471 (87.1)	434 (93.7)	
Other	99 (9.8)	70 (12.9)	29 (6.3)	
No answer	6 (0.6)			
Physical illness				0.322
No	844 (83.6)	448 (82.7)	396 (85.2)	
Yes	163 (16.1)	94 (17.3)	69 (14.8)	
No answer	3 (0.3)			
Psychiatric illness				<0.001
No	947 (93.8)	527 (97.1)	420 (91.1)	
Yes	57 (5.6)	16 (2.9)	41 (8.9)	
No answer	6 (0.6)			
Alcohol consumption				0.058
No	703 (69.6)	392 (72.7)	311 (67)	
Yes	300 (29.7)	147 (27.3)	153 (33)	
No answer	7 (0.7)			
Substance use				1
No	999 (98.9)	540 (99.4)	459 (99.4)	
Yes	6 (0.6)	3 (0.6)	3 (0.6)	
No answer	5 (0.5)			
Specialty preference				<0.001
General / not specified	270 (26.7)	112 (20.6)	158 (33.9)	
Major	491 (48.6)	291 (53.5)	200 (42.9)	
Minor	249 (24.7)	141 (25.9)	108 (23.2)	
Mental health				<0.001
Poor	216 (21.4)	78 (14.3)	138 (29.6)	
Fair	517 (51.2)	280 (51.5)	237 (50.9)	
Good	277 (27.4)	186 (34.2)	91 (19.5)	
Level of empathy				<0.001
<45	456 (45.1)	190 (34.9)	266 (57.1)	
≥45	554 (54.9)	354 (65.1)	200 (42.9)	

Note: a = P-value from rank sum test

TABLE 2. Subgroups of empathy.

Domain of empathy	Median (IQR)		
	Total (n=1010)	Pre-clinical (n=544)	Clinical (n=466)
Perception of an emotional state in another that stimulates the same emotion in oneself	2.5 (2.0-3.0)	2.5 (2.5-3.0)	2.5 (2.0-3.0)
Assessment of emotion comprehension in others	3.0 (2.0-3.0)	3.0 (2.0-3.0)	3.0 (2.0-3.0)
Assessment of emotional states in others by indexing the frequency of behaviors demonstrating appropriate sensitivity	2.8 (2.4-3.2)	3.0 (2.6-3.2)	2.6 (2.4-3.0)
Sympathetic physiological arousal	2.7 (2.5-3.0)	2.8 (2.5-3.2)	2.8 (2.5-3.0)
Altruism	3.0 (2.7-3.7)	3.3 (3.0-3.7)	3.0 (2.7-3.3)
Behaviors engaging higher-order empathic responding such as pro-social helping behavior	3.0 (2.0-3.0)	3.0 (2.0-3.0)	2.0 (2.0-3.0)

The association of demographic characteristics and mental health with level of empathy

To identify factors associated with the level of empathy, demographic characteristics, and mental health were included in the multivariate analysis. Variables with p-values of less than 0.2 from the bivariate analysis were included in the initial model of the multivariate analysis (Table 3). The multivariate analysis indicated that females and pre-clinical level students had a higher level of empathy than their male and clinical-level counterparts [odds ratio 1.8 (1.36, 2.37) and 1.97 (1.49, 2.59), respectively]. Additionally, medical students who preferred minor specialties had a higher level of empathy than those who preferred pursuing general medicine, [odds ratio 1.87 (1.27, 2.74)] (Table 4). The same was true when comparing them with those who preferred major specialties [odds ratio 1.48 (1.05, 2.1)]. A protective factor that significantly improved the level of empathy was having fair to good mental health.

DISCUSSION

This study found that more than half of our medical students (54.9%) reported a high level of empathy. However, being female, pre-clinical level medical students, and preferring minor specialties were associated with having a higher level of empathy than being male, a clinical-level student, and preferring general medicine or major specialties. In addition, having fair to good mental health was found to be a protective factor that statistically significantly improved the level of empathy of our respondents. Comparing the level of empathy discovered by our study with those reported by previous studies, ours was similar to those of studies conducted in Thailand and the United States[22,25] as well as to that of another recent systematic review of studies, which also suggested that empathy level worsens distinctly throughout medical school. The explication for this might point to the clinical practice phase of training, and the hardship generated by aspects of the "hidden," "formal," and "informal" curricula as the principal causes for the downfall in empathy level.[26]

Since, according to this study's results, most participants (91.1%) reported having stress during the previous year and identified medical courses or examinations (92%) as well as learning environment (38.9%) as the most common causes of stress, it might be plausible that medical education or clinical training impacts empathy negatively.[17] Although the deterioration in empathy is mainly observed as a valid research finding,[27-29] previous systematic reviews of studies on empathy have highlighted the diversity of measurements available to survey empathy as well as the point that correlations between self-reported and observed empathy might be different. Hence, disagreements remain concerning the validity of self-report questionnaires as a precise measure of empathy results.[30,31] Therefore, future in-depth studies with a qualitative research design are required in order to ensure the trustworthiness of the findings.

Empathy comprises of the cognitive, affective or emotional domain. The cognitive domain refers to 'the capacity to comprehend the patient's inner experience and viewpoint, and an ability to communicate this

TABLE 3. Bivariate analysis of level of empathy.

Variables	Total N (%) (n=1010)	Level of empathy N (%) <45 (n=456)	Level of empathy N (%) ≥45 (n=554)	Chi² P-value
Gender				<0.001
Male	409 (40.5)	219 (48.2)	190 (34.5)	
Female	596 (59.0)	235 (51.8)	361 (65.5)	
No answer	5 (0.5)			
Medical training level				< 0.001
Pre-clinical	544 (53.9)	190 (41.7)	354 (63.9)	
Clinical	466 (46.1)	266 (58.3)	200 (36.1)	
Religion				1
Buddhism	799 (79.1)	359 (84.5)	440 (84.5)	
Others (Islam, Christ, others)	147 (14.6)	66 (15.5)	81 (15.5)	
No answer	64 (6.3)			
GPA : median (IQR)	3.4 (3.1-3.6)	3.4 (3.0-3.6)	3.4 (3.1-3.7)	0.284[a]
Home province				0.09
South	905 (89.6)	415 (92)	490 (88.6)	
Others	99 (9.8)	36 (8)	63 (11.4)	
No answer	6 (0.6)			
Physical illness				0.733
No	844 (83.6)	383 (84.4)	461 (83.4)	
Yes	163 (16.1)	71 (15.6)	92 (16.6)	
No answer	3 (0.3)			
Psychiatric illness				0.574
No	947 (93.8)	427 (94.9)	520 (93.9)	
Yes	57 (5.6)	23 (5.1)	34 (6.1)	
No answer	6 (0.6)			
Alcohol consumption				0.262
No	703 (69.6)	324 (72)	379 (68.5)	
Yes	300 (29.7)	126 (28)	174 (31.5)	
No answer	7 (0.7)			
Substance use				1
No	999 (98.9)	450 (99.3)	549 (99.5)	
Yes	6 (0.6)	3 (0.7)	3 (0.5)	
No answer	5 (0.5)			
Specialty preference				<0.001
General / not specified	270 (26.7)	154 (33.8)	116 (20.9)	
Major	491 (48.6)	209 (45.8)	282 (50.9)	
Minor	249 (24.7)	93 (20.4)	156 (28.2)	
Mental health				<0.001
Poor	216 (21.4)	151 (33.1)	65 (11.7)	
Fair	517 (51.2)	249 (54.6)	268 (48.4)	
Good	277 (27.4)	56 (12.3)	221 (39.9)	

Note: a = P-value from rank sum test

TABLE 4. Factors associated with high level of empathy.

Factors	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value LR-test
Gender			<0.001
Male	Reference	Reference	
Female	1.77 (1.37, 2.28)	1.8 (1.36, 2.37)	
Medical training level			<0.001
Clinical	Reference	Reference	
Pre-clinical	2.52 (1.95, 3.26)	1.97 (1.49, 2.59)	
Specialty preference			0.005
General/ not specified	Reference	Reference	
Major	1.78 (1.31, 2.4)	1.26 (0.9, 1.75)	
Minor	2.20 (1.55, 3.13)	1.87 (1.27, 2.74)	
Mental health			<0.001
Poor	Reference	Reference	
Fair	2.46 (1.75, 3.45)	2.17 (1.53, 3.09)	
Good	9.27 (6.13, 14.04)	7.92 (5.14, 12.2)	

comprehension',[32] whereas, the affective domain refers to 'the capacity to conceive the patient's emotions and aspects'.[33] Concerning the empathy subgroups, this study showed that assessment of emotional states in others by indexing behaviors demonstrating appropriate sensitivity, behaviors engaging higher-order empathic responding, e.g., pro-social helping behavior, and altruism declined when the medical students progressed to clinical-level training. This might signify that most of our medical students can comprehend the patient's inner experience as well as conceive the patient's feelings or aspects, but they might lack the ability to express their empathy toward others, or that their empathy might decline with medical training. Moreover, this study identified that being female was associated with having a higher level of empathy than being male. Therefore, in clinical-level training, medical students; especially the male group, should be instructed to express empathy, which builds patient trust, calmness, and leads to increased patient gratification. This point should be a significant concern to medical educators.

It is widely accepted that effective articulation or good communication skills on the part of physicians should enable them to convey their actual feelings or experiences to patients. Physicians who are poor communicators and do not express their feelings properly might be misapprehended by patients and people close to them.[10] Therefore, many studies have tried to create a variety of types of intervention aiming to promote empathy competency, by employing patient narrative and creative arts, writing, drama, and communication skills training.[34]

The patient narrative and creative arts interventions were based around the patient narrative and creative arts; such as imaginative composition, lyric, poem, fable, novel, and motion picture. Such interventions fit primarily into the affective dimension of empathy.[35] Regarding writing interventions, studies have used various genres of writing to heighten empathy with the rationale that agendas that substantiate humanistic behavior might conduce towards the medical students' continuance of empathy.[36] Drama interventions, using drama to teach empathy, have undertaking the task of training students "how to act-in-role." The means employed communication seminars directing the cognitive dimension, the exercises in such studies concentrated upon building the participants' acting skills as a way to heighten their capacity to impersonate empathy, and were found to be successful in significantly increasing their level of empathy.[37] Finally, concerning communication skills training interventions, the use of communication skills training as an intervention reflected the authors' preference for the cognitive dimension of empathy. In such studies, communication skills training consisted of role-play and small-group interactive training.[38-40]

Moreover, findings from previous have suggested that medical curriculums could be successful in heightening

and keeping up empathy in medical students. Continuing to achieve such strategies would help to further clarify best practices, and more precise studies, particularly, large-scale and suitably controlled longitudinal research, is required to instruct recommendations for medical education. Moving forward, medical education academics and investigators should consider addressing the widely reported phenomenon of the deterioration in empathy among medical students by focusing on psychological factors; such as, exhaustion and stress, the "hidden curriculum", uncertain study setting, loss of enthusiasm, and the perceived need for detachment. Noteworthy, is also the need to highlight the prominence of role models and the reciprocal nature of empathy improvement in training; this suggests that "Indeed, perhaps students need to obtain more empathy from their faculty, other physicians, and even their patients before they can comprehend how to establish empathic connections".[41]

Additionally, mental health includes having healthy self-esteem, being satisfied with life, feeling secure, having the sense of 'appointment in life,' being confident in emotional control, being empathetic and happy when helping others, and acknowledging or accepting problems that are difficult to solve.[24] This study indicated that good mental health was a protective factor that significantly improved the level of empathy. Thus, medical educators should consider practicing relationship-centered care, promoting good mental health, preventing the negative impacts of stress, fatigue, burnout, poor sleep quality,[42] and identifying the hidden curricula or mistreatment suffered by medical students[43] as the fundamental building blocks medical of education. This could help foster the creation and powerful expression of empathy, which builds patient trust, calmness anxiety, leads to fewer mistakes, increases patient satisfaction, and improves health outcomes.

Strengths and limitations

This study had a few noteworthy strengths and limitations. To our knowledge, this is the first study with a high response rate (94.0%) that explored the level of empathy and mental health as well as factors associated with empathy among Thai medical students. However, it was a cross-sectional survey, lacked baseline measurements and long-term follow-up, as well as which it utilized self-administered questionnaires. Some misunderstandings regarding the intended meaning of the questions might have occurred. Nevertheless, to minimize this, questionnaires with good reliability were utilized (good Cronbach's alpha coefficient values). Other drawbacks were that our data were quantitative, and the sample size was limited to medical students enrolled at only one faculty of medicine. Hence, this dataset may not fairly represent the situation of all Thai medical students in the faculties of medicine countrywide.

Henceforward, studies are recommended to include all medical students from all faculties of medicine in Thailand. In other words, a comprehensive multi-center study should be conducted. Moreover, future research should concentrate upon the definite attributes that inspire a student to be more responsive to different interventions, utilize more qualitative designs, employ longitudinal surveillance or long-term follow-up, and include control groups.

CONCLUSION

More than half of the surveyed medical students reported a high level of empathy. Those who were female, in the pre-clinical level of studies, and preferred a minor specialty had a higher empathy level than those who were male, studying at the clinical level, and preferred general medicine specialties. The protective factor that improved the level of empathy was good mental health. However, future qualitative methods, longitudinal surveillance, or long-term follow-up designs focusing on medical students' empathy are to ensure the trustworthiness of these findings.

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