Predictors of Physician's Empathy: The Role of Spiritual Well-being, Dispositional Perspectives, and Psychological Well-being

Angela Hamidia[1], Pouria Amiri[2], Mahbobeh Faramarzi[1]*, Mohamah Hadi Yadollahpour[1] and Soraya Khafri[1]

[1]Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran
[2]Student Research Committee, Babol University of Medical Sciences, Babol, Iran

ABSTRACT

Objectives: Empathy is a core component of an efficient physician-patient relationship. Although students' preexisting medical views may influence responses to physician-patient relationship, there is little knowledge about the psychological predictive factors of empathic perspective for physician-patient relationship. We aimed to examine whether psychological well-being, dispositional perspective, and spiritual well-being could predict the empathic perspective of medical students regarding the physician-patient relationship. Methods: In a cross-sectional study, 350 medical students of Babol University of Medical Sciences were recruited at four levels of education including basic sciences, preclinical medicine, clerkship, and internship. The students completed four questionnaires including Jefferson Scale of Empathy - student version, Brief Ryff psychological well-being, Individual Disposition, and Spiritual Well-Being. Results: The score of medical student's perspective to clinical empathy was high (106.1±29.8, range: 20–140), but diminished with further years of education. Female students had higher empathy scores than their male counterparts. Pearson's correlation coefficient revealed a strong positive significant relationship between student's perspective to clinical empathy and spiritual well-being (r = 0.56), cognitive empathy (r = 0.51), and psychological well-being (r = 0.43), and tendency to egalitarianism (r = 0.37). The results of stepwise multivariate analysis regression revealed that cognitive empathy (β = 0.300), self-esteem (β = 0.133), and spiritual well-being (β = 0.388) positively predicted student's perspective to clinical empathy regarding the physician-patient relationship. Conclusions: The results suggested that promoting empathic care in curricula of medical schools may be more effective if students' preexisting perspectives, cognitive empathy, self-esteem, spiritual well-being, and tendency to egalitarianism are taken into account.

The physician-patient relationship is one important factor that could support adherence to treatment recommendations, increase continuing care, and promote patient satisfaction with health care.[1,2] Empathy is the most effective component of a good relationship between patients and physicians, which has a very important role in the patient's treatment process. It is also one of the important indicators of professionalism of physicians.[3] Indeed, empathy provides a quick way to connect with patients, and, in addition, improves the quality of the relationship. Empathic understanding constitutes the core of interaction between the medical team and the patients. Empathy with the patient means being able to understand the patient's conditions and feelings for providing effective and quality care.[4] Although it is very difficult to define empathy, one of the commonly accepted definitions is "empathy: a cognitive feature capable of understanding patient experiences and insights."[5] Empathy provokes this feeling in the patient that the physician is able to understand the patient's mental world in line with his or her emotions, while the patient does not lose their independence.[4]

The results of a randomized study revealed that clinicians who use warm, friendly, and calm methods of treatment have more effective clinical outcomes than physicians who fully advise and do not reassure patients.[6] Empathy is an important part of the therapeutic alliance with the patient, which contributes to better diagnosis and treatment, as well

as patient satisfaction.[7–9] In addition, interpersonal empathy can reduce racial bias, so it may have a protective role against treatment inequalities.[8]

Two systematic reviews support medical schools in promoting teaching physician-patient empathy as a valid part of medical curricula. While both studies concluded that it is possible to sustain and further enhance empathy during medical school years,[10,11] some research suggests that empathy in medical students diminishes with increasing academic years. There is little research about why some medical students benefit from empathy educational programs in medal school teaching while others do not.[12] Previous studies have demonstrated that medical student characteristics strongly affect the learning of empathy in medical training.[13–16] Therefore, student characteristics could influence the manner in which they react to educational programs. Evidence supports that students might disobey the educational programs if their characteristics are inconsistent with educational programs.[14] However, few studies have assessed the factors that predict empathy in medical student's relationship with patients. Characteristics such as the tendency to elitism, desire for egalitarianism, and medical authoritarianism are factors that can independently predict attitudes of medical students toward empathy in the relationship with patients.[8]

Although medical views and dispositions may influence the responses to perspectives toward empathy in physician-patient relationship,[14–16] there is little knowledge on the psychological predictive factors of empathic perspective in physician-patient relationship among medical students. A better understanding of the incoming medical students' characteristics that predict perspectives toward the value of physician-patient empathy in clinical settings may be a first step in improving the understanding of differences in students' response to teaching during medical school. The aim of this study was to examine whether psychological well-being, dispositional perspective, and spiritual well-being could predict the empathic perspective of medical students in the physician-patient relationship.

METHODS

We conducted a cross-sectional study on medical students of at Babol University of Medical Sciences from June to October 2018. This study was approved by the Ethics Committee of Babol University of Medical Sciences (IR.MUBABOL.HRI. REC.1397.111).

All medical students of Babol University of Medical Sciences in 2018 going through the academic years one to seven were invited to the study. The medical curriculum at Babol University of Medical Sciences consists of four major phases. The first two and a half years are basic sciences, one year for 'preclinical medicine' including physiopathology courses, two years for clinical exposure, named as 'clerkship', and finally 18 months, known as 'internship'.

A total of 500 medical students studying in the four phases were invited to participate in the study. A sample size of 350 was acceptable based on Morgan's table and a 30% drop-out rate. One of the research team members visited the medical school and explained the aims of the study and invited the students to attend the research. If the student was willing to participate in the study, the research team member delivered the printed questionnaires to her/him with an unnamed envelope. The envelope contained questions about demographic characteristics (age, sex, and grade of the study), Jefferson Scale of Physician Empathy - student (JSE-S) version, and three psychological questionnaires including Brief Ryff psychological well-being, Individual Disposition, and Spiritual Well-Being. A staff member outside the research team was responsible for collecting the completed questionnaires. After one week, the staff asked the students if they had completed the questionnaires via an SMS message. If the questionnaires were completed, the staff delivered the completed questionnaires in a sealed envelope to the research team. Of 500 medical students invited, 350 students completed and returned all of the questionnaires.

The JSE-S version is a self-administered inventory, well-accepted, and reliable instrument to assess the student's perspective regarding clinical empathy in the relationship with patients. It contains 20 items where the students mark 1 of the 7 options provided on a Likert scale in response to each item (1 = strongly disagree, 7 = strongly agree). The scores range within 1–140, with higher scores signifying a more positive and consistent view of students with empathy in the relationship with patients. This scale has three subscales: perspective taking, compassionate care, and standing in the patient's shoes.[17] The average alpha coefficient for JSE-S is

reported as 0.78. This study employed the Iranian version of JSE-S verepsion.[18]

We used the Brief Ryff Well-Being questionnaire (18 questions) to assess the psychological well-being of the participants. This questionnaire contains six subscales: environmental mastery (sense of controlling), self-acceptance (positive attitude toward self), positive relations with others (sense of satisfaction and intimacy with people), purposeful life (having a purpose in life), personal growth (sense of steady growth), and autonomy (sense of independence). Scoring is based on the six-point Likert scale (1 = strongly disagree to 6 = strongly agree).[19] The correlation of three subscales with test-retest reliability is reported 0.70 to 0.89.[18] We used the valid Persian version of the questionnaire, which has been used in many Iranian studies.[20,21]

The Individual Disposition questionnaire assesses the individual tendency of medical students. This scale consists of 14 items with seven-point rating (1 = strongly disagree to 7 = strongly agree). Each subscale includes cognitive empathy, discomfort with uncertainty, tendency to elitism, tendency to egalitarianism, medical authoritarianism, locus of control, self-esteem, and self-awareness. Each subscale consists of two questions with higher scores revealing a better agreement with the view. The alpha coefficient for six subscales is reported 0.63 to 0.89.[22,23]

The Spiritual Well-Being scale was first developed by Paloutzian and Ellison in 1982.[24] The questionnaire consists of 20 items with two subscales: religious well-being and existential well-being. The total scores of the scale range from 20 to 120. The higher scores represent greater spiritual well-being.[24] The Cronbach's alpha coefficients for subscales were overall score of spiritual well-being 0.95, for religious well-being 0.94, and religious well-being 0.84.[25] We used the valid Persian version of the spiritual well-being scale.[26]

The descriptive statistics reported included means and frequencies. Student's t-tests were used to compare the mean scores of empathy, spiritual well-being, spiritual well-being, and dispositional perspectives between male and female medical students Pearson's correlation coefficient was applied to test possible significant relationships between empathy and spiritual well-being, as well as between spiritual well-being and dispositional perspectives.

The total JSE score, as main outcome and the dependent variable, was not normally distributed.

We created square rooted the total JSE-S score. We repeated the analyses using square rooted variables, but all analyses were no differences between two patterns of variables. Thus, the original, non-transformed total JSE was retained in the final analyses.

Finally, stepwise multivariate analysis regression was used to find the predictors of medical students' perspectives regarding empathy. The variables included in the model were those showing a significant correlation with empathy scores in previous bivariate associations. Age was considered an adjusted variable. Also, we repeated the analysis using recoded total score of empathy to dichotomize in to high and low scores (median as a cut-point). Then, we repeated the analysis using logistic regression. As there were no differences between two patterns of the results, we presented the results of linear regression.

Data analysis was carried out using SPSS Statistics (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). The level of significance in all analyses was considered as $p < 0.050$.

RESULTS

Our response rate was 70.0%, with 42.0% of respondents male and 58.0% female. The average

Table 1: Demographic characteristic of the medical students (N = 350).

Variables	n (%)
Gender	
Male	147 (42.0)
Female	203 (58.0)
Academic grade	
Basic science	100 (28.6)
Preclinical medicine	50 (14.3)
Clerkship	100 (28.6)
Internship	100 (28.6)
Level of father's education (n = 240)*	
Primary school	14 (5.8)
High school	80 (33.3)
University	146 (60.8)
Level of mother's education (n = 233)**	
Primary school	29 (12.4)
High school	92 (39.5)
University	112 (48.1)

*The level of father's education of 110 students was unknown (not reported).
**The level of mother's education of 117 students was unknown (not reported).

age of the participants was 22.5±2.3 years. One-hundred students (28.6%) were at basic sciences level, 50 (14.3%) preclinical medicine, 100 (28.6%) clerkship, and 100 (28.6%) internship [Table 1].

Table 2 compares the mean of individual differences of medical schools regarding academic level. The results of analysis of variance and the comparison of Tukey's comparison mean tests revealed that the internship students had lower mean scores of cognitive empathic tendencies compared to clerkship students. Regarding the discomfort of uncertainty, the mean scores of basic science students were significantly higher than those of clerkship and preclinical medicine students. Further, the mean scores of discomfort of instability were significantly higher in clerkships than in internships. Therefore, the discomfort of instability seems to significantly decrease with the increase in the academic year. Regarding the tendency toward elitism, the basic science scores were higher than both preclinical medicine and clerkship scores. Medical authoritarianism was significantly higher in internship than in basic sciences. Also, the mean scores of spiritual well-being were significantly higher in students of basic sciences compared to their preclinical medicine and clerkship counterparts. In addition, basic sciences students had significantly higher scores of spiritual well-being than the other three groups of preclinical medicine, clerkship, and internships. The mean total scores of psychological well-being in students of internships were lower than those of basic sciences. Also, clerkships had higher scores of psychological well-being than the other three groups of students.

Regarding the total score of students' perspective to clinical empathy, the mean empathy score of all

Table 2: Comparison of medical student's perspective to clinical empathy, spiritual well-being, individual disposition, and psychological well-being in four level of education.

Variables	Basic science Mean ± SD	Preclinical medicine Mean ± SD	Clerkship Mean ± SD	Internship Mean ± SD	Total students Mean ± SD	p-value*
Individual disposition						
Cognitive empathy	5.3 ± 1.2	5.3 ± 1.3	5.8 ± 1.0	5.1 ± 1.5	5.4 ± 1.3	< 0.001[f]
Discomfort with uncertainty	3.9 ± 1.1	3.8 ± 0.7	3.2 ± 1.0	4.0 ± 1.3	3.9 ± 1.2	< 0.001[cdef]
Tendency to elitism	2.6 ± 1.7	2.4 ± 1.3	2.1 ± 1.4	4.2 ± 1.7	2.9 ± 1.8	< 0.001[cef]
Tendency to egalitarianism	5.5 ± 1.4	5.6 ± 1.2	6.1 ± 1.0	5.4 ± 1.6	5.7 ± 1.4	0.001[bf]
Medical authoritarianism	4.6 ± 1.6	5.0 ± 1.8	5.0 ± 1.0	5.2 ± 1.4	4.9 ± 1.4	0.037[c]
Locus of control	5.6 ± 1.1	5.5 ± 1.3	6.3 ± 1.1	5.0 ± 1.5	5.6 ± 1.3	< 0.001[bcef]
Self-esteem	5.8 ± 1.1	5.8 ± 1.3	6.4 ± 0.9	5.2 ± 1.4	5.8 ± 1.3	< 0.001[bcef]
Self-awareness	5.3 ± 1.3	5.3 ± 1.5	5.8 ± 0.9	4.8 ± 1.8	5.3 ± 1.4	< 0.001[cef]
Spiritual well-being						
Religious well-being	48.5 ± 9.2	43.5 ± 11.4	48.1 ± 8.0	41.4 ± 9.7	45.6 ± 9.8	< 0.001[acdf]
Existential well-being	46.7 ± 10.3	41.6 ± 13.2	54.5 ± 6.7	46.2 ± 9.7	48.0 ± 10.7	< 0.001[abdf]
Total score of spiritual well-being	95.2 ± 18.2	85.1 ± 24.1	10.6 ± 13.2	87.6 ± 18.3	93.7 ± 19.1	< 0.001[abcdf]
Psychological well-being						
Self-acceptance	14.4 ± 3.3	13.9 ± 3.6	16.1 ± 2.1	13.4 ± 2.9	14.5 ± 3.1	< 0.001[bdef]
Positive relations with others	13.7 ± 3.3	12.9 ± 3.7	14.5 ± 2.8	13.0 ± 2.9	13.6 ± 3.2	0.002[df]
Autonomy	13.3 ± 2.9	12.4 ± 3.1	16.0 ± 3.0	13.4 ± 3.3	14.0 ± 3.3	< 0.001[bdf]
Environmental mastery	14.5 ± 2.9	14.9 ± 3.1	16.0 ± 2.1	12.1 ± 4.6	14.3 ± 3.6	< 0.001[bcef]
Purposeful life	13.5 ± 2.9	14.1 ± 3.1	13.0 ± 2.4	13.2 ± 2.9	13.4 ± 2.8	0.115
Personal growth	14.3 ± 3.0	14.4 ± 3.3	14.8 ± 1.9	12.6 ± 3.0	14.0 ± 2.9	< 0.001[cef]
Total score of psychological well-being	84.0 ± 14.2	82.9 ± 18.0	90.6 ± 10.7	77.9 ± 15.0	84.0 ± 15.0	< 0.001[bcdf]
Jefferson Empathy Scale						
Perspective empathic taking	60.2 ± 9.7	56.7 ± 14.0	55.8 ± 11.8	43.2 ± 16.6	53.6 ± 14.8	< 0.001[bcef]
Compassionate care	45.9 ± 8.1	42.3 ± 13.0	44.3 ± 11.5	36.1 ± 14.8	42.1 ± 12.6	< 0.001[cef]
Standing in the patient's shoes	10.8 ± 3.0	10.4 ± 3.5	10.9 ± 2.5	8.8 ± 4.0	10.2 ± 3.4	< 0.001[cef]
Total score of empathy	117.1 ± 19.0	109.4 ± 29.2	111.1 ± 25.3	88.3 ± 34.8	106.1 ± 29.8	< 0.001[cef]

*p-value based on ANOVA. Tukey's test used to compare all possible pairs of means; a: basic science and preclinical medicine; b: basic science and clerkship; c: basic science and internship; d: preclinical medicine and clerkship; e: preclinical medicine and internship; f: clerkship and internship; SD: standard deviation.
Range scores: Cognitive Empathy 1–14, discomfort with uncertainty 1–7, tendency to elitism 1–7, tendency to egalitarianism 1–14, medical authoritarianism 1–14, locus of control 1–7, self-esteem 1–7, self-awareness 1–7.
Religious well-being 20–60, existential well-being 20–60, total score of spiritual well-being 20–120, self-acceptance 1–18, positive relations with others 1–18, autonomy 1–18, environmental mastery 1–18, purposeful life 1–18, personal growth 1–18, total score of psychological 1–108, perspective empathic taking 1–70, compassionate care 1–56, standing in the patient's shoes 1–14, and total scor of empathy 1–140.e

Table 3: Gender differences in medical student's perspective to clinical empathy, spiritual well-being, individual disposition, and psychological well-being.

Variables	Female Mean ± SD	Male Mean ± SD	*p*-value*
Individual			
Cognitive empathic	5.4 ± 1.3	5.4 ± 1.2	0.602
Discomfort with uncertainty	1.3 ± 0.8	1.2 ± 0.8	0.847
Tendency to elitism	2.9 ± 1.7	2.8 ± 1.8	0.314
Tendency to egalitarianism	5.8 ± 1.2	5.5 ± 1.5	0.028
Medical authoritarianism	5.2 ± 1.3	4.6 ± 1.5	0.127
Locus of control	5.6 ± 1.3	5.5 ± 1.3	0.507
Self-esteem	5.8 ± 1.3	5.7 ± 1.3	0.407
Self-awareness	5.4 ± 1.4	5.1 ± 1.4	0.015
Spiritual well-being			
Religious well-being	45.7 ± 9.9	45.5 ± 9.8	0.652
Existential well-being	48.8 ± 10.2	47.0 ± 11.2	0.171
Total	94.5 ± 18.6	92.6 ± 19.7	0.123
Psychological well-being			
Self-acceptance	14.7 ± 3.0	14.2 ± 3.3	0.040
Positive relation with others	14.0 ± 2.9	13.1 ± 3.4	0.014
Autonomy	14.1 ± 3.2	13.8 ± 3.5	0.013
Environmental mastery	14.5 ± 3.7	14.0 ± 3.6	0.603
Purposeful life	13.6 ± 2.7	13.1 ± 2.9	0.470
Personal growth	14.1 ± 2.8	13.8 ± 3.0	0.016
Total	85.2 ± 14.0	82.2 ± 16.1	0.030
Jefferson Empathy Scale			
Perspective empathic taking	55.0 ± 13.9	51.6 ± 15.7	0.038
Compassionate care	43.3 ± 11.8	40.5 ± 13.4	0.050
Standing in the patient's shoes	10.7 ± 3.0	9.6 ± 3.7	0.004
Total	109.2 ± 27.9	101.8 ± 31.7	0.026

*Based on t-tests; SD: standard deviation.
Range scores: Cognitive Empathy 1–14, discomfort with uncertainty 1–7, tendency to elitism 1–7, tendency to egalitarianism 1–14, medical authoritarianism 1–14, locus of control 1–7, self-esteem 1–7, self-awareness 1–7.
Religious well-being 20–60, existential well-being 20–60, total score of spiritual well-being 20–120, self-acceptance 1–18, positive relations with others 1–18, autonomy 1–18, environmental mastery 1–18, purposeful life 1–18, personal growth 1–18, total score of psychological 1–108, perspective empathic taking 1–70, compassionate care 1–56, standing in the patient's shoes 1–14, and total score of empathy 1–140.

students was 106.1±29.8 (range: 20–140). The minimum scores were seen for internship students while the maximum belonged to the basic sciences students. The mean scores of basic sciences students were significantly higher than those of preclinical medicine, clerkships, and internships students. On the other hand, the scores of preclinical medicine were higher than clerkships, and clerkships were higher than internships. Therefore, it seems that with an increase in the academic year, the score of students' perspective to clinical empathy is significantly reduced. Also, all of the three subscales of student's perspective to clinical empathy including compassionate care and standing in the patient's shoes decreased significantly with further academic years of the medical students.

Table 3 shows that female students had significantly higher mean scores of medical authoritarianism and self-awareness, self-acceptance, positive relationship with others, personal growth, and total score of psychological well-being compared to males. Also, total scores of female students' perspective to clinical empathy and three subscales of empathic perspective, compassionate care, and standing in the patient's shoes were higher than in male medical students.

Table 4 revealed a strong positive significant relationship between students' perspective to clinical empathy and spiritual well-being (r = 0.56), cognitive empathy (r = 0.51), and psychological well-being (r = 0.43). Also, there was a significant relationship between the students' perspective to clinical empathy and discomfort with uncertainty, tendency to egalitarianism, medical authoritarianism, existential well-being, total score of psychological well-being, self-esteem, self-awareness, environmental mastery, self-acceptance, positive relations with others, purposeful life, personal growth, autonomy, empathic perspective, compassionate care, and standing in the patient's shoes. On the other hand, there was no significant relationship between student's perspective to locus of control and self-awareness.

Table 5 provides the results of multivariate stepwise regression tests between students' perspective to clinical empathy and psychological well-being, dispositional perspective, and spiritual well-being. The final analysis revealed that cognitive empathy (β = 0.300), self-esteem (β = 0.133), and spiritual well-being (β = 0.388) positively predicted student's perspective to clinical empathy regarding the physician-patient relationship.

DISCUSSION

Our study investigated the role of psychological well-being, dispositional views, and spiritual well-being in predicting empathic prospective of medical

Table 4: Matrix Pearson correlation between medical student's perspective to clinical empathy, spiritual well-being, individual disposition, and psychological well-being.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
CE	1																					
DU	0.21**	1																				
TEI	-0.04	0.26**	1																			
TEG	0.55**	0.23**	0.20**	1																		
MA	0.41**	0.14*	0.20**	0.29**	1																	
LC	0.45**	0.10	0.06	0.13**	0.06	1																
SE	0.49**	0.09	0.04	0.01	0.03	0.03	1															
SAw	0.50**	0.03	0.05	0.14*	0.14*	0.07	0.04*	1														
RW	0.38**	0.19**	0.02	0.32**	0.20**	0.11*	0.01	0.14*	1													
EW	0.38**	0.13*	0.05	0.26**	0.20**	0.14*	0.01	0.17*	0.72**	1												
TSW	0.33**	0.10*	0.04**	0.31**	0.22**	0.13*	0.01	0.16*	0.92**	0.93**	1											
SAc	0.28**	0.23**	0.15*	0.23**	0.10	0.10*	0.02	0.06	0.42**	0.59**	0.55**	1										
PR	0.37**	0.17*	0.30	0.28	0.28**	0.05	0.04	0.22**	0.45**	0.49**	0.51**	0.60	1									
AU	0.18**	0.17**	0.12*	0.21**	0.09	0.09	0.10	0.61	0.32**	0.51**	0.45**	0.59**	0.52**	1								
EM	0.20**	0.25**	0.18*	0.12*	0.04	0.13**	0.05	0.07	0.32**	0.40**	0.39**	0.74**	0.49**	0.46**	1							
PL	0.33**	0.25**	0.04	0.23**	0.25**	0.03	0.00	0.15*	0.39**	0.41**	0.43**	0.45**	0.53**	0.40**	0.37**	1						
PG	0.30**	0.25**	0.10*	0.27**	0.18*	0.15	0.04	0.12*	0.48**	0.50**	0.52**	0.58**	0.50**	048**	0.49**	0.61**	1					
TPW	0.34**	0.28**	0.12**	0.28**	0.20**	0.12*	0.04	0.14*	0.50**	0.62**	0.61**	0.85**	0.78**	0.74**	0.79**	0.70**	00.77**	1				
PET	0.49**	0.30**	0.10	0.36**	0.23**	0.10	0.05	0.07	0.60**	0.37**	0.52**	0.26**	0.35**	0.24**	0.26**	0.40**	0.47**	0.42**	1			
CC	0.51**	0.27**	0.03	0.38**	0.28**	0.11**	0.08	0.08	0.59**	0.42**	0.54**	0.26**	0.41**	0.26**	0.18**	0.42**	0.44**	0.41**	0.91**	1		
SPS	0.45**	0.18*	0.01	0.30**	0.29**	0.12*	0.06*	0.15*	0.05*	0.45**	0.45**	0.26**	0.40**	0.25**	0.17*	0.39**	0.44**	0.40**	0.82**	0.83**	1	
TSE	0.51**	0.21**	0.05	0.37**	0.38**	0.12*	0.07	0.10*	0.61**	0.44**	0.56**	0.28**	0.40**	0.26**	0.21**	0.42**	0.47**	0.43**	0.95**	0.96**	0.93**	1

CE: cognitive empathy; DU: discomfort with uncertainty; TEI: tendency to elitism; TEG: tendency to egalitarianism; MA: medical authoritarianism; LC: locus of control; SE: self-esteem; SAw: self-awareness; RW: religious well-being; EW: existential well-being; TSW: total score of spiritual well-being; SAc: self-acceptance; PR: positive relations with others; AU: autonomy; EM: environmental mastery; PL: purposeful life; PG: personal growth; TPW: total score of psychological well-being; PET: perspective empathic taking; CC: compassionate care; SPS: standing in the patient's shoes; TSE: total score of empathy.
*p < 0.050, **p < 0.001.

Table 5: Predictors of medical student's perspective to clinical empathy regarding spiritual well-being, individual disposition, and psychological well-being.

Variables	Full Model		Adjusted Model		
	Standardized coefficient	*p*-value	Coefficient		
			Standard	Unstandard ± SE	*p*-value
Cognitive empathic	0.309	< 0.001	0.300	6.8 ± 1.0	< 0.001
Discomfort with uncertainty	-0.036	0.468	-	-	-
Tendency to elitism	-0.008	0.870	-	-	-
Medical authoritarianism	0.028	0.574	-	-	-
Locus of control	-0.027	0.638	-	-	-
Self-awareness	-0.015	0.801	-	-	-
Self-esteem	0.130	0.050	0.133	3.0 ± 1.0	0.006
Spiritual well-being	0.360	< 0.001	0.388	0.6 ± 0.0	< 0.001
Psychological well- being	0.051	0.360	-	-	-

*Results of multiple analysis regression; SE: self-esteem.

students about the physician-patient relationship. In this study, the mean empathy scores of all students were high. The mean scores of empathy of medical students in Mirani et al.'s report were lower than in this study (98.11±12.31).[26] The findings of the study revealed that students' perspective to clinical empathy and all of the three subscales of the JSE including compassionate care, and standing in the patient's shoes decreased significantly with increasing academic years of the medical students. In line with these results, van Ryn et al,[8] found a significant difference in terms of perspective between students in their early years of study and those studying at higher levels. Indeed, students studying at higher levels of education are less likely to value doctors' empathy. However, our study had methodological difference with that van Ryn et al,[8] In a longitudinal design, van Ryn and colleagues compared empathic prospective of first year of medical students about the physician-patient relationship with their scores at the end of the last medical academic year. In this regard, Farahaninia et al,[27] reported that with increasing years of education, the empathy scores of medical students were reduced. Another study showed that students in clinical training (sixth/seventh years) had lower empathy than students studying in the first to fifth years.[28]

Here, female students had higher scores of student's perspective to clinical empathy and its three subscales (perspective empathic taking, compassionate care, standing in the patient's shoes) compared to their male counterparts, which was in accordance with previous studies.[26,29] A study found

a significant correlation between the empathy and students' gender (*p* = 0.010) where women had higher empathy scores than their male counterparts.[29] Another study also concluded that female medical students had higher scores of empathy compared to males.[26] However, elsewhere there was no difference between empathy scores of females and males among Chinese medical students.[28] The different findings regarding the correlation of gender and empathy score of medical students can be attributed to different countries and communities.

Another important finding was that medical students in their last years of education, especially internship grade, had many differences with other grades of medical academic education regarding empathic perspectives, disposition view, psychological well-being, and spiritual well-being. Internship students had the lowest scores in the following items: cognitive empathic tendencies, tendency to egalitarianism, and both of spiritual well-being's subscales; religious well-being and existential well-being, psychological well-being, personal growth scores, and self-acceptance. van Ryn et al,[8] reported that personality factors such as self-perception, close relationship with the patient, targeted empathy, tendency to elitism, medical authorities, health, and the desire to egalitarianism could affect physicians' attitude toward empathy in the clinical practice. The different results regarding the correlation of personality factors with empathy score of medical students can be attributed to different teaching set-ups for medical students in various countries and communities.

The results revealed a strong positive significant relationship between students' perspective to clinical empathy and spiritual well-being, cognitive empathy, and psychological well-being. Also, cognitive empathy, self-esteem, and spiritual well-being positively predicted students' perspective to clinical empathy regarding the physician-patient relationship. Evidence has suggested that high level of well-being can be associated with high levels of empathy in clinical setting.[30] In agreement with our results, van Ryn et al,[8] observed that discomfort with uncertainty, dispositional empathy, elitism, medical authoritarianism, egalitarianism, self-concept, and well-being predicted medical students' attitudes toward empathy. Another study concluded that spirituality openness and religiosity were significant predictors of empathy in medical students.[30] Note that spirituality openness was associated with empathy only in students without depressive symptoms.[30] However, different methodological design, different included population study, and various assessment evaluations, can lead to different results regarding the relationship between students' perspective to clinical empathy and psychosocial well-being or spiritual well-being.

The results of this study indicated that although the overall mean score of empathy was high in medical students, with further years of education, medical students' perspective to clinical empathy dropped.

Several hypotheses are proposed to explain this finding. First, internship students had the lowest scores in cognitive empathic tendencies, tendency to egalitarianism, spiritual well-being, and psychological well-being especially personal growth scores and self-acceptance. Secondly, there was a positive association between empathy, cognitive empathic tendencies, tendency to egalitarianism, spiritual well-being, and psychological well-being. Further, cognitive empathic tendencies and spiritual well-being were predictors of students' perspective to clinical empathy. Therefore, internship students with lower scores of empathic tendencies and spiritual well-being were more likely to have lower scores of students' perspective to clinical empathy.

The study had several limitations possibly limiting the generalization of the results. First, the study was cross-sectional; therefore, causal direction is uncertain. Second, sampling was limited to a medical school in Iran. Therefore, the medical students of here may not be a suitable representative of the other medical students. Further, the medical students with different levels of education were compared in the study. In future, multicenter and multinational studies with large sample sizes and cohort design should be planned to test this hypothesis on how the spiritual well-being, individual disposition, and psychological well-being profiles of the medical students affect their perspective to clinical empathy with patients. Keeping these limitations in mind, our study highlighted a valuable finding in the physician-patient relationship; the individual characteristics of medical students should be taken into account in the assessment of perspectives to the relationship with patients.

CONCLUSION

Although the score of medical student's perspective to clinical empathy was high, with increasing years of education, the score diminished. Females had significantly higher empathy scores compared to males. There was a strong positive relationship between student's perspective to clinical empathy and spiritual well-being, cognitive empathy, and psychological well-being. Also, cognitive empathy and spiritual well-being positively predicted the students' perspective to clinical empathy regarding the physician-patient relationship. The study also revealed the characteristics of empathy in medical students in four grades of academic education and provided a reliable reference for designing interventions to cultivate empathy among Iranian medical students.

The results provide useful insights into interventions in curricula of medical schools for improving empathic physician-patient relationship. Training physicians to enhance empathy in relationship with patients should be framed such that it is consistent with the previous perspectives of medical students. The results suggested that promoting empathic care in curricula of medical school may be more effective if students' preexisting perspectives, especially cognitive, tendency to egalitarianism, and spiritual empathy are taken into account.

REFERENCES

1. Schneider U, Ulrich V. The physician-patient relationship revisited: the patient's view. Int J Health Care Finance Econ 2008 Dec;8(4):279-300.

2. McKinstry B, Ashcroft RE, Car J, Freeman GK, Sheikh A. Interventions for improving patients' trust in doctors and groups of doctors. Cochrane Database Syst Rev 2006 Jul;(3):CD004134.

3. Shariat SV, Habibi M. Empathy in Iranian medical students: measurement model of the Jefferson scale of empathy. Med Teach 2013;35(1):e913-e918.

4. Rafati S, Rejeh N, Davati A, Foroutani F. Empathic attitudes in medical students: using of the Jefferson Scale of Empathy. Medical Ethics Journal 2016;10(36):25-34.

5. Batt-Rawden SA, Chisolm MS, Anton B, Flickinger TE. Teaching empathy to medical students: an updated, systematic review. Acad Med 2013 Aug;88(8):1171-1177.

6. Rakel D, Barrett B, Zhang Z, Hoeft T, Chewning B, Marchand L, et al. Perception of empathy in the therapeutic encounter: effects on the common cold. Patient Educ Couns 2011 Dec;85(3):390-397.

7. Al-Abri R, Al-Balushi A. Patient satisfaction survey as a tool towards quality improvement. Oman Med J 2014 Jan;29(1):3-7.

8. van Ryn M, Hardeman RR, Phelan SM, Burke SE, Przedworski J, Allen ML, et al. Psychosocial predictors of attitudes toward physician empathy in clinical encounters among 4732 1st year medical students: a report from the CHANGES study. Patient Educ Couns 2014 Sep;96(3):367-375.

9. Weng HC, Steed JF, Yu SW, Liu YT, Hsu CC, Yu TJ, et al. The effect of surgeon empathy and emotional intelligence on patient satisfaction. Adv Health Sci Educ Theory Pract 2011 Dec;16(5):591-600.

10. Stepien KA, Baernstein A. Educating for empathy. A review. J Gen Intern Med 2006 May;21(5):524-530.

11. Kataoka H, Koide N, Ochi K, Hojat M, Gonnella JS. Measurement of empathy among Japanese medical students: Psychometrics and score differences by gender and level of medical education. Acad Med 2009; 84: 1192–1197 12.

12. National Research Council. How people learn: brain, mind, experience, and school: expanded edition. Washington, DC: The National Academies Press; 2000.

13. Seifi S, Barati RM, Faramarzi M, Sum S. Personality traits are associated with spiritual intelligence in medical and dental students: a study in a medical sciences university in Iran. J Med Science 2018;38(4):144-149.

14. Faramarzi M, Khafri S. Role of alexithymia, anxiety, and depression in predicting self-efficacy in academic students. ScientificWorldJournal 2017;2017:5798372.

15. Faramarzi M, Khafri S. A causal model of critical thinking in a sample of Iranian medical students: associations with self-esteem, hardiness, and positive affect. GMS J Med Educ 2019 Aug;36(4):Doc43.

16. Thomas Jefferson University. Philadelphia (PA): Thomas Jefferson University; 2017. Jefferson Scale of Empathy [cited 2016 Oct 30]. Available from: http://www.jefferson.edu/university/skmc/research/research-medical-education/jefferson-scale-of-empathy.html.

17. Kheirabadi G, Golshani L, Masaeli N, Kheirabadi D, Hajrahimi M, Hajrahimi M. Residents' empathy with patients in Isfahan university of medical sciences. Indian J Med Educ 2016;16:1-8.

18. Hojat M. Empathy in health professions education and patient care. New York: Springer International; 2016.

19. Ryff CD, Keyes CL. The structure of psychological well-being revisited. J Pers Soc Psychol 1995 Oct;69(4):719-727.

20. Ahoei K, Faramarzi M, Hassanzadeh R. The relationship between spiritual intelligence and psychological well-being in women with breast cancer. Shiraz E Med J 2017;18(10):e15103.

21. Kalantarkousheh SM. Reliability and exploratory factor analysis of psychological well-being in a Persian sample. Science Series. Data Rep 2012;4(1):11-27.

22. Davis MH. Measuring individual differences in empathy: evidence for a multidimensional approach. J Pers Soc Psychol 1983;44(1):113-126.

23. Merrill JM, Laux LF, Lorimor R, Thornby JI, Vallbona C. Authoritarianism's role in medicine. Am J Med Sci 1995 Sep;310(3):87-90.

24. Paloutzian RD, Ellison CW. Loneliness, spiritual well-being and the quality of life. In L. A. Peplau & D. Perlman (eds) Loneliness: A sourcebook of current theory, research and therapy. New York: Wiley. 1982. 224-237.

25. Kirschling JM, Pittman JF. Measurement of spiritual well-being: a hospice caregiver sample. Hosp J 1989;5(2):1-11.

26. Mirani SH, Shaikh NA, Tahir A. Assessment of clinical empathy among medical students using the Jefferson Scale of Empathy-Student Version. Cureus 2019 Feb;11(2):e4160.

27. Farahaninia M, Abbasi M, Givari A, Haghani H. Nursing students' spiritual well-being and their perspectives towards spirituality and spiritual care perspectives. Iran J Nurs 2006;18(44):7-14.

28. Li D, Xu H, Kang M, Ma S. Empathy in Chinese eight-year medical program students: differences by school year, educational stage, and future career preference. BMC Med Educ 2018 Oct;18(1):241.

29. Bourgault P, Lavoie S, Paul-Savoie E, Grégoire M, Michaud C, Gosselin E, et al. Relationship between empathy and well-being among emergency nurses. J Emerg Nurs 2015 Jul;41(4):323-328.

30. Damiano RF, DiLalla LF, Lucchetti G, Dorsey JK. Empathy in medical students is moderated by openness to spirituality. Teach Learn Med 2017 Apr-Jun;29(2):188-195.