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# EMPATHY AS RELATED TO MOTIVATIONS FOR MEDICINE IN A SAMPLE OF FIRST-YEAR MEDICAL STUDENTS[1, 2]

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*Summary*.—Professionalism and empathy are crucial in clinical settings. An association would be expected between empathic attitudes and altruistic motivations for a medical education. However, data is scarce in first-year students, and a previous small-scale study did not fully confirm the hypothesis that person-oriented motives would have a strong relationship to empathy. The present study tested this association in a larger sample. 202 first-year medical students ($M$ age = 19.0 yr., $SD$ = 2.7; 67.3% women) were assessed cross-sectionally, using the Vaglum and colleagues' indexes on motives for choosing medicine (security/status, person-orientation, and interest in the natural sciences) and the Jefferson Scale of Physician Empathy for students. There was a weak association between empathy and person-orientation, but the evidence regarding links between empathy and the three motivation scores was low overall. In this Portuguese sample there was not a clear-cut association between empathy and motivations for medical school.

Professionalism is a critical quality in health-related practice. It is related to a wide range of environmental and personal factors, including communication skills and empathy (West & Shanafelt, 2007). Accordingly, there is a growing interest in empathy as a core process facilitating clinical relationships (Duan & Hill, 1996; Hojat, 2007) and therefore a desirable attribute in physicians dedicated to clinical areas. Improving empathy-

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driven attitudes and skills seems to be a reasonable quest in medical education. Recently, West and Shanafelt (2007) emphasized concern for medical professionalism and its humanistic underpinnings; such interest has stimulated research on topics as diverse as the neurobiological bases for empathic attitudes (Kim, Kim, Kim, Jeong, Park, Son, *et al.*, 2009), pitfalls regarding the assessment of empathy (Pedersen, 2009), and empathy in medical students (Hojat, Gonnella, Mangione, Nasca, Veloski, Erdmann, *et al.*, 2002).

Despite some contention (Colliver, Conlee, Verhulst, & Dorsey, 2010; Quince, Parker, Wood, & Benson, 2011; Costa, Magalhães, & Costa, 2012), there have been suggestions that empathy may decline in medical students during their training (Hojat, Mangione, Nasca, Rattner, Erdmann, Gonnella, *et al.*, 2004) and that hampered empathy skills in the early phases of medical training may foster defensive cynicism in the long-term (Hojat, 2007). A recent systematic review also suggested that empathy does decline during medical school and residency and that this could hinder the path toward professionalism and provision of quality health care (Neumann, Edelhäuser, Tauschel, Fischer, Wirtz, Woopen, *et al*, 2011). Thus, concerns about a widespread stunting of empathy have been raised, and practical suggestions for empathy development in medical school proposed (Pedersen, 2010). Some authors have even addressed the hidden factors that may inhibit the development of patient-centeredness in current medical curricula (Bombeke, Symons, Debaene, De Winter, Schol, & Van Royen, 2010).

In Portugal, there are ongoing changes concerning both the National Health Service and private practice, which may lead to the expansion of market-driven health delivery systems. Thus, a focus on empathy in medical education is even more crucial. Medicine is a highly valued profession in terms of social status, and entering medical school is a most desirable target for high-school students with good academic records. While in many countries, both cognitive and non-cognitive methods are used for decisions about admission to medical school (White, Brownell, Lemay, & Lockyer, 2012), the selection of applicants to Portuguese medical schools has relied exclusively on academic performance. Regardless of doubts about the validity of non-cognitive methods of assessment (Benbassat & Baumal, 2007), one could speculate that this combination of social pressure and strictly academic selection criteria could lead to less person-orientated and altruistic students among successful applicants. Given that common-sense appraisal establishes a link between person-orientation motivations and empathy, it may also be that growing numbers of these intellectually gifted first-year medical students are not necessarily predisposed to empathize in clinical encounters.

There has been no evidence to support the above concerns in Por-

tugal. A small-scale Portuguese study using the Jefferson Scale of Physician Empathy–for Students (JSPE–S) suggested that empathy may be amenable to improvement, via specific training in first-year medical students (Loureiro, Gonçalves-Pereira, Trancas, Caldas-de-Almeida, & Castro-Caldas, 2011). Apart from this finding, there were other interesting results. First, scores on person-oriented motives for entering medical school and empathy were not low at baseline, as compared to those recorded in the literature (Vaglum, Wiers-Jenssen, & Ekeberg, 1999; Hojat, Gonnella, Mangione, *et al.*, 2002). This supported the view that most students display empathic attitudes from the beginning of medical training, regardless of country or culture. Second, there was some evidence relating empathy to motivations for a medical education, but the correlation coefficients were unexpectedly low. Therefore, by casting some doubts on such a common-sense assumption, it is important to discover to what extent different motivations for medicine actually relate to empathy in medical students.

The relationships of person-orientated motivations to empathy as a specific construct remain unclear. For instance, empathy was found to be associated with intentions to pursue people-oriented (instead of procedure-oriented) specialties after graduation (Hojat, Zuckerman, Magee, Mangione, Nasca, Vergare, *et al.*, 2005). In contrast, empathy scores were no different in first-year students who majored in science disciplines as opposed to those who valued non-science ones (Smolarz & Gabriel, 2005). Motivations for entering the field of medicine have also been addressed in the literature (Ewan & Bennett, 1981), paving the road for related explorations of determinants of career preferences (Vaglum, *et al.*, 1999; McManus, Livingston, & Katona, 2006). Although personal values may not be entirely stable throughout the years of medical education (Borges & Hartung, 2010), a higher preference for social values may be relevant to a more person-oriented specialty choice (Hojat, Brigham, Gottheil, Xu, Glaser, & Veloski, 1998).

Research has suggested relationships between specific motivations for medical education and sex of the student (Vaglum, *et al.*, 1999), and personality traits (McManus, *et al.*, 2006), but relationships between those motivations and empathy were seldom approached directly. McManus, *et al.* (2006) assessed young high-school applicants to medical school using the Davis' Interpersonal Reactivity Index (Davis, 1983), a measure of empathy for the general population whose scores relate to those of scales that are suitable for clinical settings (Hojat, Mangione, Kane, & Gonnella, 2005). They found that valuing helping people could relate to better perspective-taking (McManus, *et al.*, 2006). Other studies were specifically conducted with medical students. However, in one of them, students were selected long after enrollment, allowing for recall bias (Turczynska, Ksiezoplska-

Kaczorowska, Hebanowski, & Komorowska-Szczepanska, 2003). In first-year students, Streit-Forest (1982) found that empathy tended to be related, among other variables, to positive attitudes toward the importance of doctor-patient relationships and to humanistic reasons for choosing medicine. However, apparently there have been no direct attempts to replicate these findings in similar samples for the last thirty years.

Consequently, data on empathy attitudes as related to motives for enrolling in medicine are scarce, in participants recently admitted to medical school (those who seem more adequate for this kind of exploration). In a preliminary exploration (Loureiro, *et al.*, 2011), small numbers precluded the use of multivariable methods of analysis. Therefore, the hypothesis that empathy in first-year medical students would be related to person-centered motivations for medicine remains to be tested. The aims of the present study were to re-explore the association between empathy and motives for enrolling in medicine, using a larger sample of first-year students and a set of valid and reliable measures.

## Method

### *Sample*

Participants were first-year medical students that enrolled at the Faculty of Medical Sciences, Nova University (Lisbon, Portugal), in 2008. The sample included all 202 students (66 men, 136 women; $M$ age = 19.0 yr., $SD$ = 2.7) in two Medical Psychology courses. These courses were part of the first-year mandatory curriculum until 2011. All students were invited to participate and agreed to do so after informed consent. Full anonymity was assured and students were made aware that they could refuse to participate with no consequences. No monetary or other material incentives were offered in return for participation. The study was approved by the Institutional Board of the Faculty of Medical Sciences.

### *Measures*

Participants completed three measures: (a) a questionnaire on socio-demographic and academic data, plus career options, (b) motivation, and (c) empathy assessments.

*Socio-demographic measures, academic history, and career intentions*.—The socio-demographic questionnaire collected data on age, sex, previous academic experience, success on enrolling in medical school at first attempt (otherwise, how many attempts were required), and career plans, i.e., preferred area of medical specialization. These preferences were grouped according to the following options: (1) general practitioner/family doctor; (2) medical specialties (e.g., internal medicine, cardiology, neurology, haematology, paediatrics); (3) surgical specialties (e.g., general surgery, vascular surgery, plastic surgery); (4) medico-surgical specialties (e.g., ophthal-

mology, dermatology, gynaecology-obstetrics); (5) laboratory specialties (e.g., radiology, clinical pathology, anatomical pathology); (6) psychiatry; and (7) public health. There were two additional response options, concerning those not interested in choosing any specialty at all and those unsure which to choose.

*Measure of motivation.*—Motivation for medical school was evaluated using the motivation questionnaire developed by Vaglum, *et al.* (1999) in a study of Norwegian entry-level students. It includes 14 items, asking "To what extent were the following items important for your decision to study medicine?" Items are rated on a 4-point scale with anchors 0: Not at all and 3: Strongly decisive. Principal component analysis led to three factors/indexes: Status/security orientation, People orientation, and Interest in the natural sciences. Cronbach's alpha coefficients for these factors were .72, .73, and .51, respectively.

Data on validity and reliability of a Portuguese translation of the questionnaire are available (Loureiro, 2009; Loureiro, *et al*., 2011). In the present study, Cronbach's alphas for the motivation subscales were .62 (Status/security), .77 (People orientation), and .70 (Interest in the natural sciences; $N = 198$). As there were no data on test-retest reliability, it was assessed in 78 participants who agreed to complete the questionnaire again, two weeks after the assessment. Intra-class correlation coefficients (ICC) and confidence intervals (*CI*) for each subscale were: .88 ($95\%CI = .81, .92$) for Status/security; .93 ($95\%CI = .89, .96$) for People orientation; and .88 ($95\%CI = .81, .92$) for Interest in the natural sciences. This indicates acceptable internal consistency (for a scale that is used as a research tool to compare groups in this sample) and excellent reliability (Bland & Altman, 1997; Streiner & Norman, 2008).

*Measure of empathy.*—Empathy was evaluated using the student version of the Jefferson Scale of Physician Empathy—JSPE–S (Hojat, Mangione, Nasca, Cohen, Gonnella, Erdmann, *et al*., 2001). This self-assessment questionnaire includes 20 items rated on a 7-point Likert-type scale with anchors 1: Strongly disagree and 7: Strongly agree. It has been widely used for the study of empathy in clinicians and in medical students (Hojat, *et al*., 2001; Hojat, Gonnella, Mangione, *et al*., 2002; Hojat, Gonnella, Nasca, Mangione, Vergare, & Magee, 2002). Cronbach's alpha was .87 for internal medicine residents and .89 for medical students (Hojat, *et al*., 2001; Hojat, 2007). As for factor structure, three subscales were originally described: Perspective taking, the preponderantly cognitive component of empathy; Compassionate care, understood as a more emotional measure of empathy; and ability to "Stand in the patient's shoes" (Hojat, Gonnella, Nasca, *et al*., 2002). This factor structure has been demonstrated to be similar in medical students and practicing health professionals. Thus, subscales are generally used along with the 20-item JSPE total score (Hojat, 2007). The

JSPE–S has been translated and validated in several countries, e.g., Japan and Iran (Kataoka, Koide, Ochi, Hojat, & Gonnella, 2009; Rahimi-Madiseh, Tavakol, Dennick, & Nasiri, 2010).

A Portuguese translation of the JSPE–S was used. This had been back-translated into English and the back-translation revised by Hojat (Loureiro, 2009). Validity and reliability data had been previously documented (Loureiro, *et al*., 2011). In the present study, Cronbach's alphas for the JSPE–S subscales were .73 (Perspective taking), .66 (Compassionate care), .77 ("Standing in the patient's shoes"), and .75 for the total score ($N = 202$). As described for the motivation questionnaire, test-retest reliability at a 2-week interval was assessed in the same subsample ($n = 78$). Intra-class correlation values for the JSPE–S total score were .85 (95%*CI* = .77, .91). Regarding each subscale the results were as follows: .70 (95%*CI* = .52, .91) for Perspective taking, .66 (95%*CI* = .47, .79) for Compassionate care and .77 (95%*CI* = .64, .85) for "Standing in the patient's shoes." Test-retest reliability was lower in the three subscales as compared to the total score. However, the overall psychometric properties of the JSPE–S translation are acceptable in this sample (Bland & Altman, 1997; Streiner & Norman, 2008). Another group using an authorized JSPE–S translation provided support in the use of the original factor structure of the questionnaire in Portugal (Magalhães, Salgueira, Costa, & Costa, 2011).

*Study Design and Procedure*

This was a cross-sectional study. Measures were presented simultaneously and prior to the beginning of Medical Psychology classes, i.e., before any empathy-focused learning (lectures or skills training) would have taken place.

*Analyses*

Descriptive statistics and non-parametric (chi-squared, Fisher's exact, Mann-Whitney U, and Kruskall-Wallis) tests were used as appropriate. Frequencies and percentages are presented for categorical data, and mean or median, and standard deviation (*SD*), for continuous variables; 95% confidence intervals were calculated. Correlations were assessed with Spearman's coefficient to explore associations between motivation factors and empathy scores. A multiple regression analysis was carried out considering the JSPE–S total score as dependent variable. Significance level was set at $\alpha = .05$. Data were analyzed using the Statistical Package for the Social Science for Windows Version 17.0 (SPSS, Inc.).

## Results

*Participants and Specialty Preferences*

All students filled out the questionnaires, with the exception of four who skipped the motivation measure. Fifty-three (26.2%) had previous-

TABLE 1
MEDICAL SPECIALTY PREFERENCE BY SEX

| Specialty | Women ($n = 136$) | | Men ($n = 66$) | | All ($N = 202$) | |
|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % |
| Medical specialties | 52 | 38.2 | 21 | 31.8 | 73 | 36.1 |
| Surgical specialties | 41 | 30.1 | 23 | 34.8 | 64 | 31.7 |
| Medico-surgical | 10 | 7.4 | 5 | 7.6 | 15 | 7.4 |
| Psychiatry | 6 | 4.4 | 5 | 7.6 | 11 | 5.4 |
| Laboratory | 2 | 1.5 | 2 | 3.0 | 4 | 2.0 |
| Unsure of choice | 25 | 18.4 | 10 | 15.2 | 35 | 17.3 |

*Note*.—Percentages within sex shown for women, men; there were no significant differences by sex (Fisher's Exact Test). No participant stated a preference for general practice or public health.

ly been enrolled in another course: pharmacy ($n = 19$; 9.4%), veterinary medicine ($n = 12$; 5.9%), dental medicine ($n = 9$; 4.5%), nursing ($n = 3$; 1.5%) and other health-related areas ($n = 3$; 1.5%), while some reported previous non-health related enrollments ($n = 7$; 3.5%). Most students ($n = 149$; 73.8%) successfully enrolled in medical school at their first attempt. Of those who did not, 32 (15.8%) required two attempts, 13 (6.4%) three attempts, and 8 (4.0%) four attempts to enroll successfully. Table 1 presents preferred specialties by sex of participant. There were no significant differences analyzing these preferences by sex.

*Motivation for Medicine and Empathy Scores in the General Sample*

The highest rated motivation items related to opportunities to care for people, for social and humanitarian effort, and to work with people. The lowest rated items were the opportunity to take advantage of grades, to attend a classroom-like study program, or to gain prestige/status. Mean scores for each motivation component were 3.57 ($SD = 1.28$) for Status/security, 7.35 ($SD = 1.70$) for People orientation, and 5.37 ($SD = 2.05$) for Interest in the natural sciences. Table 2 presents distribution, percentiles, and descriptive statistics for JSPE–S scores. Means for subscales were 55.72 ($SD = 6.69$) for Perspective taking, 45.42 ($SD = 5.29$) for Compassionate care, and 8.63 ($SD = 2.49$) for "Standing in the patient's shoes".

*Comparing Motivation for Medicine and Empathy Scores in Subgroups*

Table 3 presents the sex distribution of the different motivations for enrolling in medicine. Women scored higher on the People orientation index. Accordingly, on the item level, female students tended to score higher than their male counterparts on medicine as an opportunity for social/humanitarian effort, to work with people and to explore relations between health, well-being, and society. On the other hand, women rated lower on the opportunity for high income option. There were no other significant differences by sex.

TABLE 2
DISTRIBUTION, PERCENTILES, AND DESCRIPTIVE STATISTICS FOR SCORES ON THE JSPE–S (202 MEDICAL STUDENTS), ADAPTED FROM HOJAT (2007)

| Score Interval (Possible Range 20–140) | Frequency | Cumulative Frequency | Cumulative % |
|---|---|---|---|
| ≤ 80 | 1 | 1 | 0.5 |
| 81–85 | 4 | 5 | 2.5 |
| 86–90 | 3 | 8 | 4.0 |
| 91–95 | 12 | 20 | 9.9 |
| 96–100 | 14 | 34 | 16.8 |
| 101–105 | 32 | 66 | 32.7 |
| 106–110 | 34 | 100 | 49.5 |
| 111–115 | 42 | 142 | 70.3 |
| 116–120 | 29 | 171 | 84.7 |
| 121–125 | 20 | 191 | 94.6 |
| 126–130 | 8 | 199 | 98.5 |
| 131–135 | 3 | 202 | 100.0 |
| | This Sample | Original Findings by Hojat (2007) | |
| Total score, *M (SD)* | 110 (11) | 115 (10) | |
| 25th percentile | 103 | 108 | |
| 50th percentile (median) | 111 | 115 | |
| 75th percentile | 118 | 122 | |
| Actual range | 79–135 | 75–140 | |
| Cronbach's alpha | 0.75 | 0.80 | |

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Regarding JSPE–S empathy scores, means were 107.79 ($SD = 10.12$) for men and 110.74 ($SD = 10.50$) for women. However, sex differences were not significant in any JSPE–S subscale: men scored 54.73 ($SD = 6.68$) and women 56.21 ($SD = 6.67$) on Perspective taking; men scored 44.91 ($SD = 4.18$) and women 45.66 ($SD = 5.75$) in Compassionate care; finally, men scored 8.15 ($SD = 2.41$) and women 8.87 ($SD = 2.50$) in "Standing in the patient's shoes."

Students with successful enrollment in medical school at first attempt had higher ratings on the Status/security motivation index, 3.73 ($SD = 1.26$) versus 3.12 ($SD = 1.19$; $p < .004$) and lower ratings on the Compassionate care subscale of the JSPE–S 44.90 ($SD = 5.30$) versus 46.87 ($SD = 5.05$; $p < .05$). They did not differ significantly from their colleagues in any of the remaining motivation or empathy scores.

Table 4 presents motivational factors and attitudes toward empathy by preferred specialties (aggregated in three groups). On account of small numbers, students stating a preference for psychiatry or laboratorial specialties were not included. There were no significant differences in the distribution of motivation or empathy scores, except on "Standing in the pa-

TABLE 3

SELF-REPORTED MOTIVES FOR ENTERING MEDICINE (ACCORDING TO VAGLUM, *ET AL.*, 1999), BY SEX WITH COMPARISONS (14 ITEMS AND 3 INDEXES)

| | Women ($n = 134$) | | Men ($n = 64$) | | Mann-Whitney $p$ |
|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | |
| 1. Opportunity for high income | 1.57 | 0.65 | 1.83 | 0.75 | < .05 |
| 2. Social prestige/status | 0.87 | 0.73 | 1.02 | 0.77 | |
| 3. Job security | 1.95 | 0.66 | 1.94 | 0.83 | |
| 4. The education leads to a defined profession | 1.63 | 0.79 | 1.50 | 0.93 | |
| 5. Classroom-like study programme | 0.58 | 0.66 | 0.53 | 0.56 | |
| 6. Opportunity to take advantage of good grades | 0.47 | 0.68 | 0.50 | 0.71 | |
| 7. Opportunity for social and humanitarian effort | 2.55 | 0.58 | 2.16 | 0.80 | < .001 |
| 8. Opportunity to work with people | 2.46 | 0.65 | 2.03 | 0.87 | < .01 |
| 9. Opportunity to care for people | 2.67 | 0.52 | 2.47 | 0.78 | |
| 10. Interest in health, well-being, and society | 2.26 | 0.65 | 1.94 | 0.83 | < .05 |
| 11. Desire for challenge | 2.20 | 0.76 | 2.02 | 0.90 | |
| 12. Interest in human biology | 2.22 | 0.80 | 2.13 | 0.85 | |
| 13. Opportunity to perform research | 1.34 | 0.96 | 1.28 | 0.95 | |
| 14. General interest in natural science | 1.87 | 0.88 | 1.86 | 0.69 | |
| (a) Status/security orientated index | 3.53 | 1.23 | 3.66 | 1.36 | |
| (b) Person orientated index | 7.69 | 1.36 | 6.66 | 2.11 | < .001 |
| (c) Natural sciences orientated index | 5.42 | 2.11 | 5.27 | 1.92 | |

*Note*.—$N = 198$; Items 10 and 11 are not included in any index; Mann-Whitney *U* comparisons by sex.

TABLE 4

MOTIVATIONAL AND EMPATHETIC FACTORS BY PREFERRED SPECIALTY (AGGREGATED)

| Score | Vocational Group 1 ($n = 73$) | | Vocational Group 2 ($n = 79$) | | Vocational Group 3 ($n = 35$) | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Motivational Factors | | | | | | |
| Status/security | 3.52 | 1.32 | 3.53 | 1.17 | 3.74 | 1.33 |
| People oriented | 7.55 | 1.44 | 7.18 | 1.72 | 7.42 | 1.80 |
| Interest in natural sciences | 5.32 | 2.03 | 5.42 | 2.06 | 5.32 | 2.17 |
| Empathy Factors | | | | | | |
| Total empathy score | 110.30 | 9.83 | 109.72 | 10.94 | 106.69 | 9.96 |
| Perspective taking | 55.84 | 6.85 | 55.57 | 6.71 | 54.63 | 6.06 |
| Compassionate care | 45.64 | 5.19 | 45.28 | 5.40 | 45.28 | 5.62 |
| Standing in patients' shoes[a] | 8.82 | 2.54 | 8.87 | 2.38 | 7.57 | 2.32 |

*Note*.—Vocational Group 1: Medical specialties; Vocational Group 2: Medico-surgical or surgical specialties; Vocational Group 3: Unsure of which to choose. $n = 187$, except in lines related to motivation scores ($n = 184$), where the four non-respondents were in Group 3. Participants stating a preference for psychiatry and laboratory ($n = 15$) were excluded here. No significant differences were observed, except in [a]$p < .05$, Kruskal-Wallis test.

tient's shoes" scores, which tended to be lower in participants unsure of preference.

*Associations Between Motivational Indexes and Empathy Scores*

The People orientation index was positively correlated with JSPE–S total score ($r_s = .26$, $p < .001$), JSPE–S subscales Perspective taking ($r_s = .22$, $p < .05$) and Compassionate care ($r_s = .24$, $p < .05$). Status/security index was negatively correlated with JSPE–S total score ($r_s = -.19$, $p < .01$), Compassionate care ($r_s = -.15$, $p < .05$), and "Standing in the patient's shoes" ($r_s = -.16$, $p < .05$). There was no evidence of other correlations, namely between Interest in the natural sciences and any of the empathy components (JSPE–S total score or subscales). Although the strength of these associations was low, a multiple linear regression model was fitted to the data to study the influence of the People orientation and Status/security indexes on the JSPE–S total score (Table 5). There was weak evidence in support of the direct association between the empathy score and the People orientation index, and no evidence supporting the inverse association, i.e., between the empathy score and the Status/security index. This model only explained 7.5% of the variability of the empathy total score.

TABLE 5
MULTIPLE LINEAR REGRESSION MODEL ON THE EMPATHY (JSPE–S) TOTAL SCORE

| | Unstandardised Coefficients (B) | 95%*CI* for B | Standardised Coefficients (Beta) | *p* |
|---|---|---|---|---|
| Status/Security Index | −1.00 | −2.13, 0.13 | −0.12 | .08 |
| Person Orientated Index | 1.28 | 0.44, 2.12 | 0.21 | .003 |

*Note.*—$N = 198$. $R^2 = .072$.

## DISCUSSION

This is one of the few studies that explored the links between empathy and motivations for a medical education in incoming freshmen students. The motivations for medicine and career plans of 202 participants were described, and their attitudes toward empathy were assessed by means of a valid and widely used pencil-and-paper measure. The initial hypothesis was that empathy in recently admitted students would positively relate to person-centered motivations. The results do not fully contradict that idea. The supporting evidence was statistically significant, but not strong.

Women outnumbered men (2:1) in a proportion that is usual in Portuguese medical schools at the present time. As to career preferences, surgery was not a disproportionately unpopular choice among female first year students, contrasting to what has been reported in the United Kingdom (Fysh, Thomas, & Ellis, 2007). A remarkable finding was that not

one of these early-stage students aimed for a career in general practice or public health, irrespective of these areas' importance from a healthcare or public health perspective. However, this was not entirely surprising given some trends in career choice at a national level and the concordant results of a previous study (Loureiro, *et al*., 2011). Some Portuguese, first-year students may view these choices as unattractive and less prone to social recognition. Only a few chose psychiatry and, again, this may be explained by prevailing misconceptions about psychiatry in some populations of medical students (Xavier & Almeida, 2010).

Ratings in motivational individual items or indexes were similar to the ones previously found in Norway using this measure (Vaglum, *et al*., 1999). The same applies to the distribution of empathy scores, as compared to original studies with the JSPE–S in North American students (Table 2; Hojat, 2007). These similarities were not surprising, given that significant cultural differences would not be expected between the present study's sample and those of other studies mentioned. Moreover, concerns that the admissions process might select students with less person-oriented, humanitarian motivations seem to be abated by the present results. These findings occurred in spite of the restricted admission policy in Portuguese medical schools (*numerus clausus*), and that selection is based exclusively on academic merit. This has also been pointed out by Ewan and Bennett (1981) in other settings.

Some significant sex differences were found, such as higher empathy total scores and person-oriented motives in women. This is in accordance with previous findings (Vaglum, *et al*., 1999; Hojat, Gonnella, Mangione, *et al*., 2002; Kataoka, *et al*., 2009), although empathy may not be strikingly higher in women across all cultures (Rahimi-Madiseh, *et al*., 2010). In a recent study at the University of Cambridge, Quince *et al.* (2011) found no significant differences in empathy according to sex in medical students. Empathy total scores were not significantly higher in any group of students according to career preference, as in another Portuguese study (Magalhães, *et al*., 2011). However, this was an exploration restricted to first-year students. In contrast, previous suggestions of an association between empathy and medical specialties or psychiatry, as opposed to surgical specialties or others, were mostly derived from studies with physicians (Hojat, 2007).

In this sample, students who did not successfully enroll in medical school at first attempt presented lower Status/security motivations and higher Compassionate care. This finding defies straightforward interpretation. Given that these are highly valuable traits, perhaps a fine-tuning of enrollment policy could be considered.

Empathy total scores were associated with scores on the motive of

People orientation. This could suggest a link between empathic attitudes and choosing medicine as a career because of a motivation for helping people. Nevertheless, there was only weak evidence, and the regression model only explained a very low proportion of the variance in JSPE–S scores. Accordingly, other factors may be much more relevant for the understanding of empathic attitudes at the start of medical training. In fact, empathy foundations are multiple, including biological and psychodynamic factors (Hojat, 2007), and yet much of the literature signals associations and not causality.

In the presence of inconclusive results, some could question the validity of the questionnaires themselves. It must be emphasized, however, that the empathy and motivation questionnaires are well established measures in their original versions and that the psychometric properties of the translations seemed acceptable, in accordance with previous data (Loureiro, *et al.*, 2011). Internal consistency was somewhat low for some subscales in the present study's sample, but alpha values of .7 may be considered satisfactory on the whole (Bland & Altman, 1997; Streiner & Norman, 2008). Moreover, alphas for the People orientation index and for the JSPE–S total score were well above this threshold.

Other studies have addressed the links between empathy and motives for entering training in medicine. However, their results are not directly comparable to those of the present study. One concerned applicants to medical school (McManus, *et al.*, 2006) and another involved sixth-year medical students, using qualitative methods (Turczynska, *et al.*, 2003). Finally, Streit-Forest's (1982) study of first-year medical students used different measures.

*Limitations*

Assessments were conducted in the medical school setting. This may have positively influenced response rates and questionnaires' acceptability, possibly enhancing social desirability bias. Data are not recent and might not yet reflect changes in motivations for enrolling medical school or choosing a specialty that possibly followed the economic crisis and high unemployment rates evolving since 2008.

Additionally, it is not established that the JSPE–S pencil-and-paper measure fully assesses empathy, but only a general attitude toward empathy (Chen, Pahilan, & Orlander, 2009; Pedersen, 2009). Likewise, self-reported empathy scores do not fully reflect patients' perceptions of a doctor's empathy (Berg, Majdan, Berg, Veloski, & Hojat, 2011). Pedersen (2009) even argued that empirical research in empathy in medicine has been dominated by "relatively narrow quantitative methods," which include the physicians' and patients' experiences only to a limited extent. Although this discussion must be acknowledged, the JSPE–S remains one

of the most robust measures in the field of empathy assessment. Finally, a conservative approach to the use of some empathy subscales in this sample would be to rely mostly on the JSPE–S total score when interpreting the results.

*Further Research*

Despite conflicting evidence that includes a recent Portuguese study by Costa, *et al*. (2012), concerns remain about how to develop empathic attitudes in medical education and how to minimize the risk of its decline with clinical experience (Rosenfield & Jones, 2004; Spencer, 2004; Hojat, 2007; Bombeke, *et al*., 2010, Pederson, 2010).

If there were clear-cut associations between person-oriented motives for a medical career and empathy, a rationale could be found for changing selection policies to value genuine humanistic reasons amongst candidates. In this scenario, focusing on reinforcing person-orientated motives for enrolling in medical school could be a more feasible strategy than implementing assessments of attitudes toward empathy for selection purposes. For instance, Benbassat and Baumal (2007) proposed that medical schools should disseminate more information on the strains of medical practice, thereby assisting applicants to make an informed decision when applying, and reducing the relevancy of the method of selection itself. This could be seen as a useful self-selection process, provided there were means of enriching the applicant pool for students with appropriate motivations. Given the limited knowledge on how to modulate empathy during medical education (Pedersen, 2010), answers to these questions could provide important clues to improve candidate selection.

However, in this sample of Portuguese first-year students, global attitudes toward empathy were not strongly related to person-oriented motivations for medical education. This weak evidence was unexpected and did not fully support the initial hypothesis.

Additional research on empathy and motivations for medical school should be conducted internationally and address potential sources of selection and evaluation bias. Alternatively, qualitative research could allow for data mining and development of theoretical constructs, putting forth new testable hypotheses for the complex interaction between personal motivations, social, and cultural factors as related to empathy-proneness in medical students.

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