Basic Science Medical Student Attitudes toward the Patient-Doctor Relationship

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Abstract

Introduction: Patients seem increasingly to be in favor of taking a more active role in the patient-doctor relationship. Increasing education and the rising prevalence of chronic and lifestyle diseases require patients to take more responsibility for their health. The present study was conducted among basic science students at a private medical school in Aruba, Dutch Caribbean using the well validated patient-practitioner orientation scale (PPOS) to obtain information on student attitudes toward the patient-doctor-relationship and study whether the attitudes were associated with demographic characteristics.

Methods: The study was conducted during November 2016. PPOS measures student attitudes towards the sharing and caring dimensions of the patient-doctor relationship by noting the respondents’ degree of agreement with various statements using a Likert-type scale. The gender, age, nationality and semester of study of the respondents were noted. Three binary dependent variables were created using mean caring, mean sharing and mean total scores where mean score of 4 and greater was coded as 1 and otherwise was coded as 0. Subsequently, univariate and multivariate logistic regression models were fitted to analyze the relationship of the dependent variables with gender, age, nationality and semester of study of the respondents.

Results: One hundred and seven of the total of 116 students (92.2%) participated in the study. The mean ± SD sharing score was 3.996 ± 0.623 while the mean caring score was 4.253 ± 0.0602. The mean ± SD total score was 4.126 ± 0.501. The mean sharing and mean total scores were significantly higher among female respondents. Female respondents were found to be more likely to be caring, sharing and having a more patient-centered attitude when communicating with patients than males on carrying out the logistic regression analysis.

Conclusions: The scores were comparable to those reported previously in the literature. Compared to some other studies no significant differences in scores were noted according to demographic characteristics of respondents other
than gender. Studies among students during the clinical years of study are required. Similar studies could be carried out in other offshore Caribbean medical schools.

**Keywords:** attitude, Caribbean, medical schools, patient-centered care, patient-doctor relationship

**Introduction:**

A good relationship between the patient and the doctor is at the center of medicine. A stronger relationship has been shown to be associated with better patient outcomes and patient satisfaction (Heisler et al., 2005) and can improve patient compliance with treatment (Choi et al., 2004). The relationship can be doctor-centered or paternalistic or patient-centered and egalitarian. In a more patient-centered relationship, the patient plays a more active role and assumes greater responsibility for his or her health (Campbell & McGauley, 2005; Kaba & Sooriakumaran, 2007).

Patients all over the world are becoming more educated and autonomous and there is an increasing demand for a greater say by patients in making their own healthcare decisions (Tor, 2001; Shankar & Piryani, 2009). Studies have been conducted to obtain information about the determinants of patient-centered attitudes. A study conducted in Greece had shown that age, years of education, health status, social support and religious beliefs were determinants of patient-centered attitudes (Tsimitsiou et al., 2014). The increasing prevalence of chronic and lifestyle diseases require patients to play a more active role in their treatment and in managing their health. A collaborative and patient-centered model of care has been shown to be beneficial in this regard (Matzke et al., 2016; Bekelman et al., 2016).

The patient-practitioner orientation scale (PPOS) is a well validated instrument which has been used to study attitudes toward the patient-doctor relationship among students, healthcare practitioners and patients. A study conducted among first year medical students at the Boston University School of Medicine, United States (US) using PPOS seemed to indicate that female students were more patient-centered and patient-centeredness was also associated with an interest in community and primary care practice (Krupat et al., 1999a). In a study conducted at a medical school in Nepal, female students again had a higher score and students whose first degree relative was a doctor showed higher sharing scores (Shankar et al., 2006). However, a study conducted in Lahore, Pakistan did not show any influence of gender on attitude toward the relationship but showed that advanced academic years, having completed a clinical rotation, being from a foreign background and studying in a private medical college were positively associated (Ahmad et al., 2015). Another study examined attitudes of medical students toward patient-centered care both during the early and later years of medical school and also studied factors associated with patient-centered attitudes (Haidet et al., 2002). Female gender and earlier years of medical school were significantly associated with patient-centered attitudes. Among fourth year students, female gender, European-American ethnicity and the choice of a primary care career were associated with more positive attitudes.

Recognizing the importance of patient-centeredness medical and health professions schools have attempted to strengthen teaching-learning in this area. In a US medical school longitudinal integrated clerkships have been shown to develop and sustain patient-centered attitudes (Gaufberg et al., 2014). Community educators suffering from various diseases like epilepsy, arthritis, HIV/AIDS, and mental health problems conducted workshops for students (Towle & Godolphin, 2013). These workshops were well defined and the learning objectives matched dimensions of patient-centeredness. Longitudinal community-based care of patients provides opportunities for teaching patient-centeredness and also the management of chronic diseases. A longitudinal community-based care module resulted in students shifting from learning about biomedical conditions during the phase of hospitalization of their patients to a better understanding of long term care and patient centeredness at the end of the module (Puvanendran et al., 2012).
Xavier University School of Medicine (XUSOM) is a private medical school located in Aruba, Kingdom of the Netherlands admitting students from the United States, Canada and other countries to the undergraduate medical (MD) program. Students spend the first two years of the course in Aruba learning the basic sciences along with early clinical exposure. The school shifted to a fully integrated curriculum for the basic sciences starting with the new intake of students during Spring 2014 and this was gradually extended to all subsequent student intakes (Shankar et al., 2014). As the school does not possess clinical facilities on the island of Aruba providing early clinical exposure to students is a challenge. These and other challenges in implementing the integrated curriculum and possible solutions have been discussed in a recent article (Shankar, 2014). Standardized patients are widely used for both teaching-learning and assessment at the institution (Shankar & Dwivedi, 2015). A medical humanities module is offered to all first semester medical students and student feedback about the module has been positive (Shankar et al., 2016a). The teaching-learning of behavioral sciences has been strengthened. Student attitudes toward the patient-doctor relationship have not been studied previously. Hence the present study was conducted with the following objectives:

a. Obtain information on student attitudes toward the patient doctor relationship using PPOS and
b. Note any relationship between the scores and demographic characteristics of respondents.

Methods:

The present study was conducted among basic science undergraduate medical students during the month of November 2016. Students were explained the aims and objectives of the study and invited to participate. Written informed consent was obtained from all participants. Student attitude towards the patient-doctor relationship was studied using the previously validated patient-practitioner orientation scale (PPOS) after obtaining written informed consent from the developer, Dr Edward Krupat. PPOS measures student attitudes towards the sharing and caring dimensions of the patient-doctor relationship by noting the respondents' degree of agreement with various statements using a Likert-type scale. The 6 point scale is laid out from left to right as strongly disagree to strongly agree. Strongly disagree (far left) is scored 6 and strongly agree (far right) is scored 1. Three items were reverse scored while calculating the scores.

The gender, age, nationality and semester of study of the respondents were noted. Respondents were grouped into three age groups of less than 20 years, between 20 to 30 years and 30 years and above. With regard to nationality they were grouped into American (United States), Canadian and others. The mean total score and the mean sharing and caring scores were calculated. These mean scores were compared with the selected characteristics of the respondents using Independent T-test when it followed normality and Mann-Whitney U-test when it failed to follow the normal distribution using Shapiro-Wilk test of normality. A p-value less than 0.05 was taken as a statistically significant result. The sharing dimension is concerned with the degree to which the respondent believes power and control should be shared between patients and doctors and the extent of information which doctors should share with their patients. The caring dimension deals with the degree of warmth, support and empathy in the relationship and the extent to which the respondent has a holistic approach to medical care.

Three binary dependent variables were created using mean caring, mean sharing and mean total scores where mean score of 4 and greater was coded as 1 and others coded as 0. Subsequently, univariate and multivariate logistic regression models were fitted to analyze the relationship of the dependent variables with gender, age, nationality and semester of study of the respondents. Odds ratio and its 95% confidence interval were calculated as a measure of the strength of the relationship and a p-value less than 0.05 (5%) was taken as statistically significant result.
Results:

One hundred and seven of the total of 116 students (92.2%) participated in the study. Table 1 shows the demographic details of the respondents. The mean ± SD sharing score was 3.996 ± 0.623 while the mean caring score was 4.253 ± 0.0602. The mean ± SD total score was 4.126 ± 0.501. The mean score of statement 3 (The most important part of the standard medical visit is the physical exam), statement 10 (Patients generally want reassurance rather than information about their health.), fourteen (Most patients want to get in and out of the doctor’s office as quickly as possible), fifteen (The patient must always be aware that the doctor is in charge), the reversed score of statement 17 (Humor is a major ingredient in the doctor’s treatment of the patient) and of statement 18 (When patients look up medical information on their own, this usually confuses more than it helps.) were less than 4.

Table 1: Demographic details of the respondents

| Characteristic          | Number (percentage) |
|-------------------------|---------------------|
| Gender                  |                     |
| Male                    | 61 (57)             |
| Female                  | 46 (43)             |
| Age in years            |                     |
| Less than 20            | 3 (2.8)             |
| Between 20 to 30 years  | 90 (84.1)           |
| More than 30 years      | 13 (12.1)           |
| Nationality             |                     |
| United States           | 44 (41.1)           |
| Canada                  | 39 (36.4)           |
| Others                  | 17 (15.9)           |
| Semester of study       |                     |
| First                   | 17 (15.9)           |
| Second                  | 14 (13.1)           |
| Fourth                  | 46 (42.9)           |
| Fifth                   | 17 (15.9)           |
| Sixth                   | 13 (12.1)           |

Table 2 shows the average total, sharing and caring scores among different subgroups of respondents. Scores according to gender and age of the respondents were compared using means whereas nationality and semester were
compared using medians. The mean sharing and mean total scores were significantly higher among female respondents. No other significant differences were noted.

Table 2: Average sharing, caring and total scores among different subgroups of respondents

| Characteristics | N  | Sharing Mean score | P value | Caring Mean score | P value | Total Mean score | P value |
|-----------------|----|--------------------|---------|-------------------|---------|------------------|---------|
| Gender*         |    |                    |         |                   |         |                  |         |
| Male            | 61 | 3.87               | **0.015** | 4.19              | 0.221   | 4.03             | 0.025   |
| Female          | 46 | **4.16**           |         | 4.33              |         | **4.25**         |         |
| Age (in years)* |    |                    |         |                   |         |                  |         |
| <20 &>30        | 16 | 3.97               | 0.871   | 4.33              | 0.594   | 4.15             | 0.828   |
| 20-30           | 90 | 4.00               |         | 4.24              |         | 4.12             |         |

| Characteristics | N  | Sharing Median score | P value | Caring Median score | P value | Total Median score | P value |
|-----------------|----|----------------------|---------|--------------------|---------|--------------------|---------|
| Nationality**   |    |                      |         |                    |         |                    |         |
| United States   | 44 | 3.88                 | 0.480   | 4.33               | 0.476   | 4.05               | 0.975   |
| Others          | 56 | 4.06                 |         | 4.22               |         | 4.11               |         |
| Semester**      |    |                      |         |                    |         |                    |         |
| First-Second    | 31 | 4.11                 | 0.415   | 4.33               | 0.206   | 4.22               | 0.191   |
| Third-Six       | 76 | 3.89                 |         | 4.22               |         | 4.03               |         |

* Independent T-test, ** Mann-Whitney U-test

Table 3 shows the odds ratio, its 95% confidence interval for different subgroups of respondents and p-values obtained from the logistic regressions. It shows that females were 2.49 times more likely to be caring while communicating with patients than males when analyzed separately (p-value < 0.05 and 95% CI of odds ratio as 1.02-6.08) whereas they were 2.68 times more likely to be caring while communicating with patients than males when analyzed together with other characteristics and holding their effects constant (p-value < 0.05 and 95% CI of odds ratio as 1.02-7.05). Other characteristics of the respondents were not statistically significant for the caring dimension. On the other hand, the likelihood of female students sharing while communicating with patients was 2.38 times greater than their male counterparts after holding the age, nationality and semester of study constant (p-value < 0.05, 95% CI of odds ratio as 1.01-5.63). Other characteristics of the respondents were not statistically significant for the sharing dimension. Table 3 also revealed that the probability of female students being oriented toward patient-practitioner communication was 2.46 times higher than the male students when analyzed separately whereas they were 2.87 times more likely to be oriented toward patient-practitioner communication than males when analyzed together with other characteristics and holding their effects constant. Other characteristics of the respondents were not statistically significant for caring dimension.
Table 3: Relationship between Caring, Sharing and PPOS scores by characteristics of the respondents

| Characteristics          | Unadjusted |               | p-value | Adjusted |               | p-value |
|-------------------------|------------|---------------|---------|----------|---------------|---------|
|                         | OR | 95% CI of OR |          | OR       | 95% CI of OR |         |
| **Caring Dimension**    |   |               |         |          |               |         |
| Gender                  |   |               |         |          |               |         |
| Female                  | 2.49| 1.02-6.08     | 0.046   | 2.68     | 1.02-7.05     | 0.048   |
| Male                    | Reference category | | | |
| Age                     |   |               |         |          |               |         |
| 20-30                   | 0.51| 0.14-1.94     | 0.323   | 0.43     | 0.10-1.81     | 0.232   |
| Other                   | Reference category | | | |
| Nationality             |   |               |         |          |               |         |
| Other                   | 0.89| 0.38-2.09     | 0.780   | 0.88     | 0.35-2.19     | 0.778   |
| USA                     | Reference category | | | |
| Semester                |   |               |         |          |               |         |
| 3-5                     | 0.46| 0.17-1.27     | 0.133   | 0.49     | 0.16-1.31     | 0.212   |
| 1-2                     | Reference category | | | |
| **Sharing Dimension**   |   |               |         |          |               |         |
| Gender                  |   |               |         |          |               |         |
| Female                  | 2.09| 0.96-4.37     | 0.063   | 2.38     | 1.01          | 5.63    | 0.048   |
| Male                    | Reference category | | | |
| Age                     |   |               |         |          |               |         |
| 20-30                   | 1.34| 0.46-3.92     | 0.388   | 1.0      | 0.30-3.20     | 0.995   |
| Other                   | Reference category | | | |
| Nationality             |   |               |         |          |               |         |
| Other                   | 1.39| 0.63-3.06     | 0.111   | 1.49     | 0.65-3.39     | 0.347   |
| USA                     | Reference category | | | |
| Semester                |   |               |         |          |               |         |
| 3-5                     | 0.78| 0.34-1.81     | 0.564   | 0.98     | 0.39-2.50     | 0.973   |
| 1-2                     | Reference category | | | |
| **PPOS Dimension**      |   |               |         |          |               |         |
| Gender                  |   |               |         |          |               |         |
| Female                  | 2.46| 1.09-5.55     | 0.031   | 2.87     | 1.15-7.15     | 0.024   |
| Male                    | Reference category | | | |
| Age                     |   |               |         |          |               |         |
| 20-30                   | 0.46| 0.14-1.52     | 0.202   | 0.31     | 0.08-1.16     | 0.082   |
| Other                   | Reference category | | | |
| Nationality             |   |               |         |          |               |         |
| Other                   | 1.78| 0.79-4.00     | 0.222   | 1.98     | 0.82-4.72     | 0.124   |
| USA                     | Reference category | | | |
| Semester                |   |               |         |          |               |         |
| 3-5                     | 0.51| 0.21-1.24     | 0.136   | 0.80     | 0.30-2.17     | 0.666   |
| 1-2                     | Reference category | | | |

Note: OR – Odds Ratio, CI – Confidence Interval, PPOS – Patient-Practitioner Orientation Scale

Discussion:
Majority of the basic science undergraduate medical students at the institution participated in the study. The mean ± SD sharing score was 3.996 ± 0.623 while the mean caring score was 4.253 ± 0.0602. The mean ± SD total score was 4.126 ± 0.501. The maximum possible score was 6. Scores were higher among female respondents. The effect of sharing dimension among female students was observed in the multivariate logistic regression model (adjusted odds ratio) and T-test whereas it was not seen in the univariate logistics regression (unadjusted odds ratio) as well as in the t-test. Nonetheless, female students were found to be caring, sharing and well oriented toward patient-practitioner communication compared to their male counterparts as the adjusted odds ratio (AOR) were more than 2 for all the dimension and were statistically significant too. This means female students were independently showing significantly higher values on caring, sharing and total scales as the adjusted odds ratio were more than 2 and statistically significant for each of these dimensions.

Many previous studies had shown higher caring, sharing and total scores among female respondents. In a previous study conducted in Nepal, scores were higher among female respondents but were not statistically significant (Shankar et al., 2006). A study conducted among first year medical students at the Boston University School of Medicine in the US noted that female students were more patient-centered (Krupat et al., 1999). A similar result was noted in another study conducted among students at different years of medical school (Haidet et al., 2002). However, a study conducted in Lahore, Pakistan observed that gender had no bearing on patient-centered attitudes (Ahmad et al., 2015). The scores in the present study were higher than that in the previous study conducted in Nepal (Shankar et al., 2006). The scores were also higher than that observed among students in Lahore, Pakistan (Ahmad et al., 2015).

With regard to age group, nationality and semester of study no clear differences in the mean sharing, caring and total scores were noted. At XUSOM, many students though they are US or Canadian citizens are of South Asian or Middle Eastern origin. A previous study had noted that in South Asia social norms may favor a more doctor-centered patient-doctor relationship (Shankar et al., 2006). The power relation in the patient-doctor relationship is unequal with the doctor being more educated, having access to greater resources and the patient being in a more helpless role (Lim, 2002).

At XUSOM during the basic science years, as previously mentioned there are challenges in providing clinical exposure to the students as the school does not own clinical facilities like many other offshore Caribbean medical schools. Among the different methods used to partly address this are the use of local general practitioners and specialists and sixteen hours of observership at the local hospital (Shankar & Dwivedi, 2015). Standardized patients (SPs) are also widely used for both teaching-learning and assessment during the basic sciences. There are challenges in implementing a SP program on a small Caribbean island. As mentioned previously a MH module is offered to all first semester students (Shankar et al., 2016a). The module explores various issues related to health and sickness from a patient perspective and discusses how to make the patient-doctor relationship more patient-centered and egalitarian. To strengthen learning of the humanistic aspects of medicines movie screening and activities related to the movie shown are organized during each semester (Shankar et al., 2016b). Thus a variety of initiatives are offered to strengthen learning of communication skills by students and to inculcate a more patient-centered attitude among them.

PPOS measures attitudes toward patient-centered care rather than actual patient-centered behaviors (Haidet et al., 2002). A previous study had shown that patient-centered attitudes are associated with higher patient satisfaction (Krupat et al., 1999b). Patient-centered attitudes are best taught in the setting of clinical care using active learning strategies and strong role-modeling by physicians (Branch et al., 2001). Hence at XUSOM the attending physicians and other doctors during the clinical years of training will play an important role. In Korea, the implementation of a clinical performance exam (CPX) in the licensing exam on the caring, sharing and total scores measured using PPOS
was studied (Hur et al., 2014). There were significant differences in scores according to gender both before and after the exam with female students having higher scores. Like in the present study students had higher caring scores than sharing scores. Traditionally medical students have been trained to care for their patients as future doctors and most students are comfortable with this role. Sharing and providing more power to patients in the relationship is a relatively new concept which may be more difficult for students and doctors to accept.

The high response rate and the use of a standardized instrument like PPOS which has been validated in a variety of cultures (Pereira et al., 2013) were the strengths of the study. The study also had limitations. The clinical year students were not included in the study mainly due to logistic challenges as they were geographically distant. The study was cross-sectional and the scores of a particular cohort of students as they progress through medical school was not studied. This could be considered for future studies.

**Conclusion**

Respondents in the present study had high caring scores but lower sharing scores. This is similar to that observed in previous studies. Also female students had higher scores which is similar to that observed in the literature. Unlike some other studies reported in the literature no significant differences in scores were noted among other subgroups of respondents. As mentioned a variety of educational interventions to inculcate a more patient-centered attitude among basic science students are carried out in the institution. Studies among students during the clinical years of study are required. Similar studies could be carried out in other offshore Caribbean medical schools.

**Take Home Messages**

The present study provides information on attitudes towards the patient-doctor relationship in a Caribbean medical school.

The scores in many categories were higher among female students. No differences in scores were seen among other categories of respondents.

**Notes On Contributors**

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Appendices

Declaration of Interest

The author has declared that there are no conflicts of interest.