Interaction with Patients in Understanding Medical Students’ Role as Health Care Providers

ABSTRACT

Introduction Patient satisfaction after interacting with medical students has not been studied in India yet. Hence this cross-sectional study was planned to gauge patients’ comfort level on interaction with medical students and observe students’ adherence to the principles of informed consent.

Methods A pilot-tested questionnaire focusing on introduction, consent, and patients’ perception of hospital stay and comfort, was used to interview 200 patients for 4 months. Number of medical students who took a valid consent and introduced themselves as medical students was compared to the seniority of the students. Patients’ responses were analyzed using SPSS version 17.0.

Results Most students did not introduce themselves to patients and did not take consent before history-taking and examination. However, patients seemed to display significant levels of satisfaction and preferred teaching hospital over non-teaching hospital. Involvement of relatives was seen in very few cases. Questions about patient comfort reflected an overall degree of contentment on communication with medical students. Significant association was observed between students’ seniority and duration of interaction, and between students who took consent for taking history and those who took consent for conducting examination.

Conclusions To the best of our knowledge, this is the first study in India where authors have studied crucial matter of student-patient relationship. Notwithstanding lack of consent and introduction as a medical student, most patients were content with student’s interaction, which may be due to sense of empowerment that patients felt on being part of students’ education, besides being given opportunity to gain better understanding of their health status.

KEYWORDS informed consent, medical students, patients' rights, patient satisfaction, teaching hospital

INTRODUCTION

The structure of medical education in ancient times was based on the teacher-apprentice relationship, with the role of the patient being merely of a subject. In most cases, the learning was random and disorganized due to lack of any standardized system of education1. The establishment of the first medical school was during the 9th century where student learning included dissection classes and formal lectures. The students would pay a sum of money to the institution and in return would be given the opportunity to work under their mentors. The late 19th and the beginning of the 20th century witnessed the adoption of more standardized teaching systems2.

In recent times, there has been a shift from the earlier ‘senior doctor/teacher-centered’ to the now ‘patient-centered’ style of teaching3. With the introduction of various learning modules, encouragement of rote learning and greater attention being given to patient care, learning has become more hands on, because of which perception of medical students has also changed. In some countries patients have become more educated, and are beginning to be aware of the rights including the right to informed consent. The patients are also aware of their role as ‘teachers’ and have begun actively participating in student learning4,5. Lauckner et al have reported that patients admitted in the hospital feel satisfied when being given the opportunity to play a role in the student’s education and consider it a service to the community at large6.
Patient satisfaction, a key marker of communication and health-related behavior, can be defined as the degree of congruency between patient expectations of ideal care and their perceptions of real care received. Standardized questionnaires are the commonest evaluation tools for carrying out patient satisfaction studies. Jenkinson et al. have reported that physical comfort has the highest satisfaction rate compared to other parameters—information, coordination of care and emotional support. The measurement of patient satisfaction after interacting with medical students in India till date remains a novelty. Hence this study was planned to measure the patients’ comfort level during and after interaction with medical students. It served to observe their role as primary health care providers involving basic protocols like routine ethical practices of taking informed consent by medical students, the development of empathy and compassion towards patient in history taking amongst medical students in different years of their undergraduate teaching program. The study also intended to observe the level of comfort evolved in different batches of medical students with patients over the years of medical education.

**METHODS**

This was a cross-sectional study conducted in the Medicine department of a 1500-bed tertiary care hospital in East Delhi between a period of 4 months. Ethical approval for the study was obtained from the institutional ethical committee. Informed consent was obtained from every study subject or the legal guardian in case of patients under 18 years of age. All patients hospitalized in the inpatient wards who had their histories taken and physical examinations conducted by undergraduate students during the rotation hours were enrolled in the study. However, to obtain a more standardized sample, patients were excluded if they belonged to any of the following groups:

1. Admitted to the hospital more than twice in 12 months
2. Admitted for more than 5 days
3. More than 5 medical student interactions in 24 hours
4. Admitted for less than 2 days
5. An interaction of less than 10 minutes
6. Last medical student interaction not within the last 12 hours
7. Less than 13 years of age

These patients were excluded for uniformity and these situations could alter the response to the questionnaire and, hence, the results of the study. Minimum age for enrollment was 13 years, as children lesser than 13 years of age may be unable to give a sound opinion.

**Questionnaire development**

A questionnaire consisting of 21 items was developed focusing on introduction, consent, and patients’ perception of hospital stay and comfort. All questions based on “Introduction and Consent”, and “Patient Perception of hospital stay” had two point options (Yes or No), while most of the questions based on “Patient Comfort” had a Likert scoring from grades 0 to 4. For selecting questions on “Patient Comfort” we tried to identify the various issues that patients may take into account in their assessment of interaction with students. A review of other questionnaires on patient satisfaction was carried out in order to find out what points had been found to be of importance to patients. Baker R developed a consultation satisfaction questionnaire to assess patients’ satisfaction after consultation in general practice. They found that patients judge medical students at a personal and emotional level, along with provision of information about the illness, willingness to listen uncomplainingly to the patient and physical comfort at the time of the interaction. Similar findings were also reported by Bollam et al. Hence, these criteria were incorporated in the “Patient Comfort” section, using a five-point Likert-type scale. The questionnaire was then translated into a local language and given to two independent experts for validation, after which it was pilot tested on 20 patients to check if the questions were interpreted correctly. The study subjects were then interviewed using the questionnaire.

**Statistical analysis**

The responses were analyzed using Statistical Package for the Social Sciences (SPSS) Statistics for Windows, version 17.0 (SPSS Inc., Chicago). The continuous variables are reported as Mean ± Standard Deviation (SD). Categorical variables are reported as frequency distributions using a Likert scale. Parametric and non-parametric variables were compared between different years of medical schooling. Correlation analysis was carried out using the Spearman correlation wherever applicable and coefficient of correlation was calculated (r). Significance was taken at $P < 0.05$.

**RESULTS**

Of the 215 patients approached, 200 subjects aged between 13 and 90 years ($mean = 39.68 ± 18.31$ years) agreed to participate in the study. Five percent had their clinical histories taken and physical examinations conducted by students belonging to the 3rd semester, 37.5%
by those belonging to the 4th and 5th semesters, 20.5% by those of 6th and 7th semesters, and 37% by those in 8th and 9th semesters.

Table 1 represents an assessment of the students by the patients based on questions pertaining to “introduction and consent” section of the questionnaire. The majority (138, 69%) of patients reported that medical students did not introduce themselves as students, while consent before taking history and carrying out physical examination was found to be taken in 108 (54%) and 130 (65%) patients respectively. Most of the patients spoke frankly to the students and enjoyed getting involved in the students’ education. Involvement of relatives was seen in a minority of the patients studied (Table 1).

Table 2 depicts patients’ perceptions about the hospital stay based on questions pertaining to “patient perception of hospital stay” section of the questionnaire. The majority seemed satisfied and 66% of the patients preferred a teaching hospital over a non-teaching hospital. Only 56% were aware of the presence of student trainees in the hospital before coming and 76% stated that even if they knew the presence of student trainees in the present hospital, it would not have deterred them from coming to this hospital. Most patients (92.5%) were willing to return to the same hospital in the future.

Table 3 depicts the patients’ level of satisfaction on interaction with medical students based on questions pertaining to “patient comfort” section of the questionnaire. A majority (66%) of patients also felt that the student displayed a high level of compassion while examining them. All questions about patient comfort reflected an overall degree of contentment on communication with the medical student.

A significant association was found between the greater number of years of training and the duration of the interaction ($r = 0.212$, $P = 0.003$). It was observed that senior students spent the greater time duration with the patient (Fig. 1). This may or may not signify a meaningful interaction, and some may argue that this could be because of students asking more questions due to more knowledge of medicine. A significant association was also observed between students who took consent for talking to the patient and those who took consent for examination ($r = 0.522$, $P = 0.001$). Thus, students who take consent to talk to the patient also have a greater probability of taking consent before examining the patient. However, there was no significant association between the self-reported physical well being of the patient and level of comfort with the medical student ($P = 0.170$).

**Discussion**

In the present study, most (69%) of the students did not identify themselves as medical students. This would have been done in an attempt to carry out examination procedures that the patient wouldn’t have consented to had they known it was being performed by a student. However, studies have reported that patients feel the need to be informed if they are to be examined by a medical student. Studies have found that patients are usually willing to participate in medical education, provided they are informed of medical student involvement in their care. Marracino et al state that students often believe the 2 goals of truthful disclosure of their identity and receiving adequate medical training cannot be attained together. Marracino et al have proposed solving the problem from both professional and patient levels. They suggest clarifying and standardizing the meaning of student titles by making it a matter of hospital policy, along with introducing patients to the students in the very first interaction with the hospital.

### Table 1

**Assessment of students by patients based on questions pertaining to “introduction and consent” section of questionnaire.**

<table>
<thead>
<tr>
<th>Questions pertaining to introduction and consent</th>
<th>Yes in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student introduced themselves as students</td>
<td>31</td>
</tr>
<tr>
<td>Consent was taken before taking history from the patient</td>
<td>54</td>
</tr>
<tr>
<td>Consent was taken before examining the patient</td>
<td>65</td>
</tr>
<tr>
<td>Patient found it difficult to say no to the student</td>
<td>19.5</td>
</tr>
<tr>
<td>Patient was asked all the questions (as opposed to relative)</td>
<td>98</td>
</tr>
<tr>
<td>Patients had disrobed themselves (as opposed to student)</td>
<td>66</td>
</tr>
<tr>
<td>Relative was involved in history and examination</td>
<td>84.5</td>
</tr>
<tr>
<td>Felt good being a part of students’ education</td>
<td>91.5</td>
</tr>
<tr>
<td>Felt that trainee was more thorough than senior doctors</td>
<td>25.5</td>
</tr>
<tr>
<td>Received more attention from senior doctors after the interaction</td>
<td>22.5</td>
</tr>
</tbody>
</table>

### Table 2

**Assessment of patients’ perceptions about hospital stay based on questions pertaining to “patient knowledge and preference for the hospital” section of questionnaire.**

<table>
<thead>
<tr>
<th>Patient knowledge and preference for the hospital</th>
<th>Yes in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference for non-teaching hospital</td>
<td>34</td>
</tr>
<tr>
<td>Knew that the hospital is a teaching hospital before arriving here</td>
<td>56</td>
</tr>
<tr>
<td>Would have gone to other hospital had they known about presence of student trainees</td>
<td>24</td>
</tr>
<tr>
<td>Are willing to return to the same hospital in future</td>
<td>92.5</td>
</tr>
</tbody>
</table>

**Table 3**

**Assessment of students by patients based on questions pertaining to “introduction and consent” section of questionnaire.**

- Students introduced themselves as students: 31%
- Consent was taken before taking history from the patient: 54%
- Consent was taken before examining the patient: 65%
- Patient found it difficult to say no to the student: 19.5%
- Patient was asked all the questions (as opposed to relative): 98%
- Patients had disrobed themselves (as opposed to student): 66%
- Relative was involved in history and examination: 84.5%
- Felt good being a part of students’ education: 91.5%
- Felt that trainee was more thorough than senior doctors: 25.5%
- Received more attention from senior doctors after the interaction: 22.5%
Medical students’ interaction with patients as health care providers

Rees et al. noted that the commonest reason cited by medical students for not introducing themselves to patients was that they ‘had’ to observe or perform the examination or procedure. Rees et al have also recommended faculty development initiatives be implemented to help clinical teachers put intimate examination policy into practice. Almost half of medical students did not seek permission from the patients before taking history (54%) and conducting examination (65%), which is in agreement with previous studies. Studies have also shown that patients feel the need to have the students introduce themselves to the patient and take their prior consent before taking a history and performing examination. Students, on the other hand, do not always take the required consent, as they are often under the impression that patients prefer responding to resident and senior doctors as opposed to students, undermining the value of the student-patient interaction. Even with the lack of consent and introduction as a medical student in this study, most of the patients were satisfied with the student’s interaction with them. This may be due to the sense of empowerment that the patient felt on being able to contribute to the students learning process, and thus to society in general. The patient entering the doctor’s consultation chambers voluntarily may be considered to have given consent for a clinical diagnosis to be carried out. Consent may also be deduced from the compliance of a patient to orders given by a doctor for formulating a clinical diagnosis. These are examples of implied consent. This is in addition to the fact that at times some senior doctors also don’t follow the practice of informed consent and hence the students working with them do likewise. The present hospital mainly caters to patients of low literacy levels. Patients from lower socioeconomic strata in the Indian subcontinent consider doctors as being above humanity and see them as demi-Gods, hardly understanding the questions being put up to them. This may be responsible for poor understanding of the patients about the significance of informed consent, and hence being unfazed by lack of consent. Unless the patient is conscious of his/her right of an informed consent which in turn depends on the literacy level, probability of allowing the physician to take a history and perform an examination without giving complete information is quite high.

The majority (66%) of the patients preferred a teaching hospital over a non-teaching hospital and most (92%) were willing to return to the same hospital for future treatment, which is in accordance with a study by Marwan et al, where they have found the patient experience to be better in teaching hospital than non-teaching hospital, and hence patient preference for teaching hospitals. However, Cleary et al reported better experiences of patients in small, rural non-teaching hospitals than in teaching hospitals. Iwashyna et al have reported that though most patients do not use teaching hospitals, there is a definite relation between affluence and preference to hospitals’ teaching status, with patients belonging to the poor strata more likely to use teaching hospitals as they are usually government-funded. Esguerra et al have provided evidence of enhanced patient satisfaction in various aspects of care on converting a non-teaching hospital into a teaching hospital, and involvement of medical students in patients’ work-up. Another reason could be that patients are given an opportunity to better understand their health status by interacting with the students.

**Table 3** Assessment of patients’ level of satisfaction on interaction with medical students based on questions pertaining to “patient comfort” section of questionnaire.

<table>
<thead>
<tr>
<th>Criterion for assessing patients’ level of satisfaction</th>
<th>Score* in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student trainee provided psychological comfort</td>
<td>4.5 10 32.5 38 15</td>
</tr>
<tr>
<td>Student allowed me to complete my story</td>
<td>0 3.5 11.5 66 19</td>
</tr>
<tr>
<td>Student heard me carefully</td>
<td>0 4 8.5 68.5 19</td>
</tr>
<tr>
<td>Student showed care and compassion</td>
<td>1.5 8 6.5 63 21</td>
</tr>
<tr>
<td>Student explained things clearly</td>
<td>1.5 5.5 7 66.5 19.5</td>
</tr>
<tr>
<td>Physical discomfort at the time of interaction with student trainee</td>
<td>45 10 17 16.5 11.5</td>
</tr>
</tbody>
</table>

*The patients were asked to grade on a scale from 0 to 4 based on a 5-point Likert scale. Interpretation of score. 0: Never, 1: Rarely, 2: Sometimes, 3: Often, 4: Always.

**Fig. 1** Semester-wise distribution of time duration spent by the students with the patients.
We found that as the students advance through medical school, their interaction with patients became longer and meaningful, which was also statistically significant. This is probably as a result of the greater clinical skills acquired during the senior years, enabling the student to write a more elaborate history and carry out appropriate examination. Maa et al have shown that there exists a relationship between level of patient satisfaction and seniority of the medical student. This may be because with seniority students become more competent and knowledgeable. Medical students often carry out clinical procedures without fully explaining the implications of such procedures. We noted that students who take consent before taking history are more likely to take similar consent prior to examination in a statistically significant manner. This could be explained by a consistent behavior between the student examining the patient and sensitivity towards patients’ rights. On the other hand, it could also be explained by patient’s lack of understanding that these two are distinct entities and assumption that a blanket consent was taken.

Though studies on medical student-patient interaction with regard to the role of medical students as health care providers have been conducted in several countries, there is no such report from India. The present study is the first of its kind in India. In a country where patient satisfaction is often taken for granted, studies such as this seeks to question the age old stereotype of the patient being the consumer and the doctor the provider. A limitation of the study is that we did not take feedback from students on their interaction with the patients. Additionally, another limitation is the semi-quantitative nature of the study which could not provide a full understanding of the patient’s perception on medical students’ interaction with them. Further quantitative research, such as randomized controlled trial on a larger scale, would help to gain complete knowledge of the medical student-patient relationship.

CONCLUSIONS

To the best of our knowledge, this is the first study in India where authors have addressed the important issue of student-patient relationship. Patients have reported that medical students do not routinely introduce themselves as students and do not take consent before the examination. Despite this, patients seemed satisfied by interacting with the medical students and felt good to be able to contribute to the student’s education. However, informed consent being a fundamental principle of health care, there is a dire need to reinforce the significance of informed consent especially for medical students. The majority of the study patients were satisfied with their hospital stay. Interaction with the students undergoing training did not act as a deterrent to the patients and most of them were also willing to return to the same hospital for future treatment. Some structural initiatives, such as wearing a tag saying “Medical Student” or “Trainee” with colour coding for different years, could also be introduced to help patients differentiate between medical students and licensed doctors. Similar studies conducted in the future could highlight the importance of ethics in medical care and teach students to holistically engage patients.

CONFLICT OF INTEREST

None declared.

REFERENCES

Medical students' interaction with patients as health care providers