The Impact of Specific Teaching Methods on Communication and History Taking in Second-Year Medical Students

Aadrika Kashyap, Jignesh Gandhi, Pravin Shinde*

Department of General Surgery, Seth GSMC and KEMH, Mumbai, India

*Corresponding Author: Pravin Shinde; pravinshinde@kem.edu

***Introduction*:** *This study aims to assess the impact of various teaching methods including role play, didactic lectures, and case studies on the history taking and communication skills of second-year Bachelor of Medicine and Surgery (MBBS) students. The goal is to help students become better doctors by arriving at diagnoses quicker by asking relevant questions in their history taking. A secondary goal is to improve the doctor–patient relationship through better communication skills.*

***Methods*:** *The students were assessed on their history taking and communication skills before and after the application of specific teaching methods. The teaching methods were chosen according to efficacy and impact as shown by other research articles, in addition to the convenience of applying them to our study and the curriculum of similar schools. The improvement was scored by the faculty at KEM Hospital in Mumbai, India, where the study was conducted, using a checklist that includes the main aspects of communication and general history taking. We tested the students on their communication skills, completeness of their history taking with regard to the history of the presenting illness, history of past illnesses, personal history, family history, and mental status report. The results of the pre- and post-intervention scores were analyzed using paired t-tests.*

***Results*:** *Fifteen students were assessed in this study. The results showed improvement in their mean scores after the teaching methods were applied. Using the student t-test, we statistically analyzed the students pre- and post-intervention. The p-value was found to be statistically significant (<0.05) in communication skills, completeness of their history taking with regard to the history of the presenting illness, history of past illnesses, family history, and mental status report. It was found to be non-significant with regard to personal history taking.*

***Conclusions*:** *The students benefited from the teaching sessions conducted during their surgical rotations. Applying these teaching tools helped students come to diagnoses better through history taking alone. Their communication skills were also found to be significantly improved, which has shown to positively impact physician–patient rapport and treatment compliance. We have concluded that it would be meaningful to incorporate these teaching tools in the curriculum of second-year undergraduate students with the goal of making them better physicians in the future.*

Keywords: *undergraduate; teaching; history taking; communication; medical education; medical student*

INTRODUCTION

History taking involves listening to patients' concerns and asking patients relevant questions with the purpose of coming to a diagnosis. Many diseases can be diagnosed solely through history taking and clinical examination alone.[1,2] Hence, it is vital to hone students' history taking skills before they become practicing doctors. This can avoid unnecessary tests, which are often costly and sometimes risky.[3,4] Taking a good history is an important skill for all medical students to learn; however, teaching methods are sometimes lacking due to the sparsity of time or resources. In this research study, we aim to quantify student improvement in history taking skills after the implementation of specific teaching methods chosen through a literature review.

Communication skills are also very important and are often overlooked.[5] Connecting with the patient and establishing a rapport is vital in eliciting key history elements.[6] Studies show that good communication can positively impact the patient's outcome, adherence to treatment, and overall satisfaction.[7] The learning curve of these soft skills can be steep, and some doctors remain poor communicators throughout their career. This can lead to poor patient outcomes that may otherwise be preventable.[8] We hypothesise that this can be avoided by incorporating certain teaching tools in the medical curriculum of undergraduate students.

In KEM Hospital, Mumbai, where we have conducted our study, second-year students are posted in various departments including Surgery, Medicine, Pediatrics

and Obstetrics and Gynecology. During this time, the role of the student is to observe patients while attending rounds with the senior doctor and residents, which is the practice in most hospitals in Mumbai. Students are encouraged to take patient histories, perform clinical examinations, and ask the residents any questions they might have. However, they are not required to gather information by rote or to demonstrate hypothesis generation and testing. In this study, we plan to implement specific teaching tools during the surgical postings of second-year students to aim to improve student history taking and communication skills.

METHODS

Study Design

The study was a prospective cohort study in a group of 15 students who were attending their second MBBS surgical clinical postings at KEM Hospital, Mumbai, from September 2019 to November 2019. The students were assessed on their history taking and communication skills by the faculty members after 2 weeks and 8 weeks of their surgical posting. The 2-week observation served as the 'before' measure. During the 2 weeks before the intervention, the students attended normal ward rounds, a practice that is followed during postings in all schools in Mumbai. At the 2-week mark, students were tested according to a checklist to evaluate their communication and history taking skills. After this, the teaching methods selected based on research and the convenience of incorporating them into the curriculum were used, and the students were assessed at the 8-week mark of their postings. The checklist used to assess students, shown in Table 1, was derived using sources including the 'Simplified Checklist of Calgary Cambridge Guide' for assessment of communication, and guidebooks like the 'PCM Guidebook for History taking and Physical Exams' for history taking.

Ten faculty members assessed the 15 students. To assure the faculty members assessed the students in a similar way, there were different assessors for each student. No student was assessed by the same assessor twice. The assessment was carried out by asking the student to take the history of a patient with faculty present. This patient would have already been examined, and the history would have already been taken by the doctor assessing the student, so the examiner knew what history to expect out of the student. The patient complaints and presentations were not similar pre- and post-intervention and were not similar between the students. As students were not assessed on their physical exam, problem solving or clinical decision-making skills,

Table 1. Checklist against which the students were graded.

Communication skills	Skills expected to be demonstrated	Total marks
Introducing yourself and the purpose of examination	Stating your name, title, and purpose fluently and not missing details.	1
Building a rapport with patient	Putting the patient at ease, smiling, respectful conduct.	1
Eye contact	Ensuring eye contact with the patient and not only the history taking sheet or the body part being examined.	1
Listening to the patient's complaints	Not interrupting the patient, letting him speak without directing him in a certain way	1
Asking correct open-ended questions (question style)	Not asking specific questions that will lead to a definite diagnosis and letting the patient speak for himself.	1
Empathy	Not acting too proud or dealing roughly with the patients.	1
Communicating in patient's language	Establishing a fluent conversation in the language that the patient is most comfortable in, that is, the regional language	1
Confidence, fluency, comfort to the patient	Being confident in the procedures and executing them with ease and providing comfort to the patient in letting him know that the examiner is aware of exactly what needs to be done.	1

Continued

Table 1. Checklist against which the students were graded.

Communication skills	Skills expected to be demonstrated	Total marks
Patient's particulars (name, age, occupation, religion, residence)	Asking about all these necessary personal details and taking note of them.	2
Chief complaints		
1. Interpretation of patient's complaints	Knowing what is important to highlight in the chief complaints and asking the correct open-ended questions regarding them	4
2. Chronology in reporting	Following a specific order of questioning (particulars, chief complaints, history of presenting illness, associated diseases, history, drug history, history of allergy, personal history, family history, history of immunisation)	1
History of present illness		
1. Onset	Ask when the symptoms started to occur and the mode of onset – sudden or gradual – and if there was any causative factor involved.	2
2. Duration	Ask for how long did they occur for and if they subsided and why did they subside	2
3. Progress	Ask about the evolution of symptoms and the exact order in which they occurred.	2
4. Negative history	Ask about possible other symptoms and receive a proper negative history regarding them.	2
History of past illness		
1. Previous occurrence of the disease	Ask whether the disease occurred earlier or if this is the first time	1
2. Previous operations/accidents	Ask about previous operations/accidents irrespective of whether they are related to the current disease or not.	1
3. Tuberculosis, diabetes, hypertension	Ask about the previous history of tuberculosis, diabetes and hypertension.	2
Personal history		
1. Addictions	Ask if he is addicted to any drugs or other things	2
2. Bowel habits	Ask about regularity, pain and consistency and if blood or any other abnormalities are present.	2
3. Bladder habits	Ask about regularity, pain and consistency and if blood or any other abnormalities are present.	2
4. Menstrual history (if patient is female) a) Length of cycle b) Length of menses c) Previous pregnancies		3
Family history		
1. History of similar illness	Ask if it has occurred and the relation of the patient to this family member.	1
2. Diabetes, hypertension	Ask if these chronic diseases are present in the family	1
Mental state and intelligence	Ask about the level of consciousness and grade him according to the five stages of consciousness if not fully conscious.	1

we assumed that communication and history taking would not differ significantly based on the presenting complaints of the patient.

Teaching Methods

We performed a literature review to investigate which teaching tools have been shown to be effective in prior studies.[5,9–19] Additionally, the teaching tools needed to be convenient to perform in the hospital setting and be in accordance with the guidelines of our hospital and college. The six teaching tools used by the faculty included:

1. Focus scripts and literature – Literature was provided by the investigators, which was to be read by the students before they attended the teaching sessions. The literature contained papers on how to improve one's communication skills and its importance and implications on patient–physician relationship. It also included literature on the basic steps of history taking and the important questions to be asked to achieve a well-rounded history of the disease. We included the 'Simplified Checklist of Calgary Cambridge Guide' for assessment of communication, and guidebooks like the 'PCM Guidebook for History taking and Physical Exams' for history taking. Reading before attending lectures has been found to be impactful in students' learning.[20] We gave the students their reading assignments every weekend before discussing that topic with them in the other five teaching methods.
2. Video demonstrations – We showed the students videos of experienced doctors taking the history of patients presenting with various illnesses. We introduced communication skills for eliciting history and then showed the students videos that showed the various components of a patient history and contrasted them with poor examples so they can learn which path to take. The better, more effective history was shown as more holistic and effective in arriving at the diagnosis. The various scenarios that were used in videos helped students identify the proper communication skills that they are required to use when eliciting history.
3. Online course – An online course to teach the history taking skills was emailed to the students as streaming videos on the skills they were supposed to demonstrate. This was prepared by the authors themselves. Streaming the online course provided the opportunity for the students to access this information repeatedly. An online discussion platform to discuss questions was also provided. This collaborative e-learning using streaming videos and discussion boards was found beneficial in previously done research. The authors addressed questions on the techniques, recognition of cues, how to recognise crucial features of a symptom, and stages and techniques of asking the history of presenting illness, among other queries that the students had.
4. Small group roleplay and feedback – Students acted as patients with various illnesses that were not known to the other students. Each student had to ask pertinent questions and correctly examine the acting patient to arrive at a correct diagnosis.
5. Didactic lectures – Faculty members conducted lectures on how to take histories and arrive at correct diagnoses. This focused on the importance of non-verbal skills like eye contact and confidence. We used mental rehearsal methods as they were found to be useful to improve the retention of information according to research.
6. Mock round with patients from the ward – We conducted a round of history taking with patients from the ward. During this mock round students were asked to take the history of the patient and were evaluated using an Objective Structured Clinical Examination (OSCE) examination pattern. We used OSCE, as it is a commonly used method of clinical skill evaluation and is an effective method of judging clinical skills and knowledge.[20,21]

Time devoted by students to learning methods is given in Table 2, where the hours per day required for each

Table 2. Time and frequency of teaching methods used on the students.

	Lit.	Videos	Course	Role play	Lectures	Mocks
Hours/day	2	1	2	2	2	2
Times/week	1	2	1	3	3	2
Total time (hours)	2×1×5=10	1×2×5=10	2×1×5=10	2×3×5=30	2×3×5=30	2×2×5=20

MSRJ © 2022 VOL: 10. Issue: Spring
ePub Dec 2022; www.msrj.org

teaching method has been provided, and the frequency per week of practicing these tools during the interval between the pre- and post-intervention period has also been mentioned. The interval period between pre- and post-intervention was 5 weeks, and the total time devoted by each student (hours/day × times/week × 5 weeks) for each activity in total has also been calculated in Table 2.

Sample Size and Eligibility Criteria

The inclusion criteria were all second-year MBBS students who are attending surgery postings under the PI's unit at KEM Hospital. Out of 20 students posted, 15 had agreed to participate in our research and completed all the teaching methods required in this study.

Data Collection and Statistical Analysis

We compared the performance in each category of the checklist (e.g. Introduction of self, Eye Contact) of the student with his earlier performance (e.g. before the teaching tools were applied). We used the student *t*-test to analyze the students' pre- and post-intervention scores.

RESULTS

The scores of students before and after the intervention are shown in Table 3. The pre- and post-intervention comparison is shown in Table 4. This data is depicted in Figure 1 to serve as a visual comparison of the means of the test values pre- and post-intervention. Overall, the results showed improvement in the mean scores after

Table 3. Scores of the students before and after the intervention.

Before intervention	CS	CC	HOPI	HOaI	PH	FH	MS
1	5	3	5	3	5	2	0
2	4	4	4	3	7	3	0
3	4	4	4	4	4	2	0
4	0	3	5	2	6	2	0
5	1	4	4	2	6	1	1
6	2	0	3	2	6	1	0
7	9	1	2	2	6	0	1
8	3	4	4	3	7	3	0
9	9	4	0	1	1	0	0
10	8	0	4	4	4	2	0
11	5	0	2	4	4	2	0
12	5	0	3	2	6	2	0
13	5	3	5	2	6	2	1
14	0	4	4	2	6	3	0
15	9	2	1	1	1	1	1
After intervention							
1	8	4	6	3	5	2	0
2	9	5	7	7	9	4	1
3	4	4	5	4	5	2	0
4	5	3	6	3	4	3	1
5	5	4	5	3	6	1	1
6	5	4	5	3	6	1	1
7	10	5	5	3	6	1	1
8	5	3	6	3	4	4	0
9	10	5	1	6	6	1	0
10	5	3	6	3	4	4	0
11	7	3	6	3	4	4	1
12	6	3	6	3	4	4	0
13	7	4	6	3	7	1	1
14	9	4	5	3	4	4	1
15	10	5	6	4	6	3	1

the teaching methods were applied. Using the student *t*-test, we statistically analyzed the students pre- and post-intervention. The *p*-value was found to be statistically significant (<0.05) in communication skills, completeness of their history taking with regard to the history of the presenting illness, history of past illnesses, family history, and mental status report. It was found to be non-significant with regard to personal history taking. The completeness of asking the patient's personal history (patients' addictions, bowel and bladder habits and menstrual history) needs to be emphasised separately for an improvement in this aspect, which was not done in the teaching tools we had used.

Table 4. Comparison between pre- and post-intervention values using student *t*-test.

	Pre-intervention		Post-intervention		Change	*p*
	Mean	SD	Mean	SD		
CS	4.6	3.1	7.0	2.2	2.4	0.004
CC	2.4	1.7	3.9	0.8	1.5	0.003
HOPI	3.3	1.5	5.4	1.4	2.1	<0.001
HOaI	2.5	1.0	3.6	1.2	1.1	0.021
PH	5.0	1.9	5.3	1.4	0.3	0.587
FH	1.7	1.0	2.6	1.4	0.9	0.003
MS	0.3	0.5	0.6	0.5	0.3	0.019

DISCUSSION

The usual method of conducting postings for undergraduate students is to assign them to a patient and observe them throughout the course of their postings and have discussions with their teachers or the resident of the ward. The methodology of history taking and being able to arrive at a differential diagnosis is very often overlooked, and professors concentrate more on explaining the pathophysiology and treatment of diseases, rather than the method of coming at the particular diagnosis. As learning to diagnose is as important as knowing how to treat a disease, it should be included as a cornerstone of medical education.

According to our study, if the teaching tools that we have applied are used regularly on undergraduate students, it could help students improve in eliciting the chief complaints and the history of the disease. The students showed a significant improvement in skills required for eliciting history from the patient. The students' communication skills improved by a third, the manner of eliciting the history of presenting illness, past illness and the patient's personal and family history improved by more than half. The most improvement was shown in the manner of eliciting chief complaints and asking further relevant questions to arrive at a provisional diagnosis. Students in the preclinical stage will benefit from creative methods of teaching in the form of the above-mentioned tools, which would make them focus on history taking skills and its importance.

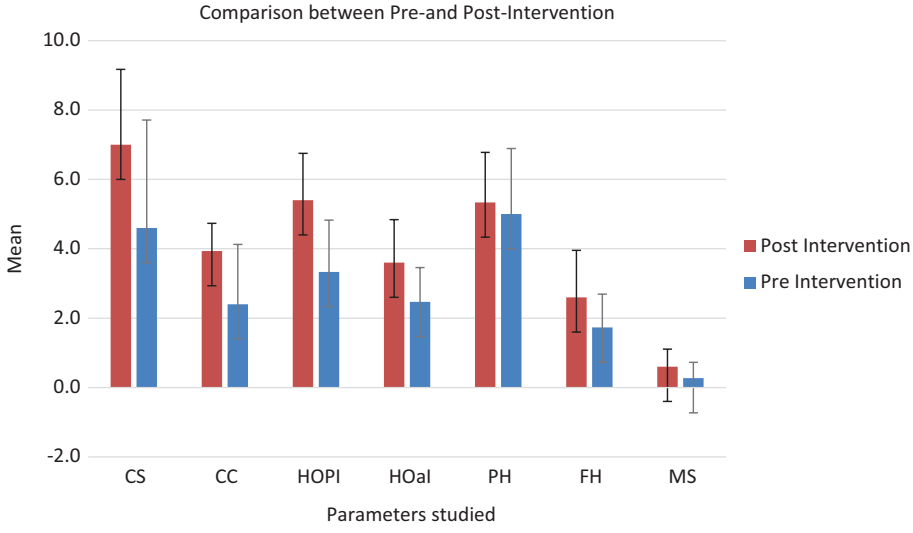

Figure 1. Box diagram of the comparison students' mean scores pre- and post-intervention.
CS = Communication Skills, CC = Chief Complaint, HOPI = History of presenting illness, HOaI = History of past illness, PH = Personal history, FH = Family history, MS = Mental status report

Future aims of our study include incorporating these teaching methods into the regular curriculum for second-year students. Learning a systematic and logical order to elicit a proper history from patients is imperative in coming to a correct diagnosis. Strong communication skills, which are normally not emphasised enough while teaching medical students, will also help them connect to the patient in a holistic way and put them at ease so they do not hold back information that could be crucial to the diagnosis.[22] The completeness of asking the patient's personal history (patients' addictions, bowel and bladder habits, and menstrual history) needs to be emphasised separately for an improvement in this aspect, which was not done in the teaching tools we had used.

As the sample size of this pilot study was quite small, we have intentions of doing a follow-up study with a larger sample size in the future, over a longer time period, to look at retention. As the teaching tools we used in our study are convenient to implement and have been found impactful, and there are no barriers to include the teaching tools we have used in our study in the medical school curriculum in Mumbai, we believe doing so will shorten the learning curve of students across similar schools.

LIMITATIONS

The first limitation is that this study was done only at one university. Secondly, as this study was limited to one batch of students posted under the PI, the sample size is small at 15 students. We hope our study can serve as a model for further studies to be conducted on a larger scale, which would further prove the benefits of adding the specified teaching tools to the curriculum at an earlier stage, so that students can acquire good history taking and clinical examination skills earlier than what is the current norm.

CONCLUSION

In this study, we have concluded that the introduction of teaching sessions focused on communication skills and history taking was beneficial to student learning. Students showed significant improvement in communication skills, completeness of their history taking with regard to the history of the presenting illness, history of past illnesses, family history, and mental status report. The student's completeness of asking the patient's personal history (patients' addictions, bowel and bladder habits, and menstrual history) did not improve drastically and hence needs to be emphasised using other teaching methods that we had not chosen for our study. We believe that it would be meaningful to include these teaching tools into the curriculum for undergraduate students.

Acknowledgments

None.

Conflict of interest and funding

The authors have not received any funding or benefits from industry or elsewhere to conduct this study.

Other disclosures

None.

Ethical approval

This study was approved by the Institutional Ethics Committee (IEC-II) relating to Biomedical and Health Research (BHR) (Project Number EC/OA-123/2019).

Disclaimer

None.

Previous presentations

None.

REFERENCES

1. Summerton N. The medical history as a diagnostic technology. Br J Gen Pract 2008; 58(549): 273–6. doi: 10.3399/bjgp08X279779

2. Metlay JP, Kapoor WN, Fine MJ. Does this patient have community-acquired pneumonia? Diagnosing pneumonia by history and physical examination. JAMA 1997; 278(17): 1440–5. doi: 10.1001/jama.1997.03550170070035

3. Carroll AE. The high costs of unnecessary care. JAMA 2017; 318(18): 1748–9. doi: 10.1001/jama.2017.16193

4. Sox HC, Hickman DH, Marton KI, Moses L, Skeff KM, Sox CH, et al. Using the patient's history to estimate the probability of coronary artery disease: a comparison of primary care and referral practices. Am J Med 1990; 89(1): 7–14. doi: 10.1016/0002-9343(90)90090-Z

5. Kellie B, Zaza L. Communication skills in medical education: an integrated approach. Educ Res Perspect 2011; 38(2): 56–8.

6. Nichols LO, Mirvis DM. Physician-patient communication: does it matter? Tenn Med 1998; 91(3): 94–6.

7. Wendy L, Cara SL, Ronald ME. Developing physician communication skills for patient-centered care. Health Affairs 2010; 29(7): 1310–18. doi: 10.1377/hlthaff.2009.0450

8. Tiwary A, Rimal A, Paudyal B, Sigdel KR, Basnyat, B. Poor communication by health care professionals may lead to life-threatening complications: examples from two case

reports. Wellcome Open Res 2019; 4: 7. doi: 10.12688/wellcomeopenres.15042.1
9. Arun Kumar T, Sangeeta A, et al. Formative assessment and documentation of history taking in pediatrics: a comparative study. International Journal Of Contemporary Pediatrics 2018; 2(2): 621–628. doi: 10.18203/2349-3291.ijcp20180567
10. Katharina K, et al. Teaching history taking to medical students: a systematic review. BMC Med Educ 2015; 15: 159.
11. Wiecha J, Gramling R, et al. Collaborative e-learning using streaming video and asynchronous discussion boards to teach the cognitive foundation of medical interviewing: a case study. J Med Internet Res 2003; 5(2): e13. doi: 10.2196/jmir.5.2.e13
12. Evans BJ, Sweet B, Coman GJ. Behavioural assessment of the effectiveness of a communication programme for medical students. Med Educ 1993; 27(4): 344–50. doi: 10.1111/j.1365-2923.1993.tb00279.x
13. Windish DM, Price EG, Clever SL, Magaziner JL, Thomas PA. Teaching medical students the important connection between communication and clinical reasoning. J Gen Intern Med 2005; 20: 1108–13. doi: 10.1111/j.1525-1497.2005.0244.x
14. Thomas F, Jean-François C, Christina K, Michael K, Anne S, Hermann S, et al. 'Basic medical skills' – evaluation of a primary care oriented course concept within the new medical curriculum in Germany. GMS Zeitschrift für Medizinische Ausbildung 2005; 22(3): Doc59.
15. Novack DH, Dubé C, Goldstein MG. Teaching medical interviewing: a basic course on interviewing and the physician-patient relationship. Arch Intern Med 1992; 152(9): 1814–20. doi: 10.1001/archinte.1992.00400210046008
16. Al-Wardy NM. Assessment methods in undergraduate medical education. Sultan Qaboos Univ Med J 2010; 10(2): 203–9.
17. Fromme B, Karani R, Downing S. Direct observation in medical education: a review of the literature and evidence for validity. Mount Sinai J Med 2009; 76: 365–71. doi: 10.1002/msj.20123
18. Kuo A, Irby D, Loeser H. Does direct observation improve medical students' clerkship experiences? Med Educ 2005; 39: 518. doi: 10.1111/j.1365-2929.2005.02132.x
19. Miller N, Angstman KB, van Ryn M, Garrison GM, Fischer K, Phelan S. The association of direct observation of medical students with patient-centered care for obesity. Fam Med 2020; 52(4): 271–7. doi: 10.22454/FamMed.2020.314090
20. Moravec M, Williams A, Aguilar-Roca N, O'Dowd DK. Learn before lecture: a strategy that improves learning outcomes in a large introductory biology class. CBE Life Sci Educ 2010; 9(4): 473–81. doi: 10.1187/cbe.10-04-0063
21. Banerjee A. Disconnect between principles and practice of medical education technology. Med J DY Patil Univ 2014; 7: 691–2. doi: 10.4103/0975-2870.144827
22. Albaradie RS. Perception of students and teachers about didactic teaching: a cross-sectional study. Saudi J Health Sci 2018; 7: 107–15. doi: 10.4103/sjhs.sjhs_28_18