Original Article

Baseline Assessment of Communication Skills of Undergraduate Medical Students at a Medical College in Bhopal

Arvind V. Athavale *[1]

[1] Department of Community Medicine, Chirayu Medical College & Hospital, Bhopal, M. P., India.

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***Corresponding author:**
Arvind V. Athavale Department of Community Medicine
Chirayu Medical College & Hospital
Bhopal, M. P., India
Email: arvindat@rediffmail.com

Abstract

Background & Objective: In India, competency-based medical education is in the initial stage of its implementation, which was rolled out countrywide in the year 2019. To develop/modify teaching-learning method of communication skills among students, it is necessary to assess the level of communication skills of the students as a baseline measure. The study was conducted with the objectives to assess the communication skills of medical students and, to assess the level of satisfaction of household members for the health education imparted by the medical students to the community.

Materials & Methods: This cross-sectional study was conducted at the field practice area of the Rural Health Training Centre of Chirayu Medical College and Hospitals, Bhopal. Fifty-five boys and fifty-five girls studying in the 3rd semester of the MBBS medical course were the study participants. Kalamazoo essential elements communication checklist to assess students' communication skills, and a questionnaire adapted from American Board of Internal Medicine to find out the level of satisfaction of household member counseled by the student, were used.

Results: The majority (70%) of students was rated in the "poor" and "fair" category of ratings and no student was in the "excellent" category. Girls scored above boys and the difference in scores was statistically significant. Girls did better than boys in "very good" and "excellent" categories in beneficiary satisfaction scores and the difference between genders was statistically significant.

Conclusion: The study draws attention to the need for inculcating habits of good communications skill among students during formative years through curriculum-based training.

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Introduction

During the last decade, there was a global movement towards competency-based medical education. Various competency frameworks are in use currently in different countries/regions. Almost all of these identify interpersonal and communication skills as a core area of competency for medical students, residents, and practicing physicians. Communication skills are essential components of medical competence (1). Proper communication is a prerequisite for all the learning activities designed for undergraduate medical students e.g., providing health education, conducting surveys, field visits, family study, patient care, etc. In India competency-based medical education (CBME) is in a fledgling stage of its implementation. For the first time in 2011, through its 'Vision 2015' document (2). Medical Council of India (the then apex body for the regulation of medical education in India) expressed the outcomes of graduate medical doctor as a 'Basic Doctor' or physician of first contact to the people of India with five roles viz. Clinician, Leader and team member, Communicator, Lifelong learner, and Professional. Subsequently, in the year 2019, there was a countrywide rollout of CBME in all the allopathic medical colleges across India (3). The CBME program includes the Attitudes, Ethics, and Communication (AETCOM) module which is supposed to be implemented in a phase-wise manner for the Bachelor of Medicine and Bachelor of Surgery (MBBS) students (4).

Service-learning may be linked to developing attributes of dutifulness in medical students (5) and also linked to students' learning implicit rules, roles, and modes of conduct not taught in the formal curriculum (6). As a part of training in the subject of community medicine, undergraduate medical students are posted in the field practice area of health centers attached to the medical college in order to equip them with the skills of communication, with one of the tasks to impart health education to the given household members on a selected topic of

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public health importance. In the present scenario, during this initial phase of implementation of CBME, it is necessary to assess the base level of communication skills of the students to plan/modify teaching-learning method aiming at the development of effective communication skills by the medical students. The present study is aimed to assess the communication skills of undergraduate medical students and the level of satisfaction of the community with the students' health education activity in the community as a baseline measure.

Material & Methods

This is a cross-sectional study. The field practice area of Rural Health and Training Centre of a medical college in Bhopal, India. Study duration May 2019 to September 2019; around 5 months.

Medical students of the 3rd semester at the Department of Community Medicine during their community postings are allotted with two families for studies. They are supposed to have a rapport with the families; and collect data regarding family structure, socio-demographic, environmental, and health aspects including family planning. They are also supposed to follow the families throughout the medical course up to the final year of the MBBS course and provide them with timely advice, referral, and counseling as and when required. For this study, students were assigned the task of provision of health education to the households during their community postings. A prior session was held for the students in order to sensitize them for the family allotment that included various aspects regarding the collection of data on intended aspects of the allotted families. A separate session on "universal immunization" and "Vitamin A prophylaxis" was undertaken to ensure a common understanding by the students on these aspects. The session was followed by an MCQ-based test. Students scoring more than eighty percent in the tests were selected for the study. Out of the total 178 students, 149 students (84%) students had a score of eighty percent or more. Based on sample size calculation for a survey with 95% confidence level and 5% confidence interval, 110 undergraduate students (55 boys and 55 girls) of MBBS-3rd term posted during their community postings were selected randomly for assessment of communication skills. The study was conducted in one of the villages in the field practice area of the Rural Health and Training Centre of Chirayu Medical College, Bhopal.

For the assessment of communication skills of students, the Kalamazoo essential elements communication checklist (KEECC) (7, 8) with a rating scale was used. Good evidence of internal consistency of the questionnaire was found with the Cronbach alpha values of 0.84 for the adapted KEECC tool as described by Joyce et al (9). The adapted KEECC which is originally a 7-item scale was modified to an 8-item rating scale of communication skills to include the eighth item after a pilot test as stated below. The items in the checklist were as follows: (1) builds relationships, (2) opens the discussion, (3) gathers information, (4) understands the patient's perspective, (5) shares information, (6) reaches an agreement, and (7) provides closure (8). Communicates accurate information.

The level of beneficiary satisfaction for the students' health education session was assessed with the American Board of Internal Medicine (ABIM) adapted tool (7, 10).

The ABIM adapted tool contained six items including ratings given by the beneficiary for the student's communication session viz. greeting, respect, listening, showing interest, encouraging questions, and using simple language. Two observer faculty who are medical postgraduates from the Department of Community Medicine were trained in the use of both the assessment scales. Both the questionnaires were pilot tested on a suitable sample of the households. In both of the rating scales, items were rated on a 5-point Likert scale (1-poor; 2-fair; 3-good; 4-very good, and 5-excellent).

Students were briefed about the tasks they needed to perform before allotment of the families viz. collection of general information of the household, provision of information on immunization and vitamin A prophylaxis of the child and needed health education/counseling. Each student was allotted a family having at least one under-five child in the family. The study participants were observed by a trained faculty during health education session with the Kalamazoo essential elements communication checklist to assess the communication skills and the delivery of contents of the given health education topics. Feedback of the household member was taken by another trained faculty with the help of an ABIM feedback questionnaire to find out the level of satisfaction of the household member regarding the health education provided by the student.

Institutional ethical committee approval was taken before the conduction of the study.

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The analysis of the scores given by observers was done by categorizing the scores obtained on the KEECC rating scale in the following categories: Poor ≤ 20; Fair (21 to 25); Good (26 to 30); very good 31- 35 and excellent ≥ 36. The scores given by the beneficiaries on the ABIM rating scale were categorized into the following categories: Poor < 15, fair (15 to18), Good (19 to 22), very good (23 to 26), and excellent ≤ 27.

All the data was entered into the MS Office Excel sheet and simple statistics like range, mean, and standard deviation were calculated for the scores obtained on the rating scales. The statistical software SPSS ver 21 was used for the analysis of the data. Chi-square test, t-test, and Pearson correlation were used as tests for significance wherever necessary. Z scores were calculated for assessing the distance of mean of scores obtained for an individual component of KEECC scales to that of the benchmark value.

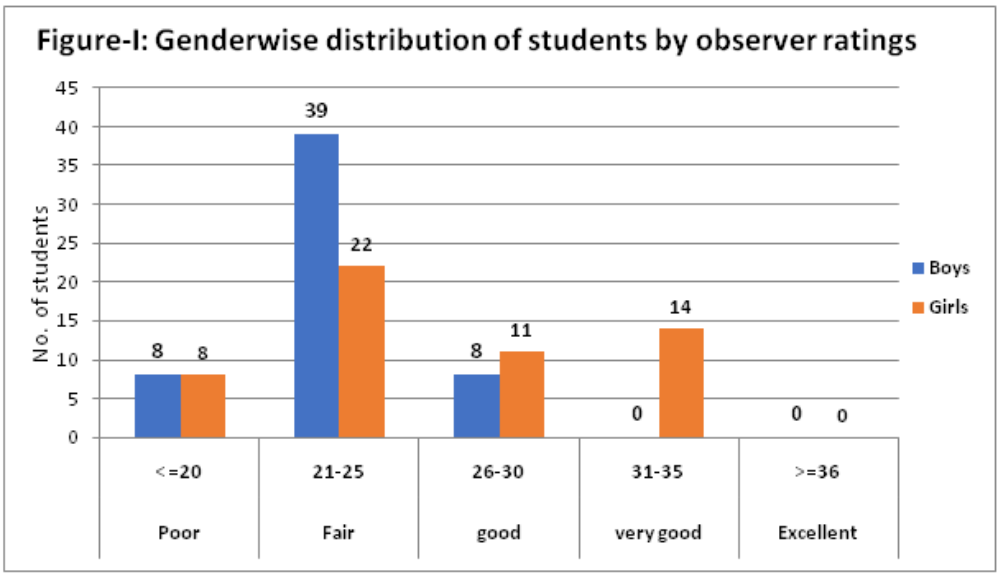
Result

Faculty ratings of the students by KEECC scale ranged from 18 to 32 (out of 40) with a mean (SD) of 24.02 (3.78). The majority of students (70%) were rated in "poor" and "fair" categories and only 30% of students were rated in the "good" and "very good" category and no student was
in the "excellent" category. When the gender-wise distribution of ratings was explored it was found that not a single male student scored in the "very good" category (Table I, Fig. I).

Table I: Gender wise distribution of students by their observer ratings[1,2]

Score categories	Boys	Girls	Total
Poor ≤20	8 (7.27%)	8 (7.27%)	16 (14.54%)
Fair (21-25)	39 (35.46%)	22(20%)	61 (55.46%)
Good (26-30)	8 (7.27%)	11(10%)	19 (17.27%)
Very good (31-35)	0	14(12.73%)	14 (12.73%)
Excellent ≥36	0	0	0
Total	55 (50%)	55 (50%)	110 (100%)

1. Faculty ratings of students by KEECC rating scale
2. Chi-square test as applied to clubbed categories of - Good, very good and excellent vs. poor and fair: χ^2= 12.51, p-value < 0.001; HS



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For boys, the range of scores on the rating scale was 18 to 27 with a mean (SD) of 22.74 (2.34) and for girls, the range was 18 to 32 with a mean (SD) of 25.29 (4.48). To test the difference between genders when the student's t-test for an independent sample was applied as a test of significance to the scores it was found to be highly significant with a p-value <0.001. Also, when the Chi-square test for the clubbed categories of scores >25 (good, very good, and excellent categories) and ≤25 (poor and fair categories) was applied over both the genders the difference was found to be statistically significant (χ^2= 12.51; p-value <0.001; HS). Thus, girls scored well above boys in comparison but could not get the "excellent" ratings.

Table -II depicts the mean, standard deviation, and comparative "Z score" values of the faculty observed scores on each dimension of KEECC. When all the dimensions were compared then it was found that for many of the dimensions the z scores were negative indicating that these dimensions fall below the average score of "3" as per the Likert scale. These dimensions are "Opens the discussion"; "Gathers information"; "Understands the patient's perspectives" and "provides closure". Thus, more efforts are needed for the improvement of students in these dimensions of communication.

Table II: KEECC Dimension wise Mean, standard deviation, and Z score values of the faculty observed scores[1]

S. No.	Dimension of Communication	Mean	SD	Z scores1 (percentiles)	Coefficient of Variation
1.	**Builds relationships**	3.527	0.726	0.726 (76.62%)	21%
2.	**Opens the discussion**	2.473	0.660	-0.799 (21.2%)	27%
3.	**Gathers information**	2.636	0.739	-0.492 (31.12%)	28%
4.	**Understands the patient's perspective**	2.545	0.615	-0.739 (23%)	24%
5.	**Shares information**	3.618	0.620	0.996 (84.04%)	17%
6.	**Reaches agreement**	3.318	0.716	0.444 (67.16%)	22%
7.	**Provides closure**	2.518	0.854	-0.564 (28.63%)	34%
8.	**Communicates accurate information**	3.381	0.649	0.588 (72.17%)	19%

1. Z scores calculated with considering the average score of 3 out of 5 maximum on the rating scale.

The beneficiary satisfaction scores of the students based on the ABIM rating scale ranged between 15 to 29 (out of 30) with a mean (SD) of 21.54 (2.8). Most of the beneficiaries were satisfied with students' activity rating them to the "good" category (58.18%) and another 22.73% to combined "very good" and "excellent" categories. Only 16.36% belonged to the "fair" category and 2.73% were in the "poor" category (Table - III, Fig.-II). Thus, the beneficiaries rated better for the students as compared to students rated by faculty.

Table III: Gender wise distribution of students by their beneficiary satisfaction score categories[1,2]

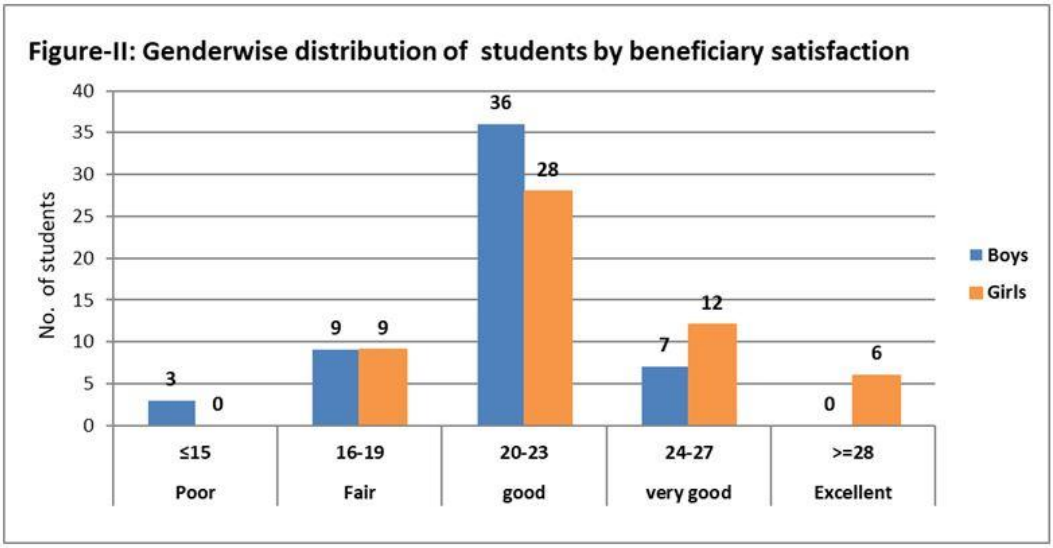
Score Categories	Boys	Girls	Total
Poor ≤15	3(2.73%)	0	3(2.73%)
Fair (16-19)	9 (8.18%)	9 (8.18%)	18(16.36%)
Good (20-23)	36 (32.73%)	28(25.45%)	64 (58.18%)
very good (24-27)	7 (6.36%)	12 (10.91%)	19 (17.27%)
Excellent ≥28	0	6 (5.46%)	6(5.46%)
Total	55 (50%)	55 (50%)	110 (100%)

1. Beneficiary satisfaction scores by adapted ABIM rating scale

2. Chi-square test as applied to clubbed categories of - Good, very good and excellent vs. poor and fair: (χ^2 = 0.53; p-value > 0.05; NS)

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As per beneficiary satisfaction rating boys corresponded to a range of scores 15 to 28 with a mean (SD) of 20.76 (2.46) and that for girls the range was 18 to 29 with a mean (SD) of 22.32 (2.94). A statistically significant difference was observed among genders for their beneficiary rated scores by t-test for independent samples ($p = 0.003$; <0.05; S). Girls did better in "very good" and "excellent" categories as compared to boys. The chi-square test when applied for the difference of scores between genders between the clubbed categories of scores >19 (good, very good, and excellent categories) and ≤ 19 (poor, fair categories) showed no difference.

The mean scores for all the dimensions of the ABIM scale for beneficiary satisfaction were found to be above the average score of 3 as per the Likert scale. When the relationship between beneficiary satisfaction scores and the KEECC rating scale scores were explored, Pearson's correlation coefficients revealed significant relationships ($r = 0.9173$; $p < 0.001$).

Discussion

Communication skill is identified as one of the core competencies to be acquired by a medical graduate with the implementation of competency-based medical education (CBME) globally. The erstwhile Medical Council of India rolled out Competency-based medical education – CBME for the medical students with the 2019 batch. It especially emphasizes the communication skills to be learned by the Indian medical graduate.

The present study assesses the communication skills of the novice medical students while providing health education to the community and underscores the areas with the scope of improvement in their communication skills with ratings given by the faculty observers and the beneficiaries in the community. No student was rated into the "excellent" category and majority was rated in "poor" or "fair" categories. Literature suggests that communication errors can lead to major problems in the health care system.

Inadequate communication by doctors leads to distress among patients and their families (11). The lack of communication skills training in Indian medical - undergraduate or postgraduate courses can be the sole identifiable cause for such a deficient performance by the students. In a cross-sectional survey performed in the four Norwegian medical schools with different curricula, the score on the knowledge test was higher in students at the two schools running communication courses and providing early patient contact than in the other two medical schools with students studying a traditional curriculum scoring the lowest (12). This justifies the importance of formal communication skill training for medical students. The statistically significant difference between genders observed in the present study for the ratings assigned by faculties on the KEECC scale shows girls being better in communication skills. Kaufmann et al in a cross-sectional study found that statistically, female

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students had more positive attitudes toward patient-the-doctor communication and had more prior experience with communication skills than did males. Similar findings have been shown by many authors in their studies (13-15).

Low ratings (with negative z score values) of the students for the individual dimensions of the KEECC scale was observed viz. "Opens the discussion"; "Gathers information"; "Understands the patient's perspectives" and "provides closure". The communication training programs should emphasize these dimensions of communication in the future.

Unlike the KEECC faculty ratings the beneficiary satisfaction ratings as observed in this study has shifted towards the "very good" or "excellent" category. The beneficiaries rated better for all the students as compared to faculty observer ratings. Here also girls were seen to perform better in higher categories of the scale viz. "very good" and "excellent" as compared to boys. Even though, a significant statistical correlation was observed between the KEECC ratings and beneficiary satisfaction ratings; the difference between the trends in ratings can be explained based on differences in educational levels and the perceptions of realities by the beneficiaries. The observers had a standardized way of assessing communication skills of students and the beneficiaries were relying on their judgment to score their satisfaction. The mere fact that somebody had come to their house to address the health concerns of the family might have a positive psychological effect on household members and that might have contributed to the better satisfaction scores rendered by them. Moreover, the significant correlation observed between the scores of two rating scale constructs grants convergent validity to the study.

Limitations

This study has some limitations. Although care was taken on pilot testing i.e., standardizing the rating by observers; chances of intra-rater variability on rating scales affecting the final scores cannot be ruled out. Non-verbal communication skills could not be assessed of the students with the given rating scale e.g., posture, facial expression, etc. The satisfaction of imparted health education perceived by the beneficiaries is subjective and may not depict the true picture.

Conclusion

The study reveals the huge scope for the improvement in the performance of undergraduate medical students in terms of communications skills while imparting health education to the community. No student was rated into the "excellent" category and majority was rated in "poor" or "fair" categories of the KEECC scale. Boys were the underperformers as compared to girls and the difference was statistically significant. In the current situation improvement is needed in the following dimensions of communication by the students - "Opens the discussion"; "Gathers information"; "Understands the patient's perspectives" and "provides closure". Household beneficiaries rated students better on satisfaction rating scales as compared to the faculty observed KEECC rating scale scores. Both the rating scales correlated well statistically adding to the convergent validity of the study.

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