Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/wn8jh816

UTILITY OF CALGARY–CAMBRIDGE MODEL TO ENHANCE COMMUNICATION SKILL IN HISTORY TAKING FOR PHASE II MBBS LEARNERS

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ABSTRACT

Background: AETCOM module was incorporated in CBME curriculum few years ago. There are several models of communication during clinical consultations, among which Calgary–Cambridge model was used in this cross-sectional study to evaluate its utility in enhancing communication skill in medical learners.

Methods: A total of 100 consenting 2nd Professional MBBS learners were randomly selected for this study and all of them had undergone training sessions in communication and counseling skills using Calgary–Cambridge model as a guide. Subsequently, participants interacted with all categories of adult indoor patients. At baseline and after completion of training, their communication skills were assessed by using Kalamazoo Communication Assessment tool and Standardized Patient Satisfaction Questionnaire. Their attitude and knowledge were assessed using Communication Skills Attitude Scale and pre-test & post-test MCQs respectively.

Results: In our study, comparative analysis of the pre and post training OSCE (Kalamazoo Communication Assessment tool) scores and SPSQ scores using Wilcoxon signed ranks test revealed that the post training scores of all components including total scores were significantly higher than pre training scores ($p < 0.00001$, effect size 0.87 for both OSCE and SPSQ). There was significant gain in knowledge about communication skills as revealed by the significantly higher post training MCQ test scores (p value < 0.0001, effect size 3.72). All the participants had a positive attitude toward learning communication skills.

Conclusion: As depicted by Communication Skill Attitude Scale, participants' positive attitude toward learning communication skill indicated that there is a necessity of communication skill training. Hence, it can be concluded that Calgary–Cambridge model is an effective way to enhance communication skill in history taking for Phase II MBBS learners.

Keywords: Calgary–Cambridge Model, Communication, Medical Education, Clinical History.

INTRODUCTION

Effective communication is an integral component of doctor-patient relationships. Historically, the notion of communication in medical education was imbibed informally by the medical learners by observing the mannerisms and gestures of their faculties, mentors, seniors, etc. However, with the introduction of the Attitudes, Ethics, and Communication (AETCOM) module in the Competency-Based Medical Education (CBME) curriculum, there is now a structured approach to teaching these skills. Incorporation of AETCOM module in the current CBME curriculum has been an impeccable approach in the era where building good doctor-patient relationship has become essential in day-to-day medical activities. However, the appropriate approaches of how to formally inculcate this idea of communication within the young minds of medical learners are still being analyzed. There are several models of communication during clinical consultations. The Kalamazoo Consensus Statement was based on five current models of doctor-patient communication: the Bayer Institute for Health Care Communication E4 Model, the SEGUE Framework for Teaching and Assessing Communication Skills, the Calgary-Cambridge Observation Guide, the Three Function Model/Brown Interview Checklist and the Patient-Centered Clinical Method.[1-3]

The Bayer Institute for Health Care Communication E4 Model emphasizes four key communication tasks: Engage, Empathize, Educate, and Enlist; where each task includes specific, evidence-based communication skills designed to enhance the quality of interactions between healthcare providers and patients.[4]

The SEGUE Framework is a structured checklist aimed at enhancing medical communication through teaching, assessment, and research into doctor–patient interactions. This framework organizes critical communication tasks into distinct categories, thereby enabling a systematic approach. By using a nominal yes/no scale, it simplifies the evaluation process, allowing participants and observers to assess whether medical students or professionals effectively fulfill the necessary communication components.[3]

The Calgary-Cambridge Referenced Observation Guides not only aids in improving communication but also integrates traditional clinical method with effective communication skills.[5,6] Studies have consistently shown that training based on the Calgary–Cambridge model significantly improves communication skills among medical learners. For instance, a study by Choudhury A demonstrated that students' communication skills and confidence increased after training using this model.[7] Another study involving midwifery students found that communication skills training based on the Calgary–Cambridge model effectively improved their interviewing skills.[8]

Keeping these in mind, this study was undertaken in order to substantiate whether or not Calgary–Cambridge guide can be utilized in order to enhance communication skill in medical learners.

AIM AND OBJECTIVES

Aim

To determine the utility of Calgary-Cambridge model to enhance communication skill in history taking for Phase II MBBS learners.

Objectives

Primary: To evaluate the efficacy of Calgary-Cambridge model to enhance communication skills in history taking for Phase II MBBS learners.

Secondary: To evaluate attitude toward learning communication skills among Phase II MBBS learners.

MATERIALS & METHODS

Sampling Frame

Second Professional MBBS learners in a Medical College and tertiary care Hospital in Eastern India.

Sampling Technique
Convenience sampling with random allotment.

Sample Size Calculation
There was a lack of studies like our study design and therefore it was difficult to find pre-existing data for sample size calculation. However, one study by Wright *et al* [9] compared positive attitude towards learning between 1st year (M = 86.98; SD =6.65) and 4th year (M = 90.15 SD = 5.84) medical students. It may be assumed that 4th year medical students are more trained in communication skills than 1st year students. Using these available data and the assumption stated above, for power = 0.8 and alpha = 0.05, applying the Bonferroni correction, and assuming a dropout rate (absence from class) of 20% (since study will continue for 3 consecutive days) the calculated sample size was 95. Therefore, we have rounded off the figure and considered a sample size of 100 for the study. The sample size has been calculated using Sample Size Calculator Version 1.063.[10]

Sampling Process
From the sampling frame, among those who consented to participate in the study, 100 participants were randomly selected to be part of the study. Research on this subject was scarce and the data available was insufficient to calculate sample size. Therefore, an arbitrary number of 100 participants were considered for the study.

Study Procedure
- This Cross-sectional study was conducted over a period of 2 months in a tertiary care Hospital and Medical College situated in Eastern India, after getting approval from Institutional Ethics Committee (IEC). Human subjects' protection for learners and other study participants were ensured and IEC guidelines were followed.
- A sample size of 100 (one hundred) 2nd Professional MBBS learners, who were willing to participate in this study, were included.
- All the study participants had undergone training sessions in communication and counseling skills [Details mentioned in **Table 1**]. The training program included: Importance of communication in medical practice, training in basic communication and counseling skills through lectures, small group discussion and role plays; training in patient interview skills by Calgary–Cambridge observation guide[7] **[Figure 1]** followed by practicing the acquired skills on standardized patients and through role plays.
- Post the training sessions, participants interacted with all categories of adult indoor patients, except those admitted in Critical Care units, High dependency units and Emergency Units. Patients with language disorders were excluded from the study.
- At baseline and after completion of training, learners' communication skills were assessed by OSCE using Kalamazoo Communication Assessment tool[11] and by Standardized Patient Satisfaction Questionnaire (SPSQ) by using a five-point checklist scoring system.[12] Their knowledge was assessed with pre-test and post-test MCQs and their attitude was assessed using a 5-point Likert scale questionnaire based on Communication Skills Attitude Scale (CSAS).[13] The questionnaire included 13 positive attitude questions and 13 negative attitude questions **[see Table 5]**.
- Quality assurance was ensured by random re-evaluation of learners' performance by a different investigator on 10% of the sample size.

Key Components of the Calgary–Cambridge Model
The Calgary–Cambridge model includes several key steps designed to enhance communication skills:
1. **Initiating the Session**: Establishing rapport and setting the agenda.
2. **Gathering Information**: Collecting relevant data through open-ended questions.
3. **Building Relationships**: Developing empathy and understanding the patient's perspective.
4. **Explanation and Planning**: Sharing information and making decisions collaboratively.
5. **Closing the Session**: Summarizing and ensuring patient understanding.

The methodology for assessing outcome is as described in **Table 2**.

Statistical Analysis

- Wilcoxon Signed Ranks Test: Used to compare pre- and post-training scores for OSCE and SPSQ.
- Paired t-test: Used for comparing pre- and post-training MCQ scores.
- Wilcoxon-Mann Whitney test: Used to compare median scores of responses to positive attitude questions and negative attitude questions on the CSAS questionnaire.
- In all cases $p < 0.05$ was considered significant.
- Effect Sizes: Effect size was calculated for both tests and interpreted according to Cohen's classification.[14]
- All statistical analyses were done using R4.3.2 on RStudio Desktop 2023.12.0, Posit Software, PBC.

OBSERVATION & RESULTS

Pre and post training OSCE (Kalamazoo Communication Assessment Tool) revealed that post training scores in all the components including total scores are significantly higher than pre training scores (p-value <0.00001 with mean difference of 21.2, effect size = 0.87). Detailed comparative analysis of effect on communication skills using Pre and post training OSCE (Kalamazoo Communication Assessment Tool) is mentioned in **Table 3**.

Comparative analysis of the pre and post training SPSQ scores revealed that the post training scores in all components including total scores are significantly higher than pre training scores (p-value <0.00001 with mean difference of 22.38, effect size = 0.87). The detailed results of SPSQ scores are revealed in **Table 4.**

Pre and Post training MCQs were compared using paired t-test. Post training MCQ test scores (mean: 8.34, SD: 0.86) were significantly higher ($p < 0.0001$, effect size = 3.72) that pre training MCQ scores (mean: 2.57, SD: 1.22).

The large effect sizes (all > 0.8) for difference between pre and post training OSCE, SPSQ and MCQ scores indicate that these results have much practical significance and formal training in communication does have a role in improving communication skills among MBBS learners.

For learners' attitude toward learning communication skills, among 100 participants, the median score for positive attitude was significantly higher than the median score for negative attitude (median of positive attitude: 60, median of negative attitude: 30, $p < 0.00001$, effect size: 0.87) **[Table 5].** The significantly higher positive score with a large effect size indicates that all the participants have a positive attitude toward learning communication skills.

Day	Learning Objective	Teaching Learning Method (TLM)
Day 1	Attitude toward communication skills Basic communication skills	Lecture, SGD, Role-Plays
Day 2	Benefits of effective communication Patient interview skills (Calgary-Cambridge model) Basic counselling skills	Lectures, role plays, videos on patient interviews Group discussions
Day 3	Special communications, Informed consent, breaking bad news, etc.	Lectures, brainstorming, role plays

Table 1: Schedule for Communication training Program

Outcome	Evaluation	Indicator	Data source	Data collection method
Communication skills in history taking for 2nd Professional MBBS learners have improved	OSCE using Kalamazoo Communication Assessment tool SPSQ MCQs	Performance of the participants at OSCE station and MCQs SPSQ Grading	Learners Patients	Scoring in OSCE, SPSQ and MCQs

Learners' knowledge and attitude about communication skills	MCQs CSAS	Performance of the participants based on MCQs 5-point Likert scale in CSAS	Learner	Scoring in MCQs and CSAS

Table 2: The methodology for assessing outcome

OSCE Kalamazoo score comparison pre and post class (N= 100)	Compared using Wilcoxon signed rank test	Effect size
Builds a Relationship	Mean difference: -3.44 p-value: <0.00001	0.9
Opens the Discussion	Mean difference: -2.51 p-value: <0.00001	0.89
Gathers Information	Mean difference: -1.51 p-value: <0.00001	0.88
Understands the Patient's and Family's Perspective	Mean difference: -2.48 p-value: <0.00001	0.88
Shares Information	Mean difference: -2.45 p-value: <0.00001	0.88
Reaches Agreement	Mean difference: -2.6 p-value: <0.00001	0.89
Provides Closure	Mean difference: -1.48 p-value: <0.00001	0.89
Demonstrates Empathy	Mean difference: -1.42 p-value: <0.00001	0.88
Communicates Accurate Information	Mean difference: -3.35 p-value: <0.00001	0.89
Total score	**Mean difference: -21.2 p-value: <0.00001**	**0.87**

Table 3: Comparative analysis of Pre and post training OSCE using Kalamazoo Communication Assessment Tool

SPSQ score comparison pre and post class (N= 100)	Compared using Wilcoxon signed rank test	Effect size
Telling you everything; being truthful, up-front, and frank; not keeping things from you that you should know	Mean difference: -2.7 p-value: <0.00001	0.9
Greeting you warmly; calling you by the name you prefer; being friendly, never crabby or rude	Mean difference: -2.48 p-value: <0.00001	0.89
Treating you like you're on the same level, never talking down to you or treating you like a child	Mean difference: -2.57 p-value: <0.00001	0.9
Letting you tell your story; listening carefully, asking thoughtful questions, not interrupting you while you're talking	Mean difference: -2.55 p-value: <0.00001	0.88
Showing interest in you as a person, not acting bored or ignoring what you have to say	Mean difference: -2.4 p-value: <0.00001	0.88
Discussing options with you, asking your opinion, offering choices and letting you help decide what you think before telling you what to do	Mean difference: -2.44 p-value: <0.00001	0.88

Encouraging you to ask questions, answering them clearly, never avoiding your questions or lecturing you	Mean difference: -2.53 p-value: <0.00001	0.88
Explaining what you need to know about your problems—how and why they occurred and what to expect next	Mean difference: -2.39 p-value: <0.00001	0.89
Using words, you can understand when explaining your problems and treatment, explaining any technical medical terms in plain language	Mean difference: -2.51 p-value: <0.00001	0.88
Understanding my feelings about my problems, appreciating the meaning of my problems to me	Mean difference: -2.56 p-value: <0.00001	0.89
Total	**Mean difference: -22.38 p-value: <0.00001**	0.87

Table 4: Comparative analysis of the pre and post training SPSQ scores

Sl. No.	CSAS scores (N = 100) - Positive attitude questions	Median score
1	In order to be a good doctor, I must have good communication skills	5
2	Developing my communication skills is just as important as developing my knowledge of medicine	5
3	Learning communication skills has helped or will help me respect patients	5
4	Learning communication skills is interesting	4
5	Learning communication skills has helped or will help facilitate my team-working skills	5
6	Learning communication skills has improved my ability to communicate with patients	5
7	Learning communication skills is fun	4
8	Learning communication skills has helped or will help me respect my colleagues	4
9	Learning communication skills has helped or will help me recognize patients' rights regarding confidentiality and informed consent	5
10	When applying for medicine, I thought it was a really good idea to learn Communication skills	4
11	I think it's really useful learning communication skills on the medical degree	5
12	Learning communication skills is applicable to learning medicine	4
13	Learning communication skills is important because my ability to communicate is a lifelong skill	5
	Total	**60**
	CSAS scores (N = 100) - Negative attitude questions	**Median Score**
1	I can't see the point in learning communication skills	1
2	Nobody is going to fail their medical degree for having poor communication skills	3
3	I haven't got time to learn communication skills	2
4	I can't be bothered to turn up to sessions on communication skills	2
5	Communication skills teaching states the obvious and then complicates it	3
6	Learning communication skills is too easy	3
7	I find it difficult to trust information about communication skills given to me by non-clinical lecturers	3
8	Communication skills teaching would have a better image if it sounded more like a science subject	3
9	I don't need good communication skills to be a doctor	1

10	I find it hard to admit to having some problems with my communication skills	3
11	My ability to pass exams will get me through medical school rather than my ability to communicate	3
12	I find it difficult to take communication skills learning seriously	2
13	Communication skills learning should be left to psychology students, not medical students	1
	Total	**30**

Table 5: Median scores for positive attitude and negative attitude questions on the 5-point Likert scale CSAS questionnaire

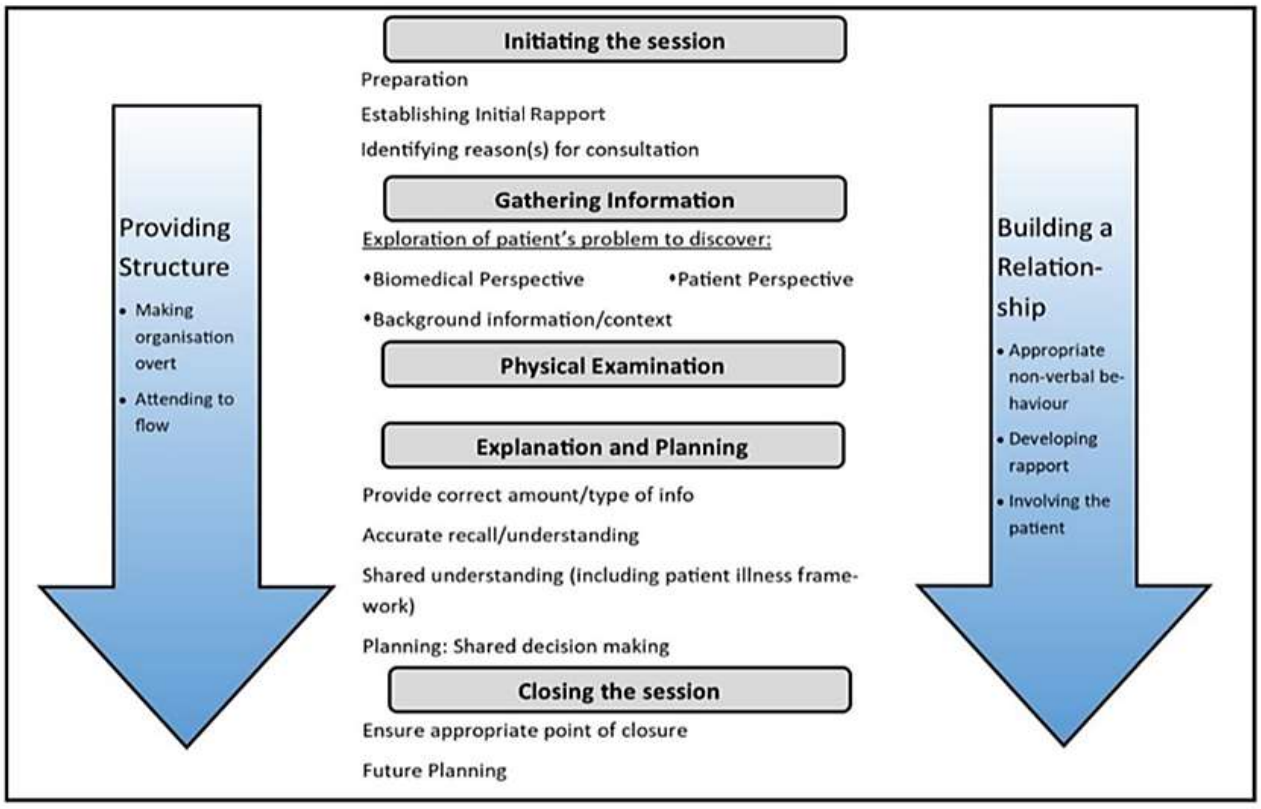

Figure 1: Calgary–Cambridge observation guide (from Choudhary et al, 2015)[7]

DISCUSSION

Effective communication plays a very significant role in strengthening doctor-patient relationship. Effective communication, being a core clinical skill, is incorporated in the training of medical professionals worldwide. Significance of implementation of training programme for imparting communication skill is well accepted worldwide by the medical learners.

There was significant improvement in communication skills of our study participants as depicted by the scores of OSCE and SPSQ. Similar results were found by a study done by Choudhary A where almost 90% students were communicating better after training.

Our study revealed that the study population had a strong positive attitude toward learning communication. Similar results were shown in the study done by Nayak RK et al.[15] Similar to our study, study by Choudhury A showed that about 78.1% of medical learners had a positive attitude toward learning communications skills.[7] Wright et al., studied medical learners' attitude toward learning these skills and compared the attitudes in first- and fourth-year learners and found that there is no difference in attitudes between them in terms of attitudes toward communication skills training.[9]

Similar to our study, several other studies revealed that learner' skills and confidence in communicating with patients increased after training using Calgary-Cambridge guide.[7] Though communication has been an integral aspect of medical profession, yet it was only recently that attitude, ethics, and communication (AETCOM) was introduced as a dedicated module in the recently implemented competency based medical education (CBME) by National Medical Commission of India.[16] Our findings regarding positive attitude of MBBS learners towards training in communication skills, are encouraging for the future of medical education in India.

CONCLUSION

Keeping in mind the various findings of this study, it can be concluded that Calgary–Cambridge model is an effective way to enhance communication skill in history taking for Phase II MBBS learners. Moreover, the MBBS learners had positive attitude toward learning communications skills. Thus, MBBS Learners may be trained in communication skill in history taking according to Calgary–Cambridge model. Moreover, faculties may also be sensitized about the Calgary-Cambridge model for communication skills. This would further ensure that future Indian Medical Graduates would have better information gathering skills and interpersonal skills along with better patient satisfaction.

Recommendations for Future Studies

1. **Longitudinal Studies**: Conduct longitudinal studies to assess the long-term impact of the Calgary-Cambridge model on communication skills.
2. Comparative Analysis: Compare the efficacy of different communication models to identify the most effective approach.
3. Faculty Training: Develop programs to train faculty members in using the Calgary-Cambridge model to enhance their teaching effectiveness.

Acknowledgement

1. Prof. (Dr.) R K Dixit, Professor, Department of Pharmacology & Therapeutics, KGMU, Lucknow.
2. Prof. (Dr.) Apul Goel, Professor, Department of Urology, KGMU, Lucknow.
3. Dr. Parul Jain, Associate Professor, Department of Microbiology, KGMU, Lucknow.

Ethical Considerations

The study included a vulnerable population, that is learners / students from the Medical College participating in a study conducted by a faculty member of the same Institution. Learners were counseled and provided assurance that participating in the study was totally voluntary and not consenting to participate shall not jeopardize their academic evaluation or relationship with the faculty or the Institute in any way. They were also assured that even after consenting to participate, they had full liberty to withdraw during the study.

Conflicts of Interest: None

External Sources of Funding: None

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