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Short Communication

Introduction of Case Base Learning (CBL) in teaching undergraduate 2ND year MBBS Medical students in Community Medicine

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ABSTRACT
Purpose: the purpose of the study is to compare the effectiveness of Case Based Learning approaches with didactic lecture and Perception of students and faculty regarding introduction of CBL. **Methods:** Study design: Educational research, observational study, data collection source: Students and faculty, Study setting: Department of Community Medicine, Terna Medical College, Navi Mumbai, Study tool: Brainstorming session with 2-3 core faculty of the department. Students were divided into two groups by random sampling. Two topics were selected for CBL. Initially, Didactic lecture was taken for all students on both topics. Then group A was introduced with CBL topic 2 and group B to topic 1.Students were evaluated through questionnaires and student's feedback with 5 point Likert's scale. **Results:** Test score and statistical analysis shows significant difference in understanding of topic conducted by case based learning in both group. **Conclusion:** There was 100% agreement about the capacity of CBL to deliver better understanding of community medicine and its ability to evoke enthusiasm and interest in student.
Keywords: Case Based Learning (CBL), Didactic lecture, Educational research, feedback

INTRODUCTION
In the current era, it is a challenge for the teachers to identify effective ways to aid undergraduate medical students to accomplish the learning outcome successfully [1]. Conventional methods (didactic lecture) are monotonous. Students are a passive recipient of information in the classroom. With nothing interesting in the traditional learning methodology has nothing interesting and novel to offer to our current learners. This is causing stress and information overload and producing doctors with poor critical thinking and problem-solving skills[2,3]. Case Based Learning is a form of small group learning with the help of case scenarios in the presence of active facilitators. Focusses on training the medical students to sort out factual data, apply analytic tools, articulate issues, reflect on their relevant experiences and draw conclusions they can relate to in new situations. In addition, there is an immense need to inculcate problem solving, critical thinking, reasoning, other skills and promote self- directed learning and better academic performance. The goal of Case based Learning in Community Medicine is to prepare students for socio- clinical practice through the use of authentic clinical cases. It links theory to practice through the application of knowledge to the cases, using inquiry-based learning method. Aim of the Study is to compare the effectiveness of Case Based Learning with didactic lecture and assess the perception of students and faculty regarding introduction of CBL in Community Medicine. The purpose is to make the Case Based Learning learning in community medicine relevant to health needs of the community.

MATERIAL AND METHODS
This educational research, observational study was carried out on 2nd year MBBS students in department of Community Medicine in a medical college of Navi Mumbai after approval of the college ethical committee. 88 IInd year MBBS students participated in the study after obtaining written Informed consent. Brainstorming session with 2-3 core faculty of the department for developing and defining the content of the case base learning was done. Cases, MCQs for questionnaire were designed and validated with the assistance of other faculties of the department. Students were divided into two groups by random sampling. Students were divided into 2 groups – group A (from 1-44) , group B (45-88) .Two topics were selected from CBL- topic 1- diabetes mellitus, topic 2- Measles. Initially, both groups of students were introduced with the didactic lecture of both topics. Thereafter, the topics were interchanged with the groups. The group A was introduced with CBL topic 2 and group B to topic 1. Each group was supervised by a trained faculty member. Students were informed 2 days prior about cases for CBL. The students were evaluated through questionnaires and student's feedback about CBL was also taken. Faculty feedback was also questionnaire based.

RESULTS
The statistical analysis was done by using SPSS 21.0 pack. Evaluation of test showed a statistically

significant increase in performance of students taught by both CBL method and didactic lecture but the improvement was noted to be much more in the CBL group (Table 1& 2).

Table – 1 : Assessment test by Didactic Vs Case Base + Didactic teaching method of topic 1

Topic I	Max score	Mean score	St. Dev.	Median	Wilcoxon Sum rank Test	P-value	Sig. at 5% level
Didactic	28	12.02	5.5384	12.0	4.367**	<0.001	Yes
Didactic + CBL	28	18.05	5.3828	18.5			

**Statistically highly Significant at 0.1% level i.e., P<0.001.

Table – 2 : Didactic Vs Case Base + Didactic teaching method of topic 2

Topic II	Max Score	Mean Score	Stdev	Median	Wilcoxon Sum rank Test	P-value	Sig. at 5% level
Didactic	28	14.68	4.5432	14.0	4.101**	<0.001	Yes
Didactic + CBL	28	19.32	4.8068	20.0			

**Statistically highly Significant at 0.1% level i.e., P<0.001.

Student's perception about CBL for topic 1 and 2 was taken on 5 point Likert scale questionnaire with 10 questions. (Fig 1&2) . Students found the CBL an effective method of learning and felt this method would improve their ability to perform better in latter days of clinical course. They found CBL more interesting and felt motivated to learn about community medicine.

Figure1&2: Perception of the students regarding Case based learning Vs Didactic lecture

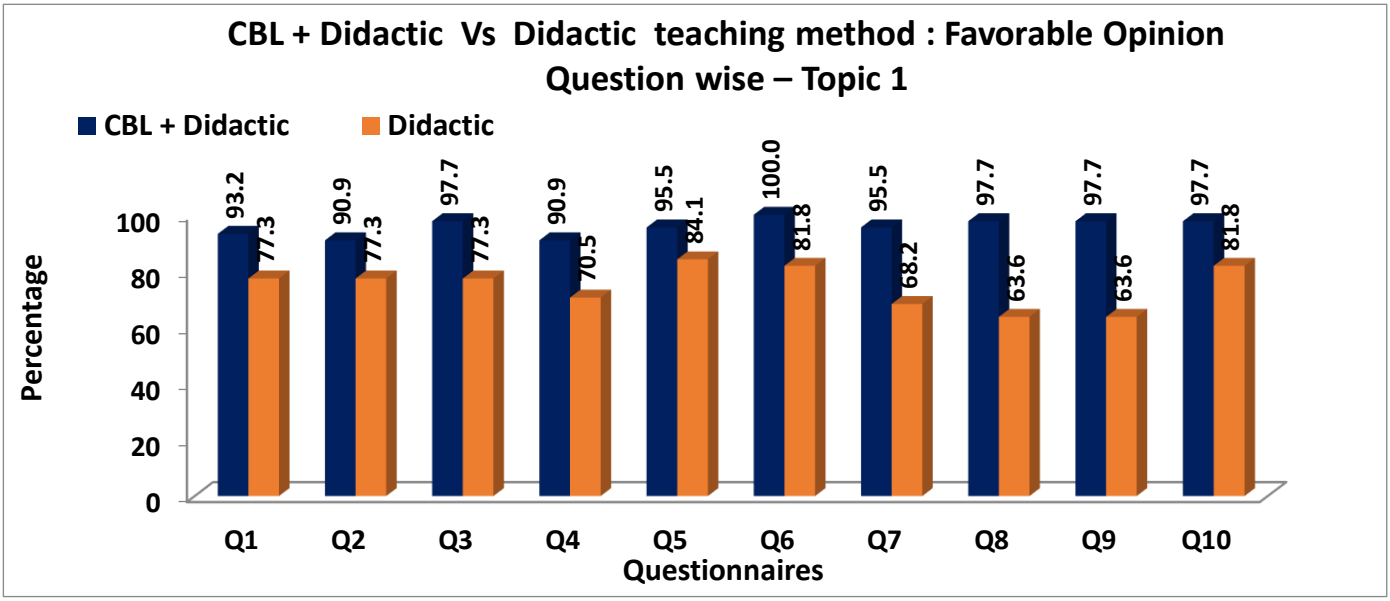

Fig 1; Q1- satisfaction, Q2-Selflearning, Q3- understanding, Q4- Fact finding & co relation, Q5- Critical Thinking,Q6- clinical confidence,Q7- Learning made easier, Q8- Peer Learning, Q9- Teacher- Learner interaction, Q10- Want CBL.

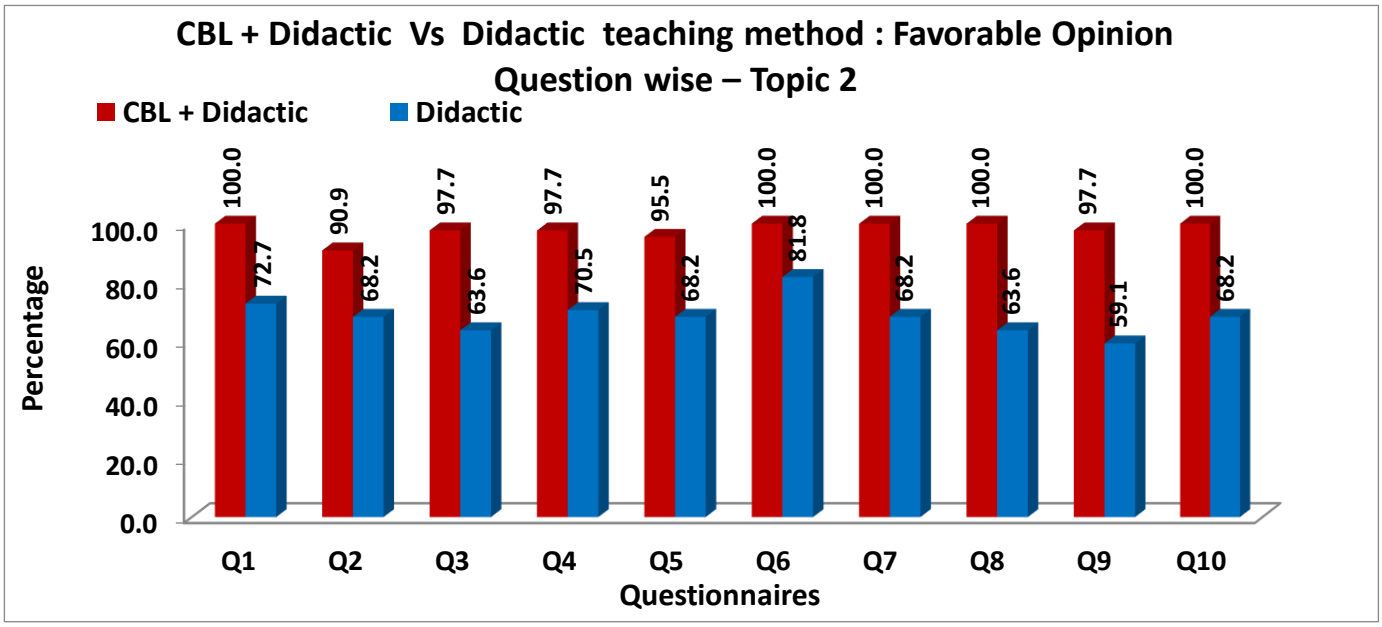

Fig 2; Q1- satisfaction, Q2-Selflearning, Q3- understanding, Q4- Fact finding & co relation, Q5- Critical Thinking, Q6- clinical confidence,Q7- Learning made easier, Q8- Peer Learning, Q9- Teacher- Learner interaction, Q10- Want CBL.

feedback questionnaire for Students post CBL+ didactic and didactic lecture (5 point likert's scale)

1. Are you satisfied with this teaching program?
2. Are you Motivated to read more and enhanced self -learning?
3. Does this method promote understanding of basic concepts, rather than rote memorization?
4. Does it help in fact finding and correlating principles of diagnosis and management of disease?
5. Does it motivate critical thinking and analytical skill?
6. Does it give confidence in bed side case presentation?
7. Has it increased group interaction and made clinical learning easier and enjoyable?
8. Has it improved communication between students ?
9. Has it improved communication between student and faculty?
10. Should it be continued and implemented?

FACULTY FEEDBACK QUESTIONNAIRE ON CBL SESSIONS with DIDECTIC LECTURE

1. CBL stimulated discussion on the topic
2. CBL increased their thinking ability
3. CBL is time consuming and may delay syllabus completion
4. CBL helped to reinforce concepts
5. CBL improved communication skills
6. CBL was not comfortable for students
7. CBL improved the attitude towards learning
8. I was satisfied with CBL approach of teaching learning
9. I don't think CBL is better than conventional learning
10. CBL has improved the student attitude towards learning

Faculty perception-

- All the faculty agreed that CBL method of teaching led an increase student faculty bonding.
- It changed the students perspectives towards the subject which was earlier perceived as dull, nonclinical was now clinically relevant especially the NCDs and CDs.
- The faculty felt it needed to put more man- hours in preparing case based scenario with all relevant clinical details included.
- It required, all faculty to be on a similar footing for aligning the sessions for each group.
- It may be a deterrent for a shy student.
- Not all topics can be covered as CBL.
- However the discussions generated brought more interaction amongst the students

DISCUSSION

It is widely believed that success of TL sessions greatly depends on active involvement of students in classroom discussions. Scope for adequate discussion or interaction is very limited during didactic lecture sessions and students are also not much interested to involve themselves very actively in the TL process during the class. On the other hand, case based learning can effectively provide a broad base for discussion resulting in significant development of learners' problem solving and decision making skills [6]. But in the past it was also observed on occasions that this TL tool of CBL sometimes had been criticized on the points of being time consuming, failure to meet the diverse needs of the learners or failure to result in adequate learning etc. [7]. This study helped to explore the efficacy of CBL as a TL tool along with attempts to revisit the lacunae in it, if any. Test score and statistical analysis shows significant difference in understanding of topic conducted by Case based learning in Table 1 and Table 2. 97.7% students were satisfied with CBL and felt that this interactive teaching learning with didactic lecture improved communication between students and faculty. There was 100% agreement about the capacity of CBL to deliver better understanding of community medicine and its ability to evoke enthusiasm and interest in student. Study conducted by Anila A Mathews et al and Ritu Garg et al also found that Case based learning helps students to understand basic concepts better and motivate to learn clinical microbiology[3,4]. Present study concluded that applying newer methods of teaching to didactic lecture improved the understanding and motivated students to learn the subject .There was statistically significant improvement in the knowledge of students about the topics in both the CBL and Lecture groups. However, the improvement was significantly better in the groups taught by CBL method. The feedback of students for this method was highly acceptable, it improved their understanding, knowledge and performance compared to traditional didactic lectures.

CONCLUSION

For Indian Medical graduate today, clinical approach to establish an understanding of these processes is the need of the hour. CBL is a more effective TL method than didactic lecture as it improves students' clinical reasoning ability, promotes self directed learning and communication skills, leads to better knowledge retention and most importantly motivate them to learn.

LIMITATIONS:-

More time and faculty were required for smooth execution of the study. Due to Covid pandemic, we were not able to conduct CBL sessions for other groups since the students of 2nd year MBBS left on promotion to next year. All cases and topics cannot be taken in CBL sessions

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