

Impact of Near Peer Teaching Program on OSPE (Objective Structured Practical Examination) On Dental Students

Hrutuja Deshpande, Dr. Sachin Gugawad, Prachi Dhurye
Dr. Shashikiran N. D, Dr. Namrata Gaonkar
Dr. Savita G. Hadakar, Dr. Swapnil M. Taur
Krishna Institute of Medical Science
Deemed to be University

Abstract:

➤ Aim:

To evaluate the effect of near-peer teaching program of OSPE (Objective Structured Practical Examination) in dental students.

➤ Introduction:

Throughout centuries, teaching has been a concrete base for learning and persuading education. Technology lead to the use of projectors along with chalk and board, although “Peer Teaching” method has been used for decades it was not until recently considered as a standard method of teaching. Using peer teaching as a method of teaching and OSPE as a method for evaluation can prove to be more beneficial to the learners as well as to the educators, thus improving their skills.

➤ Methodology:

The sample size were 80 students out of which 40 second-year undergraduate dental students were taught by 40 near peer teachers i.e. the third-year undergraduate students by one to one interaction that is in the ratio 1:1 for implementation on OSPE.

➤ Results:

The results found in the study after evaluating 15 questions were more promotive towards implementing near peer teaching as a teaching modality for OSPE.

➤ Discussion:

Our study encourages new interactive teaching method where every student was given enough importance which improves the communication, reduces the fear and anxiety experienced by the students when approaching the staff for the clarification of doubts. The comparison along with other studies could be definitively evaluated.

➤ Conclusion:

Through our results, we can conclude that though conventional teaching and examination are the most commonly employed methods, teaching by a near peer teacher in one to one interaction and evaluation of the practical skills by the method of OSPE can improvise and give much better results.

Keywords:- OSPE, Peer Teaching, Undergraduate, Dental Students, Third-Year, Second-Year, Practical Skills, Thought Bubble Concept.

I. INTRODUCTION

Throughout centuries, teaching has been a concrete base for learning and persuading education. Ever since the Vedic period of civilization, education and teaching has been given critical amount of importance and the educators were given a higher and more respectful status in the society.

Higher education system is a diverse gamble in India, making it the third largest higher education system in the world.^[1]

This further induces more focus on continuous inventions and improvement in the method of teaching, which puts a great responsibility on the educators.

In recent years, it was said that along with conventional teaching, use of technology can improve the process of teaching and learning and has helped millions of people gain education by the method of “distance learning”.^[2]

Technology lead to the use of projectors along with chalk and board, although “Peer Teaching” method has been used for decades it was not until recently considered as a standard method of teaching.

Peer is an Arabic word,^[3] which is a title for a “Sufi master” or a “spiritual guide”, which is often interpreted as “elder” in English.

Having more students involved in the peer teaching concept has improved the teaching skills of the students thus, indulging higher amount of confidence.^[4]

Evidence of research on teaching and learning in higher education is much less voluminous and thus, we have tried to initiate a different method of education and evaluation through peer teaching.

Theories from psychology have suggested that peer teaching is proved to be beneficial both for the student-teacher and the student receiving the teaching.^[5] Advocates of peer-teaching and PAL (Peer Assisted Learning), suggest that peer-teachers and their students share a similar knowledge base and learning experience, which is also known as “cognitive congruence”.^[6]

Cognitive congruence denotes a state of harmony and internal consistency arising from compatibility among a person’s attitude, behavior, benefits, and/or knowledge, which allows the peer-teachers Throughout centuries, teaching has been a concrete base for learning and persuading education. Ever since the Vedic period of civilization, education and teaching has been given critical amount of importance and the educators were given a higher and more respectful status in the society.

Along with an improvement in teaching, emphasis was made towards the improvement of evaluation from different methods of examination.

One of the most commonly used type of classroom assessment and evaluation is written examination which involves quizzes, tests, exams; term papers, lab reports, homework and by posing questions.^[7]

In medical sciences, OSPE that is Objective Structured Practical Examination and OSCE that is Objective Structured Clinical Examination are the most commonly used methods for evaluation of practical and clinical skills. The focus of my study is towards OSPE

Earlier AN innovation was by harden and his Dundee in the aspect of improved education is the objective structured clinical examination (OSCE) later extended to the practical examination (OSPE) described in 1975 and in greater detail in 1979. This method with some modifications has stood the test of time and has largely overcome the problems of the conventional clinical and practical examinations. Recently, the method was the subject of an international conference at Ottawa in 1985 when the worldwide experiences with OSCE and OSPE were exchanged.^[8] Such evidences increased our part of interest towards OSPE and implement teaching in the form of peer teaching.

Execution of practical skills of every individual are different, but the evaluation of these skills can be a bias due to the type of skill to be performed, perspective of the examiner and other coordinating factors. OSPE is a more precise method that can be used to evaluate the skills without any bias.

Using peer teaching as a method of teaching and OSPE as a method for evaluation can prove to be more beneficial to the learners as well as to the educators, thus improving their skills.

A near peer teacher should be able to identify the goals of the activity as well as state the objectives that should be achieved through participation. Such objectives can be used by the learners to review and test their knowledge and by the teacher to evaluate the success of the activity.^[9,10]

Even though, OSPE is a common method for student evaluation in dental education; its relation to peer teaching,^[11] is not much evident in corresponding studies.

Both the quantity and quality of research in this area is surprisingly limited which further increases our interest into evaluating the effectiveness of this blend.

II. MATERIALS AND METHODS

The study was focused on the second-year undergraduate dental students being taught by their near peer teachers i.e. the third-year undergraduate students studying in The School of Dental Sciences, Karad, Maharashtra. The study sample for the study were 80 students; 40 students from third year were trained well enough to teach 40 second year students who were within the age group of 19-21 years. The students were randomly chosen to collect the data based on their willingness into participation. The permission to conduct the survey and ethical clearance was obtained from the Institutional Ethical Committee of KIMSUDU, Karad.

The questionnaire consists of two parts. The first part includes socio demographic information (gender and age). The second part includes questions on the improved understanding and the improved quality of learning that was observed by the second-year undergraduate dental students.

The questionnaire was distributed to students after conducting a demonstration at various stations that were a part of the OSPE examination and retrieved immediately. Any doubts regarding any questions in the questionnaire were clarified.

The data collected was entered in MS Excel sheet which was further converted into percentages. The data is also presented in the form of a bar chart.

III. RESULTS

Eighty students responded to take part in the study, out of which 60% of participants were females and 40% were males from third year and 65% of participants were female and 45% were male from second year. All the students participating in the survey fulfilled the age criteria i.e. their age was in the range of 18-21 years.

Although OSPE has a great significance in the foreign countries, its adequate implication hasn’t yet been taken into consideration in India. Every question quoted in the questionnaire gave significant results.

The questions evaluated the improvement in the practical skills (Q1, Q4, Q7, Q9) which includes amalgam carving, impression making using various impression materials such as reversible and irreversible hydrocolloids on given cast, teeth arrangement, denture processing techniques, mounting of a cast and multiple other procedure. Significant results were obtained with 61.25% of total respondents who gave positive response to the following question, yet more knowledge and improvement of skills is required as 15% showed negative response.

Reinforcement of practical knowledge was implemented (Q2, Q3) in the questionnaire which evaluated the improvement in confidence, post been taught by the near peer teacher. The results were obtained such that, 70% gave a positive response which was quite significant, whereas 20% showed a negative response. Thus, if

regularly implemented it can improve the confidence of the operator and better treatment of the patient.

OSPE was evaluated based on five questions (Q5, Q11, Q12, Q15) which suggested if OSPE has to be implemented into examination pattern and its comparative benefits in the educational system (Q6, Q10, Q13, Q14) than the conventional teaching methods. It was observed that 66.25% gave a positive response towards OSPE evaluation and 68.75% of students even believed that it should be a part of the educational system as it will further improve the scoring and knowledge. Even though maximum number of students gave a positive response more is expected which can be gained by regular evaluation using OSPE technique.

In the following table,
DW- DON'T KNOW

SR.NO	QUESTIONS	BDS II YEAR
1.	Did OSPE helps you to improve and coverup the knowledge of particular topic when taught by your near-peer teacher?	YES-85%; NO-5%; DW-10%
2.	Will OSPE helpful to develop better confidence while examining the patient clinically after demonstration by your near peer teacher?	YES- 75%; NO-15%; DW- 10 %
3.	Did OSPE program reinforces the gained theoretical knowledge applied to be applied in practical 's as well as clinical practice?	YES -65%; NO-25%; DW -10%
4.	Has OSPE program improved your fine skills such as impression making, amalgam carving etc.?	YES-45; NO- 15%; DW -40%
5	Does OSPE help you to understand better as it is in objective form as compared to exam pattern?	YES -55%; NO -20%; DW -25%
6.	Is OSPE less stressful than other examination pattern?	YES 85%; NO-10%; DW -5%
7.	Do you think skills explained in OSPE will be helpful in future practice?	YES -45%; NO-25%; DW- 30 %
8.	Are the questions asked and procedure told to perform at each station fair?	YES-60%; NO-15%; DW- 25%
9.	Do you consider it as a useful tool in improving the knowledge and skills?	YES- 70%; NO-15%; DW-15%
10.	Should OSPE be performed as a method of assessment in each subject after being taught by your near-peer teacher?	YES- 55%; NO-15%; DW -30%
11	Is the OSPE implemented in well-structured and well-sequenced manner by your near-peer teacher?	YES- 85%; NO-10%; DW-5%
12.	Does it stimulate the thinking ability?	YES- 50 %; NO-20%; DW-30%
13.	Is this an effective tool for teaching other than the conventional method?	YES- 80%; NO-15%; DW-5%
14.	Are the questions asked and procedures asked in OSPE much easier than the theoretical examination?	YES- 55%; NO-35%; DW- 10%
15.	Will OSPE, if implemented provide a chance to score better?	YES 75%; NO-10%; DW -15%

Fig 1

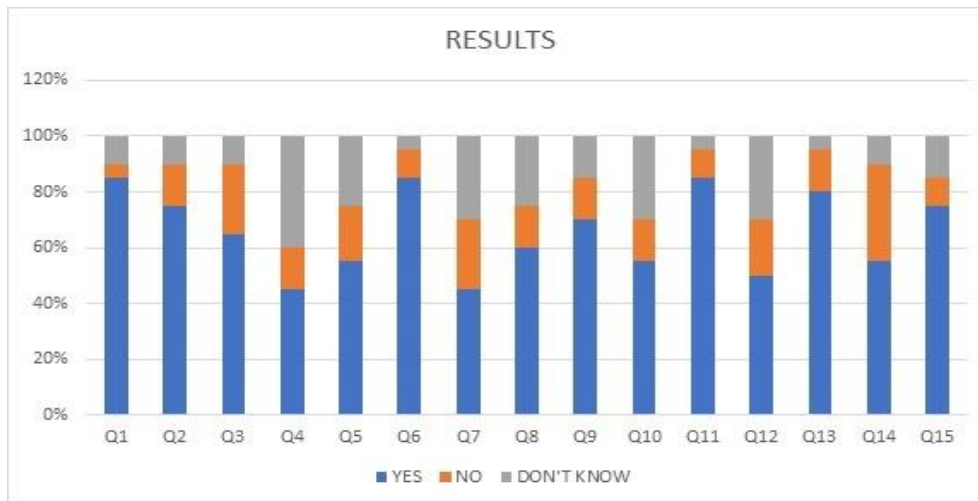


Fig 2

IV. DISCUSSION

The present study was aimed at evaluating the effect of near-peer teaching program of OSCE (Objective Structured Clinical Examination) in dental **students reporting in the Department of Paedodontics and Preventive Dentistry at School of Dental Sciences, Karad.**

According to psychology, every individual has a different perspective, thinking ability, IQ and varying grasping capacities. When students are taught in mass by just one teacher with a considerable amount of age gap, there can be a difficulty in dissemination. On the other hand, when taught by someone who is just a year senior, students reported simpler understanding, elementary

dissemination and improved skills thus eliminating the “thought bubble effect”.

The “thought bubble effect” concept states that interacting with someone who’s much more knowledgeable, understanding, mature, differentiative and elder to the one who’s enquiring or questioning or justifying themselves can lead to formation of a “bubble full of thoughts” concerning with various factors such as fear, anxiety, inferiority complex, rationalism, conceptual understanding, etc. When such individuals are taught or interacted or questioned by someone who is just a year senior or of the same age, the bubble full of thoughts ruptures and such communications are more flexible. This is a new concept formulated and is in the process of a copyright.

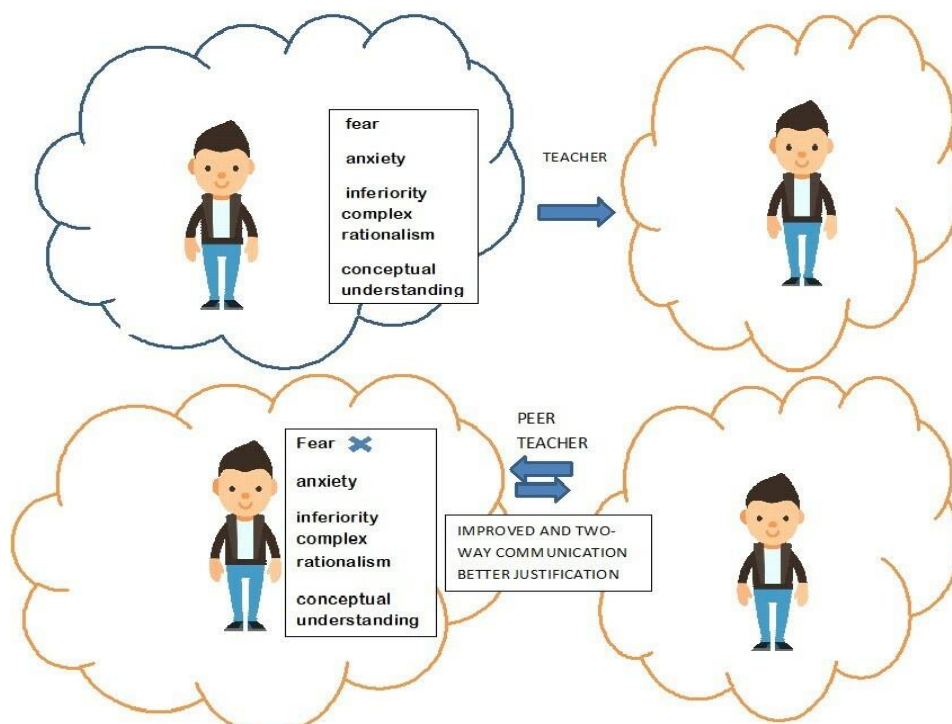


Fig 3

A review study by, **K.J. TOPPING, et al** ^[11], was analyzed by reviewers that stated that the reduction of the resources and increasing the number of students would result in larger class sizes and less interactive teaching and learning, thus **retro versing** the traditional style of lecturing. Whereas, our study encourages new interactive teaching method where every student was given enough importance which improves the communication, reduces the fear and anxiety experienced by the students when approaching the staff for the clarification of doubts. In recent times, doing "**more with less**" attitude of teaching has become a point of interest and thus, an attraction for peer tutoring in higher and further education.

According to, **Ten Cate O, et al**, "near peer" teaching appears beneficial for the student teachers and learners as well as for the organization. They further added that "The analogy of the 'journeyman', as intermediate between 'apprentice' and 'master', with both learning and teaching tasks, is a valuable but yet under-recognized source of education in the medical education continuum." ^[5].

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Another study by, **Yu TC, et al** ^[13] was based on a **literature search** conducted in four electronic databases that were based on a strict eligibility criterion; being a review study, was analyzed by reviewers and models of "Kirkpatrick's levels of learning" were used to grade the impact size of the study outcome. Even though the results are justificatory, the study did not include a definitive study group and a questionnaire, and results were based merely considering the students as an entire one unit being taught by the near peer teacher. Whereas, in our study one student

was considered as one unit since every student was individually taught by an individual near-peer teacher in the ratio 1:1 in order to eliminate any errors that could occur in sense of giving enough time and importance to every student individually. Thus, we tried to give a different perspective to the methodology of education.

Another important point of discussion is the education system in India, the medical education is more of a conventional method wherein the lectures are taken as a part of theoretical learning which is further applied into the clinics. This is not the scenario in other countries where Problem Based Learning (PBL) along with near peer teaching is given much more importance. Thus, **this is a loop fault that needs to be taken into consideration, improvement in the educational system and bringing it as a part of the curriculum.**

V. CONCLUSION

Through our results, we can conclude that though conventional teaching and examination are the most commonly employed methods, teaching by a near peer teacher along with implementation of one to one interaction and evaluation of the practical skills by the method of OSPE can improvise and give much better results.

This also presents to be an unbiased method of evaluation and informal method of teaching along with giving personal attention towards each student by "each one, teach one" method, thus improving the learning ability of students and teaching skills of student teachers.

The concept called "each one, teach one", could be more beneficial to the peer teacher, learner and the patient in the near future!

Also, this method of teaching can be effective to eliminate the "thought bubble", thus improving student compliance.

VI. RECOMMENDATIONS

It is recommended that; the students should be trained by their near peer teachers at the institutions by the method of OSPE as to improve the practical skills and provide better treatment to the patients in near future and can be of much more benefit if "each one, teach one" concept is also implemented.

Peer teaching is at a higher account than the conventional teaching and should be practiced more often considering the educational distance between the student teaching and students taught, group size and the level formality of teaching in conventional method thus, the latter being at a loop fault.

REFERENCES

- [1]. Sharma, S., & Sharma, P. (2015). Indian higher education system: challenges and suggestions. *Electronic Journal for Inclusive Education*, 3(4), 6.
- [2]. Bates, A. W., & Poole, G. (2003). *Effective Teaching with Technology in Higher Education: Foundations for Success*. Jossey-Bass, An Imprint of Wiley. 10475 Crosspoint Blvd, Indianapolis, IN 46256.
- [3]. Bilgiç, N., & Günay, T. (2018). Evaluation of Effectiveness of Peer Education on Smoking Behaviour. In *Smoking Prevention and Cessation*. IntechOpen.
- [4]. Lin, H. C., Xirasagar, S., & Laditka, J. N. (2004). Patient perceptions of service quality in group versus solo practice clinics. *International Journal for Quality in Health Care*, 16(6), 437-445.
- [5]. Ten Cate, O., & Durning, S. (2007). Dimensions and psychology of peer teaching in medical education. *Medical teacher*, 29(6), 546-552.
- [6]. Khaw, C., & Raw, L. (2016). The outcomes and acceptability of near-peer teaching among medical students in clinical skills. *International journal of medical education*, 7, 188.
- [7]. Angelo, T. A., & Cross, K. P. (2012). *Classroom assessment techniques*. Jossey Bass Wiley.
- [8]. Ananthakrishnan, N. (1993). Objective structured clinical/practical examination (OSCE/OSPE). *Journal of postgraduate medicine*, 39(2), 82.
- [9]. Peluso, M. J., & Hafler, J. P. (2011). Medical students as medical educators: opportunities for skill development in the absence of formal training programs. *The Yale journal of biology and medicine*, 84(3), 203.
- [10]. Buckley, S., & Zamora, J. (2007). Effects of participation in a cross year peer tutoring programme in clinical examination skills on volunteer tutors' skills and attitudes towards teachers and teaching. *BMC medical education*, 7(1), 20.
- [11]. Topping, K. J. (1996). The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. *Higher education*, 32(3), 321-345.
- [12]. Daud, S., Chaudhry, A. M., & Ali, S. K. (2016). Lecture based versus peer assisted learning: quasi-experimental study to compare knowledge gain of fourth year medical students in community health and nutrition course. *Research and Development in Medical Education*, 5(2), 62.
- [13]. Yu, T. C., Wilson, N. C., Singh, P. P., Lemanu, D. P., Hawken, S. J., & Hill, A. G. (2011). Medical students-as-teachers: a systematic review of peer-assisted teaching during medical school. *Advances in medical education and practice*, 2, 157.

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CONFLICT OF INTEREST

<https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Aascds%3AUS%3A38a8fb3a-e297-4744-b477-fbe8be66ce64>
the following link provides the form for conflict of interest.