



Practice of Problem Based Learning among Dental Faculty in India

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ABSTRACT

Aim: Problem based education (PBL) is a student centered teaching and learning process which is gaining acceptance in medical and dental schools all over the world Therefore the aim of the study is to find the practice and knowledge of problem based education among the dental faculty in India. **Methods:** Questionnaire was sent to 300 participants working in different dental colleges in India The questionnaire also included faculty position , teaching experiences, specialty discipline. Awareness of PBL, experiences about PBL and about their opinions/ recommendations about PBL. Data analysis was done and the results are expressed as percentage and frequencies. **Results:** of the 300 questionnaires send 164 participants responded . Majority of the respondents were aware of PBL ,even though they don't practice it. **Conclusion:** The dental faculty in India is aware of the changes in dental teaching methodologies taking place all over the world . The regulatory body should bring reforms to make PBL as an important tool in the education of dental students

KEY WORDS: PBL, Education methodology, Dental education

INTRODUCTION

India has a vast historical background in imparting knowledge. Ancient history shows that Sushruta, the great surgeon of ancient India, taught dentistry at Kashi, in 600 B.C [1]. However, modern dentistry was introduced in India much later in 1920 with the establishment of the first dental college in Calcutta by Dr R Ahmed with the course curriculum of 2 year licentiate in dental science degree [2]. Later Dental Council of India was constituted by the govt of India as the statutory and the recommendatory body to Ministry of health and family welfare to regulate the curriculum in the training and to maintain uniform standards of dental education in India. In the past two decades the number of dental colleges have grown leaps and bounds with 301 colleges offering 5 Year Bachelor of Dental science (BDS) course (including 1 year internship) and 205 colleges offering Master in dental sciences degree in various clinical specialities [3]

The undergraduate curriculum is divided into pre-clinical and clinical phases, with limited integration. Students learn theory and concepts through class room settings with didactic lectures. The students are also required to read text books, make class notes etc. the practical knowledge is through the patient work in various clinical specialties in the third and fourth year of the course. In the undergraduate curriculum clinical seminars, case presentations or present treatment planning concepts are not compulsory. Therefore developmental of analytical and logical skills are not given importance in undergraduate training. In the PG programme

importance is given for journal clubs, seminar presentation, library dissertations which helps the students to organize their knowledge to improve the clinical skills.

Lot of experiments and reforms had been made to dental curriculum all over the world .One of such reform which has gained acceptance all over the world is the Problem-based learning (PBL) [4]. PBL is a student-centered approach in medical education, which facilitates the need of understanding the problem thoroughly and then retaining the knowledge by exposing students to skills such as clinical reasoning, critical thinking, and self-directed learning. [5,6].

The conventional approach to dental education is teacher centered [7]. Conventional lectures are delivered by staff in front of huge number of students with limited teacher – student interaction . Each discipline is taught separately and there is minimal integration between them. Examinations tend to focus on detailed recollection of facts ,with little requirement of application of knowledge in relevant situations. PBL fulfils the important principles relating to the development new knowledge , activation of prior knowledge , encoding specificity and elaboration of knowledge. [7,8,9,10]

PBL has its origins in medical education in 1960 at Mc master university in Canada. In dentistry PBL has its origins in Malmo Dental School Sweden . [11,12]. Since then many dental schools all over the world has shifted over to PBL especially in Netherlands, UK, US ,Norway, Sweden, Hong Kong, Australia, New Zealand, Canada , Singapore, Thailand

etc[13,14,15,16], the pressures of change are because of dissatisfaction of students to conventional mode of education and a desire by academicians to implement new educational approaches which are student centric [17]. In India, PBL has made forays into several medical schools of repute, which are experimenting with this method as an adjunct to traditional teaching, though it has not been widely implemented [18].

A typical PBL setting includes six to eight students . A problem or a scenario such as lab data , clinical condition, medical report etc which forms the basis focus of the group is given and .the session is monitored by a tutor or facilitator who guides the group rather than teach. The tutor should encourage the students for understanding the material by asking open questions[7,8,9,10,11,12,19]

A study was therefore planned to assess the knowledge of undergraduate and post graduate teachers regarding the PBL , implementation of PBL

MATERIALS AND METHODS

The subjects were dental teachers with post graduate degrees from various dental colleges in India . 300 questionnaires were sent by email , post and online invitations. They were asked to fill a 12 item questionnaire The questionnaire also included personal details viz faculty position , teaching experiences, speciality discipline. First three questions were related to Awareness of PBL . Questions 4-9 were related to their experiences about PBL I. Questions 10-12 were about their opinions/ recommendations about PBL

Data analysis was carried out using SPSS v17.0 software (Chicago, Ill.) the results are expressed as percentage and frequencies. Chi-square test was used to find out association between designation (independent variable) and answering pattern

RESULTS .

Out of the 300 questionnaires sent, 164 participants responded with a response rate of 54.6%. Majority(39.3%) of the respondents are in the professor grade whereas 33.3% are in reader grade and 27.4% are in senior lecturer grade (Table 1)

Table 1. Responses of questionnaires

No of Questionnaires sent	300
No of Respondents-	164
% of response-	64.4%
Senior lecturers	45(27.4%)
Readers	55(33.3%)
Professors	64(39.3%)

Most of the respondents are aware of problem based learning (figure1) . the knowledge about pbl was from mainly journals (59%) other sources being professional bodies and from colleagues (figure 2).

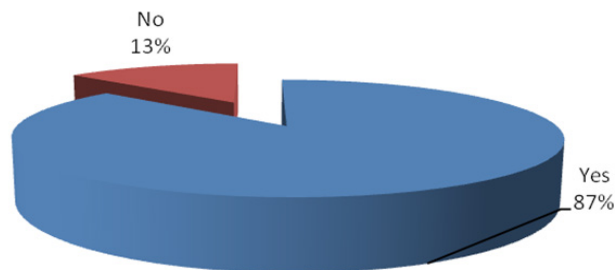


Figure 1. Awareness of PBL of respondents

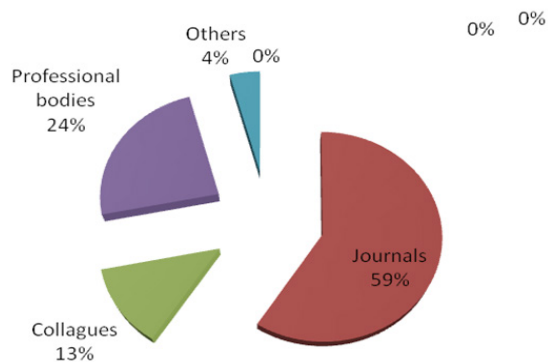


Figure 2. Knowledge about Pbl from different sources

Only 17 %respondents attended workshops or classes (figure3) only 8.5% practice PBL as teaching methodology whereas 24.6% practice PBL sometimes and 66.9% of teachers don't implement PBL (Figure 4)

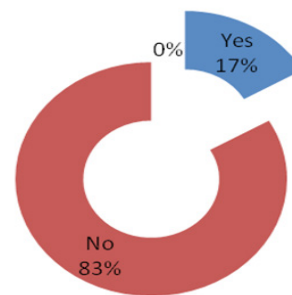


Figure 3. Showing respondents attending workshops or classes regarding PBL

43% of respondents feel effective use of learning resources as advantage of pbl over other teaching methodologies 30% feel there will be self motivation to learn and 27% feel that PBL integrates knowledge into practice.(figure 6) .The main drawback of PBL according to the respondents is that

its time consuming(52%) whereas other drawback is need for high man power (24%) and absence of any role model (24%). (figure 6).

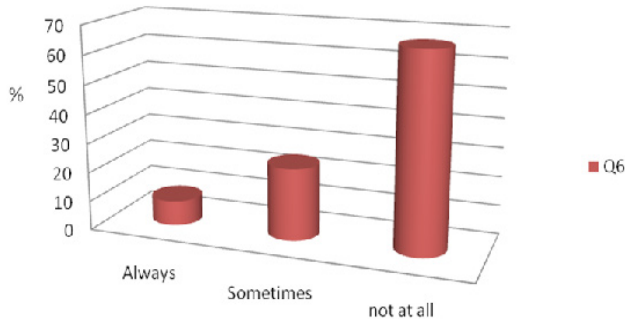


Figure 4. Showing number of respondents practicing PBL

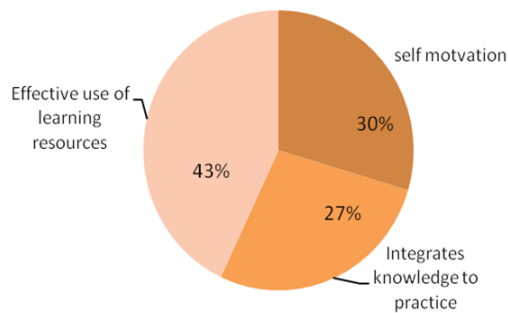


Figure 5. Respondents opinion about advantage of PBL

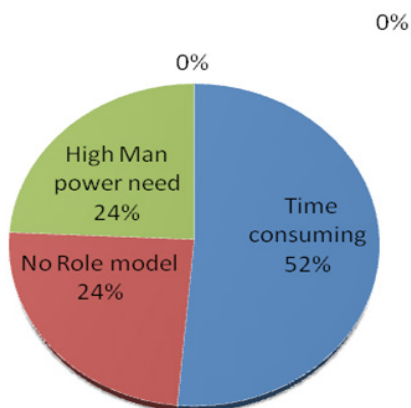


Figure 6. Respondents opinion about drawback of PBL

96.9% responded positively for the question that Dental Council of India should implement PBL.(Figure 7) . with 79% favouring PBL for masters course and the rest favouring for both MDS and BDS(figure 8)

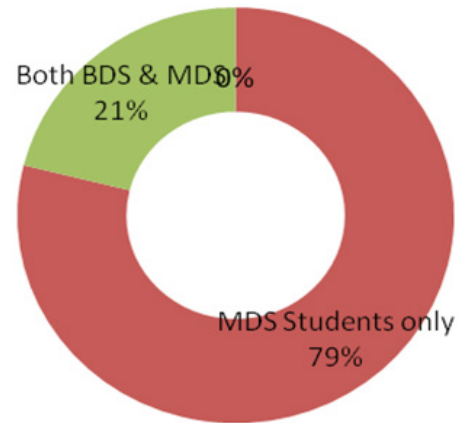


Figure 7. Respondents feedback about implementation of PBL

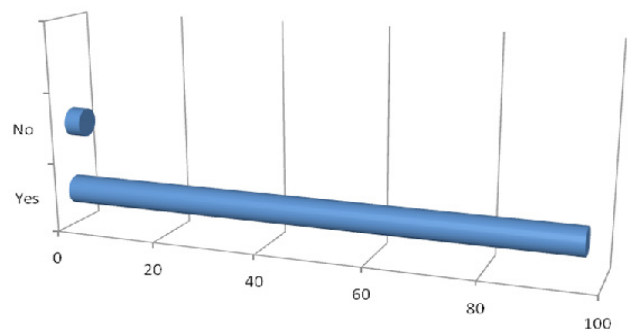


Figure 8. Opinion of respondents regarding DCI implementation of PBL

DISCUSSION

The dental faculties play an important role in shaping the dental education in India . While most of them have completed masters degree in their speciality, they lack intensive research training in research and there is no formal teachers training when they are inducted as educators in dental colleges . in the era of information technology where good scientific data are available online, there is an enormous need to improve the teaching methods for imparting quality education. Several studies have documented the positive influence of PBL in improving standard outcomes. Therefore this survey was conducted to access the knowledge and opinion of Indian dental educators regarding PBL.

The response rate for this survey is 55% . This may be due to low awareness of the topic among the educators. But among the respondents majority were aware of PBL with journals providing the source of information for them . in India , few medical universities and the Indian society of periodontists are taking keen interest in teachers training and PBL by conducting workshops .

The advantage of PBL is that it is a case based learning promoting student to make effective use of the learning resources such as the library[20]. Students can spend more time in the library to extract the ideas and explanations in the books and to discuss with their peers in the group. Beyond the library resources, accessibility to computers and internet, clinical simulators etc will help in the successful PBL programme. This method also helps high individual thinking and teamwork in a group [21,22]. Moreover PBL helps them to easily integrate the knowledge gained to practice as student understands the content at the beginning of learning process[23,24]. The function of small group of students is critical in PBL learning. Studies have shown PBL curriculum students have better knowledge retention [25]. PBL also generates a more stimulating and challenging educational environment, with support, interaction, emotional balance and close relationships within the group [26]. Memmin and Martinez Burrola [27] showed that staff members in PBL spent more time with students in comparison with the conventional method. Literature shows that students enjoy PBL programmes more than conventional model and they feel it's more informative[28].

However PBL offers no universal panacea for teaching and learning dentistry and it has its own disadvantages. Staff tend to burn out after introductory phase and then opt out[29]. Other main disadvantage Of PBL is the cost factor of high manpower need for PBL[30], ie to have one facilitator per six to eight students. In India most dental colleges have 100 BDS students intake every year and about 3-6 post graduate (PG) students in each department. Implementing PBL in undergraduate level will be cumbersome because of the staffing pattern. But PBL can be easily incorporated in the PG curriculum where the intake of students is very few. Other hybrid models of pbl can we worked to cater high number of students like the ones offered by universities of British Columbia[31], Harward[32]and Manchester[33].

Faculty academic and professional expertise also becomes a critical resource for student resource for student accomplishment. the ability of faculty experts to bring together lines of thought and integrate critical information is a vital resource for any PBL curriculum. therefore training and development of a cadre of effective PBL facilitators is critical step in implementation of PBL[34].

For the facilitators the main problems are - untrained status in PBL, resistance from teachers to adopt a newer method of teaching, lesser control on students as even the facilitator lacks necessary answer, no specific curriculum curriculum or guidelines from the authorities [35]. As facilitator, it is critical to develop assessment methods to reflect the application of these skills. Subjective achievements can be made on a continuous basis facilitators and self and peer assessments at the end of each case. Reviews of PBL methods provided by O'Neil[36], Swanon[37], Sullivan[38], Chavez[39] etc can be integrated to achieve an assessment

methods for our needs.

In India, some medical schools have introduced PBL[40]. The difficulties pertaining to students such as familiarity of students with traditional methods of teaching and the need to remain involved full-time, high manpower need are challenges to be worked at. Even though PBL may not be a great tool to impact knowledge acquisition, but it certainly can help in application of knowledge[41]. Challenges in imparting new model can be successful with dedication and will who practices it.

CONCLUSION

Establishing problem based learning is extremely important as PBL improves logical thinking and significantly improves students participation and discussion. As more and more educational institutions start to implement PBL, it becomes imperative for other dental schools to institute a PBL curriculum. The regulatory body should also bring about amendments to incorporate PBL as a teaching methodology and also conduct faculty training programmes to equip teachers for the changing scenario.

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