

# Evaluation of impact of Interprofessional education module regarding dentistry on medical students: A Cross Sectional Study

**Deshpande Saeed<sup>1,\*</sup>, Kalaskar Ashita<sup>2</sup>, Motwani Mukta<sup>3</sup>,  
Chari Suresh<sup>4</sup>, Mahale Hienna<sup>5</sup>**

<sup>1</sup>Reader & PG Guide, <sup>5</sup>PG Student, Department of Prosthodontics, <sup>2</sup>Reader, <sup>3</sup>Professor & Head, Department of OMDR, VSPMDCRC, <sup>4</sup>Director MET & Research, NKPSIMS, Nagpur

Email: drsaeedeshpande@gmail.com

## Abstract:

Health care is a complex issue, requiring an interdisciplinary approach from different specialties to have better outcomes. Medicine and dentistry need to collaborate effectively in many instances. Many systemic diseases have oral manifestations and many dental procedures require help from medical professionals such as emergencies in dental office, trauma, etc. Such collaborative approach requires inter professional knowledge which will in turn lead to improved practice outcome. However, in the present curriculum there is lack of proper training to boost such collaborative practices. Therefore, it was deemed necessary to develop and evaluate one such inter professional education module for medical students regarding dental specialty. The final year MBBS students (n=96) who were posted in the dental departments were exposed to an interactive session using power-point presentation on an overview of dentistry as well as case discussions. Evaluation was done on the basis of difference between pre & post-test (Multiple Choice Questions) scores and pre-validated feedback questionnaire. The mean scores before the intervention was 14.6 (SD± 3). Mean scores post intervention was 19.88 (SD± 5). Statistical analysis was done using chi square test. The values were  $X^2 = 14.4$ ,  $p = 0.0001$ . The present module on inter professional education was perceived positively by the students and it was effective in improving the cognitive knowledge of final MBBS students.

**Key Words:** Inter-professional education, Dentistry, Medical Education

## Introduction

Health is a state of complete physical, mental and social well-being and not merely absence of disease or infirmity<sup>1</sup>. Health issues need to be addressed comprehensively to achieve the optimum outcome. Healthcare cannot occur in isolated set-up limited to any one specialty. All the professionals belonging to medicine, dentistry, physiotherapy, nursing, social workers etc. have to work together in order to give maximum benefit to the patient. Today there is a need for collaborative practice of health professionals to meet challenges of modern lifestyle. Inter-professional education (IPE) is an approach to develop healthcare students for future inter-professional teams. Students trained using an IPE approach are more likely to become collaborative inter-professional team members who show respect and positive attitudes towards each other and work towards improving patient outcomes<sup>2</sup>.

Working effectively with other disciplines is an important and necessary skill for healthcare practitioners. Academic institutions can provide educational experiences that can begin to foster the prerequisite competencies needed to collaborate successfully with other healthcare professionals<sup>3</sup>. Medicine and dentistry are two such intertwined specialties where in many instances both have to coordinate and collaborate to facilitate improved healthcare outcomes for patients. However, in the present curriculum there is no provision for such training to the students in systematic manner during

their formative years. Their ideas about collaboration are hazy and lack evidence base.

Therefore, the present intervention was planned to develop one inter professional education module related to dentistry and evaluate its impact on medical students' knowledge and their perception regarding the intervention.

## Methodology (Fig. 1)

This study was conducted during a period of March-October 2015 at VSPM Dental College & Research Centre along with NKPS Institute of Medical Sciences, Nagpur. Study type was cross sectional analytical. Study subjects included final year MBBS students posted in dental college (n=100) and who consented to participate in the study (n=96). Time of intervention was first day of their one week dental posting. The posting timing of the students was 2 hours every day for five days. So we had to restrict our timings to one hour since additional time for pre & posttest along-with feedback was required. Evaluation of knowledge gain was performed on the basis of difference between pre & post-test (pre-validated 20 multiple choice questions) scores. Evaluation of perceptions was done by pre-validated feedback questionnaire.

Interactive session was planned using a pre evaluated power-point presentation (approximately 1 hour) with clinical case photographs and small group discussions including following points:

Basic overview about dentistry, different sub-specialties, role of medical professional in situations like emergencies in dental clinic, dental care for pregnant females, oral care in systemic diseases like Diabetes Mellitus, Hypertension etc., Dental care for pediatric patients, common oral diseases and when to refer a patient and so on.

The primary research question was: 'Is the implementation of inter-professional education module associated with an improvement in knowledge regarding dentistry amongst medical students?' The null hypothesis was that there is no change in knowledge regarding dentistry amongst medical students. (p value at 0.05)

## Results

The mean scores before the intervention was 14.6 (SD± 3). Mean scores post intervention was 19.88 (SD± 5). Statistical analysis was done using *chi square test*. The values were  $X^2= 14.4$ ,  $p=0.0001$ . Thus the improvement in scores was statistically significant after use of the programme ( $p<0.001$ ) and the null hypothesis was rejected. It shows that the Inter-professional education module has improved the knowledge of students regarding dentistry.

Learners' reactions were positive as to relevance, things learnt and contents of the module. Majority of participants mentioned content and way of delivery as the best thing about the module.

For the question 'Is learning dentistry important for medical practitioners', 88% of the participants responded yes and the reasons given for the same were that oral health problems are very common and the medical practitioners should be able to provide basic screening and referral services. Some mentioned that it is necessary to increase awareness about oral problems amongst common people.

85.71% of the participants responded that the module was well organized and 100% of the participants responded that their knowledge was enhanced by the module and it was informative.

The question 'conventional teaching techniques and posting schedule do not provide adequate training regarding dentistry' 45.23% strongly disagreed and equal number of participants strongly agreed. However, When asked 'whether the programme should be made a regular feature in dental posting', majority of them, 81% of the students agreed to it.

For the question 'what can be done to make this programme even better' participants felt that it should include video demonstrations, more clinical cases, etc. few stated that the module should be conducted at second MBBS level rather than Final MBBS.

## Discussion

Inter professional education/training (IPE) is those occasions when members (or students) of two or

more professions learn with, from and about one another to improve collaboration and quality of care (Centre for the Advancement of Inter professional Education 2002)<sup>4</sup>. It is an initiative to secure inter professional learning and promote gains through inter professional collaboration in professional practice.

Patient care is a complex activity which demands that health and social care professionals work together in an effective manner. The evidence suggests, however, that these professionals do not collaborate well together. Reeves S et al<sup>5</sup> in their review regarding effects of Inter-professional education on professional practice and health care outcomes have mentioned positive outcomes in emergency patient care, management of care delivered to domestic violence victims; and mental health practitioner competencies related to the delivery of patient care.

There are many studies reporting lack of knowledge of medical students / professionals regarding dentistry. A study conducted at the University of Washington, School of Medicine<sup>6</sup> revealed low student knowledge of caries, oral systemic interactions, and oral health disparities across all training years. Similarly a national survey conducted by Lewis et al<sup>9</sup> found that over 50 percent of those respondents reported no previous training in dental health issues during medical school or residencies which lead to lack of knowledge. Studies have reported students positive attitudes toward the importance of oral health training and many agreed they have an important role in identifying dental problems and counseling families<sup>9</sup> as many physicians often fail to examine the oral cavity including the teeth and the supporting structures<sup>6-8</sup>. Thus these studies suggest that the knowledge and training provided to the physicians in connection with the oral cavity is limited. So, the role of educators is very important to bridge this gap and train medical practitioners who will have knowledge and required clinical skills for providing primary dental healthcare to all patients.

In our set-up the medical students in their final year receive one week of dental posting with 2 hours per day in any one of the eight sub-specialties of dentistry (oral pathology, oral medicine and radiology, oral surgery, orthodontia, prosthodontia, periodontia, endodontia, pedodontia and community dentistry) on oral health education during their medical school years. However, there is no structured training strategy to provide them all necessary knowledge and relevant skills during this time.

Therefore, it was deemed necessary to design an educational module for the medical students regarding scope of dentistry. The didactic program provided an overall knowledge of dental professions; patient centered care and discussed key issues where medical professionals should collaborate with their

dental counterparts. Thus, it emphasized on building a skilled inter professional team.

The main critical factor in the present study was evaluating the outcome of this intervention. Kirkpatrick has described four different levels of assessing programme evaluation ranging from level 1 which only checks learners' reaction to level 4 which assesses change in practice and ultimate benefit to the patients<sup>10</sup>. The evaluation of the present intervention was carried out according to Kirkpatrick's level 1 and 2b which assesses learners' reaction or perceptions as well as acquisition of knowledge. It is argued that traditional, control group experimental designs may not be adequate, appropriate or reasonable as the sole means of evaluating inter professional education<sup>11</sup>. Therefore a specific tool to assess knowledge gain, a quantitative method using pre validated questionnaire with multiple choice questions was used in the present study. The difference in the scores of the pre and post evaluation questionnaire was statistically significant and indicates that a relatively short educational intervention implemented prior to graduation can positively improve the knowledge of other specialty and change perceptions toward learning and collaboration.

Many students recommended that the intervention should be conducted in the first year. This is in a way true as the students might get sufficient time during their graduation years to come across dental patients and apply clinically what they have learnt.

Owens et al<sup>12</sup> in their study about Internists' and Endocrinologists' Knowledge, Opinions, and Behaviors Regarding Periodontal Disease and Diabetes have concluded that internists and endocrinologists have some knowledge about oral health and believe that there is a link between periodontal disease and diabetes mellitus; however, the majorities do not have sufficient familiarity with the studies that link periodontal disease and diabetes mellitus. They agree with the idea of collaboration with dental professionals to reduce the number of patients at risk for developing periodontal disease.

Gail A. Czarnecki et al<sup>13</sup> evaluated Nursing and Dental Students' and Pediatric Dentistry Residents' Responses to Experiences with Interprofessional Education and found that nursing students showed positive responses to IPE. Thus the literature evidence suggests that IPE is effective, however all interventions are done within subject or disease specific and not overall scope of dentistry, which has been covered in the IPE module included in the present study.

In the present study, similar number of participants agreed as well as disagreed on the question 'conventional teaching techniques and posting schedule do not provide adequate training regarding dentistry'. This might be due to the stress which the students are undergoing during their final year, which prevent them from accepting any change or addition in the

curriculum. In spite of the above responses, majority found IPE program to be informative, knowledge enhancing and should be made a regular feature in dental postings.

### **Conclusion**

Holistic patient care is mandatory in modern times. All healthcare professionals should come together and collaborate to restore patients' optimum health. The concept and relevant training has to start at an undergraduate level and continue through all years of medical education. The present intervention is one such attempt to put together medical and dental profession and promote inter-professional practice.

The inter-professional education module regarding dentistry developed for medical student was well received by the participants. There was significant knowledge gain as a result of this intervention. This evidence suggests that it should be included as a regular feature during their dental postings.

### **Future directions:**

To assess Kirkpatrick's level 3 & 4 i.e. Change in organizational practice and improvement in patient care, long term use of this programme and subsequent evaluations are planned.

### **Limitations:**

1. To evaluate the module more effectively it should be done for more number of students and over a long period of time at multiple centers.
2. This investigation should have a qualitative research component in the form of 'focused group discussion' or in depth interviews of the participants which can give more information about the shortcomings of this module.

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