



Evaluation of readiness to practice among interns at an Indian dental school

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ABSTRACT

Introduction: Dental education has evolved tremendously across the globe over the past few years. The aim of dental undergraduate education is to produce a competent dentist. Many students feel the need to work as an 'apprentice' with another dentist until they gain confidence and additional skills which can otherwise be taught in the learning years at dental school. **Objectives:** The objective of this study was to determine the readiness to practice after graduation among interns at a dental school in India. **Methodology:** Totally, 51 interns out of 88 consented to participate in the survey. A questionnaire survey with 26 items was distributed. Completed forms were taken, and the data extracted and descriptive analysis was carried out. **Results:** About 51% students had joined dentistry out of interest, 31% students had joined because they did not get admission in medical schools. About 96% of students felt that they would require additional exposure under a dentist before establishing their own practice. About 88% of the responders felt that they had not gained sufficient knowledge and confidence during the course of study to practice as an independent dental practitioner immediately after internship. Majority of the students appeared to be doubtful about performing root canal treatments on single and multiple rooted teeth. The Interns felt they were unprepared and not competent to handle complex tasks. **Conclusion:** Reforms in Indian dental education are long overdue. Raising the standards of dental education to global standards will lead to better outcomes such as better education standards, better infrastructure, and patient care practices.

KEY WORDS: Curriculum reforms, graduating dentists, interns, undergraduate dental education

INTRODUCTION

Dental education has evolved tremendously across the globe over the past few years. The report 'Dental education at crossroads' on the existing dental education system by the Institute of Medicine [1] served as a catalyst in introducing change in dental education systems in many countries. This change is necessitated by change in disease demographics, change in learner attitudes, change in patient expectations, patient care [2-6] and introduction of new products and technologies [7].

The aim of dental undergraduate education is to produce a competent dentist who, on graduation is able to [8,9]:

1. Accept professional responsibility
2. Appreciates the need for continuing professional development
3. Utilizes advances in knowledge and techniques
4. Understands the role of patient in decision-making

This means at graduation the dentist must be competent to practice independently. However, we are finding that this is not

the case in Indian dental schools. More and more students feel the need to work as an 'apprentice' with another dentist until they gain confidence and additional skills which can otherwise be learned in the learning years at dental school. The quality of dentists graduating from dental schools also appears to be steadily declining. The last curricular change by the Dental Council of India (DCI) was carried out in 2007 in which the duration of the study was the only modification made. There have been minimal changes with reference to curricular content, instruction methodologies and assessment practices. Whenever any changes are introduced there appears to be no system of validating the outcomes. Curricula in health professions are dynamic and require constant revision and validation by subject experts. This includes the subject content, reading material, instruction methods and student assessment methods [5,10].

We undertook a survey among interns who had completed their rotatory internship. The purpose of carrying out a survey among this group of people was because

- They would be eligible to begin general dental practice shortly
- They are the primary receivers of the curriculum

- There will be no contamination at this stage as they are not exposed to additional experience.

Therefore they would be in a position to offer genuine responses to the survey questionnaire and offer suggestions and feedback on the existing curriculum. The objective of this study was to demonstrate the self-rated competency levels of interns in the various fields of dentistry

METHODOLOGY

The survey was carried out among Interns of a dental school in India. Ethical clearance to carry out the study was obtained from the Institutional Review Board. Totally, 51 interns out of 88 consented to participate in the survey. A questionnaire survey with 26 items was distributed. This questionnaire survey was adapted from a similar study by CKY Yiu *et al.* [11] and modified. Section 1 consisted of 4 general questions regarding self-confidence levels to practice dentistry after graduation and 22 questions on competencies that were to be rated on a 4-point scale. Completed forms were taken, and the data extracted and descriptive analysis was carried out.

RESULTS

Section 1

After analyzing the results, we found that a good number of students had joined dentistry out of interest (51%) [Table 1]. There were quite a few students who had joined because they did not get admission into medical schools (31%). About 96% of students felt that they would require additional exposure under a dentist before establishing their own practice. About 88% of the respondents felt that they had not gained sufficient knowledge and confidence during their course of study to practice as an independent dental practitioner immediately after internship. About 59% of the interns felt they were more likely to pursue further studies, and the rest (41%) were likely to

Table 1: Self-confidence levels to practice dentistry after graduation

Questions	Responses	Percentage
What was your reason for pursuing Bachelor of Dental Surgery degree course?	Self-interest	51
	Motivated by parents	14
	Pressure from parents	4
	Did not get MBBS	31
Do you feel the need to work under a dentist before establishing your own practice?	Yes	96
	No	4
Do you think you have gained sufficient knowledge and confidence during your course of study to practice as an independent dental practitioner immediately after internship?	Yes	12
	No	88
Upon graduation, which of the following are you most likely to pursue?	Postgraduate Master's degree	59
	Establish own practice	0
	Join established private practice or government hospital	41

join an established practice. None of the interns felt they were likely to establish their clinics immediately after internship.

Section 2

Majority of the students were confident about performing routine work like oral prophylaxis, silver amalgam and composite restorations, simple extractions, taking a detailed case history, prescribe investigations and make a diagnosis, formulating a treatment plan and, administering local anesthesia, complete dentures [Table 2 and 3]. Majority of the students appeared to be doubtful about performing root canal treatments on single

Table 2: Self-perceived competency regarding general clinical skills (n=51)

Competency item	Response	Percentage
Communicate with a patient and elicit thorough case history	Very confident	35
	Confident	55
	Average	10
	Not confident	0
Carry out necessary investigative procedures and reach a diagnosis	Very confident	14
	Confident	47
	Average	39
	Not confident	0
Formulate a treatment plan that is in the patient's best interest	Very confident	10
	Confident	49
	Average	35
	Not confident	6
Perform silver amalgam restorations	Very confident	55
	Confident	39
	Average	4
	Not confident	2
Perform composite resin restorations	Very confident	47
	Confident	49
	Average	2
	Not confident	2
Carry out root canal treatment on a single-rooted tooth	Very confident	2
	Confident	33
	Average	47
	Not confident	18
Carry out root canal treatment on a multiple-rooted tooth	Very confident	2
	Confident	6
	Average	33
	Not confident	59
Administer local anesthesia	Very confident	39
	Confident	51
	Average	10
	Not confident	0
Perform simple extractions	Very confident	53
	Confident	35
	Average	12
	Not confident	0
Perform third molar extractions	Very confident	2
	Confident	20
	Average	39
	Not confident	39
Manage complications of oral surgery	Very confident	0
	Confident	10
	Average	49
	Not confident	41
Manage patients with common systemic diseases	Very confident	3
	Confident	24
	Average	57
	Not confident	16

Contd...

Table 2: Contd...

Competency item	Response	Percentage
Manage medical emergencies in a dental clinic	Very confident	2
	Confident	8
	Average	41
	Not confident	49
Perform BLS if necessary	Very confident	2
	Confident	12
	Average	51
	Not confident	35
Writing a prescription (without any errors)	Very confident	18
	Confident	51
	Average	31
	Not confident	0
Replace missing teeth with complete dentures	Very confident	20
	Confident	61
	Average	14
	Not confident	5
Replace missing teeth with RPD	Very confident	18
	Confident	45
	Average	31
	Not confident	6
Replace missing teeth with FPD	Very confident	2
	Confident	10
	Average	31
	Not Confident	57
Manage uncooperative child patients	Very	10
	Confident	37
	Average	45
	Not confident	8
Perform oral prophylaxis	Very confident	78
	Confident	20
	Average	2
	Not confident	0
Perform root planing	Very confident	6
	Confident	31
	Average	33
	Not confident	29
Formulate a comprehensive treatment plan for orthodontic treatment	Very confident	0
	Confident	6
	Average	33
	Not confident	61

RPD: Removable partial dentures, FPD: Fixed partial dentures, BLS: Basic life support

and multiple rooted teeth. When it came to performing more complex tasks like third molar extractions, complications of oral surgery, management of patients with systemic disease, medical emergencies, performing basic life support, fixed partial dentures (FPD), managing difficult children, root planing and formulating a comprehensive treatment plan for orthodontic treatment, the interns felt they were unprepared and not competent to handle these complex tasks.

DISCUSSION

The findings of this survey show that a large proportion of interns is confident with their general clinical skills. However, they still feel the need to work under the supervision of an established general dentist before they are confident enough to set up their general dental practice. This lack of confidence may lead to unscrupulous practices in the dental clinic, which

Table 3: Mean values of self-perceived competency regarding general clinical skills (n=51)

Competency item	Mean	SD
Perform oral prophylaxis	3.76	0.47
Perform silver amalgam restorations	3.47	0.67
Perform composite resin restorations	3.41	0.64
Perform simple extractions	3.41	0.70
Administer local anesthesia	3.29	0.64
Communicate with a patient and elicit thorough case history	3.25	0.63
Replace missing teeth with complete dentures	2.94	0.76
Writing a prescription (without any errors)	2.87	0.69
Carry out necessary investigative procedures and reach a diagnosis	2.75	0.69
Replace missing teeth with RPD	2.75	0.82
Formulate treatment plan that is in the patient's best interest	2.62	0.75
Manage uncooperative child patients	2.49	0.78
Carry out root canal treatment on a single-rooted tooth	2.20	0.75
Manage patients with common systemic diseases	2.16	0.73
Perform root planing	2.14	0.92
Perform third molar extractions	1.84	0.81
Perform BLS if necessary	1.80	0.72
Manage complications of oral surgery	1.69	0.65
Manage medical emergencies in a dental clinic	1.63	0.72
Replace missing teeth with FPD	1.57	0.76
Carry out root canal treatment on a multiple-rooted tooth	1.51	0.70
Formulate a comprehensive orthodontic treatment plan	1.45	0.61

FPD: Fixed partial dentures, BLS: Basic life support, RPD: Removable partial dentures, SD: Standard deviation

may result in a deficiency in patient care and increase in malpractice litigations. Dental education has been described as being “convoluted, expensive, and often deeply dissatisfying to consumers” in the American context [12]. The same holds true in India too. The curriculum is crowded with redundant material and students adapt to the academic load and survive the course by studying to pass tests. Dentistry is not only about mastering skills, a dentist must also imbibe ethical and moral values. The competency guidelines by the Dental Council of India have not clearly identified a way to assess these skills; these aspects of education appear to be overlooked.

With the increase in life expectancy [13], lifestyle related diseases, and other medical problems [14,15] the number of medically compromised patients is on the rise [16]. These observations call for major reforms in the current dental curriculum in India. It has been a personal observation by the authors that many dental graduates who move overseas for higher education find it difficult to perform well in routine procedures in the clinical tests for entry into international programs [17]. There are also many non-resident Indian students and students from other Asian countries enrolling for undergraduate dental program in India. Although the curriculum outlines the competencies that every dental graduate must possess at the time of graduation, there is a huge chasm between what is stated in the ordinances and what is actually happening. There is also a lack of standardization of quality of education in dental schools. In order to bridge the divide between the dental education standards in India and global standards, reforms need to be ushered in. This will minimize the difference in the quality of dental education, gain

international recognition, and most importantly improve patient care standards [18]. Dental programs that have international recognition may also attract and motivate more students to pursue dentistry.

Competency based curriculum has made way into many dental schools. A competency-based curriculum with a top down approach in which the curriculum is based on community needs [3] might work best in health professions education in the Indian context.

Admission criteria need to be made more stringent by conducting interviews and entrance tests prior to admission. Presently admissions into dental schools are based only on marks obtained in the entrance tests. As seen in the survey, there were a good number of students who entered dental education because they did not get into medical schools. Where self-motivation to join the course is lacking, performance would probably be compromised. If structured interviews, mini interviews [19] and statement of purpose are made a part of the admission process then we will be able to take students with real interest in the profession.

Evidence-based teaching and concept of evidence-based oral health care should be integrated into the dental curriculum to enhance clinical diagnostic skills [4]. At present, the students learn clinical skills in individual departments. This method has been replaced with an integrated curriculum in many dental schools with the main aim of enabling students to deliver holistic patient care [20,21]. The relevance and benefits of integration of disciplines using problem or case-based learning are undeniable [22,23]. Undergraduate curriculum of most dental schools in India lack dedicated case presentations, journal clubs or seminars to present treatment planning concepts or to critically evaluate the classic and contemporary literature. Consequently, development of analytical and logical reasoning skills takes a back seat for undergraduate students [24].

In addition to the existing competencies performing basic life support, root canal treatments, FPD, difficult extractions, and third molar extractions and diagnosis and management of oral pathologies should be made a mandatory part of the curriculum. Students can also be exposed to the treatment plan and clinical management of various maxillofacial trauma cases. The most important aspect of education is assessment. Students learn to pass tests. If we are able to create a test environment that simulates real life situations as much as possible then approach to learn will also change [25].

We cannot expect every student to get into postgraduate programs to refine their skills. And if we are not able to produce dentists who are ready for practice then the curriculum and the dental education system needs serious reconsideration and major reforms.

There were limitations in the study. This study was conducted in one batch of students corresponding to admissions of these

students in the same year. The sample size was small. Out of a total of 88 interns, 51 participated in the survey. This survey can be carried out in many other Indian dental schools over a period of few years so that data obtained can be extrapolated to the general graduating dentist population.

CONCLUSION

Reforms in Indian dental education are long overdue. Raising the standards of dental education to global standards will lead to better outcomes such as better education standards, better infrastructure, and patient care practices. This study has given us in insight into perceived readiness to practice among graduating dentists.

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