

Forensic Odontology in Undergraduate Dental Curriculum: Interns Outlook in Dental Institution, India-Focus Group Study

Research Article

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Abstract

Objectives: Study explores intern's perception regarding Forensic odontology in Undergraduate (UG) curriculum based on their qualitative feedback in a private dental institution, Bangalore, India.

Methods: A qualitative study was undertaken using a focus group approach with a purposive sample of interns of a private dental institution, Bangalore. Ethical approval was obtained before the study. Group discussions were initiated by using guideline document. Audio recording and field notes from the two focus groups, with a total of 16 participants, were transcribed and analysed using a thematic approach.

Results: Themes derived were Present scenario of Forensic odontology in Undergraduate curriculum, Expectations of interns from Undergraduate curriculum regarding Forensic odontology, Existence of Forensic odontology as a subject in Undergraduate curriculum and as a specialization in dentistry, Scope of Forensic odontology in India, Exhortation to strengthen Forensic odontology. Interns felt that the Forensic odontology in Undergraduate curriculum is inadequate in respect to time allocated for teaching, weightage given in university exams and competency acquired in the field, as compared with the international standards. Interns showed inclination towards acquiring basic skills in Forensic odontology to manage patients in their routine clinical practice.

Conclusion: Incorporating substantial content of Forensic odontology in Undergraduate curriculum needs to be considered by Dental Council of India during curriculum revision process to train the general dentist better in this field.

Keywords: Forensic Odontology; Undergraduate Dental Curriculum; Interns; Perceptions.

Introduction

Increasing rates of crime, road traffic accidents and disasters play a decisive role in hindering the growth of a nation as a unit, especially in developing countries like India [1]. Interpersonal violence like child abuse, sexual assault, homicide is increasing alarmingly across India. [2] 2012 witnessed 70% of women and 53% of children were victims of some form of violence in India. According to the National Crime Records Bureau, 24,923 rape cases were reported across India in 2012 [3]. The Global status report on road safety 2013 estimates that more than 2,31,000 people are killed in road traffic crashes in India every year [4]. Droughts, flash floods, cyclones, avalanches, landslides brought on by torrential rains, and

snowstorms pose the greatest threats in India [5]. The impact of these is pernicious given resultant disabilities and long-term physical, psychological, economic, and social consequences.

Dentistry plays a vital role during such crimes, accidents and disasters. It has a major role to play in providing all necessary information so that legal authorities may recognize malpractice, negligence, fraud or abuse, and identify unknown humans [6]. Dental professionals are one of the potential allies in assisting law enforcement agencies to detect and solve crime or any civil proceedings.

Forensic odontology is that branch of dentistry that involves the

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management, examination, evaluation and presentation of dental evidence in criminal or civil proceedings or in any natural calamities, all in the interest of justice [7]. The forensic odontologist assists legal authorities by examining dental evidence in three different situations: civil or non-criminal, criminal and research. Forensic odontology can play a significant role in helping the government in implementing action plans for maintaining law and order in the nation [8].

Educating dental students in Forensic odontology in India received a major thrust with subject's inclusion into Undergraduate dental curriculum of 2007 by Dental Council of India. As per revised ordinance in 2011 for BDS curriculum by Rajiv Gandhi University of Health Sciences (RGUHS), the Department of Oral Pathology and the Department of Oral Medicine teach theory of Forensic odontology for 4 hours in UG curriculum. Topics taught are Medico-legal aspects of oro-facial injuries, Identification of bite marks and cadavers, Determination of age and sex [9]. No practical hours have been dedicated for Forensic odontology in Undergraduate Curriculum.

The imperative question was to evaluate if the prescribed curriculum was in par with international standards?, were the Indian dental practitioners well-equipped to handle forensic cases, whether the curriculum prescribed by RGUHS is being taught and imparted the required skills to the undergraduate students.

Students' are the main stake holder in educational arena and valuable suggestions is very essential and is accepted as a key component of processes used to monitor the quality of academic programs. There exists a knowledge deficit regarding students' opinion on educational experience of Forensic odontology, which is important from structure and content issues while evaluating and revising curriculum. It is important to obtain their feedback in order to provide insights for the future revision and enhancement of curriculum.

With the above context, the present study aimed to explore interns' perception regarding Forensic odontology in Undergraduate curriculum based on qualitative feedback with the following objectives. 1. To explore the Forensic odontology knowledge among the interns. 2. To describe their experience of learning Forensic odontology during their Undergraduate curriculum. 3. To explore their attitude towards Forensic odontology subject and suggestions for improvement.

Methodology

Focus group discussion was selected for this study as it provided an in-depth understanding of the subject under investigation. This study was conducted among the interns (60) of academic year 2013-14, in a private dental institution, Bangalore affiliated to Rajiv Gandhi University of Health Sciences. Interns were targeted for participation in the study because they had recently finished their Bachelors in Dental Surgery and were fresh with their learning experience in the Undergraduate course.

A non-probabilistic purposive sampling was used to recruit the subjects to the study, as this method provided representative samples of interns. Letter was sent to all the interns explaining the purpose and the nature of the study and inviting them to par-

ticipate. Interns who were unwilling to participate and who were absent on the day of data collection were excluded from the study. After obtaining sufficient responses from interns to participate, 8 interns were grouped into each focus group. The study received ethical approval from Institutional Review Board. Individual written content was obtained from all the participants.

Focus Group Discussion

Two focus group discussions (FGD) were held in the classroom. Each FGD consisted of 8 participants along with a moderator (DBM) and a note taker (AP). Discussion was timed for 75 minutes, including initial 15 minutes of ice-breaking session where participants were let to acquaintance with each other. Both the FGDs were moderated by one researcher (DBM), a post-graduate student in Public Health Dentistry. The discussions were recorded using a digital audio recording device and field notes were taken by an assistance researcher. We anticipated that interns would feel more comfortable and give unprejudiced opinion if interviewed by a student rather than a faculty member. Discussions were audiotaped. Participants were informed that only the interviewer and one other researcher (AP) will have access to their interview tapes and they were assured that the participants' confidentiality would be maintained.

Focus Group Discussion Guide

The area of interest to the discussions was introduced to the participants using semi structured Focus Group Discussion Guide which consisted of open-ended questions based on the literature review. FGD guide had 2 set of questions namely, exploratory and engagement questions. The participants were encouraged to engage in a open discussion by responding to the fellow participant's comments, than just replying to the interviewer. The guide was flexible to be modified during the course of the discussion to explore the greater depth of the emerging themes. Light refreshments were provided during the discussion to encourage relaxed atmosphere.

Engagement questions were so framed to sensitize the participants towards the topic and to initiate the discussion. The Engagement questions included, "Are you all aware of the role that forensic science is playing in case of inter-personal violence, mass calamities and accidents?", "We as dentists, do we have anything to contribute to the field of forensics?". Exploratory questions were aimed to probe the participants and elicit the necessary feedback from the participants needed for the study. Exploratory questions included, "Are you competent enough to handle forensic cases in your dental practice?", "What is your view on Forensic odontology training in Undergraduate curriculum?", "What practical exposure did you have during Undergraduate course?", "Should Forensic Odontology be taught as a separate subject in UG curriculum?" and etcetera. To get a better insight, prompts from the moderator included: "Can you be more specific?," "What were you thinking?," "Can you please elaborate on that?". (Table 1)

Data analysis

The thematic content analysis was used to analyse the data. As recommended by Strauss and Corbin, data collection continued to the point of theoretical saturation, that is, to the point at which collection and analysis of additional data failed to generate new in-

sights [10]. major themes were identified by two researchers (VK, AP) who independently listened to each audiotaped interview, field notes and verbatim transcript. To ensure that the data were approached from more than one perspective, one researcher who listened to the audiotapes was a faculty member (VK) and one was a dental student (AP). The two researchers then shared and compared the themes. Upon discussion, they came to consensus agreement on a list of final themes. The quotes received from the discussions were grouped under themes and summarized.

Results

Sixteen interns (3 male and 13 female) participated in the focus group discussions conducted during June and July 2014. (Table 2) From content analysis, 190 comments were received from two focus group discussions. Major themes identified were, 1) Present scenario of Forensic odontology in Undergraduate curriculum. 2) Expectations from Undergraduate curriculum regarding Forensic odontology. 3) Existence of Forensic odontology as a subject in Undergraduate curriculum and as a specialization in dentistry. 4) Scope of Forensic odontology in India. 5) Exhortation to strengthen Forensic odontology. Major themes along with the number of comments received under each theme are revealed in Table 3.

For the purpose of clear and extensive discussion sub-themes are considered under themes in relevant areas. Following the description of the prevailing sub-theme under each theme, direct quotes from students’ responses are presented to illustrate the nature and focus of students’ perceptions. The text in quotation marks represents quotes extracted from the interviews.

Theme 1: Present scenario of Forensic odontology in Undergraduate curriculum.

1a. Hours dedicated for Forensic odontology training in UG curriculum.

Majority of the interns reported that Forensic odontology was taught only for couple of hours in Undergraduate curriculum. The subject was taught as a part of oral pathology in third year and oral medicine in final year. Moreover the subject was taught at the end of the academic year where students will be less attentive because of quota completion and exam stress. Students stressed upon saying that, the subject is taught by the faculty of oral pathology and oral medicine not by the specialists in forensic odontology.

“It is like learning the whole topic in one or maximum 2 classes, that too at the end of the academic year” Speaker 3 in FGD 1

“We study from the question bank. That is all the knowledge we have regarding the topic.” Speaker 5 in FGD 1

1b. Weightage for Forensic odontology in university examinations

Majority of the students commented that the importance given for Forensic odontology in university exams is very less. Students expressed that the only question asked regarding Forensic odontology was lip print and bite marks in 1996 paper and ever since Forensic odontology was integrated and taught by oral pathology and oral medicine faculty.

“All we learn about the Forensic odontology is lip prints and bite marks just because it is asked in exams.” Speaker 6 in FGD 1.

1c. Competence acquired regarding Forensic odontology from Undergraduate curriculum.

Students expressed that Forensic odontology was taught in desirable to know category and the content of the subject was very limited to understand the concept. Almost every participant reported that all they knew about Forensic odontology was the the-

Table 1. Questions in Focus Group Discussion Guide.

Sl no.	Section	Questions
1	Engagement questions	· “Are you all aware of the role that forensic science is playing in case of inter-personal violence, mass calamities and accidents?”
		· “We as dentists, do we have anything to contribute to the field of forensics?”
2	Exploratory questions	· “Are you competent enough to handle forensic cases in your dental practice?”
		· “What is your view on Forensic Odontology training in Under Graduate curriculum?”
		· “What practical exposure did you have during Under Graduate course?”
3	Prompts	· “Should Forensic Odontology be taught as a separate subject in UG curriculum?”
		· “Can you be more specific?”
		· “What were you thinking?”
		· “Can you please elaborate on that?”

Table 2. Demographic profile of sample. (N=16).

Demography		N=16 (100%)
Gender	Male	3 (18.75%)
	Female	13 (81.25%)
Average age		21-25 years

Table 3. Number of comments received under each major theme.

Theme	FGD 1	FGD 2	Total
Present scenario of Forensic Odontology in Under Graduate curriculum.	32	12	44
Expectations from Under Graduate curriculum regarding forensic odontology.	20	8	28
Existence of Forensic Odontology as a subject in Under Graduate curriculum and as a specialization in dentistry.	33	13	46
Scope of Forensic Odontology in India.	27	8	35
Exhortation to strengthen Forensic Odontology.	25	12	37
Total	137	53	190

oretical aspects of identification of lip prints and bite marks and they were trained to identify ideal lip print and bite marks. Practical exposure is completely lacking and students were not trained to take impressions. Most of the knowledge acquired regarding Forensic odontology was either from the question banks or from the television shows of crime detection serials like crime patrol and CID (crime investigation department) telecasted on various television channels. Students expressed that their knowledge was equal to any layman.

“More I get to know about forensics by watching CID or crime patrol (TV serials) than by sitting in forensic classes” Speaker 5 in FGD 2.

Theme 2: Expectations from Undergraduate curriculum regarding Forensic odontology.

2a. Learning basics

Students expressed the urge to know the basics of forensics like how to identify bite marks, take impressions, analyse and report to concern authorities. Students admitted that their practical skill in identifying and managing Forensic odontology cases in their private practice would be poor and were not aware of importance of forensic implications in their practice.

“We should at least be trained to identify abuse cases when we encounter them in our private practice.” Speaker 4 in FGD 2

2b. Indian dentists to be in par with international standards

Majority of the students expressed that their knowledge was definitely not in par with international standards. In west, students learnt Forensic odontology as separate subject, the knowledge component was incomparable. Poor in basic component was definitely influence their grades when they plan to pursue higher studies abroad.

“Any knowledge is power, you will need it at some point. When developed countries are making use of this science then I think we should also know it for the betterment and progress of our country.” Speaker 8 in FGD 1

Theme 3: Existence of Forensic odontology as a subject in Undergraduate curriculum and as a specialization in dentistry.

3a. Forensic odontology as separate subject in Undergradu-

ate curriculum

Surprisingly though most of the students stressed on giving more importance to Forensic odontology in Undergraduate curriculum, more than half the students were not very keen in having it neither as separate subject nor as a specialization.

“I feel having it integrated to oral pathology and medicine is ok, just that the importance and weightage needs to be increased while teaching it” Speaker 7 in FGD 2.

3b. Forensic odontology as specialization in dentistry

There was dilemma in thoughts and in expression among interns in pursuing Forensic odontology as specialty. Interns were neither willing to pursue it as Post-graduate specialization nor as diploma course and the reasons quoted by them was: 1. Limited content in Undergraduate curriculum to give them a feel of subject and to make them realize whether they are interested in it or not. 2. Job opportunities in India at present are very negligible.

“You can't create an MDS (Master of Dental Surgery), because content and scope here (India) is less” Speaker 3 in FGD 2.

3c. Integrating Forensic odontology into forensic medicine

Majority of the students expressed that forensic medicine and Forensic odontology should work in harmony that will bridge the gap between medical and dental department. Majority of the students took a stand that Forensic odontology cannot be integrated into forensic medicine. Reason perceived was, we as dentist are in a better position and have better knowledge to handle Forensic odontology cases.

“We can work with forensic medicine but they are not authorized and competent enough to take our roles.” Speaker 5 in FGD 1

Theme 4: Scope of Forensic odontology in India.

4a. Current scenario of Forensic odontology in India

Majority of the students expressed that the scope for Forensic odontology was limited in India. This was because India was a developing country and preliminary investments to centralize the records would need lot of manpower and money. Few students even felt that Forensic odontology was very much needed in current hour due to rise in inter-personal crimes like abuse, sexual

assault, homicide and etc.

“As for now there is no Forensic odontology in Indian scenario and future also looks very black due to government and DCF’s (Dental Council of India) attitude towards it.” Speaker 4 in FGD 1.

4b. Role of dentist in creating awareness regarding Forensic odontology

Majority of the students stressed upon the role of dentist in generating and updating centralized database and in creating awareness among patients regarding dental records.

“We as dentists should be the medium for change; we need to create awareness of having centralized database.” Speaker 2 in FGD 1

Theme 5: Exhortation to strengthen Forensic odontology.

5a. Exhortation to strengthen Forensic odontology in Undergraduate curriculum

Few of the students felt that giving more weightage to subject in university examinations will automatically increase the number of hours dedicated to teach Forensic odontology that will in turn create interest among students. Majority of the students express that the present curriculum regarding Forensic odontology needs to be reviewed and revised in order to strengthen it. Few students stressed on strengthening infrastructure. Majority of the students expressed their desire to learn Forensic odontology from the specialists (Forensic deontologist). Theory sessions should always be followed by practical’s to give them a clear picture of concepts. Faculty should stress upon maintaining records and it should be mandated.

“Infrastructure is what we lack in, but I definitely think that Forensic odontology should be stressed in UG curriculum, at least a little bit more, before we decide we are interested in it, we need to learn about it.” Speaker 2 in FGD 2

5b. Exhortation to strengthen Forensic odontology in India

Students reported that creating a centralized records department and appointing officials to verify and maintain records would be one of the crucial steps that should be taken towards strengthening Forensic odontology in India. Jobs for forensic odontologists need to be created in law enforcement agencies to detect crimes. “There are a lot of abuse cases in India today in which we can extensively make use of Forensic Odontology in untangling such crimes.” Speaker 4 in FGD 2.

Discussion

The current scenario of crime, accidents and disaster rates in India and around the world calls for more knowledge among medical and para-medical practitioners in the field of forensics. Despite the demand for well-educated and experienced forensic odontologists being recognized globally, the progress of forensic odontology in India has been relatively slow. It is dependent on the development of training and research facilities in dental

schools and oral pathology departments. Current study was conducted among the interns from the field of dentistry to assess their perception regarding forensic odontology taught in Undergraduate curriculum.

The qualitative study on Forensic odontology was first of its kind to be conducted in India. Qualitative study design was selected as it was more descriptive in nature and it helped us to do a detailed analysis of the study topic thus a deeper insight of the student’s perception was obtained. This design helped us to obtain justification for their opinions with elaborate answers. In our study, the moderator, being a non-faculty member, and with the anonymity feature of the FGD we aspired to overcome social acceptance bias.

The interns in the present study felt that the Forensic odontology was very interesting topic but was its training in Undergraduate curriculum was inadequate with respect to time allocated for teaching and its evaluation in university exams even though the forensic odontology is grouped under must know category in the university ordinance. In the present study interns exhibited poor knowledge and behaviour towards practicing forensic odontology similar to the study by Wadhawan et al [11] which could be attributed to lack of trained forensic odontologist involved in training the students. The competency acquired in this field by the students was inadequate when compared to their international contour part and there was a felt need for trained specialist with good infrastructure to be in par with the other universities. Interns showed inclination towards acquiring basic skills in forensic odontology to manage patients in their routine clinical practice.

Dearth of practice of Forensic odontology was strongly prevailing among interns in the study which was in accordance with the study by Wadhawan et al [11] in the year 2014 in Ghaziabad, India showing inadequate knowledge, poor attitude and lack of practice of Forensic odontology prevailing among undergraduate students, interns, post-graduate students and faculty. The probable reasons could be due to the single governing body governing the curricula of all institutions in India. In our study interns expressed that Dental Council of India should take a step to strengthen forensic odontology in Undergraduate curriculum by increasing the hours dedicated for forensic odontology, by providing infrastructure and by appointing forensic odontologists to teach the subject, similar opinions was revealed in study by Kanwalpreet Kaur Bhullar et al [12].

Students being important stake holder considering their opinions in the process of under graduate curriculum reviews can create a drive from the grass-root level to influence the curriculum developers in Dental Council of India to fortify forensic odontology in Undergraduate curriculum.

Future directions of the study:

Qualitative research involving Post-graduate students and faculty to obtain the perception on Forensic odontology in curriculum needs to be conducted.

Policy implications of the study:

High crime rates in India mandates every individual to be equipped with the necessary skills to identify and prevent crime and dental

profession is no different. The forensic training should intend to provide the dental undergraduates with in-depth knowledge and necessary skills in forensic dentistry and disaster management/preparedness and detailed training in victim identification. Incorporating substantial content of Forensic odontology in Undergraduate curriculum needs to be considered by Dental Council of India during curriculum revision process to train the general dentist better in the field. Post-graduate and diploma courses should be created, which is in par with international standards. Conducting periodic education programmes like conferences, workshops and publications of forensic cases would help the dental practitioners and students to gain more knowledge in the field.

Conclusion

Forensic dentistry plays an important role not only in interpersonal violence, mass disasters, accidents etc., but also helps in identification of decomposed and charred bodies. Forensic odontology aids in individual identification and thus playing an important role in forensic sciences. It is the social responsibility of each dentist to maintain dental records of their patients for the noble social cause of identification. Strengthening forensic odontology in an Undergraduate course may help general dentists to provide better service, if required, in the absence of a forensic odontologist.

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