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## Research Article

### AWARENESS OF FORENSIC DENTISTRY AMONG DENTAL STUDENTS AND PRACTITIONERS IN AND AROUND KANCHIPURAM DISTRICT

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Forensic Odontology, Knowledge, Case Records, Identification of Individuals, lip prints.

#### ABSTRACT

**Objective:** The aim of the study is to evaluate the knowledge, attitude and practice of forensic dentistry among dental students practitioners in and around kanchipuram district.  
**Materials and Methods:** A cross-sectional study was conducted in a sample of 903 dental students and practitioners in and around kanchipuram district and data was collected by means of a questionnaire.  
**Results:** Our study shows 68% of knowledge is from internet and 41.4% is from book, 87.4 % of people reported that it is important to know about forensic dentistry, 83.7 % report that forensic is useful in identifying criminals, 80.6% reported that it is important to maintain the clinical record of the patient, 81.5% reported that we can identify the age from forensic odontology, 78.6% people reported that DNA, finger prints and teeth can be used to identify the individuals, 50.2% reported that fragmented bodies decently, the evidences and materials for toxicological analysis, dental records are used to identify the age and gender of the person during the mass disaster, 25.4% reported comparing post and antimortam dental data for identification of individual, 50.8% reported that lip prints are study of chelioscopy, 17% of people underwent formal training, evaluating and presenting dental evidence, 60% reported lip prints are unique as finger prints.  
**Conclusion:** the study revealed inadequate knowledge, poor attitude and lack of practice of forensic odontology prevailing among the dental students and practitioners in and around kanchipuram district

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#### INTRODUCTION

Forensic dentistry is a branch of dentistry which includes legal and law related issues. The term 'Forensic' is derived from 'forensis' which in turn is derived from the word 'forum' (1). The term Forensic odontology is a branch of forensic medicine that deals with , examination, proper handling and presentation of dental evidence in the best interest of justice (2). Forensic dentistry includes comparison of ante and postmortem records, in identification of individuals in mass disaster, also in determination of child abuse, bite marks and gender etc (3).

Sansare & Dayal were the first in India to report forensic dental identification in 1995 (1). They reviewed and stated that, "M. Raja Jayachandra Rathore was identified using false anterior teeth ,who died in 1191 on the battlefield" (1). In India, only few Forensic odontologists are well trained and qualified. Due to lack the of knowledge, training, exposure, an

experienced dentist fails to implicate these in their day today practice. Dentist who are attached with dental college update their knowledge (latest news, articles, etc...) constantly but their interest is dubious.

Ethical and legal responsibility for patient care in our profession is by maintaining patient record, which contains subjective and objective information (4).

Keeping this as the background, the present study was conducted to evaluate the knowledge, attitude and practice of forensic dentistry among dental students and practitioners in kanchipuram district.

#### MATERIALS AND METHOD

Dental students and Dental practitioners in and around kanchipuram dist

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### Data collection

A preframed questionnaire was designed for dental students and practitioners whom might encountering forensic cases in day today practice.

A cross sectional study was conducted among 903 dental students and practitioners in and around kanchipuram dist. Data was collected in personalized manner .The question was framed to assess the knowledge, attitude and practice of forensic dentistry.

### The question was framed

1. On knowledge, practice, important of finger prints, bite marks, chieloscopy and training of forensic odontology.
2. Practices about maintenance dental records and attitude of the practitioner towards maintenance of dental records.

**Table 1** Questionnaire used in the study

- 1) Your source of knowledge about forensic dentistry is from  
a) Book b) Internet c) Others d) I don't know e) No Knowledge
- 2) Is it important to know about forensic dentistry for dental practitioners  
a) Yes b) No c) I don't know
- 3) Is forensic odontology useful in identifying the criminals  
a) Yes b) No c) I don't know
- 4) Is it important for dental practitioner to maintain their patients clinical record, If so, How long  
a) Yes b) No c) I don't know d) Time duration ( )
- 5) A persons teeth are as important, as individuals fingers. Is this statement true  
a) Yes b) No c) I don't know
- 6) Do you think that forensic odontology is the application of dental science, used in investigation  
a) Yes b) No c) I don't know
- 7) Can we estimate the age from the forensic odontology?  
a) Yes b) No c) I don't know
- 8) To identify an individual which of the following can be used  
a) DNA b) Finger print c) Teeth d) All the above e) I don't know
- 9) In mass disaster how you will identify the age and gender of a person  
a) Reconstruct the fragmented bodies decently  
b) To collect the evidences and materials for toxicological analysis  
c) Dental record d) All the above e) I don't know
- 10) Analysis and identification of bite marks are done on  
a) Human tissue b) Inanimate objects c) Food stuff d) All the above e) I don't know
- 11) Which is the step in comparative dental identification

- a) Comparing post and antimortam dental data b) Asking patient relatives  
c) Comparing with Herditary pattern d) All the above  
e) I don't know
- 12) Are you aware that CHEILOSCOPY is a study of  
a) Lip prints b) Bite marks c) Scratch marks  
d) finger prints e) I don't know
- 13) Did you undergo any formal training in collecting, evaluating and presenting dental evidence  
a) Yes b) No c) I don't know
- 14) Are lip prints are unique as finger prints  
a) Yes b) No c) I don't know
- 15) Are you aware of different pattern of lip prints  
a) Yes b) No c) I don't know

### RESULTS

#### *Your source of knowledge about forensic dentistry is from*

68% of knowledge is from internet and 41.4% is from book and 6% of people dosent have any knowledge about forensic dentistry.

#### *Is it important to know about forensic dentistry for dental Practitioners*

87.4 % of people reported that it is important to know about forensic dentistry and 9.7 % reported they don't know about importance of forensic dentistry. Yes it is important to know about forensic dentistry in day today practice.

#### *Is forensic odontology useful in identifying the Criminals*

83.7 % report that forensic is useful in identifying criminals, 12.6 % reported they don't know.

#### *Is it important for dental practitioner to maintain their Patients clinical Record*

80.6% reported that it is important to maintain the clinical record of the patient and 16.2% reported I don't know, 81.2 % don't know about the duration of retaining the case sheet and 4.7 % reported that minimum of 5yrs case sheet should be maintained.

#### *Do you think that forensic odontology is the application of dental science, used in Investigation*

80.5 % reported yes that forensic odontology the application of dental sciences, used in investigation nd 16.4% don't know about it.

#### *Can we estimate the age from the forensic odontology?*

81.5% reported that we can identify the age from forensic odontology and 3.2 % reported we cannot estimate the age and 15.3 % reported they don't know that we can estimate age from forensic.

#### *To identify an individual which of the following can be used*

78.6% people reported that DNA, finger prints and teeth can be used to identify the individuals.

#### *In mass disaster how you will identify the age and gender of a person*

50.2% reported that fragmented bodies decently, the evidences and materials for toxicological analysis, dental records are used to identify the age and gender of the person during the mass disaster. 18.9 % of people reported they don't know about it.

#### ***Analysis and identification of bite marks are done on***

45.1% of people reported that human tissue, food particles and inanimate objects are used in bite mark analysis .and 21% people don't know about the bite marks.

#### ***Which is the step in comparative dental identification***

25.4% reported comparing post and antimortam dental data, 5.3% by comparing the hereditary pattern, 5.4% by asking the patient relatives and 33.9% reported all three are used for dental identification.

#### ***Are you aware that CHEILOSCOPY is a study of***

50.8% reported that lip prints are study of chelioscopy and 35.4% don't know about the chelioscopy.

#### ***Did you undergo any formal training in collecting, evaluating and presenting dental Evidence***

Only 17% of people underwent formal training, evaluating and presenting dental evidence. Other people who participate in the study have no knowledge about it. And it is important to undergo formal training.

#### ***Are lip prints are unique as finger prints***

Yes lip prints are unique as finger prints, 60% of people reported yes and 19% of people they don't know about lip prints.

#### ***Are you aware of different pattern of lip Prints***

50% of people are aware of different types of lip prints and other they don't know about lip prints.

## **DISCUSSION**

Forensic odontology is an important branch of the study of dentistry that would assist in solving forensic cases. Greater knowledge and awareness of forensic odontology among the dental practitioners would be required in the growing field of medicine.

The practice and importance of forensic dentistry has developed in countries across the world. But in developing countries like India, it is yet to gain full momentum. The death toll in India due to the tsunami in 2004 was more than 15,000[5] but it is a question left unanswered, whether all victims were identified. This could have been made possible if there were adequate forensic odontologists for identification of the victims.

The law enforcement authorities in India usually seek the help of dental surgeons in government service rather than dental practitioners who have degrees in forensic odontology, who are not in government service. The outcome is that there is death of qualified forensic odontologists in India, which is evident by the rare instances wherein forensic odontology has been applied successfully in solving criminal cases or to identify the deceased. In assassination of the former Prime Minister of

India, Mr. Rajiv Gandhi, where the forensic odontologists had played a very valuable role and reported successfully (6)

This study was conducted among the dental students and practitioners to assess their awareness about forensic odontology. The results show that the knowledge of forensic odontology among the dental practitioners is not adequate. The significance of forensic odontology can be attributed to the ability of the dental tissues to withstand environmental assaults and still retain some of its original structure. This makes teeth an excellent and an accurate source for DNA material.[7] Even the few practitioners who were aware of this, answered more by their knowledge that was gained through the books.

Forensic dentists who are associated with identification of the deceased and crime investigations are usually required to provide testimony in the court of law in the capacity of an 'expert witness'. [8] Nearly one-third of the respondents were not aware that they could testify as an expert witness in court to present forensic evidence, while a few were not willing to testify even if called upon, according to this study.

Age is one of the essential factors in establishing the identity of a person. Estimation of the human age is a procedure adopted by anthropologists, archaeologists and forensic scientists.[9,10] This has helped forensic odontologists to solve cases in countries abroad, and could similarly play a very important role in solving cases in India. But nearly half of the practitioners did not know how to estimate the dental age by examining the teeth. The reasons for this could be multifactorial, either their ignorance/lack of basic knowledge or lack of confidence in answering this question, apart from not knowing the significance of dental age with regard to forensics

To identify the biter, the teeth can also be used as weapon and, under certain circumstances. Analysis of bite marks is one of the major responsibilities of a forensic dentist.[11] Although reports show that the majority of victims sustain injuries in the head and neck region, few dentists recognize domestic violence as a problem that their patients encounter and fewer have protocols in place to facilitate intervention. Reasons commonly cited for a dentist's failure to report are lack of education about the signs and symptoms of abuse and neglect, ignorance of the reporting procedure and concern about making a false accusation and disrupting the dentist's relationship with the family.

The identification of a large number of casualties in mass disasters is complex and fraught with hazards, both physically and emotionally. When badly decomposed, burned, or skeletonised remains are found by law enforcement or members of the public, a forensic anthropologist can be used. [12] Most of the dental students and practitioners in the study were not aware of the methods to identify the age and gender of the deceased individuals, which is where the most vital role of a forensic odontologist comes into play.

The dental record serves a purpose of future reference for the practitioners when needed, and is not always maintained for a forensic purpose. It is also maintained as consumer court evidence and for dental insurances.[13] There has been an increasing awareness among the public regarding legal issues involving healthcare, which warrants for any dental practitioner to have a thorough knowledge of dental record issues.[13]

Whether the records maintained by practitioners are complete and useful for forensic odontology would be a valid question to consider . The majority of the dental practitioners were aware of the significance of maintaining dental records. Only very few practitioners maintain complete records and very few know the duration of dental record maintenance as stated by the law, which is a minimum of seven years to a maximum of ten years.[14]

The study shows clearly that there is a general lack of knowledge and practice of forensic odontology among dental practitioners in India.. There are very few institutions offering formal training in forensic odontology. Most of the practitioners had no formal training. There are no fully equipped labs for forensic odontology in India. Forensic odontology was not included as a part of our academic curriculum until recently. There are very few workshops or conferences that have been conducted in forensic odontology per year for dental surgeons, which could kindle an interest among the students to probe deeper into the subject.

## CONCLUSION

This study, conducted among 903 dental students and practitioners regarding their awareness about forensic odontology, revealed inadequate knowledge, poor attitude and lack of practice prevailing among these study subjects. This study reflects the current situation of our country in the field of forensic odontology.

This condition, however, could be improved if necessary steps are taken to make forensic odontology a part of our course. In addition, periodic conferences and seminars if conducted would help the dental practitioners and students enrich their knowledge about forensic odontology.

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