

Awareness On the Importance of Forensic Odontology in the Dental Curriculum

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Abstract

Introduction:Forensic dentistry or forensic odontology is the branch of dentistry that deals with legal issues. Forensic odontology is a branch of dentistry that deals with legal issues.Forensic dentistry is now an integral part of forensic medicine over the last 100 years. It may also be subcategorized into forensic-odonto-toxicology, which deals with cases of poisoning, but this field has yet to gain global popularity.Materials And Methods:Self-administered questionnaire was designed On the topic "Awareness on the importance of forensic Odontology in the dental curriculum " The questionnaire was distributed through a google forms link. The study population also included 130 post graduate dental students.Results:In the present study 68.5% were aware about Barr bodies,In the present report, 56.2 %of the individuals decided that keeping records would be useful for forensic identification experts Conclusion:The present study concludes that there is a moderate awareness on the importance of Forensic Odontology in the dental curriculum.

Keywords: Dental curriculum, Forensic Odontology, Awareness, Innovative study

1. Introduction

The term "forensic" comes from the Latin word "forensis," which comes from the word "forum," which refers to a place where legal issues are debated(1) Forensic dentistry or forensic odontology is the branch of dentistry that deals with legal issues(2). Forensic odontology is a branch of dentistry that deals with legal issues(3). It's one of the fastest-growing areas of forensic medicine, and forensic science(4). In the interests of justice, forensic odontology is described as the branch of dentistry that deals with the proper handling and analysis of dental proof, as well as the evaluation and presentation of dental findings(5) For several years, this relatively small subfield of forensic science has been used, mostly in the area of establishing identification in natural and man-made disasters(6). Since then, the number of reported cases has grown to such an extent that the term "forensic dentistry" is becoming familiar not only to the dental profession but also to law enforcement agencies and other forensic groups(7). The first forensic dental

identification in India was reported in 1995.(8)

Forensic dentistry is now an integral part of forensic medicine over the last 100 years(9). It may also be subcategorized into forensic-odonto-toxicology, which deals with cases of poisoning, but this field has yet to gain global popularity(10). Forensic dentistry plays an important role in the criminal, monetary, marital, social, burial and identification of long-term missing persons In addition to having a broad background knowledge of general dentistry, a general dentist should also have basic knowledge of the role of a forensic pathologist, the methods used in autopsy, the role of a dentist in the identification of a person, and the importance of maintaining dental records for all patients(11).Regrettably, there are very few qualified forensic dentists in India(12). This is likely due to a lack of proper awareness; neither the government nor the people have fully understood the role that a forensic dentist can play.

This study aims to evaluate the importance of Forensic Odontology in the dental curriculum

2. Materials and Methods

Study design

A cross sectional study was conducted through an online survey from February to April 2021 among undergraduates.

Study subjects

A simple random sampling was used to select the study participants. All the dental students who were willing to participate were included.

Ethical considerations

Returning the filled questionnaire was considered as implicit consent as a part of the survey. Ethical approval for the study was obtained from the Institutional Review Board (IRB), Saveetha Dental College.

Study methods

Self administered questionnaire of close-ended questions was prepared and it was distributed among dental students from February to April 2021 through the online survey "google forms". The collected data were checked regularly for clarity, competence, consistency, accuracy and validity. Demographic details were also included in the questionnaire.

Statistical analysis

Data was analysed with the SPSS version (22.0). Descriptive statistics as percent were calculated to summarise qualitative data. Chi square test was used to analyze. Significant p value was set at ≤ 0.05

3. Results

Can teeth serve as a source of DNA?

130 responses

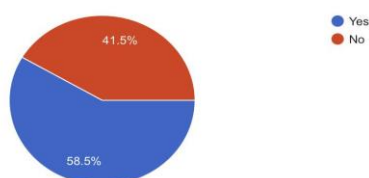


Fig 1 depicts the frequency of knowledge were 58.5%(blue) were aware and 41.5%(red) were not aware that teeth serve as a source of DNA

What is the first step for the mean of identification for unclaimed bodies?

130 responses

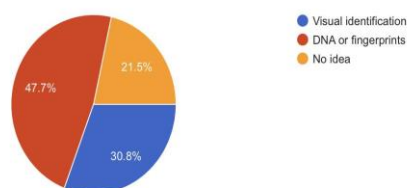


Fig 2 depicts the frequency of knowledge where 47.7%(red) think DNA and fingerprints followed by 30.8%(blue) think visual identification and 21.5%(orange) have no idea about the mean of identification for unclaimed bodies

Can sex determination be done using Barr bodies?

130 responses

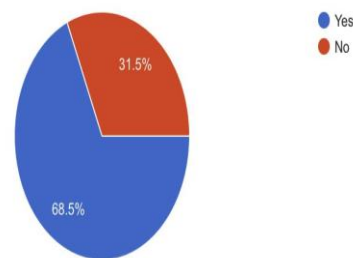


Fig 3 depicts the frequency of knowledge where 68.5% (blue) were aware and 31.5%(red) were not aware that sex determination can be done using Barr bodies

Can enamel/dentin act as an aid for identification of age?

130 responses

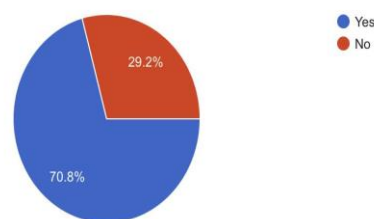


Fig 4 depicts the frequency of knowledge where 70.8% (blue) were aware and 29.2%(red) were not aware that enamel/dentin acts as an aid for identification of age

According to the DCI norms, forensic odontology is taught to BDS students in which year?

130 responses

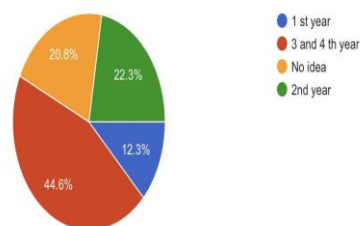


Fig 5 depicts the frequency of knowledge where forensic Odontology is taught to BDS students according to DCI norms 44.6%(red) think 3rd and 4th year, 22.3%(green) think 2nd years, 20.8%(orange) has no idea and 12.3% think 1st year As the year were forensic Odontology is taught

Do you know about any criminal case solved with the help of forensic odontology?

130 responses

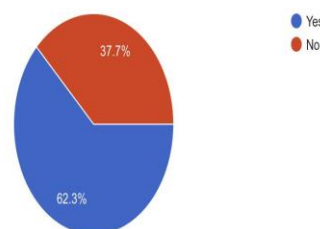


Fig 6 depicts the frequency of knowledge where 62.3%(blue) had the knowledge and 37.7%(red) does not have knowledge about criminal case solved with the help of forensic odontology

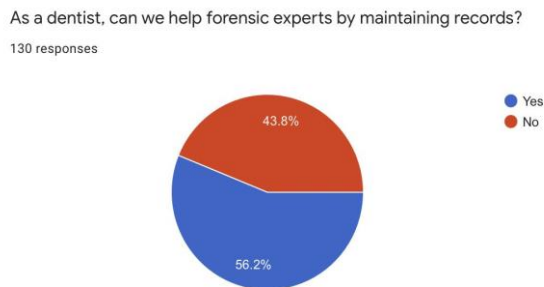


Fig 7 depicts the frequency of awareness regarding the importance of record maintenance were 56.2%(blue) agreed and 43.8%(red) disagreed

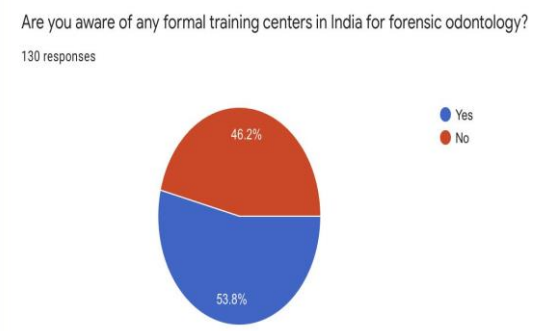


Fig 8 depicts the frequency of knowledge where 53.8% (blue) were aware and 46.2% (red) were not aware of any formal training centres in India for forensic Odontology

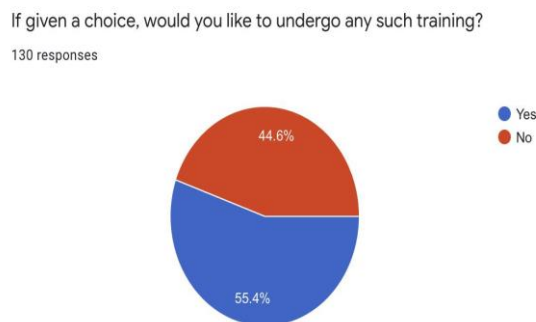


Fig 9 depicts the frequency of interest where 55.4% (blue) were interested and 44.6% (red) were not interested to undergo such training

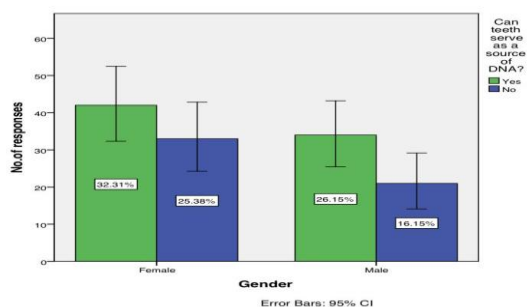


Fig 10: Bar chart represents the knowledge on teeth serving as a source of DNA. X axis represents the gender, Y axis represents the number of responses for Yes (green), No (blue). Gender was significantly associated with the knowledge of tooth as a source of DNA. Pearson chi square test value p value 0.003(<0.005) which is statistically significant. Majority of female participants had the knowledge that tooth serve as a source for DNA

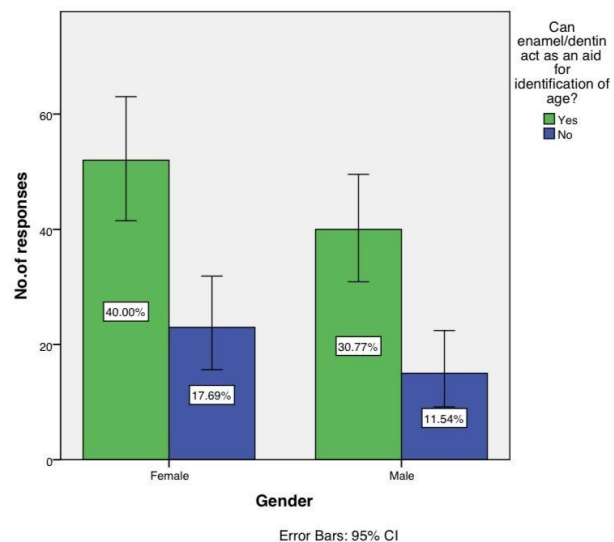


Fig 11: Bar chart represents the knowledge on enamel/dentin acting as an aid for identification of age. X axis represents the gender, Y axis represents the number of responses for Yes (green), No (blue). Gender was significantly associated with the knowledge on enamel/dentin acting as an aid for identification of age. Pearson chi square test value p value 0.001(<0.005) which is statistically significant. Majority of female participants had the knowledge that enamel/dentin acted as an aid for identification of age.

4. Discussion

The questionnaire was attended by 130 participants and results of the data was presented as follows, Out of which 58.5% were aware that the teeth serve as a source of DNA and the rest were not aware (fig 1). Similar result was obtained in a study conducted by Ankita Sahni et al where 95% were aware that teeth serve as a source of DNA. This dental property makes it an impressive and reliable source of DNA. Most of the procedures require nuclear DNA, but mitochondrial DNA can also be used, which is more prevalent in tissues and can be used where nuclear DNA is not sufficient (13)

Human identity is one of the most difficult topics in the world of forensic dentistry. DNA and fingerprints remain the first and tentative phase in the identification of the unclaimed person. In the present poll, 47.7% of the respondents were in favour of it (fig 2). Opposing result was obtained in a study conducted by Ankita Sahni et al

68 % were in favour of visual identification. The identity of an individual is compulsory for personal, social and legal purposes. Therefore, the detection of a person is one of the major focuses of forensic dentistry. (14)

Barr is an inactivated X-chromatin that is found in females towards the nuclear membrane. These are present in 40% of females who are considered to be chromatin positive but are absent in males who are considered to be chromatin negative. The sex determination of human tooth pulp in cadavers is possible for up to 4 weeks (13). In the present study 68.5% were aware about Barr bodies (fig 3). An opposing result was obtained in a study conducted

by Ankita Sahni et al where 72% are not aware about Barr bodies

Tooth serves as a reliable method for determining the age of most anthropologists, historians and forensic odontologists(15). In the present study 70.8% were aware that enamel and dentin act as an aid for identification of age (fig4).

With respect to the incorporation of forensic dentistry in the dentistry curriculum, only 66% of respondents were aware in this survey that, according to the Indian Dental Council (DCI), forensic dentistry curricula should be taught in second, third and final years of the Bachelor of Dentistry (BDS) degree. (fig 5)

TV serials, radios, the internet, etc., have proven to be the basis of information for 92 per cent of the respondents to this survey. Journals and publications remain one of the most accurate and correct sources of this information(16) According to this poll, 37.7% participants do not refresh themselves by reading forensic-related articles or publications (fig 6). An opposing result was obtained in a study where 92% participants did not refresh themselves by reading forensic-related articles or publications.

In the present report, 56.2 % of the individuals decided that keeping records would be useful for forensic identification experts(fig7). Dentists should be mindful not only of the importance of preparing reliable dental records, but also of the importance of maintaining these records(17)

Only 53.8% of the respondents were aware of any formal training centers in India (fig 8). An opposing result was obtained in a study where only 26% respondents were aware.

In India, a few forensic odontologists are educated and certified from foreign countries, whose credentials have only recently been recognised by the Government of India. Most of the respondents were interested in receiving all such experience, but few of them were not due to lack of time and interest (fig 9).

Our team has extensive knowledge and research experience that has translated into high quality publications

(18),(19),(20),(21),(22),(23),(24),(25),(26),(27),(28),(29),(30),(31),(32),(33),(34),(35),(36),(37)

5. Conclusion

The present study concludes that there is a moderate awareness on the importance of forensic Odontology in the dental curriculum. The present survey revealed that two parameters that were evaluated in the survey were awareness and interest, which are interrelated but were found to be moderate.

6. Acknowledgement

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7. Conflicts of Interest

None to declare

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