



Recording and maintenance of dental records by private dental practitioners in Tamil Nadu, India. The need of the hour

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Abstract

Maintaining dental records is a social responsibility of the dentist as it plays a major role in identifying victims during disasters and as legal evidence. This study was done to assess the practice of recording and maintenance of dental records by the private dental practitioners in Tamil Nadu, India. 800 private dental practitioners participated in the study. A pretested closed ended questionnaire which had 23 questions organized into 4 sections; general information, dental documentation, dental record maintenance and awareness about forensic odontology was used. Frequency distribution was calculated for the collected data. All(100%), dentists recorded basic demographic details. 71.3% are aware that dental records are useful in identifying the deceased and crime suspects. 89.9% of them maintain their records. 11.1% of the dentists update their dental records at each dental visit and 32% dentists alone record complete dentition status. The majority of them are aware of child abuse, bite marks and take necessary action. Dentists are aware of forensic dentistry but there is negligence in maintaining dental records. Regulatory bodies and policy makers can plan and implement strategies that will assist dentists to maintain dental records.

Keywords: crime; forensic dentistry; documentation; surveys and questionnaires; disaster

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1. Introduction

Forensic odontology is defined as a branch of dentistry, which in the interest of justice, deals with proper handling and examination of dental evidence and the proper evaluation and preservation of dental findings [1-2]. Forensic odontology plays an important role in identifying victims in disaster using dental records, child or adult physical abusers, estimating the age and gender of living or deceased and provides dental evidence in the court of law [3-4]. Dental documentation consists of medical and dental history, clinical oral health status, intra and extra oral radiographs, dental casts and signed informed consent [5-7]. Maintenance of good dental records is helpful not only in clinical practice but also in forensic science as teeth play an important role because of its long lasting and hardness [5]. In most developed countries forensic odontology has attained its importance, but in developing countries like India, it is yet to gain full attention. Legal authorities in India seek help from dental surgeons working in government sector than private dental practitioners [8]. This study was undertaken to know the practice of private dental practitioners in maintaining their

dental records and also to assess their cognizance towards forensic odontology in Tamil Nadu, India.

2. Materials and Methods

This study was conducted using a structured pretested questionnaire which was formulated in English and validated through a pilot study. Prior to the study, ethical clearance was obtained from the Institutional Human Ethical Committee of Sathyabama Institution of Science and Technology, Chennai (Sathyabama University/IHEC/Study no 009). The questionnaire consisted of 23 questions with single, multiple and close-ended questions. The questions were organized into four sections as given below.

General information:

The first section of questions was focused to obtain information on age, gender, degree, qualified degree, work experience in years and the location of private dental practice.

Dental documentation:

Second section question's on dental record documentation focused on the practice of recording complete case history which includes demographic details of the patients, their medical history and complete dental findings of the patient, radiographs and photograph documentation.

Dental record maintenance:

Third section questions address about the maintenance of dental records by the dentists and the years of maintenance.

Awareness of forensic odontology:

This section focused on questions related to the perception and practice of forensic odontology among dentists. This includes the knowledge, attitude and practices about the significance of dental records, identification of child abuse, dental age estimation, identification of an individual, bite marks and as a witness in the court and lip prints along with the demographic data. The questionnaire was face validated for content by an expert panel which consists of two Public health dentist, an Oral pathologist, a forensic dentist scholar and a social worker. The necessary modifications like adding "don't know" options were added to certain questions as recommended by the experts in order to avoid interviewer bias. 800 dentists from 8 districts in Tamil Nadu (100 dentists from each district namely, Chennai, Madurai, Coimbatore, Trichy, Namakkal, Kanyakumari, Thirunelvely and Vellore) who were willing to participate after the investigators approached them in person were included in the study. The participants were informed about the study and a written consent was obtained before the start of the study. The data was compiled in Microsoft excel sheet 2010 and transferred to version 20 SPSS Software. Frequency distribution was calculated.

Results:

General information:

586(73.25%) of the study population are males, 477(59.6%) belong to 25 to 35 years age, 234(29.25%) belong to 35 to 50 years and 89(11.1%) belongs to 50 to 65 years. 324(40.5%) of the study participants had less than 5 years clinical practice, 234(29.2%) had 5 to 10 years practice and 200(25%) had more than 10 years practice.

Dental documentation:

Table 1 shows, 544 (68%) of dentists records findings related to chief complaint alone. 547 (68.3%) of dentist record extra and intra oral radiograph.

Maintenance of dental records:

All dentists, irrespective of the qualification and years of clinical practice experience record patient's basic dental details when the patient first comes to the dental clinic. 719 (89.88%) dentists maintain dental records of which majority has less than 5 years clinical practice experience. (Table 2).

Cognizance about forensic dentistry among dentists:

Table 3 and 4 shows the cognizance of dentists regarding forensic dentistry. 571 (71.3%) of dentists are

aware that the dental records are useful in identifying the deceased and crime suspects. 514 (64.2%) have formal training in dental evidence.

Discussion:

Today, patient's awareness about the medico-legal act has increased leading to lodgement of more cases of dental malpractice. A written case record or written informed consent or patient radiographs have more weightage when presented in the court of law. Therefore, it is inevitable for dental practitioners to maintain dental records [9]. This dental records also play a vital role in forensic dentistry in identifying victims in disaster using dental records, physical child or adult physical abusers, estimating the age and gender of living or deceased and provides dental evidence in the court of law [3-4]. This study was undertaken to evaluate how good the dentists are in maintaining their patient records. From the results, it is evident that all dentists in Tamil Nadu, India record required basic demographic details. 89.9% of the dentists maintain their records. Similar study done in Tamil Nadu, India in 2011 reports that 79% of the dental practitioners maintain their records of which only 12% maintain complete dental records [10]. Even after more than a decade and increase in health informatics in dentistry, it's surprising to note that there are dentists who are needed to be encouraged to maintain their dental records. Dental records should provide an update on the oral status of the patients like, number of teeth present, decayed, missing and filled tooth, tooth wear, extractions etc [9]. Although, 748 (93.5%) of dentists record dental caries status and 673 (84.12%) dentists record missing teeth status, it is worrisome to note that 68% of the dentists record finding related to chief complaint alone. 71.3% dentists are aware that the dental records are useful in identifying the deceased and crime suspects. It is observed in the present study that 68.6% of the dentists maintain their records less than 3 years and only 31.4% maintain records more than 3 years. A study done in Kanpur in India in 2014 reports that 12.2% of the dentists maintain their dental records [11]. With only 11.1% of the dentists updating their dental records at each dental visits and 32% dentists recording complete dentition status, the documentation by the dentists in this study becomes less significance of use for the forensic sciences [12]. The majority of the dentists in this study are attentive in identifying child abuse and take necessary action. Indian studies done in Punjab (2019)[11], Rajasthan (2021)[13] supports the findings of this study. It is also found in this study that most of the dentists are aware of bite mark pattern of teeth, age and gender estimation using teeth and the use of lip prints for evidence [12].

Forensic odontology gained its importance as a unique discipline after the identification of fire accident victims in Paris, France by Dr. Oscar Armada in 1898 [14]. Since then it gained a reputation in identifying individuals in mass disasters as well as legal crime cases. Forensic dentistry will achieve success only if the dental professionals maintain their records. This study shows the lack of practice of forensic dentistry among private dental practitioners.

Table 1: Documentation of dental findings

Demographic details (Name, age, sex, education, address, contact number)		800 (100%)
Medical/dental history	Record at first visit alone	685 (85.62%)
	Will update at each visit	115(14.37%)
Complete oral examination record	On first visit alone	711 (88.87%)
	Will update at each visit	89(11.12%)
Dentition status record	Tooth wear	69 (8.62%)
	Dental trauma	33 (4.12%)
	Dental anomalies	16 (2%)
	Tooth number	97 (12.12%)
	Occlusion status	156 (19.5%)
	Decayed tooth	748 (93.5%)
	Diastema	118 (14.75%)
	Filled tooth	24 (3%)
	Missing tooth	673(84.12%)
	Findings related to chief complaint alone	544(68%)
Radiographs commonly taken	Intra oral periapical radiograph	697 (87.12%)
	Orthopantomogram	367 (45.87%)
	No radiographs	8(1%)
Photographs (intra oral and extra oral)	Yes	547(68.3%)
	No	253(31.6%)

Table 2: Maintenance of dental records

		N(%)
Do you maintain the dental records?	Yes	719(89.9%)
	No	81(10.1%)
What are the dental records you maintain regularly?	Patient details	150 (18.8%)
	Medical history	47 (5.9%)
	Family history	29 (3.6%)
	Clinical findings	105 (13.13%)
	Treatment plan	91 (11.4%)
	Photographs	27(3.4%)
	Study casts	68(8.5%)
	Radiographs	38(4.8%)
	Investigation findings	85(10.6%)
	Treatment log book	160(20%)
Duration of maintaining dental records regularly	<3 years	549(68.6%)
	>3 years	251(31.4%)

Table 3: Cognizance about forensic dentistry among dentists

		N(%)
How will you identify physical/neglected/sexual/psychological abuse of a child?	Physical injuries	300(37.5%)
	Behavioural changes	277(34.6%)
	Any scars	152(19%)
	Clothing	14(1.7%)
	Don't know	13(1.6%)
What action you take when you come across symptoms of child abuse?	Child counselling	334(41.8%)
	Ask questions to parents	193(24.1%)
	Medical examination of child	133(16.6%)
	Neglect	25(3.1%)
	Lodge complaint in helpline	78(9.8%)
Don't know	37(4.6%)	
How will you estimate the age of an individual by examining the teeth?	Dental age	297(37.1%)
	Chronological age	418(52.2%)
	Don't know	85(10.6%)
What is the most accurate and sensitive method to identify an individual?	Visual identification	283(35.4%)
	Finger prints	179(22.3%)
	Physical anthropological examination of bones and teeth	25(3.1%)
	Serological comparison	71(8.9%)
	DNA comparison	229(28.6%)
	Don't know	12(1.9%)
Are you aware about the bite mark pattern of teeth?	Yes	574(71.7%)
	No	226(28.2%)
How is the age and gender of the deceased identified?	Jaw examination	213(26.6%)
	Erupted teeth examination	329(41.1%)
	DNA examination of teeth	108(13.5%)
	Don't know	150(18.7%)
Can lip prints be used to present dental evidence?	Yes	507(63.3%)
	No	182(22.8%)
	Don't know	111(13.8%)

Table 4: Cognizance about forensic dentistry among dentists

Are the dental records useful in identifying the deceased and crime suspects?	Yes	571(71.3%)
	No	154(19.2%)
	Don't know	75(9.2%)
Did you have formal training in dental evidence?	Yes	514(64.2%)
	No	286(35.7%)
Have you ever been as a witness in the court to present forensic dental evidence?	Yes	201(25.1%)
	No	599(74.8%)

4. Conclusions

The current study conducted among 800 dentists in Tamil Nadu, India to assess their cognizance about forensic odontology and maintenance dental records reveals inadequate maintenance of dental records. It's a social responsibility of the dentists to maintain the dental records of each patient. Regulatory bodies and policy makers can plan and implement strategies to maintain dental records and updating the dental status of the patient at each visit, which may assist the dentist in maintaining their records.

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