



Research Article

Knowledge, attitude, and practices regarding clinical diagnosis and certification of death by dentists

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ABSTRACT

Objectives: The medical officers play a major role in certification of death. In the year 2014, the Dental Council of India revised the Dentist's (Code of Ethics) Regulation that enables a dentist to issue a death certificate if a patient dies during procedure. This survey was undertaken to assess the knowledge, attitude, and practices regarding clinical diagnosis and certification of death by clinical dental student, dental house surgeons, postgraduate students, and dental faculty.

Materials and Methods: A cross-sectional questionnaire-based study was carried out in two dental colleges in central Kerala. A prefabricated validity tested questionnaire consisting of 16 questions assessing the knowledge, attitude, and practice was used for the study. Results were expressed as number and percentage of respondents for each question and were analyzed using the SPSS Version 17 software. Chi-square test was used for inferential analysis.

Results: The total sample size was 329. About 53% knew that dentists could certify death, of whom 9% knew that was the only circumstance for a dentist to certify death. About 13% of the respondents knew the criteria of clinical diagnosis as outlined by the WHO criteria. About 92% opined that there is a need for dentists to be trained on this topic. Only 20% felt that the present undergraduate curriculum is competent enough to enable dentist to certify death.

Conclusion: The study reveals the lack of knowledge among the dental fraternity regarding the clinical diagnosis and certification of death. With dental undergraduate curriculum competent enough to provide the dentists with knowledge regarding its allied aspects, incorporation of the same in the present curriculum could play a significant role in enabling dentists to clinically diagnose and certify death.

Keywords: Clinical diagnosis of death, Death certification, Dental faculty, Dentists

INTRODUCTION

Birth and death are the two most important events in the life of any individual. The existence of a person starts at the moment of birth and ceases at the time of death. The legal existence of a person is the interval between the recorded birth and death timings. The recording of births and deaths is also a part of vital statistics collected about a population, which forms the foundation of planning various government run programs.^[1]

In India, with the passing of the act – Registration of Births and Deaths Act – in 1969, registration of these events is mandatory.^[1] Regarding the registration of death, not only the occurrence but also the cause of death is equally important. For registering a death, identity of the deceased, date

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and time of death, and cause of death are to be provided to the registering authorities. Death cannot be registered if any of these details are not available.^[1]

The structure of the modern society has necessitated death to be authenticated by the medical profession. Therefore, it becomes the responsibility of the doctors to carry out this with all fairness and pragmatism.^[2]

The medical officers play a major role in certification of death. When confronted with “death” of a person, the medical officer has two tasks at hand. The first is to diagnose the occurrence of death and declare the person dead. The second is to decide the cause of death and certify the same.^[1]

In the year 2014, the Dental Council of India revised the Dentists (Code of Ethics) Regulation. One of the major highlights of the regulation is that the “Dental practitioner shall issue death certificates if a patient dies during the procedure.”^[3] Hence, this study was undertaken with an objective of assessing the knowledge, attitude, and practices regarding clinical diagnosis and certification of death among dental students and faculty in Central Kerala, India.

MATERIALS AND METHODS

The study was a cross-sectional questionnaire-based survey. The target population was the clinical dental students (3rd year and final year undergraduate students), house surgeons, postgraduate students, and teaching faculty of two dental teaching institutions in the state of Kerala, India. A prevalidated questionnaire was devised for use based on the previous studies.^[4]

The questionnaire was divided into two parts. The first part consisted on questions on professional data – designation/year of study of respondents. The second part consisted of 16 closed ended questions to assess the knowledge, attitude, and practices regarding certification of death. The questionnaire consisted of 10 questions assessing the knowledge, 3 questions on attitude, and 3 questions assessing the practice in relation to clinical diagnosis and certification of death. The questionnaire was fabricated in English language. The questionnaires were distributed by the house surgeons posted in the Department of Public Health Dentistry of these institutions. The respondents filled the answers in the questionnaire on their own and were asked to return the filled questionnaires immediately. The response to 10 questions was on a dichotomous scale and the rest 6 were multiple choice questions. The questionnaires were distributed in clinical dental departments. A voluntary informed consent was obtained from each participant before distribution of questionnaires. The investigators distributed the questionnaires and the respondents were asked to return the filled questionnaires immediately.

Necessary ethical clearance for the study was obtained from the Institutional Review Board from one institution and permission for conduct of study was obtained from both the institutions before data collection.

Statistical analysis

All returned questionnaires were coded and analyzed. Results were expressed as number and percentage of respondents for each question and were analyzed using the SPSS Version 17 software. Chi-square test was performed to compare the response in relation to year of study and designation; and the level of significance was set at $P = 0.05$.

RESULTS

The study was conducted among the clinical dental students (III year and final year BDS), house surgeons, postgraduate students, and teaching faculty of two dental teaching institutions in Kerala, India. All students and faculty present during the time of data collection were enrolled for the study. The final sample size was 329 out of a total strength of 365.

[Table 1] shows the profile of the respondents. More than half of the number of respondents were students of final year BDS (including both semesters – Part I and II). About 8.8% were teaching faculty.

[Table 2] shows the response to the questions assessing the knowledge, attitude, and practices regarding clinical diagnosis and certification of death by dentists. About 53% knew that dentists could certify death, of whom 9% knew that was the only circumstance for a dentist to certify death. The knowledge was significantly higher among the faculty compared to the students and house surgeons ($P < 0.001$). More than 75% opined that the absence of palpable pulse and no heart sounds on auscultation were the confirmatory signs for clinical diagnosis of death. The 3rd year BDS students had a significantly lower knowledge ($P < 0.001$). About 13% of the respondents knew the criteria of clinical diagnosis as outlined by the World Health Organization criteria.^[5] About 76% and 71% of the study subjects knew how to check for central pulse and pupillary dilatation, respectively. The faculty and postgraduate students had a higher knowledge compared to house surgeons and undergraduate students ($P < 0.008$). About 36% of the study participants knew the time required

Table 1: Respondent's profile.

Year of study/designation	Number of participants <i>n</i> (%)
III year BDS	55 (16.7)
Final year BDS	172 (52.3)
House surgeons	50 (15.2)
Postgraduate students	23 (7)
Faculty	29 (8.8)
Total	329 (100)

Table 2: Response to questions on knowledge, attitude, and practices regarding clinical diagnosis and certification of death by dentists.

Q. No.	Question	Options	Response n (%)	Chi-square value	P value
1.	Are you aware of the fact that dentists can certify death?	Yes No	176 (53.3) 153 (46.5)	$\chi^2=2.765$	$P=0.670$ (NS)
2.	If yes, under what all circumstances can a dentist certify death? (tick multiple options)	Unnatural death Medico legal cases Death in the dental office under treatment Death due to negligence Identity of deceased is unknown	35 (19.8) 37 (21) 103 (58.5) 19 (10.8) 7 (3.9)	$\chi^2=230.01$	$P=0.001$ (HS)
3.	What are the signs of death? (tick multiple options)	No palpable pulses No heart sounds Increased temperature No observed respiratory effort Pupils dilated and not reactive to light Pupils constricted and not reactive to light Cloudiness of the cornea	284 (86.32) 255 (77.5) 8 (2.4) 138 (41.9) 74 (22.4) 20 (6) 17 (5.2)	$\chi^2=230.639$	$P=0.001$ (HS)
4.	Do you know how to check for central pulse?	Yes No	252 (76.6) 77 (23.4)	$\chi^2=10.319$	$P=0.035$ (S)
5.	Where should you check for central pulse?	Wrist Neck Ankle Chest	48 (14.6) 264 (80.2) 3 (0.9) 14 (4.3)	$\chi^2=27.084$	$P=0.008$ (HS)
6.	Do you know to check for pupil dilation?	Yes No	234 (71.1) 95 (28.9)	$\chi^2=19.334$	$P=0.001$ (HS)
7.	How long does it take for rigor mortis to set in?	1-2 h 3 h 4 h Do not know	120 (36.5) 46 (14) 142 (43.2) 21 (6.3)	$\chi^2=63.547$	$P=0.001$ (HS)
8.	How much time does it take for the body temperature to drop completely following death?	2 h 4 h 6 h 8 h Do not know	105 (31.9) 117 (35.6) 52 (15.8) 35 (10.6) 20 (6.1)	$\chi^2=33.791$	$P=0.006$ (HS)
9.	Have you attended any course regarding how to confirm and certify death?	Yes No	19 (5.8) 310 (94.2)	$\chi^2=3.233$	$P=0.056$ (NS)
10.	Do you think any training is required for certifying death?	Yes No	302 (91.8) 27 (8.2)	$\chi^2=7.024$	$P=0.135$ (NS)
11.	How confident enough are you to certify death? Please rate yourself from 1 to 10	1-3 4-6 7-9 10	177 128 14 10	$\chi^2=3.140$	$P=0.596$ (NS)
12.	Have you ever been called upon to confirm death?	Yes No	28 (8.5) 301 (91.5)	$\chi^2=12.140$	$P=0.029$ (S)
13.	Do you know how to fill a death certificate form?	Yes No	6 (1.8) 323 (98.2)	$\chi^2=3.146$	$P=0.584$ (NS)
14.	Are you aware of the legal procedure to obtain a death certificate and the ones following certification?	Yes No	23 (7) 206 (93)	$\chi^2=10.547$	$P=0.032$ (S)
15.	Do you think the present undergraduate curriculum makes a dentist competent enough to confirm and certify death?	Yes No	68 (20.7) 261 (79.3)	$\chi^2=3.010$	$P=0.601$ (NS)
16.	Do you think it is necessary to provide a dentist the right to certify death?	Yes No	286 (86.9) 43 (13.1)	$\chi^2=2.010$	$P=0.791$ (NS)

for rigor mortis to set in. About 6% had attended a course related to death certification. About 92% opined that there is a need for dentists to be trained on this topic. About 20% felt that the present undergraduate curriculum is competent enough to enable dentist to certify death. Less than 2% knew the procedure of filling a death certificate. More than 85% felt that dentist needs to be given the right to certify death.

DISCUSSION

Death certificate has been used as a health indicator and as a monitoring tool for public health policy. It enables us to describe disease patterns within a specified population. Moreover, the absence of reliable data on causes of death impedes the structuring of health-related activities and can thus result in misleading appraisals of research and improper decisions regarding health care. To meet this need, medical students and interns are taught about death certificate all over the globe.^[6] The subjects of general medicine and general surgery are taught in the 3rd year bachelor of dental surgery course in India. However, the present dental undergraduate curriculum does not include the topic on clinical diagnosis of death and its certification.

The Dental Council of India, in the amendment of Dentists (Code of Ethics) Regulation, in 2014 has permitted a dentist to issue death certificate under a special circumstance only. However, this clause has not been very well understood among the dental fraternity. With this background, a study of this kind is warranted to assess the knowledge, attitude, and practices of dental students, house surgeons, and faculty on this topic. The study was conducted only among the clinical dental students of final year BDS course, as the topic is beyond the scope of preclinical students (the 1st and 2nd years BDS).

A thorough electronic literature search regarding this topic revealed no results of studies conducted among the dental fraternity. Many of the studies conducted were in relation to the medical fraternity and most of them focused on assessing the errors in certification^[6-8] rather than the objective of this study. However, a few studies have been conducted in this regard among the medical professionals in Palestine, Qatar, Bahrain, Nigeria.^[9-11]

Regarding the awareness, only over half of the number of respondents knew that dentists could certify death which itself highlights the gap in knowledge. A non-significant difference across various designations highlights the lack of awareness could be generalized among the dental fraternity. Of them over 40% did not know the circumstance in which a dentist could certify death. No palpable pulses and absence of heart sounds were the most common signs the study subjects knew regarding the clinical diagnosis of death. It is surprising that only 13% of the respondents knew all the criteria outlined by the World Health Organization^[5] for clinical diagnosis of death, of whom majority were postgraduates

and faculty. This further emphasizes the lack of competency in the current dental undergraduate curriculum. Over 75% knew where and how to check for central pulse and over 70% knew how to check for pupillary dilation. A significant lack of knowledge among the students of the 3rd year BDS (data collection was done during the initial months of their course) was particularly noted which could be because the topics of general medicine and general surgery were taught in the III year, justifying their lack of knowledge. The curriculum hence emphasizes on these aspects.

It is an important observation that only 8% had received a specific training in this regard. With only 3% having the highest level of confidence in this regard, about 80% agreeing to the lack of competency in the present undergraduate curriculum in this regard and about 87% opining the need for dentists to provide a right to diagnose and certify death, there seems to be a urgent need to revise the present undergraduate curriculum to include these competencies. With adequate training in this regard, a dentist could also be given the right to diagnose and certify death in all circumstances not necessarily restricting to death happening on a dental chair during treatment. The study also highlights the positive attitude of the respondents in this regard. Nonetheless, a small fraction (about 8.5%) has been called to certify death, may be because the general public considers dentists as doctors and hence believes that dentists have the right to certify death.

CONCLUSION

The study reveals the lack of knowledge among the dental fraternity regarding the clinical diagnosis and certification of death. With dental undergraduate curriculum competent enough to provide the dentists with knowledge regarding it allied aspects, incorporation of the same in the present curriculum could play a significant role in enabling dentists to clinically diagnose and certify death.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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