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Original Research

Awareness of forensic odontology and child abuse recognition among dentists

Aliye Tuğçe Gürcan[1,*], *Ezgi Tatli*[2], *Bugra Ozen*[3]

[1] *Department of Pediatric Dentistry, Faculty of Dentistry, Dokuz Eylul University, Izmir, Türkiye*
[2] *Private Pediatric Dentistry Practice, Istanbul, Türkiye*
[3] *Department of Pediatric Dentistry, Istanbul Health and Technology University, Istanbul, Türkiye*

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ABSTRACT

Objectives: This study assessed the awareness of dental students and practicing dentists in Turkey regarding forensic odontology and the recognition and reporting of child abuse.
Methods: A questionnaire-based cross-sectional study included 406 participants. The 31-item questionnaire covered forensic odontology, child abuse recognition, legal responsibilities, and reporting procedures. A certainty score was calculated from the objectively structured True/False/"I don't know" items (Q18–Q28), while the remaining items were analyzed descriptively. Descriptive and subgroup analyses evaluated associations between participant characteristics and certainty scores. Internal consistency was assessed using Cronbach's alpha.
Results: The mean certainty score was 5.08 ± 2.74 (range: 0–11), with no significant gender differences ($p > 0.05$). Cronbach's alpha indicated acceptable internal consistency ($\alpha = 0.74$). Many participants were uncertain about medico-legal aspects and reporting procedures. Reporting preferences varied across workplace settings, suggesting inconsistent knowledge of reporting pathways.
Conclusions: Although participants demonstrated a general awareness of forensic odontology and child abuse recognition, important uncertainties remained regarding medico-legal responsibilities and reporting procedures. These findings highlight the need to strengthen undergraduate and postgraduate education in forensic odontology and child abuse reporting within dental curricula. However, the findings should be interpreted in light of the study's exploratory nature and methodological limitations. (Rev Port Estomatol Med Dent Cir Maxilofac. 2026;67(x):1-10)

* Corresponding author.
E-mail address: aliyetugce.gurcan@deu.edu.tr / tugcetanyeri@gmail.com (Aliye Tuğçe Gürcan).
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Introduction

Child abuse and neglect represent major global public health concerns, with significant and long-term consequences for children's physical, psychological, and social well-being.[1] A substantial proportion of abuse-related injuries occur in the orofacial region, placing dentists in a unique position to identify early signs of maltreatment and contribute to its detection.[2–4] In addition to clinical recognition, oral health professionals play a critical role in the documentation, reporting, and medico-legal evaluation of suspected abuse cases. Dentists are considered authorized reporters who are able to recognize signs of abuse and neglect and to contribute to the confirmation of suspected maltreatment through clinical findings.[4]

Due to the nature of dental care, which involves repeated and long-term patient–clinician interaction, dentists may be uniquely positioned to observe both orofacial injuries and behavioral dynamics between children and their caregivers.[6,7] It has also been suggested that, although caregivers may change healthcare providers to avoid detection, they often continue dental visits with the same practitioner, further increasing the responsibility of dentists in identifying potential abuse cases.[8]

Forensic odontology extends beyond identification and encompasses a wide range of medico-legal responsibilities, including documentation, informed consent, and reporting. Dental professionals are expected to function as examiners in various forensic scenarios, applying their clinical expertise to support legal investigations in collaboration with other healthcare disciplines. In this context, dental neglect—defined by the American Academy of Pediatric Dentistry (AAPD) as the failure of a caregiver to seek or continue necessary dental treatment—represents an important component of child maltreatment, with indicators including untreated caries, pain, infection, and lack of follow-up care.[9]

In addition to clinical responsibilities, informed consent is a fundamental component of ethical and legal dental practice. The informed consent process ensures patient autonomy and supports effective communication between clinicians and patients or their legal guardians. According to international guidelines, including those of the AAPD and the British Society of Paediatric Dentistry, informed consent serves both clinical and legal purposes, ensuring that patients or their representatives are adequately informed and voluntarily agree to treatment.[10,11] Furthermore, maintaining accurate and comprehensive clinical records, including documentation of initial findings, procedures, and diagnostic records, is essential not only for patient care but also for medico-legal protection. These responsibilities require not only theoretical knowledge but also an awareness of the legal frameworks and ethical principles that guide professional practice. Importantly, such legal obligations are jurisdiction-specific and may vary across countries.

Despite the recognized importance of these roles, previous studies have demonstrated considerable gaps in the knowledge and awareness of dental professionals regarding forensic odontology and child abuse recognition.[12–14] Insufficient training, uncertainty in diagnosis, and lack of familiarity with reporting procedures have been identified as key barriers that may contribute to the under-detection and underreporting of abuse cases.

In Turkey, the limited availability of structured education in forensic odontology further complicates this problem.[15–18] Within the Turkish context, healthcare professionals, including dentists, are legally obligated to report suspected cases of child abuse under national legislation, including the Turkish Penal Code (Law No. 5237) and the Child Protection Law (No. 5395), as well as national guidelines issued by the Ministry of Health.[19–21] These regulatory frameworks highlight the importance of adequate training and awareness among dental professionals.

Given these challenges, there is an increasing need to evaluate the current level of knowledge and awareness among dental professionals. However, data regarding the preparedness of dental students and practicing dentists in Turkey remain limited. Therefore, the present study aimed to assess the awareness of forensic odontology and recognition of child abuse among dental students and dentists in Turkey. We hypothesized that dental students and practicing dentists may differ in their level of awareness, reflecting variations in education and clinical exposure.

Material and methods

Prior to the commencement of the study, ethical approval was obtained from the Clinical Research Ethics Committee of Altinbas University Faculty of Dentistry (2021/63). Written informed consent was obtained from all participants prior to participation.

This cross-sectional descriptive study was designed and conducted in accordance with the STROBE guidelines. The survey used in our study was developed specifically for this study. While developing the questionnaire form (Supplementary Form 1), similar studies were reviewed to adapt and identify the questions that were relevant for the study purpose. Questionnaire items were developed based on study objectives and relevant literature.[22,23] An initial pilot study was conducted to assess the clarity and feasibility of the questionnaire before the main study, based on references from similar studies with the aim of devising questions to assess the educational level concerning forensic odontology. The internal consistency of the objectively structured certainty items (Question 18–Question 28: Q18–Q28) was assessed using Cronbach's alpha analysis. A pilot test involving 30 participants yielded a Cronbach's alpha value of 0.734. Following full-scale implementation, the Cronbach's alpha coefficient calculated for the final study sample was 0.74, indicating acceptable internal consistency for the exploratory composite certainty measure used in the present study. The questionnaire consisted of 31 items covering forensic odontology, child abuse recognition, legal responsibilities, and reporting procedures.

Participants were eligible for inclusion if they were dental students or practicing dentists residing in Turkey at the time of the study and had voluntarily agreed to participate. Dental students from all academic years and dentists practicing in various clinical settings were included in the study. The exclu-

sion criteria included incomplete questionnaire responses, duplicate submissions, and individuals who were not currently enrolled in dental education.

Participants were recruited using a convenience sampling strategy through a mixed-mode approach, including both face-to-face administration and online dissemination (Google Forms) during the Corona Virus Disease (COVID-19) pandemic, to facilitate access to a broader and more diverse participant population. This approach was adopted to maximize participation during the COVID-19 pandemic. Participation was voluntary, and no probability-based sampling methods were employed. Participant confidentiality was strictly maintained and personal information was not shared with any institution or individual outside the scope of the project.

The questionnaire used in this study is provided in full in Supplementary Form 1, and all items were administered as described in the instrument.

The questionnaire assessed the following:

- General demographic questions covering the years of professional experience, workplaces, and specialties of the participating dentists.
- Whether they received education on forensic odontology during or after their undergraduate studies, as well as their awareness of the research areas of forensic odontology and its applications.
- Questions regarding the ability to recognize signs of potential child abuse, as well as inquiries about the reasons hindering the development of forensic odontology in our country,
- Questions related to erroneous dental practices that may lead to medical malpractice cases, as well as questions regarding the use of informed consent forms.
- Questions regarding the appropriate authorities and reporting pathways for suspected child abuse cases,
- Questions assessing awareness about dental records that need to be archived, as well as general awareness questions aimed at distinguishing forensic odontology cases.
- Questions assessing awareness of the penalties and legal consequences of failing to report a suspected case of child abuse to relevant authorities.
- Items related to legal responsibilities were developed based on the Turkish legal framework and relevant regulations.

The correct response key for the objectively structured certainty items (Q18–Q28) is presented in Supplementary Form 2. To improve conceptual alignment with the study objectives, the questionnaire items were organized into conceptually related medico-legal domains associated with forensic dental practice (Supplementary Form 3). The multiple-response items (Q10–Q17 and Q29–Q31) were designed to assess awareness and recognition of forensic and medico-legal concepts rather than objective factual correctness and were therefore analyzed descriptively rather than incorporated into the composite certainty score. In addition, "I don't know" responses were separately evaluated as indicators of uncertainty and limited confidence regarding forensic and medico-legal issues.

The present study was designed as a descriptive and exploratory cross-sectional survey using convenience-based recruitment. The minimum required sample size was estimated assuming a 95% confidence level, a margin of error of 5%, and maximum variability ($p = 0.5$), which provides the most conservative sample size estimation in the absence of prior prevalence data (Yamane, 2010). Based on these assumptions, the minimum required sample size was estimated as 217 participants. A total of 406 participants were ultimately included in the final analysis.

IBM SPSS Statistics 22 Software (IBM SPSS, Turkey) was employed for the statistical analysis of the data, using Chi-square, Kruskal-Wallis and Mann-Whitney U tests. Statistical significance was set at $p<0.05$. Analyses were conducted using available case data; therefore, the number of observations may vary across variables due to missing responses. For questions allowing multiple responses, percentages were calculated based on the total number of responses rather than the number of participants. The internal consistency of the certainty scale was assessed using Cronbach's alpha (reliability). To reduce the risk of multiple tests, a composite certainty score was used as the primary outcome measure.

A composite certainty score was calculated exclusively using the objectively structured ''True/False/I don't know" items (Q18–Q28). Correct responses were scored as 1, whereas incorrect and "I don't know" responses were scored as 0, yielding a total score range of 0–11 with higher scores indicating greater awareness of forensic odontology and child abuse recognition. The remaining multiple-response items were analyzed descriptively as awareness-related findings. Descriptive subgroup analyses were performed according to demographic and academic/professional characteristics in order to explore potential differences in awareness levels between participant groups. Because the certainty composite score was derived from dichotomously coded items with a limited score range (0–11), and subgroup distributions demonstrated non-normal characteristics, non-parametric statistical analyses were preferred for subgroup comparisons. Kruskal–Wallis and Mann–Whitney U tests were used where appropriate.

Results

This study was conducted between July and December 2021 and included 406 dental students and practicing dentists aged 19-73 years. The sample comprised 163 (40.1%) males and 243 (59.9%) females, with a mean age of 32.87 ± 12.76 years. The demographic characteristics of the participants are shown in Table 1. Approximately two-fifths of the sample consisted of dental students, and a substantial proportion were early-career professionals, reflecting the heterogeneous nature of the study population. Among the practicing dentists, pediatric dentists constituted the largest subgroup, and the sample included a wide range of professional experiences, from early-career practitioners to those with over 20 years of practice (Table 1).

Regarding education in forensic odontology, approximately half of the participants (52.7%) reported having received undergraduate training, whereas postgraduate education in

Table 1. General information regarding participants

		N	%
Academic title	Dental student	162	39.9
	General Dentist	147	36.2
	Specialty student	18	4.4
	PhD student	23	5.7
	Specialist Dentist	30	7.4
	Clinical Instructor	18	4.4
	Professor	8	2
Specialization Area (n=97)	Oral and Maxillofacial Radiology	4	4.1
	Endodontics	6	6.2
	Orthodontics	16	16.5
	Pediatric Dentistry	51	52.6
	Periodontology	4	4.1
	Prosthetic Dentistry	12	12.4
	Restorative Dentistry	4	4.1
Professional Experience	0-1 year	147	36.2
	1-5 years	88	21.7
	6-10 years	43	10.6
	11-15 years	23	5.7
	16-20 years	10	2.5
	20 years and above	95	23.4
Workplace	Unemployed	24	5.9
	State Hospital/Oral and dental health center	54	13.3
	University Hospital	58	14.2
	Private hospital/Policlinic	39	9.6
	Private practice	69	17
	Dental student	162	39.9

Values are presented as frequency (n) and percentage (%).

Table 2. Evaluation of the answers given in the evaluation of the factors indicating potential child abuse according to the gender of the participant

Factors indicating potential child abuse**	Male	Female	p
	n (%)	n (%)	
The incongruity between the acquired anamnesis and the clinical manifestation of the prevailing injury	116 (71.2%)	184 (75.7%)	0.306
The presence of manifestations indicative of gonorrhea, herpes simplex, treponema pallidum, or syphilis in the oral or perioral regions of pediatric patients aged two and older	125 (76.7%)	206 (84.8%)	0.040*
The child's reluctance towards family members	116 (71.2%)	179 (73.7%)	0.580
The child's unwillingness to depart from the environment of the family	95 (58.3%)	129 (53.1%)	0.302
The family's statement of the child engaging in self-injury	98 (60.1%)	146 (60.1%)	0.993
The family indicated that the child has been harmed by someone else	103 (63.2%)	144 (59.3%)	0.426
Marks of a bite or burn observed in the head and neck region	140 (85.9%)	217 (89.3%)	0.301
Inconsistency or suspicion in the obtained medical history from the child and the family.	134 (82.2%)	210 (86.4%)	0.248

** For multiple-response items, participants could select more than one option. Values are based on available responses; totals may vary due to missing data. Percentages may not sum to 100% (and may exceed or fall below 100%)

this field was limited (Supplementary Table 1). Participants were generally familiar with commonly recognized areas of forensic odontology, such as bite mark analysis and identification in forensic cases; however, their awareness regarding specific aspects varied.

Responses concerning child abuse indicators revealed variability in the recognition of suspicious oral and maxillofacial findings, suggesting that distinguishing abusive injuries from accidental trauma remains challenging in clinical practice (Table 2). Notably, female participants showed significantly higher recognition rates for certain clinical indicators than male participants (Table 2), suggesting potential differences in sensitivity to abuse-related findings regarding the signs of syphilis, gonorrhea, herpes simplex, and Treponema pallidum in the perioral area in children under two years of age (p=0.040) (Table 2).

Participants' responses regarding the development of forensic odontology, legal responsibilities, and consent practices

are presented in Supplementary Table 2. Regarding reporting obligations and legal responsibilities, participants demonstrated inconsistencies in preferred reporting pathways and medico-legal responsibilities under the Turkish legal framework (Table 3A and Supplementary Table 2). Deficiencies in undergraduate training and the absence of structured systems for

Table 3. Workplace-based responses

Table 3A. Referral centers in cases of child abuse according to workplace **

	Not working	Public hospital/ oral health center	University hospital	Private hospital/ clinic	Private practice	Dental student	p
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Prosecutor's office	12 (50%)	34 (63%)	23 (40.4%)	16 (41%)	43 (62.3%)	77 (47.2%)	0.040*
Police station	13 (54.2%)	29 (53.7%)	24 (42.1%)	18 (46.2%)	41 (59.4%)	109 (66.9%)	0.016*
Violence prevention hotline (Alo 183)	2 (8.3%)	6 (11.1%)	8 (14%)	1 (2.6%)	4 (5.8%)	57 (35%)	0.000*
Emergency line (Alo 112)	2 (8.3%)	4 (7.4%)	1 (1.8%)	1 (2.6%)	3 (4.3%)	58 (35.6%)	0.000*
Emergency police line (Alo 155)	10 (41.7%)	22 (40.7%)	21 (36.8%)	21 (53.8%)	30 (43.5%)	97 (59.5%)	0.017*
Gendarmerie emergency call line (Alo 156)	3 (12.5%)	4 (7.4%)	6 (10.5%)	0 (0%)	4 (5.8%)	54 (33.1%)	0.000*
Ministry of Family, Labor and Social Policies	12 (50%)	33 (61.1%)	34 (59.6%)	18 (46.2%)	29 (42%)	106 (65%)	0.019*
Child monitoring center	7 (29.2%)	18 (33.3%)	25 (43.9%)	10 (25.6%)	24 (34.8%)	77 (47.2%)	0.069
Social Services and Child Protection Agency	5 (20.8%)	17 (31.5%)	18 (31.6%)	9 (23.1%)	15 (21.7%)	78 (47.9%)	0.000*
Bar Association and the Child Rights Commission	6 (25%)	9 (16.7%)	18 (31.6%)	7 (17.9%)	25 (36.2%)	62 (38%)	0.021*

Chi-square test. * P<0.05
**For multiple-response items, participants could select more than one option. Values are based on available responses; totals may vary due to missing data. Percentages may not sum to 100% (and may exceed or fall below 100%)
Abbreviations:
– Alo 155: Emergency police line
– Alo 183: Violence prevention hotline
– Alo 156: Gendarmerie emergency call line
– Alo 112: Emergency Line

Table 3. Workplace-based responses

Table 3B. Dental record archiving practices according to workplace

Archived dental records**	Not working	Public hospital/ oral and dental health center	University hospital	Private hospital/ clinic	Private practice	Dental student	p
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Patient's personal information	17 (70.8%)	42 (77.8%)	55 (96.5%)	34 (87.2%)	52 (75.4%)	99 (60.7%)	0.000*
Patient's medical history and examination records	17 (70.8%)	39 (72.2%)	51 (89.5%)	31 (79.5%)	50 (72.5%)	92 (56.4%)	0.000*
Patient's panoramic/periapical radiographs	15 (62.5%)	45 (83.3%)	55 (96.5%)	37 (94.9%)	55 (79.7%)	89 (54.6%)	0.000*
Records of medical procedures performed	18 (75.0%)	42 (77.8%)	50 (87.7%)	37 (94.9%)	53 (76.8%)	81 (49.7%)	0.000*
Impressions/models obtained from the patient	5 (20.8%)	10 (18.5%)	26 (45.6%)	5 (12.8%)	14 (20.3%)	59 (36.2%)	0.000*
Date and time of patient visits	12 (50.0%)	36 (66.7%)	45 (78.9%)	22 (56.4%)	26 (37.7%)	77 (47.2%)	0.000*
Intraoral and extraoral photographic records	5 (20.8%)	19 (35.2%)	38 (66.7%)	21 (53.8%)	29 (42.0%)	66 (40.5%)	0.001*
Not keeping records	6 (25.0%)	4 (7.4%)	1 (1.8%)	1 (2.6%)	7 (10.1%)	55 (33.7%)	0.000*

Chi-square test. * P < 0.05
** For multiple-response items, participants could select more than one option. Values are based on available responses; totals may vary due to missing data. Percentages may not sum to 100% (and may exceed or fall below 100%)

record-keeping and forensic practice were among the most frequently identified barriers. Institutional affiliation appeared to influence the selection of the reporting authorities. (Tables 3A). This variability suggests a lack of standardized knowledge regarding appropriate reporting pathways. When asked about the reporting channels for suspected child abuse, the police station was the most frequently selected option. Other reporting authorities were also identified and are presented in detail in Tables 3A.

Variability was also observed in medico-legal documentation, informed consent practices, and record-keeping procedures across workplace settings (Table 3B and Supplementary Table 2). The highest levels of comprehensive documentation were observed in university hospitals, whereas lower rates were noted among dental students and private practice. This indicates inconsistencies in clinical record management.

Importantly, responses to certainty-based statements revealed notable uncertainty in several domains (Supplementary Table 3). A considerable proportion of respondents selected the "I don't know" option for several items related to legal consequences and forensic principles, indicating critical gaps in certainty and confidence. The mean certainty score was 5.08 ± 2.74 (range: 0–11) (Table 4). Cronbach's alpha indicated an acceptable internal consistency (α = 0.74). Certainty scores differed significantly according to academic/professional status (Kruskal–Wallis test, $p < 0.001$). Clinical instructors, professors, and PhD students demonstrated relatively higher median certainty scores compared with undergraduate dental students (Table 4). No statistically significant difference was observed between gender subgroups regarding composite certainty scores (p = 0.692) (Table 4).

Table 4. Certainty score according to participant characteristics (academic/professional status and gender)

Group	n	Mean ± sd	Median (min–max)	P value
Dental Student	163	4.13 ± 2.67	4 (0–11)	
General Dentist	178	5.28 ± 2.68	5 (0–11)	
Specialty Student	18	5.61 ± 2.23	5 (0–9)	
PhD Student	24	6.13 ± 2.29	6 (0–10)	
Specialist Dentist	34	5.44 ± 2.51	5 (1–10)	
Clinical Instructor*	24	6.58 ± 2.73	7 (1–11)	
Professor	9	6.33 ± 3.00	6 (1–10)	
Overall	450	5.08 ± 2.74	5 (0–11)	p < 0.001
Gender				
Female	243	5.46 ± 2.70	6 (0–11)	
Male	163	5.32 ± 2.64	5 (0–11)	0.692

Kruskal–Wallis test, P<0.001
Mann Whitney U test, P<0.05 considered statistically significant.
Academic status was compared using the Kruskal–Wallis test and gender using the Mann–Whitney U test.
* Clinical Instructor includes assistant and associate professors.

Table 5. Evaluation of medico-legal responsibilities related to dental malpractice according to academic title

Clinical scenario**	Dental student n (%)	General dentist n (%)	Specialty student n (%)	Phd student n (%)	Specialist dentist n (%)	Clinical instructor n (%)	Professor n (%)	P-value
Traumatic ulcers due to insufficient post-procedural information after anesthesia	134 (82.7%)	90 (61.2%)	13 (72.2%)	15 (65.2%)	13 (43.3%)	11 (61.1%)	7 (87.5%)	<0.001*
Jawbone fracture during tooth extraction	105 (64.8%)	67 (45.6%)	4 (22.2%)	8 (34.8%)	15 (50.0%)	8 (44.4%)	3 (37.5%)	<0.001*
Failure to prevent aspiration/swallowing of dental materials (e.g., no rubber dam)	128 (79.0%)	92 (62.6%)	13 (72.2%)	21 (91.3%)	20 (66.7%)	16 (88.9%)	6 (75.0%)	0.007*
Unnecessary extraction of multiple teeth	127 (78.4%)	92 (62.6%)	11 (61.1%)	20 (87.0%)	24 (80.0%)	16 (88.9%)	5 (62.5%)	0.008*
Failure to obtain adequate medical history	125 (77.2%)	108 (73.5%)	16 (88.9%)	21 (91.3%)	21 (70.0%)	16 (88.9%)	6 (75.0%)	0.282
Incomplete patient records	129 (79.6%)	83 (56.5%)	11 (61.1%)	22 (95.7%)	17 (56.7%)	15 (83.3%)	6 (75.0%)	<0.001*
Initiating treatment without informed consent	128 (79.0%)	123 (83.7%)	14 (77.8%)	23 (100%)	23 (76.7%)	15 (83.3%)	7 (87.5%)	0.176

* p<0.001. Chi-Square Test
** For multiple-response items, participants could select more than one option. Values are based on available responses; totals may vary due to missing data. Percentages may not sum to 100% (and may exceed or fall below 100%)

Awareness of medico-legal responsibilities (under the Turkish legal framework) differed significantly across academic titles ($p < 0.05$). Overall, dental students and postgraduate trainees demonstrated higher levels of awareness in several clinical scenarios, particularly those involving procedural complications and preventive care responsibilities. In contrast, comparatively lower awareness was observed among certain practitioner groups, especially regarding aspiration risks and unnecessary interventions. These findings suggest that medico-legal awareness may decline or become less updated over time in clinical practice, emphasizing the importance of continuous professional education in this field (Table 5). These findings indicate a potential decline in up-to-date legal awareness after graduation.

Discussion

This study aimed to evaluate the awareness of dental students and practicing dentists in Turkey regarding forensic odontology and child abuse recognition/reporting. The findings indicate that although a general level of awareness was present among participants, substantial uncertainty remained in several medico-legal domains, particularly regarding reporting obligations, legal responsibilities, and forensic documentation procedures. In addition, a considerable proportion of participants reported uncertainty in key domains, highlighting gaps in both awareness and confidence regarding forensic practice.

Consistent with previous studies, the recognition and appropriate management of child abuse cases remain variable among dental professionals.[2–4] Several clinical indicators, such as inconsistencies in patient history, delays in seeking care, and suspicious trauma patterns, should alert clinicians to the possibility of abuse. In addition, certain populations—including children with special needs, those from socioeconomically disadvantaged backgrounds, or those exposed to unstable family environments—are at increased risk.[17,24]

National data from Turkey further emphasize the magnitude of the problem, demonstrating a substantial increase in child sexual abuse cases from 17,589 in 2012 to 22,689 in 2019, alongside 206,498 children reported as victims of crime in 2019, of which 15.2% were related to sexual offenses and 57.6% to assault.[25–27] These figures highlight the urgency of early detection and reporting by healthcare professionals.

Previous studies have shown that abused children presenting with dental injuries are more likely to have accompanying facial trauma, underscoring the importance of comprehensive clinical assessment.[2] Although dentoalveolar trauma is common in pediatric populations, accurate differential diagnosis and identification of at-risk children are essential for timely recognition of abuse and prevention of long-term consequences.[3,4]

In this context, tools such as the Dental Neglect Scale and related assessment approaches have been developed to evaluate neglect across different populations.[34–36] These frameworks emphasize that early detection depends on clinicians' awareness, experience, and professional judgment.[31] Accordingly, effective management requires a multidisciplinary approach involving healthcare professionals, social services, and legal authorities.[32]

Despite the recognized importance of this role, international evidence indicates substantial variability in the education of forensic odontology. Studies from the United States report that 42%–62% of dentists have not received formal training,[12–13] while similar trends are observed in Turkey, where a large proportion of participants reported no undergraduate (47.3%) or postgraduate (92.6%) training.[14] These findings suggest that insufficient education remains a widespread issue.

Nevertheless, the relatively high proportion of correct responses to clinical scenarios suggests a certain level of baseline awareness among the participants. This aligns with findings from a study conducted in London, where most dentists recognized frenulum lacerations as potential indicators of abuse.[33] However, such findings may overlap with accidental injuries, contributing to diagnostic uncertainty and explaining the selection of "No" or "I don't know" responses. Consistently, 68.5% of participants in the present study correctly identified oral and dental trauma as relevant to forensic evaluation.

The gender- and specialty-based differences observed in this study are consistent with those in the previous literature. Female dentists and those with pediatric or orthodontic specialization demonstrated higher awareness in certain domains, while pediatric dentists have been reported to be more likely to identify and report abuse cases.[34–36] However, these findings should be interpreted cautiously and considered exploratory.

In the present study, responses related to informed consent in pediatric care further revealed variability in participants' understanding of legal and ethical responsibilities. Although many participants correctly identified the role of a legal guardian, uncertainty remained regarding the involvement of children in decision-making. (Supplementary Table 2). According to the literature, although consent must legally be obtained from the guardian, it is also essential to inform and involve the child appropriately in the decision-making process.[37] This dual requirement highlights the ethical dimension of pediatric care, which extends beyond strict legal obligations.

It is important to note that legal frameworks governing consent vary across countries, and differences in regulations and sanctions may influence professional behaviour. Within the Turkish legal framework, dentists are obligated to recognize, document, and report suspected cases of child abuse.[11] According to the Turkish Penal Code, failure to report a crime that is being committed or has been committed may result in legal sanctions. In addition, the Child Protection Law (No. 5395) outlines the responsibilities of professionals in identifying and reporting children in need of protection. National guidelines issued by the Ministry of Health further emphasize the duty of healthcare providers to recognize, document, and report suspected abuse cases in a timely manner. Therefore, the legal and ethical responsibilities addressed in this study should be interpreted in the context of Turkish legislation and regulatory frameworks.[19–21] Furthermore, caution is required when comparing the present findings with studies conducted in countries with different medico-legal systems, mandatory reporting frameworks, and professional responsibilities.

These responsibilities highlight that child abuse is not only a clinical issue but also a legal one. However, the variability observed in reporting preferences and documentation practices suggests a lack of standardized knowledge, which may contribute to underreporting and medico-legal risks.

Recent evidence from European contexts further reinforces the critical role of oral health professionals in detecting and reporting of child abuse. One study emphasized that dentists are uniquely positioned to identify orofacial injuries and contribute to the medico-legal evaluation of suspected abuse cases, highlighting the importance of integrating clinical findings with legal frameworks.[38] This perspective underscores that the role of dentists extends beyond clinical diagnosis to include legal responsibility and collaboration with child protection systems. However, despite this recognized role, studies continue to report under-detection and underreporting of child abuse cases among oral health professionals, often due to insufficient training, uncertainty in diagnosis, and lack of familiarity with reporting procedures.[39]

In the present study, the findings related to forensic odontology fundamentals demonstrated that participants were generally familiar with several core forensic concepts. However, substantial uncertainty persisted regarding forensic principles, legal sanctions, reporting procedures, and medico-legal documentation practices. Variability in responses concerning child abuse indicators further suggests that distinguishing abusive injuries from accidental trauma remains challenging in clinical practice Moreover, the considerable proportion of "I don't know" responses indicates not only limited awareness in certain domains but also uncertainty and reduced professional confidence regarding forensic responsibilities and reporting procedures.

The findings of this study are consistent with previous research indicating inadequate training in forensic odontology among dental professionals.[12–14] Interestingly, dental students demonstrated higher levels of correct responses than practicing dentists in several areas. This may reflect more recent exposure to updated curricula, whereas practicing clinicians may lack access to structured continuing education.[16] These findings suggest a potential decline in up-to-date medico-legal knowledge following graduation. The observed variability in reporting preferences across different workplace settings suggests a lack of standardized knowledge regarding appropriate reporting pathways. This inconsistency may contribute to uncertainty among dental professionals and potentially lead to underreporting of suspected child abuse cases.

The composite certainty score demonstrated general levels of forensic odontology awareness among the participants, although considerable variability and uncertainty remained across several medico-legal domains. Notably, a substantial proportion of participants selected the "I don't know" response for multiple items related to legal responsibilities, forensic principles, and abuse recognition. These responses were interpreted not only as incorrect within the objective scoring framework but also as indicators of uncertainty and limited confidence regarding forensic and medico-legal issues.

Mentioned score demonstrated significant differences according to academic/professional status. Academically advanced participants, including clinical instructors, professors, and PhD students, demonstrated relatively higher median certainty scores compared with undergraduate dental students. Nevertheless, because the study was exploratory in nature and based on a non-validated composite knowledge measure, these subgroup differences should be interpreted cautiously.

Despite the valuable insights provided, this study has several limitations. First, the cross-sectional design precludes causal interpretation, while the use of self-reported responses may have introduced response bias. In addition, the convenience-based recruitment strategy and mixed-mode data collection approach may have contributed to selection bias and reduced representativeness of the study sample. Variability related to missing data and multiple-response items may also have influenced subgroup comparisons.

Furthermore, although subgroup analyses were performed to explore potential differences according to demographic and academic/professional characteristics, multivariable adjustment methods were not applied. Therefore, potential confounding related to educational exposure, professional experience, workplace setting, and prior forensic training cannot be excluded. Because the study was designed as an exploratory descriptive assessment using a non-validated composite knowledge measure, the observed subgroup differences should be interpreted cautiously and should not be considered confirmatory evidence of causal or predictive relationships.

Accordingly, the findings should be interpreted as an exploratory snapshot of the participating dental students and dentists rather than as fully representative of the broader target population.

Despite these limitations, this study provides important insights into the current state of awareness among Turkish dental professionals and emphasizes the need for strengthened undergraduate, postgraduate, and continuing professional education in forensic odontology and medico-legal responsibilities.

Conclusions

This study provides a context-specific overview of the awareness of forensic odontology and child abuse recognition among dental students and practicing dentists in Turkey. Although overall certainty scores suggested a general level of awareness, important uncertainties persisted, particularly regarding medico-legal responsibilities, reporting procedures, and documentation practices. The substantial proportion of "I don't know" responses further indicates gaps not only in awareness but also in confidence, which may influence clinical decision-making and reporting behaviors.

Within the Turkish legal and educational context, these findings highlight the need for more structured and standardized training in forensic odontology, child abuse recognition, and medico-legal responsibilities. Enhancing undergraduate and postgraduate education, as well as continuing professional development, may improve awareness and preparedness among dental professionals.

Given the substantial variation in legal frameworks and educational systems across countries, the findings should be interpreted within the Turkish medico-legal context and should not be directly generalized to other settings. Future

studies using validated instruments and longitudinal designs are needed to better clarify the relationship between awareness, confidence, and clinical practice.

Conflict of interest

The authors have no conflicts of interest to declare.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that no patient data appear in this article.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

CRediT authorship contribution statement

Aliye Tuğçe Gürcan: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing. **Ezgi Tatli:** Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft. **Bugra Ozen:** Conceptualization, Methodology, Supervision. All authors have read and approved the final version of the manuscript.

ORCID

Aliye Tuğçe Gürcan 0000-0002-8444-1780
Ezgi Tatli 0000-0001-5136-3379
Bugra Ozen 0000-0002-4553-2655

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Consciência sobre odontologia legal e reconhecimento de maus-tratos infantis entre dentistas

RESUMO

Objetivos: Este estudo avaliou a consciência de estudantes de Medicina Dentária e médicos dentistas na Turquia relativamente à odontologia legal e ao reconhecimento e denúncia de maus-tratos infantis.

Métodos: Realizou-se um estudo transversal por questionário com 406 participantes. O questionário incluiu 31 itens sobre odontologia legal, reconhecimento de maus-tratos infantis, responsabilidades legais e procedimentos de notificação. Foi calculado um escore de certeza com base nos itens estruturados de Verdadeiro/Falso/"Não sei" (Q18–Q28), enquanto os restantes itens foram analisados descritivamente. Análises descritivas e por subgrupos avaliaram associações entre as características dos participantes e os escores de certeza. A consistência interna foi avaliada pelo alfa de Cronbach.

Resultados: O escore médio de certeza foi de 5,08 ± 2,74 (intervalo: 0–11), sem diferenças estatisticamente significativas entre os grupos de género ($p > 0,05$). O alfa de Cronbach revelou consistência interna aceitável ($\alpha = 0,74$). Muitos participantes demonstraram incerteza quanto aos aspetos médico-legais e aos procedimentos de notificação. As preferências de notificação variaram entre contextos profissionais, sugerindo conhecimento inconsistente dos circuitos de notificação.

Conclusões: Embora os participantes tenham demonstrado consciência geral da odontologia legal e do reconhecimento de maus-tratos infantis, persistiram importantes incertezas quanto às responsabilidades médico-legais e aos procedimentos de notificação. Estes resultados reforçam a necessidade de reforçar a formação pré- e pós-graduada em odontologia legal e notificação de maus-tratos infantis na formação em Medicina Dentária. (Rev Port Estomatol Med Dent Cir Maxilofac. 2026;67(x):xxx-xxx)

Palavras-chave:
Maus-tratos infantis
Estudos transversais
Dentistas
Odontologia legal
Estudantes de odontologia