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Self-reported knowledge, attitudes, and practice of final-year dental students in relation to child abuse: A multi-centre study

Canan Duman[1] | **Ola B. Al-Batayneh**[2] | **Sajjad Ahmad**[3] | **Callum S. Durward**[4] | **Angelika Kobylińska**[5] | **Alexandre R. Vieira**[6] | **Sheree Tredoux**[7] | **Alev Eda Okutan**[8] | **Edibe Egil**[9] | **Elif Ece Kalaoglu**[10] | **Belen Sirinoglu Capan**[10] | **Damla Aksit Bicak**[11] | **Sobia Zafar**[12]

[1]School of Dentistry, Istanbul Atlas University, Istanbul, Turkey

[2]Jordan University of Science and Technology, Irbid, Jordan

[3]Khyber College of Dentistry Peshawar, Peshawar, Pakistan

[4]Faculty of Dentistry, University of Puthisastra, Phnom Penh, Cambodia

[5]Department of Pediatric Dentistry, Medical University of Warsaw, Warsaw, Poland

[6]School of Dental Medicine, University of Pittsburgh, Pittsburgh, PA, USA

[7]Department of Odontology, School of Dentistry, University of Pretoria, Pretoria, Republic of South Africa

[8]Department of Pediatric Dentistry, Marmara University, Istanbul, Turkey

[9]Department of Pediatric Dentistry, Istanbul Gelisim University, Istanbul, Turkey

[10]Department of Pediatric Dentistry, Biruni University, Istanbul, Turkey

[11]Department of Pediatric Dentistry, Near East University, Nicosia, Turkish Republic of Northern Cyprus

[12]Discipline Lead Paediatric Dentistry, School of Dentistry, The University of Queensland, Brisbane, QLD, Australia

Correspondence
Canan Duman, Faculty of Dentistry, Department of Pediatric Dentistry, Istanbul Atlas University, 34403, Kagithane-İstanbul, Turkey.
Email: drcananduman@gmail.com

Abstract

Background: The number of child abuse cases is increasing worldwide; therefore, it is important to educate individuals having contact with children about it. This includes dentists who play a pivotal role in detecting and reporting child abuse.

Aim: To identify and compare the final- year dental student's knowledge, attitudes, and practice in relation to child abuse.

Design: A 38- item and four- part online questionnaire was distributed to students of 11 dental schools in 10 countries. SPSS and GraphPad Prism were used for data analysis. The levels of statistical significance were determined using a chi- square test. $P \leq .05$ was considered to be statistically significant.

Results: A total of 660 students completed the survey. Fifty- six percent of the students received formal training on child abuse, and 86% wanted additional training. The knowledge of child abuse was significantly higher in Australia, the United States, and Jordan compared with other countries. Internet (60.3%) was commonly used as an information source for child abuse.

Conclusions: The study showed that dental students lack knowledge and experience in recognizing and reporting child abuse. Most respondents indicated a desire for additional training; therefore, dental schools should review what they are currently teaching and make changes as appropriate.

KEYWORDS

attitudes, child abuse, dental students, education, knowledge

Work was conducted at the Marmara University (Turkey), Near East University (Turkish Republic of Northern Cyprus), Jordan University of Sciences and Technology (Jordan), Khyber College of Dentistry (Pakistan), University of Puthisastra (Cambodia), Medical University of Warsaw (Poland), University of Lagos (Nigeria), University of Pittsburgh, (USA), University of Pretoria (Republic of South Africa), and the University of Queensland (Australia).

1 | INTRODUCTION

Child abuse and neglect or violence against children is a global public health problem that threatens children's fundamental rights.[1] Child abuse morbidity and mortality rates have reached alarming levels, regardless of the socio-economic status, education level, ethnicity, and religion of the primary caregiver.[2] The definition of child abuse covers any situation that threatens or harms a child. Physical, sexual, emotional, or psychological traumas are considered child abuse.[3] According to World Health Organization (WHO) data, the global lifetime prevalence of some form of abuse is 50%.[2] The prevalence of sexual abuse differs between females (14%-20%) and males (6%-14%),[4] and physical abuse rates differ between continents. The reported rate is 12%-27% in European countries and 51%-60% in Africa.[4] Head and orofacial injuries are commonly reported traumatic signs suggestive of child abuse, being present in around 50%-70% of reported cases.[5,6] Child abuse may result in actual or potential harm to the child's physical and mental health, survival, and development; psychologically, it may affect their confidence, self-esteem, dignity, and ability to trust.[7]

The oral cavity is believed to be a focus of physical abuse due to its importance in communication and nutrition.[8] Oral injuries can be caused by forced-feeding with a bottle or spoon or fork, and assaults with the hands or fingers can leave telltale clues of abuse on the face. Contusions, burns, and lacerations involving the tongue, lips, buccal mucosa, soft and hard palate, gums, and alveolar mucosa or frenulum, in addition to broken, displaced, or avulsed teeth, and fractures of the facial bone/jaw may be observed as a result of child abuse.[9] Therefore, dentists are in unique position to identify signs of child abuse and can play an important role in reporting these cases.[5]

Although the oral cavity is the most frequent site for sexual abuse, visible wounds or infections are uncommon.[9] In the case of suspected oral sexual assault, referral to a medical clinic or hospital for further evaluation is recommended.[9] Samples collected within 24 hours of an assault in pre-pubertal children and within 72 hours in adolescents improve the diagnostic accuracy in cases of sexually transmitted infections in the oral cavity.[10] Moreover, unexplained wounds or petechiae, especially those at the junction of the hard and soft palate, may result from forced sexual intercourse.[11] All suspected cases of child abuse or neglect, independent of the country, should be reported to the child protection services and/or a law enforcement agency. The evaluation of suspected child abuse should be conducted using a timely multidisciplinary approach to protect the child and family.[9]

Child abuse training programmes were organized for healthcare workers in Turkey from 2002 to 2006, with a follow-up research study by Ağırtan et al.[12] They showed that the rate of reported abuse cases was five times higher following the training, compared with the pre-education period. This dramatic rise proves the importance of education in order to increase the reporting of cases. As dentists may play a critical role in detecting child abuse, it is important to train dental students on the subject.[3] The current study aims to determine and compare the knowledge levels, attitudes, and practices of dentistry students in different countries regarding child abuse and to identify shortcomings in student education at the undergraduate level. To the authors' knowledge, this study is the first in the literature to explore and compare the knowledge, attitudes, and perceptions of dental students from different countries regarding child abuse.

Why this paper is important to paediatric dentists

- The study identifies gaps in child abuse education of dental students in different countries.
- The study highlights the importance of teaching future dentists to recognize and report cases of child abuse.
- Dentists play a vital role in identifying child abuse as they could be the first health professionals to examine such victims.
- There is a need to develop and incorporate comprehensive child abuse training in the dental curriculum.

2 | MATERIALS AND METHODS

This cross-sectional study used a 38-item questionnaire to investigate the self-reported knowledge, attitudes, and practices in relation to child abuse of final-year dental students in 11 dental schools. The study was approved by the Biruni University Non-Interventional Clinical Research Ethical Committee (approval no. 2019/27-18). The study was endorsed by collaborating partners at the University of Queensland (Australia), Khyber College of Dentistry (Pakistan), Marmara University (Turkey), Jordan University of Science and Technology (Jordan), Near East University (Turkish Republic of Northern Cyprus), Medical University of Warsaw (Poland), University of Pretoria (Republic of South Africa), College of Medicine, University of Lagos (Nigeria), University of Puthisastra (Cambodia), and University of Pittsburgh (United States of America).

2.1 | Study participants

Participants were recruited from the population of final-year undergraduate dental students at each dental school. The participants were a convenience sample from the participating dental schools based on the affiliations of the team. The inclusion criteria were final-year dental students who agreed to participate in the study via an online questionnaire link. The questionnaire was generated via the online program Google Forms (Alphabet). An email with an attached link and the explanation of the survey was sent to each university administrator before being forwarded to their students. The email provided information about the questionnaire and requested that the participants provide their consent by clicking on the link embedded in the email. The data collection was carried out between June 2019 and June 2020.

2.2 | Survey tool

A self-administered questionnaire was developed to assess participants' self-reported knowledge, attitudes, and practice of dental students in relation to child abuse. The questionnaire was self-constructed and piloted with a small group of individuals in the dental field (including students, dentists, and paediatric specialists; n = 30) before implementation, and modified according to the feedback received. The questionnaire consisted of four parts. Part 1 contained five items that recorded demographics, educational background, and information regarding previous child abuse training. Part 2 had 21 items related to the assessment of child abuse knowledge, identification of signs and symptoms, and management strategies. The responses of Part 2 were as assigned a score of 0 (incorrect) and 1 (correct) and summed to provide an overall knowledge score for each participant. The possible knowledge score range was 0-21. The scores were converted to a percentage and classified into three levels as follows: a score of <33 was classified as poor; a score of 33-66 was moderate; and a score over 66 was good. Part 3 contained six items that referred to attitudes towards child abuse. The final part of the questionnaire contained six items related to the need for continuing education about child abuse recognition, reporting, and management. Most items were in multiple-choice format, with some having an 'other' with option where the participants could elaborate further in text-free fields if they wished. Several questions also permitted selection of more than one option. The estimated completion time for the questionnaire was 10 minutes. Three months after the initial distribution of the questionnaire, two reminder emails were sent.

2.3 | Statistical analysis

The data were tabulated on Microsoft Excel spreadsheet and then imported into IBM SPSS Statistics for Macintosh v26 (IBM) for descriptive analysis and GraphPad PRISM 8.0 software (GraphPad Software) for collation and creation of appropriate graphs. Responses were summarized, and comparisons were made. The output data were presented in a table format (total responses and percentages) as well as in a graphical format. Specific data analysis tests performed included descriptive statistics, such as frequencies and percentages. The levels of statistical significance were determined using a chi- square test, and a $P \leq .05$ was considered to be statistically significant.

3 | RESULTS

3.1 | Demographics and information regarding the child abuse training

All final-year dental students (n = 946) enrolled in the 11 dental schools in the 10 countries were invited to participate in the survey. A total of 660 dental students completed the survey; thus, the response rate of the survey was 69.7%. The distribution of the participants relating to dental school and other information connected to child abuse education are shown in Table 1.

3.2 | Assessment of knowledge about child abuse

Participants' knowledge about child abuse was assessed as being good (46.8%), moderate (42.8%), and poor (10.3%). The distribution of knowledge levels by country is shown in Table 2. A comparison of knowledge levels between countries indicated that the number of students with good levels of knowledge was significantly higher in Australia, the United States, and Jordan, compared with other countries ($P < .001$). There was a difference in the knowledge level of the participants according to the place where education about child abuse had been received. Those who had received education at a dental school had a significantly higher level of knowledge than those who had received education from other courses ($P < .001$). Almost 86% of the participants thought that the occurrence of child abuse in recent years in their country was increasing.

The responses to questions about the knowledge of the signs and symptoms of child abuse are summarized in Table 3. The majority of participants (92%) was able to identify the orofacial indicators of physical abuse including labial/lingual frenulum tear, lacerations/burns to the lips, bite marks, and bruises behind the ears. The responses to the question regarding orofacial manifestations of sexual abuse, including erythema at the junction of the hard and soft palate, oral warts, and syphilitic lesions, were identified by 87% of the participants. Statements with a higher level of uncertainty by the participants included 'child abuse prevalence is less than Down

TABLE 1 Demographics and information regarding the child abuse training

Variable	n	%
University		
Biruni University	98	14.8
The University of Lagos	24	3.6
Jordan University of Science and Technology	167	25.3
Khyber College of Dentistry	47	7.1
Marmara University	62	9.3
Medical University of Warsaw	67	10.1
Near East University	72	10.9
The University of Queensland	38	5.7
University of Pittsburgh	22	3.3
University of Pretoria	32	4.8
University of Puthisastra	31	4.6
Gender		
Female	428	64.9
Male	232	35.1
Child abuse Education		
yes	374	56.1
no	289	43.3
Education year		
1st year	7	1
2nd year	13	1.9
3rd year	22	3.3
4th year	146	21.9
5th year	203	30.4
Other	12	1.8
Education type		
Theoretical teaching	356	54
Clinical information on signs and symptoms	282	42.8
Guidelines for reporting cases	143	21.8
Case documentation	88	13.4
Advanced clinical training	56	8.6

syndrome prevalence' (45.4%); 'bruises noted around the neck are mostly due to accidental trauma' (32.5%); 'child abuse may be indicated if a parent reports a child's injury as a sibling inflicted injury' (21.3%); 'bruises usually occur in areas overlying bony prominences in abuse victims' (19.2%); and 'the best way to deal with suspected cases of child abuse is to confront the parents and accuse them directly of the abuse' (17.8%).

3.3 | Assessment of attitudes regarding child abuse

The responses to the statements exploring the attitudes of the participants towards child abuse are presented in Table 4 and Figure 1. Almost 87% of the participants indicated that dentists should be legally responsible for reporting child abuse. 83% of the participants agreed with the statement that dentists have an ethical duty to report child abuse, and 95% agreed that health workers should be trained in various aspects related to child abuse. Furthermore, 85% of the participants agreed that the professionals who failed to report a suspected child abuse may inadvertently let the child to be continuously injured.

3.4 | Continuing education on child abuse

When asked where students had learned about child abuse in addition to dental school, the Internet (60.3%) was the most widely used information source. Other sources of information included continuing education courses (30.3%), dental journals (19.0%), and dental meetings (15.5%). Additionally, 86.0% of the students wished to receive additional formal training on the subject. Further, most of the participants were 'willing' (40.8%) or 'very willing' (40.8%) to receive further training on the subject. The participants indicated that they needed further training on recognition (64%), reporting (71.8%), and management (63%) of child abuse, and also on protection of the child (64.6%). Around 44% of the partici-pants indicated that they needed education on all aspects involving recognition, reporting, management, and protection. Finally, the results of the survey showed that 8% of the students had detected a case of child abuse during their clinical education.

4 | DISCUSSION

The knowledge levels and attitudes of dentists and dentistry students towards child abuse diagnosis and reporting have been assessed in several studies.[3,7,13] The current study, however, is the first multi-centre study to evaluate, compare, and identify the knowledge and attitudes of final-year dentistry students from 11 dental schools in different countries. The results of the study showed that most of the students felt that their knowledge of child abuse was inadequate and that they would like to expand their knowledge via additional formal training programmes on this subject.

Negative life experiences during childhood can cause biopsychosocial effects on children in the short and long term. Child abuse can have negative impacts on the social functioning of the family, society, and public health.[14] It is essential therefore to put in place protective and preventive interventions including the education of healthcare professionals. The mouth is an important identifier for multiple forms of child maltreatment. Among healthcare professionals, dentists are particularly well positioned to detect child abuse, as 50%-75% of reported cases have signs in the mouth, head, and

TABLE 2 Overall knowledge of child abuse according to the country and institution

Institution (Country)	Knowledge		
	Good n(%)	Moderate n(%)	Poor n(%)
The University of Queensland (Australia)	29 (76.4)	9 (23.6)	0
Jordan University of Science and Technology (Jordan)	105 (62.8)	61 (36.6)	1.0 (0.6)
College of Medicine, University of Lagos (Nigeria)	14 (58.3)	10 (41.7)	0
Khyber College of Dentistry (Pakistan)	15 (32)	29 (61.7)	3.0 (4.4)
Medical University of Warsaw (Poland)	30 (44.7)	35 (52.2)	2.0 (3.0)
University of Pretoria (Republic of South Africa)	15 (46.8)	17 (53.2)	0
Biruni University and Marmara University (Turkey)	48 (30)	62 (38.7)	50 (31.3)
Near East University (Turkish Republic of Northern Cyprus)	20 (27.8)	46 (63.9)	6.0 (8.3)
University of Pittsburgh (United States of America)	16 (72.7)	4.0 (18.2)	2.0 (9.1)
University of Puthisastra (Cambodia)	17 (54.8)	10 (32.2)	4.0 (13)

neck region. Moreover, regular paediatric visits provide the dentist with an opportunity to observe the child and the parents/caregivers intermittently over an extended period of time and to monitor whether injuries are occurring.[15] Therefore, dentists need to have a thorough understanding of the diagnosis and reporting of child abuse.[9]

It is a well-known fact that education improves the diagnosis and management skills required in healthcare providers, and this study indicates that in some dental schools, education around child abuse is lacking. In this study, the majority of the students were aware of their legal responsibility towards reporting child abuse, as has been found in some previous studies.[3,5,16] Although it is well known that reporting child abuse is a legal requirement for healthcare providers in most countries, very few cases are in fact reported by dentists.[17] Insufficient training may lead to a lack of confidence by dentists to accurately diagnose and report such cases when they arrive at their clinics [18] In the current study, the fact that 44% of the participants had not received education on child abuse indicates the necessity of adding relevant content to the curriculum of dental faculties. Furthermore, the low rate (13.4%) of training received by students on abuse case documentation may help to explain the low reporting of cases by dentists.[19] The results of the study are in line with a recent study of Brazilian primary healthcare professionals which showed that dentists were minimally involved with the recognition of these cases.[20]

An evaluation of the level of knowledge among the participants revealed that the majority had moderate-to-good knowledge levels. A 'good level' of knowledge was highest among the students from Australia, Jordan, and the United States, and a 'poor level' of knowledge was observed in Turkey. According to recent WHO data regarding the prevention of child abuse, Australia, Jordan, Nigeria, and Republic of South Africa all have a national action plan.[2] Such plans may include the training of health personnel, which could lead to greater awareness and skills in child abuse detection and management. Only 8% of the students were unsure that dentists were able to detect a case of child abuse, perhaps indicating that dentists have insufficient training in this area. This finding is in line with other studies that showed a lack of knowledge, and a high frequency of under-recognition and under-reporting of abuse cases by dentists.[21-24]

In view of the differences in responses from students from different countries, it would be beneficial to review whether sufficient attention is being paid to child abuse in the undergraduate curricula of dental schools. Furthermore, the study also identified some potential areas of focus for child abuse education that can be embedded into dental curriculum in various countries. Ivanoff and colleagues presented 'A Hybrid Curriculum' to provide comprehensive training to dental students on this subject.[17] Their model is based on problem-based learning that can stimulate critical thinking skills to assist students in screening and reporting suspected child abuse cases. Dental students are future dentists, and they are in a unique position to observe or detect the indicators of child abuse when providing treatment for orofacial injuries. Thus, comprehensive training of these future dentists could help in breaking the cycle of violence for a child.

TABLE 3 Student responses to statements about child abuse

Statement	Responses		
	Agree n(%)	Disagree n(%)	Unsure n(%)
Child abuse is primarily associated with the stresses of poverty and rarely occur amongst middle or high-income earners	202 (30.7)	374 (56.6)	84 (12.7)
Child abuse prevalence is less than Down syndrome prevalence	100 (15.1)	261 (39.5)	299 (45.4)
Child abuse is one of the most relevant cause of paediatric mortality	361 (54.7)	85 (12.8)	214 (32.5)
Bruises on the cheek may indicate slapping or grabbing of the face	603 (91.3)	30 (4.6)	27 (4.1)
Repeated injury to the dentition resulting in avulsed or discolored teeth may indicate abuse	526 (79.6)	65 (9.8)	69 (10.4)
Bruises noted around the neck are usually associated with accidental trauma	152 (23.1)	409 (61.9)	99 (15.0)
Additional bruises usually occur in areas overlying bony prominences in abuse victims	396 (60.0)	137 (20.7)	127 (19.2)
A history that is vague and differs every time the parent tells it is a possible indicator of abuse	539 (81.7)	51 (7.7)	70 (10.6)
Child abuse may be indicated if a parent			
Describes a child's injury as a self-inflicted injury	440 (66.6)	117 (17.7)	103 (15.7)
Reports a child's injury as a sibling inflicted injury	408 (61.8)	111 (16.8)	141 (21.3)
Delays seeking medical attention for a child's injury	538 (81.5)	55 (8.3)	67 (10.2)
Emotional and psychological signs of abuse may include fear of going home or of the parents	609 (92.2)	17 (2.6)	34 (5.2)
Younger children who have been abused usually tell someone soon after the abuse	160 (24.3)	407 (61.6)	93 (14.1)
Elder children who have been abused usually tell someone soon after the abuse	156 (23.6)	391 (59.3)	113 (17.1)
The abuser in most cases is someone the child knows well	560 (84.8)	36 (5.4)	64 (9.7)
If a child readily states that adult has caused harm, the accusation should be addressed	593 (89.4)	24 (3.6)	43 (6.5)
The best way to deal with suspected child abuse cases is to confront the parents	159 (24.1)	383 (58.1)	118 (17.8)
Dentists can detect child abuse during their clinical practice	538 (81.6)	71 (10.7)	51 (7.7)

There also appeared to be a lack of certainty by participants regarding where to report suspected cases; 16% admitted that they did not know. There are probably differences between countries about where to report abuse, and some may have more than one pathway. 'Police' was the most chosen option in Turkey (45.5%), the Turkish Republic of Northern Cyprus (30.6%), Nigeria (33.3%), Pakistan (41.3%), and Poland (30.9%). 'Social agency' was most preferred in the United States (62.5%), Australia (61.5%), and South Africa (42.2%) whereas 'National Family Safety Registry (53.3%) was suggested in Jordan. Considering that the situation in each country is different, and since the well-being of the child should always be a priority in the social and legal processes, case reporting guidelines

TABLE 4 Student responses to questions regarding actions to be taken in suspected cases of child abuse

Statement	Responses	Agree n(%)	Disagree n(%)
What is the first action a dentist should take if he/she suspects a case of physical abuse in a child	Ask the child and parents about the signs/symptoms you noticed	434 (65.8)	226 (34.2)
	Document the signs/ symptoms and your suspicion on the child's file	475 (72.0)	185 (28.0)
	Monitor the case during the following visits	406 (61.5)	254 (38.5)
	Report to legal authority	424 (64.2)	236 (35.7)
	Check the consistency of parents/child explanation with clinical findings	446 (67.6)	214 (32.4)
	Do nothing	11 (1.7)	649 (98.3)
	I don't know	17 (2.6)	643 (97.4)
To which legal authority should physical abuse cases be reported in your country	Ministry of Health	93 (14.1)	567 (85.9)
	Social agency	148 (22.4)	512 (77.6)
	National Family Safety Registry (NFSR)	211 (31.9)	449 (68.1)
	Police	198 (30.0)	462 (70)
	I don't know	111 (16.8)	549 (83.1)

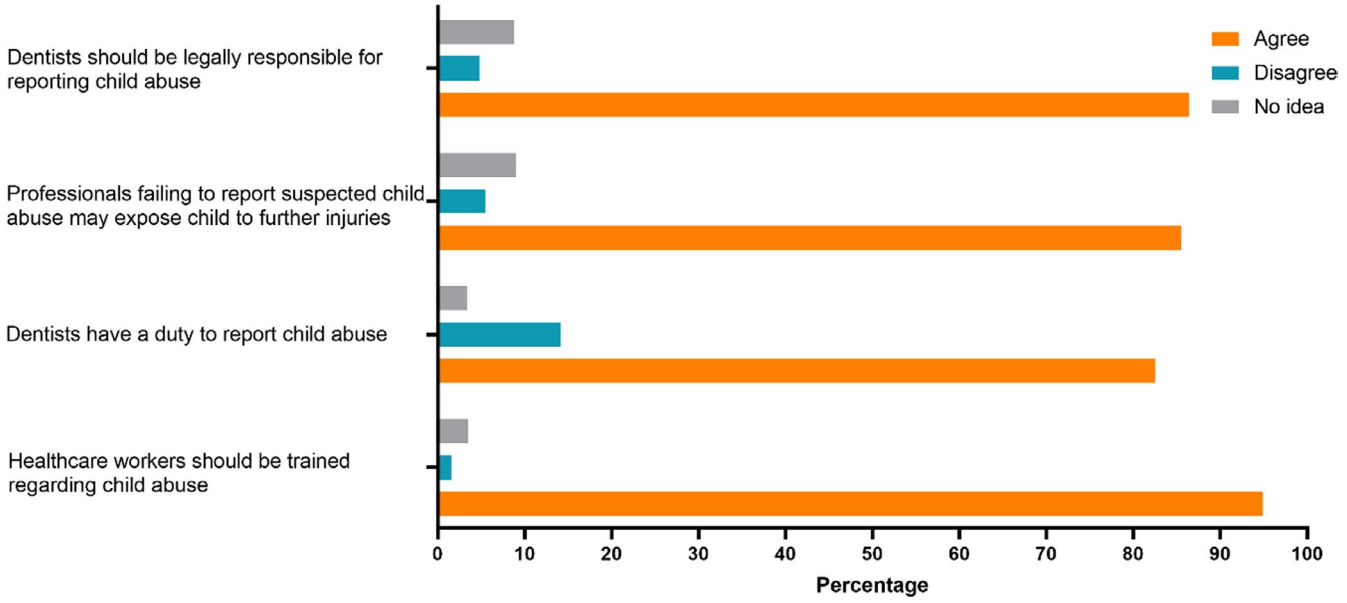

FIGURE 1 Students' perceptions regarding the reporting of child abuse

should be a part of any national or international training programme, including those targeting dentists and dental students. Dental professionals are ethically, if not legally, required to report suspicions of child abuse to the appropriate authorities; studies are, however, lacking on the prevalence of mandatory reporting by dental professionals. A recent review conducted in Australia regarding child abuse reporting by dentists showed no unified reporting system or legislations within different states of Australia.[24] The barriers to reporting included uncertainty of diagnosis, fear of losing the patient and their family, ambiguity related to the reporting process, and perceived negative consequences of reporting (such as time spent, getting in trouble with the authorities, and testifying in court). The participants requested more training to improve recognition and reporting of such cases.[25,26]

In this study, the declarative structure of the questionnaire is one of the limitations, as it may have prompted students to respond in a certain way. Additionally, the sample was not random, the results cannot be generalized to all dental students around the world. With the exception of Turkey, only one dental school in each country was surveyed—the results cannot be taken to mean that all dental schools in that country are strong or weak in the teaching on child abuse. Moreover, questionnaires can be perceived as examinations, with the possibility of students searching the media, journals, or textbooks for correct answers, rather than giving their own experience related to child abuse education.

The evaluation of students' attitudes towards the role of dentists in child abuse showed that the vast majority agreed that dentists have ethical (83%) and legal (87%) responsibility to report cases. In addition, in line with some previous literature, most participants believed that the education they had received on child abuse was inadequate (60.7%).[20,27-30]

In conclusion, the study showed that the participants generally had moderate-to-good knowledge of child abuse and the role of the dentist in such cases. There were, however, differences in knowledge levels of students from different dental schools in various countries participated in the study. Participants acknowledged there were gaps in their training, especially around what to do if they come across of case of suspected children abuse. The majority of the participants indicated that they would like to receive further formal training on this subject. The findings of this study provided valuable insight into child abuse education in the dental schools included in this study. The results will hopefully act as a stimulus towards reaching an international consensus on developing a comprehensive 'Dental School Child Abuse Education Programme', which could help in identification and reporting these cases.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

C.D conceived the idea; OBA, S.A, C.D, A.K, ARV, S.T, AEO, EEK, BSC, D.A, and S.Z collected the data; EE and SZ analysed the data, CD and SZ led the writing, and OBA, S.A, CSD, A.K, and ARV revised the manuscript and gave final approval of the version to be published and agreed to be accountable for all aspects of the study.

ORCID

Canan Duman https://orcid.org/0000-0003-1240-1285
Ola B. Al-Batayneh https://orcid.org/0000-0003-1670-497X
Alexandre R. Vieira https://orcid.org/0000-0003-3392-6881
Sheree Tredoux https://orcid.org/0000-0003-1599-8830
Elif Ece Kalaoglu https://orcid.org/0000-0003-0932-3706
Belen Sirinoglu Capan https://orcid.org/0000-0003-1829-0379
Damla Aksit Bicak https://orcid.org/0000-0002-0375-9026
Sobia Zafar https://orcid.org/0000-0001-5551-8147

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