



CATÓLICA
FACULDADE DE MEDICINA DENTÁRIA

VISEU

CHILD ABUSE/NEGLECT, THE ROLE OF THE DENTIST: A SCOPING REVIEW

Dissertação apresentada à Universidade Católica Portuguesa
para obtenção do grau de Mestre em Medicina Dentária

Por:
Diana Astori Nogueira

Viseu, 2023



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Viseu, 2023

"The fear of the Lord is the beginning of knowledge, but fools despise wisdom and instruction." - Proverbs 1:7

I dedicate this work to the vulnerable children of the world, who deserve protection,
love, and a brighter future.

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First and foremost, I express my heartfelt gratitude to **God** for guiding me through life's challenges and granting me the strength to persist.

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ABSTRACT

Introduction : Dental professionals play a significant role in identifying and reporting child abuse and neglect. However, several studies have pointed out non-reporting behaviour among these professionals, evidencing difficulties identifying and reporting suspected cases.

Objective: This scoping review aimed to explore frequency and possible barriers in identifying and reporting by dental professionals and to identify associated factors. There is a need to highlight the identification of abuse in dental settings and the need of knowledge improvement to tackle such cases if they come across one. The main objective of this scoping review is to demonstrate the reasons of (non)recognizing and (non)reporting child abuse and neglect cases.

Methods: This review was conducted in the Pubmed, Scopus, and VHL databases between October 2022 and March 2023. Analytical studies in English were selected. Protocol for scoping reviews proposed by members of the Joanna Briggs Institute was used, and the Extension for PRISMA- ScR checklist was adopted. The search strategy was focused on the use of MeSH terms and key words to find relevant publications, followed by an abstract and full-text review.

Results: A total of 99 articles and 12 grey literature references were included in our literature review. Mapping research shows the need for a better approach in relation to dentists' knowledge in recognizing cases of child abuse in daily practice and how to deal with the situation. The selected articles highlighted the worldwide common problems, showing the great importance of education in this field.

Conclusion: The review enhances the need of abuse and neglect issue awareness in dental profession. As the amount of unpreparedness is considerable high, an improvement of education about child abuse/neglect in recognizing and reporting to intercept abusing and protect vulnerable children, are strongly recommended, professionally and institutionally.

Keywords: Child abuse; Knowledge; Education; Dentistry

RESUMO

Introdução: Os profissionais de medicina dentária desempenham um papel significativo na identificação e denúncia de abuso infantil e negligência. No entanto, diversos estudos têm apontado comportamentos de não denúncia por parte desses profissionais, evidenciando dificuldades na identificação de casos suspeitos.

Objetivo: Esta revisão de escopo teve como objetivo explorar a frequência e possíveis barreiras na identificação e denúncia por profissionais médicos dentistas, além de identificar os fatores associados. É necessário destacar a identificação de abuso em ambientes de medicina dentária e a necessidade de aprimoramento do conhecimento para lidar com tais casos, caso sejam encontrados. O principal objetivo desta revisão abrangente é demonstrar as razões de (não) reconhecimento e (não) denúncia de casos de abuso e negligência infantil.

Métodos: Esta revisão foi conduzida nas bases de dados Pubmed, Scopus e VHL, no período de outubro de 2022 a março de 2023. Foram selecionados estudos analíticos em inglês. Foi utilizado o protocolo para revisões abrangentes proposto pelos membros do Instituto Joanna Briggs, e adotada a extensão para a lista de verificação PRISMA-ScR. A estratégia de busca concentrou-se no uso de termos MeSH e palavras-chave para encontrar publicações relevantes, seguida por uma revisão de resumos e textos completos.

Resultados: Um total de 99 artigos e 12 referências de literatura cinzenta foram incluídos nessa revisão. O mapeamento da pesquisa demonstra a necessidade de uma abordagem melhor em relação ao conhecimento dos médicos dentistas na identificação de casos de abuso infantil na prática diária e como lidar com a situação. Os artigos selecionados destacaram os problemas comuns em todo o mundo, mostrando a grande importância da educação nessa área.

Conclusão: A revisão ressalta a necessidade de conscientização sobre a questão do abuso e negligência infantil perante os profissionais de medicina dentária, ressaltando a considerável falta de preparo. É altamente recomendável o aprimoramento da educação sobre abuso/negligência infantil no reconhecimento e na denúncia, tanto em nível profissional quanto institucional, a fim de interceptar os casos de abuso e proteger crianças vulneráveis.

Palavras-chave: Abuso infantil; Conhecimento; Educação; Odontologia.

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LIST OF ABBREVIATIONS

Abbreviation	Definition
CA	Child Abuse
CA/CN	Child Abuse/Child Neglect
CPA	Child Physical Abuse
CSA	Child Sexual Abuse
CWS	Child Welfare Services
DeCS	Health Sciences Descriptors
DHPs	Dental Health Professionals
DV	Domestic Violence
MeSH	Medical Subject Headings
NSPCC	National Society for the Prevention of Cruelty to Children
PA	Physical Abuse
PANDA	Prevent Abuse and Neglect Through Dental Awareness
PCC	Population/Concept/Context
PTSD	Post- Traumatic Stress Disorder
SA	Sexual Abuse
VHL	Virtual Healt Library

INTRODUCTION

1. INTRODUCTION

1.1 Literature review

Dentists can play a vital role in identifying cases of child abuse and neglect (CAN) as they are in a unique position to observe and document physical injuries and signs of neglect that may not be immediately visible. According to some articles, the oral cavity is identified as a site of manifestation of abuse and neglect, and dentists have the responsibility to report suspected cases to the appropriate authorities^(1, 2).

Several studies have demonstrated the importance of dentists in identifying child abuse. One of those studies published that dentists are more likely to report suspected child abuse cases than other healthcare professionals. Another study made surveyed over 4,000 dentists in the United States and found that 28% had reported at least one case of suspected child abuse or neglect in the past five years⁽³⁻⁶⁾.

Some papers have stated that 60%–75% of child abuse victims present with head, face, and mouth injuries. Concluding that dentists should be more likely to identify abuse when they had received training on recognizing and reporting child abuse⁽⁷⁾.

In addition to these studies, several organizations and professional societies have emphasized the importance of dentists in identifying and reporting cases of child abuse. The American Academy of Paediatric Dentistry has developed guidelines for identifying and reporting child abuse, and the American Dental Association has published a policy statement on child abuse and neglect⁽¹⁾.

It is difficult to estimate the exact frequency in which dentists encounter cases of child abuse or neglect in their clinics, as it can vary depending on a number of factors such as the population served, the level of awareness and training of the dentist and other dental professionals, and cultural/social factors. Some studies⁽⁸⁻¹²⁾ have found that dental professionals in European countries encounter cases of child abuse and neglect more often than previously thought. It is important to note that, as in most of the world, child abuse and neglect can be underreported and underrecognized, so the actual frequency of cases encountered by dentists may be even higher than what is reported in these studies⁽¹³⁾.

1.2 Understanding child abuse and neglect

Child abuse refers to the mistreatment or neglect of a child by a parent, caregiver, or any other person responsible for the child's welfare. It can take various forms, including physical abuse (PA), emotional abuse, sexual abuse, and neglect. Physical abuse involves the use of physical force that causes injury, harm, or impairment to a child. Emotional abuse involves the use of words or actions that cause emotional harm or distress to a child. Sexual abuse (SA) involves any sexual act or behaviour imposed on a child without their consent, and neglect involves failure to provide for a child's basic needs⁽⁶⁾.

Child abuse has significant short-term and long-term effects on the physical, psychological, and emotional well-being of children. According to the World Health Organization, an estimated 1 billion children worldwide have experienced some form of violence, including child abuse⁽³⁾.

Child abuse is a serious problem that requires a multi-faceted approach involving prevention, early detection, and intervention. In many countries, laws have been enacted to protect children from abuse, and agencies and organizations have been established to provide support and assistance to victims of child abuse⁽¹⁴⁾. The most common type of child abuse is neglect, which can be defined as the failure of a caregiver to provide for a child's basic needs, including food, shelter, clothing, medical care or education. Neglect can be intentional or unintentional, and it can occur as a result of a caregiver's lack of knowledge or resources, or due to mental health or substance abuse issues⁽¹⁵⁾.

According to the U.S. Department of Health and Human Services, neglect accounted for 61% of all child maltreatment cases reported to child protective services in 2019, making it the most common form of child abuse in the United States. The American Academy of Paediatrics notes that neglect can have significant long-term effects on a child's physical, cognitive, and emotional development^(1, 6).

There are different types of neglect, including physical neglect (failure to provide adequate food, shelter, and medical care), educational neglect (failure to enrol a child in school or provide adequate educational opportunities), emotional neglect (failure to

provide emotional support and attention), and medical and dental neglect (failure to seek medical/dental care for a child's physical or mental health needs⁽¹⁴⁾).

It is important to note that neglect can be difficult to detect, as it may not involve physical harm or visible signs of abuse. Therefore, it is essential for caregivers, educators, healthcare providers, and others who work with children to be vigilant and report any suspected cases of neglect to the appropriate authorities⁽¹⁵⁾.

1.3 Child abuser characteristics

By knowing the characteristics of a child abuser, we can better understand the warning signs and behaviours that could lead to abuse. This knowledge can help us identify potentially dangerous individuals and take steps to prevent abuse from occurring. Understanding the characteristics of a child abuser can help to protect children who may be vulnerable to abuse. By being aware of the behaviours and attitudes of abusers, we can take steps to minimise risk and protect children from harm. Knowing the characteristics of a child abuser can also help to identify abusive behaviour early on and intervene before the abuse becomes more serious and to provide better support and services to victims of abuse. These actions can help to prevent long-term harm to the child and increase the chances of a positive outcome. In addition, knowing the behaviour and motivations of abusers can provide the support to help victims heal and recover. In summary, knowing the characteristics of a child abuser is crucial for prevention, protection, early intervention, and support for victims⁽⁶⁾.

Characteristics of child abusers could include:

1. A history of abuse or neglect - Studies have shown that adults who were abused or neglected as children are more likely to abuse their own children.
2. Substance abuse - Substance abuse is a common factor in many cases of child abuse.
3. Mental health issues - Individuals with mental health issues, such as depression or personality disorders, may be more likely to abuse children.
4. Poor impulse control - Some abusers have difficulty controlling their impulses, leading to impulsive and abusive behaviour.
5. Low self-esteem - Abusers may have low self-esteem and use their power over a child to feel more powerful and in control.

6. Lack of empathy - Abusers may lack empathy for the child, viewing them as objects or possessions rather than human beings with their own thoughts and feelings.
7. Financial stress - Financial stress has been linked to higher rates of child abuse.
8. Social isolation - Socially isolated individuals may be more likely to abuse children, as they may lack social support and healthy outlets for their emotions.
9. Poor parenting skills - Abusers may have poor parenting skills, leading to frustration and a greater likelihood of abuse.
10. History of domestic violence - Abusers may have a history of domestic violence or abuse, suggesting a pattern of violent behaviour ⁽¹⁶⁾.

1.4 Consequences of child abuse and neglect

It is possible for a child who has experienced abuse to become an abuser himself in the future, but it is not a certainty or a foregone conclusion. While there is some evidence that suggests a link between experiencing abuse and becoming an abuser, it is important to note that not all children who experience abuse go on to become abusers themselves. Many factors can contribute to a child's likelihood of becoming an abuser in the future, including their individual personality, their support system, and the availability of appropriate interventions and treatment for their abuse. It is important to recognize that abuse is a cycle that can perpetuate across generations. However, by intervening early and providing support and resources to children who have experienced abuse, it is possible to break the cycle of abuse and prevent future harm⁽⁴⁾.

Research has shown that child abuse can lead to a range of short- and long-term negative outcomes, including:

1. Physical consequences: Physical abuse can cause bruises, burns, broken bones, and other injuries. It can also lead to long-term health problems, such as chronic pain, digestive issues, and difficulty sleeping. Neglect, which is also a form of child abuse, can cause malnourishment, dehydration, and other physical health problems.
2. Emotional consequences: Children who have experienced abuse may develop a range of emotional problems, including anxiety, depression, and post-

traumatic stress disorder (PTSD). They may also struggle with low self-esteem, trust issues, and difficulties forming healthy relationships with others.

3. Behavioural consequences: Children who have experienced abuse may exhibit a range of behavioural problems, including aggression, self-harm, substance abuse, and other risky behaviours. They may also struggle with school performance and have difficulty forming healthy friendships.
4. Long-term consequences: Research has shown that children who have experienced abuse are at increased risk of developing a range of long-term health problems, including heart disease, diabetes, and other chronic illnesses. They may also be at increased risk of engaging in criminal behaviour and experiencing homelessness^(5, 17, 18).

1.5 Child abuse and neglect VS. dentists

There are several reasons why dentists are particularly well-suited to identifying child abuse cases. First, dentists often see children regularly from a young age, which allows them to establish a baseline for normal oral health and development. Any changes to this baseline could be an indication of abuse⁽¹⁹⁾.

Second, many types of abuse, such as physical or sexual abuse, can manifest in the mouth, teeth, and gums. For example, broken, chipped, or knocked-out teeth may indicate physical abuse, while oral trauma or injuries to the soft tissue of the mouth may suggest sexual abuse. Neglect, such as poor oral hygiene or untreated cavities, can also be a sign of abuse⁽²⁰⁾.

Finally, children who are being abused may be hesitant to speak about their experiences. A dentist may be one of the few trusted adults a child sees on a regular basis, and they may feel comfortable confiding in their dentist about their situation⁽¹⁴⁾.

According to a study published in the Journal of the American Dental Association, dentists are the second most common professionals to identify cases of child abuse, after medical professionals. This study also found that dental professionals had a higher rate of reporting suspected cases of abuse than other healthcare professionals, such as nurses or physicians⁽²¹⁾.

As a mandatory reporter of child abuse, dentists play a critical role in identifying and reporting suspected cases. By paying attention to changes in a child's oral health, dentists can help identify cases of abuse and protect children from further harm. The following are some of the signs of child abuse that a dentist may detect:

1. Unexplained injuries: Bruises, burns, cuts, or fractures that are inconsistent with the child's developmental stage, or that the parent/guardian cannot explain or offer a plausible explanation.
2. Behavioural changes: Children who are being abused may exhibit changes in their behaviour or demeanour, such as becoming withdrawn, anxious, aggressive, or fearful. They may also exhibit signs of depression, bedwetting, or loss of appetite.
3. Poor oral hygiene: Neglect or lack of proper dental care may be an indicator of abuse or neglect, especially if the child has dental cavities, broken or missing teeth, or other oral health problems.
4. Delayed dental treatment: Children who have not received timely or appropriate dental care may be experiencing neglect or abuse. This could include a delay in seeking treatment for oral infections or injuries.
5. Inappropriate sexual behaviour or knowledge: Children who have been sexually abused may exhibit knowledge or behaviours that are not age appropriate. They may also have physical signs of abuse, such as bleeding or injury to the genital area.

It is important to note that these signs may not always be present, and dentists should be alert to any unusual or suspicious behaviour or injuries. Dentists can also consult with their state's child protective services agency for guidance on reporting suspected cases of child abuse⁽²¹⁾.

1.6 Reporting child abuse and neglect

As a mandated reporter, a dentist has a legal obligation to report suspected cases of child abuse or neglect to the appropriate authorities. The requirements for reporting child abuse vary from country to country and even from state to state, but most countries require healthcare professionals to report suspected abuse to child protective services or law enforcement^(8, 22-25). The following steps provide a general guide for how a dentist should report a suspected case of child abuse:

1. Recognize the signs of child abuse or neglect: A dentist should be aware of the common signs and symptoms of physical, sexual, and emotional abuse, as well as neglect. These may include unexplained bruises, burns, or injuries, changes in behaviour or mood, poor hygiene, malnutrition, or failure to thrive.
2. Document the evidence: A dentist should document any signs of abuse or neglect in the patient's dental record, including descriptions of injuries, photographs, and any statements made by the child or caregiver.
3. Follow state reporting requirements: A dentist should be familiar with their state's reporting requirements for child abuse and neglect. In most states, healthcare professionals are required to report suspected abuse to child protective services or law enforcement within a specified time frame.
4. Make a report: A dentist should contact the appropriate agency to make a report of suspected abuse. In most cases, this will be the state's child protective services agency or local law enforcement. The report should include the dentist's name, contact information, and a detailed description of the suspected abuse or neglect.
5. Provide follow-up information: A dentist may be contacted by the agency investigating the report for additional information or to provide testimony in court. It is important for the dentist to cooperate with the investigation and provide any information in order to contribute to the protection of the child^(6, 22, 26).

For these reasons, a scoping review about the importance of the dentist's role in cases of child abuse was necessary. Aiming to map other studies that raise the same problem - the difficulty that professionals and academics in odontology face in dealing with diverse cases of child abuse in their daily practice. This study also shows that dental professionals worldwide unilaterally face issues pertaining to the phenomenon of child abuse within the remit of odontology. This research aims to highlight the breadth, depth, and gravity of this under-addressed issue, with the intention of bringing up changes to education in institutions, training, and protocols within the Dental profession. Studies show dental professionals are in a distinctly key position to identify child abuse or neglect, crucially able to observe physical injuries, body language behaviour and signs indicative within the oral cavity. Combined with appropriate training and guidelines, can help to protect vulnerable children from abuse and neglect.

METHODS

2. METHODS

2.1 Study protocol

A scoping review is a type of literature review valid for the mapping and comprehensive coverage of existing evidence in a given field of research⁽²⁷⁾.

This methodology has been selected for this study to analyse the extent and variety of existing literature in the identification and reporting of CAN by health professionals and associated factors and barriers.

The protocol for the preparation of scoping reviews proposed by members of the Joanna Briggs Institute⁽²⁸⁾ was used, and the Preferred Reporting Items for Systematic reviews and Meta-Analyses—Extension for Scoping Reviews (PRISMA- ScR) checklist⁽²⁹⁾ was adopted to conduct this review⁽³⁰⁾.

2.2 Research question

The question that guided the research was: How effective are dentists in identifying and reporting cases of child abuse or neglect? The sub-question was: What is the dentist's role in child abuse and neglect?

2.3 Eligibility criteria

The inclusion criteria adopted were: Analytical studies and qualitative studies, published only in English and in the period from January 2013 to March 2023. Exclusion criteria were studies that specifically address only another area of health other than dentistry, or studies that do not refer to child abuse in general.

2.4 Search strategy

To identify key concepts and outline a research strategy, variables of interest were included in the concept and context of the framework Population/Concept/Context (PCC) to follow the inclusion criteria protocol. Thus, a larger field of research results was covered, as shown by the PCC scheme below:

- Population:

- Dental professionals such as general dentists, paediatric dentists, and dental hygienists
- Children and their caregivers who have been identified, suspected, or treated for abuse or neglect
- Concept:
 - The role of dentists in identifying and addressing child abuse and neglect
 - Recognition of signs of abuse and neglect
 - Appropriate communication and reporting of suspected cases
- Context:
 - Current state of knowledge and understanding about the role of dentists in identifying and addressing child abuse and neglect
 - Examination of existing research and literature on the subject
 - Prevalence and incidence of abuse and neglect among dental patients
 - Effectiveness of training and education programs for dental professionals
 - Barriers and facilitators to the identification and reporting of abuse and neglect
 - Considering studies from different countries or regions.

After establishing the recommended framework, one researcher defined the search strategy after elaborating several combinations of words (*Table 1*) and verifying results. For a less restricted search, the terms “*child abuse*” and “*dental professionals*” separated by the Boolean operator “AND” were used, and with search in all fields, generating the sentence: (“*child abuse*”) AND (“*dental professionals*”) with the respective results for each database (*Table 2*). The advanced research was made after extracting the keywords and MeSH/DeCS from the PubMed/VHL/Scopus database through research using contents related to the topic (*Tables 3, 4 and 5*). The combination of these words found were joined through the AND and OR connectors. Where the AND connector was used to unite each of the different concepts and OR to join the keywords.

The strategy was implemented in October 2022 in the *PubMed (U.S. National Library of Medicine, National Institutes of Health)*, *Scopus (Elsevier)*, and *VHL (Virtual Health Library)* databases, with appropriate adaptations for each database as a guide to constructing clear and meaningful objectives and eligibility criteria for this scoping review.

To follow the research protocol of a scoping review, grey literature was necessary. With the objective of presenting alternative perspectives and finding papers and contents not yet published, where important information is being obtained to enrich the content of the review and acquire a broad mapping of the topic addressed. The grey literature includes content found on websites of relevant organizations containing guidelines, reports, conference abstracts and unpublished papers (*Table 2*).

Table 1. Structure of the PCC; Synonyms/keywords;MeSHs/DeCS

PCC	P (Population)	C (Concept)	C (Context)
EXTRACTION	CHILD ABUSED	CHILD ABUSE THE ROLE OF THE DENTIST	THE ROLE OF THE DENTIST
	DENTISTS	(In identifying and addressing child abuse and neglect)	(Current state of knowledge and understanding about the role of dentists in identifying and addressing child abuse and neglect)
SYNONYMS/KEYWORDS	Children	Child Maltreatment*	Dentist responsibility*
	Minor*	Child Negligence*	Forensic paediatric dentistry
	Underage	Child Mistreatment*	Reporting
	Dental professional*	Child Uncared	Dentist knowledge
	Dentist*	Child Neglect	
	Dental care	Dentist responsibility*	
		Dentist duty*	
MeSH/DeCs (PubMed, Virtual Health Library, Scopus)	Child Adolescent	Child Abuse/ diagnosis*	Mandatory reporting*
	Infant	Child Abuse, sexual/ diagnosis*	Attitude of Health Personnel*
	Forensic	Child Abuse / prevention & control*	Clinical Competence
	Dentistry	Decision Making	Professional Role
	Dental care for children	Diagnosis, Differential	Education, Dental
	Dentists*	Child abuse	Knowledge
	Paediatric Dentistry	Child physical abuse	Attitudes
	Paediatric Dentist	Child sexual abuse	Awareness
	Dental		Capability
	Dental practitioners		Perceive
	Health professionals		Denounce
Dental professionals		Self-reported knowledge	

Table 2. Primary databases research results and grey literature.

Source	Date Searched	Number of Results
PubMed (U.S. National Library of Medicine, National Institutes of Health)	26/10/2022	22.334
Virtual Health Library	16/11/2022	22.768
Scopus (Elsevier)	28/01/2023	13.800
Websites Searchers (grey literature)	NA	12
	Total	58.914

2.5 Selection of articles

A single researcher performed the search and extraction of studies. The EndNote Web® program, including a duplicate elimination filter, was used to organize and review the work. Additionally, the researcher manually compared Excel tables to identify any remaining duplicates. After eliminating duplicates, the titles and abstracts of 104 articles obtained from the database search (PubMed/VHL/Scopus) were reviewed, and relevant articles were selected based on predefined eligibility criteria. This process resulted in a total of 99 articles (*Figures 3, 4, and 5*). Subsequently, the 99 selected articles underwent a thorough full-text reading and were included in the study.

Table 3. Virtual Health Library secondary strategy research and results.

Search	Query	Results
1	child abuse AND (fulltext:"1") AND la:("en")) AND (year cluster: [2013 TO 2023])	22.768
2	(child abuse) OR (child neglect) OR (child physical abuse) OR (child sexual abuse) AND (self-reported knowledge) OR (attitudes) OR (awareness) OR (capability) OR (perceive) OR (perceive) OR (knowledge) OR (attitudes) AND (dentists) OR (paediatric dentists) OR (dental) OR (dental practitioners) OR (health professionals) OR (dental professionals)	78
3	(child abuse) OR (child neglect) OR (child physical abuse) OR (child sexual abuse) AND (self-reported knowledge) OR (attitudes) OR (awareness) OR (capability) OR (perceive) OR (denounce) OR (knowledge) OR (attitudes) AND (dentists) OR (paediatric dentists) OR (dental) OR (dental practitioners) OR (health professionals) OR (dental professionals) AND (fulltext:"1") AND la:("en")) AND (year cluster: [2013 TO 2023])	64
Total after eligibility criteria		61

Table 4. Scopus secondary strategy research and results.

Search	Query	Results
1	(title-abs-key (child and abuse) or title-abs key (child and neglect) or title-abs key (child and maltreatment) or title-abs-key (child and physical and abuse) or title-abs key (adolescents and abuse) and title-abs-key (forensic and odontology) or title-abs key (paediatric and dentists) or title-abs-key (dentists) or title-abs-key (dental and practitioners) or title-abs-key (dental and doctors) or title-abs-key (dentistry) or title-abs-key (dental and practice) and title-abs-key (responsibilities) or title-abs-key (perceptions) or title-abs key (experience) or title-abs-key (knowledge) or title-abs-key (attitudes) or title-abs-key (diagnosis) or title-abs-key (awareness) and title-abs-key (report) or title-abs-key (reporting) or title-abs-key (investigation))	232
2	(title-abs-key (child and abuse) or title-abs-key (child and neglect) or title-abs-key (child and maltreatment) or title-abs-key (child and physical and abuse or title-abs-key (adolescents and abuse) and title-abs-key (forensic and odontology) or title-abs-key (paediatric and dentists) or title-abs-key (dentists) or title-abs-key (dental and practitioners) or title-abs-key (dental and doctors or title-abs-key (dentistry) or title-abs-key (dental and practice and title-abs-key (responsibilities) or title-abs-key (perceptions) or title-abs-key (experience) or title-abs-key (knowledge) or title-abs-key (attitudes) or title-abs-key (diagnosis) or title-abs-key (awareness) and title-abs-key (report) or title-abs-key (reporting) or title-abs key (investigation)) and (limit-to ("all* ") and (limit-to (pub year, 2015) or limit-to (pub year, 2014) or limit-to (pub year, 2023) or limit-to (pub year, 2022) or limit-to (pub year, 2021) or limit-to (pub year, 2020) or limit-to (pub year, 2019) or limit to* (pub year, 2018) or limit-to (pub year, 2017) or limit-to (pub year, 2016) or limit-to	56
Total after deduplication and eligibility criteria		21

Table 5. PubMed secondary research review.

Search	Query	Results
1	"child" [MeSH Terms] OR "adolescent*" [MeSH Terms] OR "infant" [MeSH Terms] OR "child, preschool" [MeSH Terms] OR child [Title/Abstract] OR "adolescent" [Title/Abstract] OR "infant" [Title/Abstract] OR "Children" [Title/Abstract] OR "minor*" [Title/Abstract]	1,410,829
2	"forensic dentistry" [MeSH Terms] OR (("dental care"[MeSH Terms] OR "Dental"(All Fields) AND "care"(All Fields)) OR "dental care" (All Fields) AND "child" [MeSH Terms] OR "dentist*" [MeSH Terms] OR "paediatric dentistry*" [MeSH Terms] OR "Forensic dentistry" [Title/Abstract] OR "dental health services" [MeSH Terms] OR "Dental"(All Fields) AND "health" (All Fields) AND "services" (All Fields) OR "dental health services"(All Fields) OR "Dental"(All Fields) OR "dentally" (All Fields) OR "dental*" (All Fields) AND "care children" [Title/Abstract] OR "dentist*" [Title/Abstract] OR "paediatric dentistry" [Title/Abstract] OR "dental care" [Title/Abstract] OR "dental professional" [Title/Abstract])	22,568
3	"child abuse diagnosis" [MeSH Terms] OR "child abuse, sexual/diagnosis*" [MeSH Terms] OR "child abuse prevention and control" [MeSH Terms] AND "control*" [MeSH Terms] OR "decision making" [MeSH Terms] OR "diagnosis, differential" [MeSH Terms] OR child negligence [Title/Abstract] OR "child mistreatment" [Title/Abstract] OR "child*" [MeSH Terms] OR "child*" (All Fields) OR "children" (All Fields) OR "child's" (All Fields) OR "children's" (All Fields) OR "children's" (All Fields) OR "child's" (All Fields) AND "uncared" [Title/Abstract] OR "child neglect" [Title/Abstract]	176,950
4	"mandatory reporting" [MeSH Terms] OR "attitude of health personnel*" [MeSH Terms] OR "clinical competence" [MeSH Terms] OR "professional role" [MeSH Terms] OR "education, dental" [MeSH Terms] OR "dentists" (All Fields) OR "dentists" [MeSH Terms] OR "dentists" (All Fields) OR "dentists" (All Fields) AND "responsibility" [Title/Abstract] OR "reporting" [Title/Abstract] OR "dentist knowledge" [Title/Abstract] OR (("forensic medicine" [MeSH Terms] OR "forensic" (All Fields)) AND "medicine" (All Fields) OR "forensic medicine" (All Fields) OR "forensics" (All Fields) OR "forensic" (All Fields) OR "Forensically" (All Fields) AND "paediatric dentistry" [Title/Abstract]) OR "professional role" [Title/Abstract] OR "clinical competence" [Title/Abstract]	264,749
5	#1 AND #2 AND #3 AND #4	77
Total after deduplication and eligibility criteria		17

2.6 Data extraction

After reading the full text, the researcher selected studies that contained information relevant to the study question.

2.7 Characteristics of included studies

A total of 197 studies were retained in search of the databases and 12 in grey literature search. After removing the duplicates there remained 104 articles for the reading of title and abstract. Of these, 102 were selected for a full reading. After applying the eligibility criteria, 99 articles remained. All steps are described in flowchart of *Figure 1*.

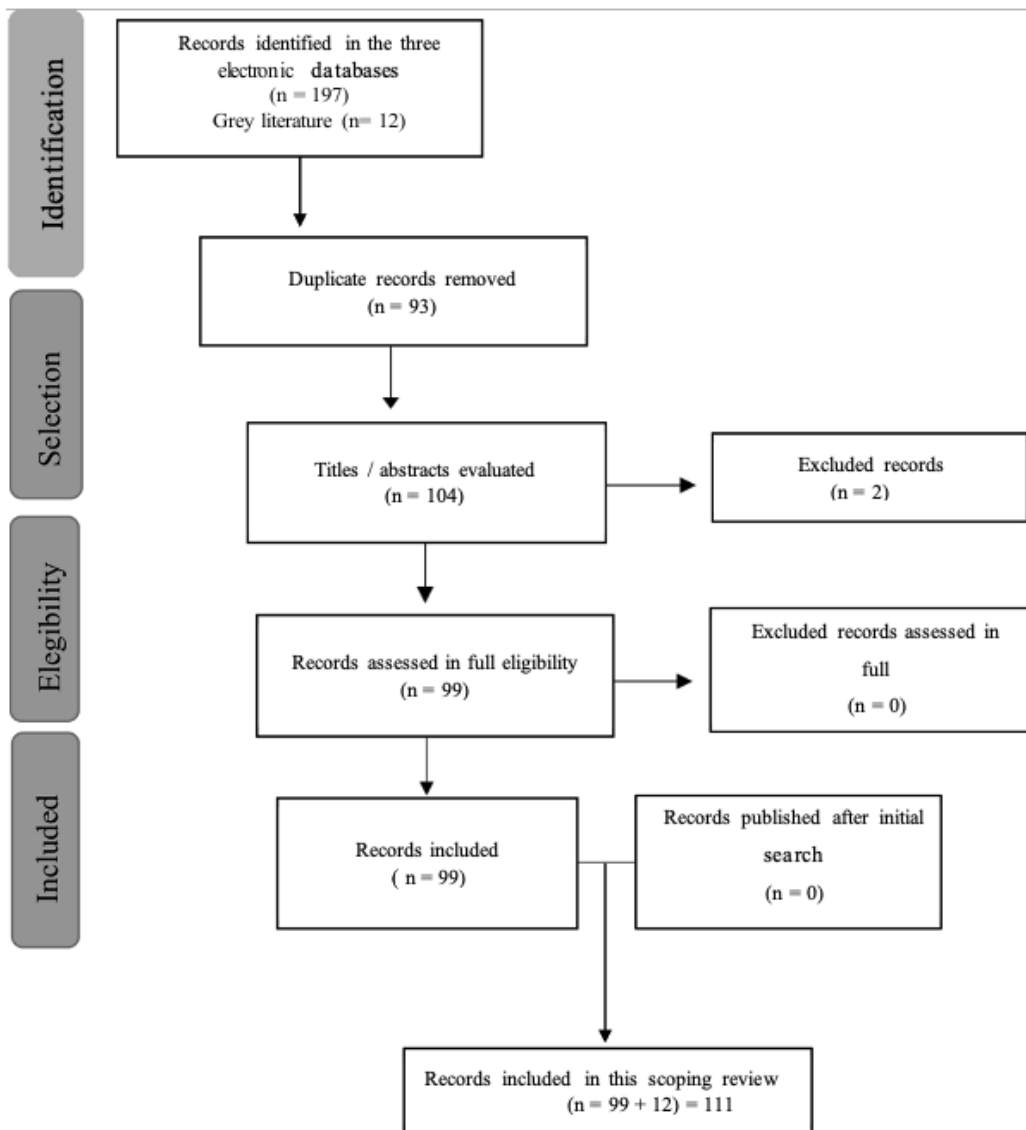


Figure 1. Flowchart of study selection.

RESULTS

3. RESULTS

In this study, we utilized the Excel program to efficiently organize and categorize the data collected from the various articles obtained exclusively from databases (grey literature wasn't included). The data was structured into three distinct tables, each representing different types of studies. This approach allowed us to effectively manage and analyse the information, ensuring a systematic evaluation of the gathered data. The first table encompassed cross-sectional studies, providing comprehensive information such as article title, author, country of origin, article purpose, findings, and conclusions. The second table mirrored the divisions of the first table, but it included literature reviews and scoping reviews. Additionally, the third table comprised other study types, such as case reports, quantitative and qualitative studies, and randomized controlled trials.

The purpose behind creating these tables was to facilitate an in-depth analysis and enable effective comparisons among the studies (*see appendixes 1, 2 and 3*).

By conducting a comparative analysis using the data from these tables, it was possible to ascertain a recurring issue, prevalent in most of the included articles: the insufficient knowledge among dentists and dental students in recognizing and reporting suspected cases of CAN. Furthermore, a significant majority of the articles emphasized the pressing need for improvement within institutions concerning this matter, along with providing further training opportunities for professionals who have already graduated.

Of the studies included in this scoping review, 57 were cross-sectional, 20 literature reviews, 6 qualitative/quantitative studies, 4 cases reports, 3 only qualitative studies, 3 only quantitative studies, 3 literature reviews/case report, 1 literature review/quantitative study, 1 randomized control trial and 1 scoping review. The remaining information collected can be seen in *Figure 2*.

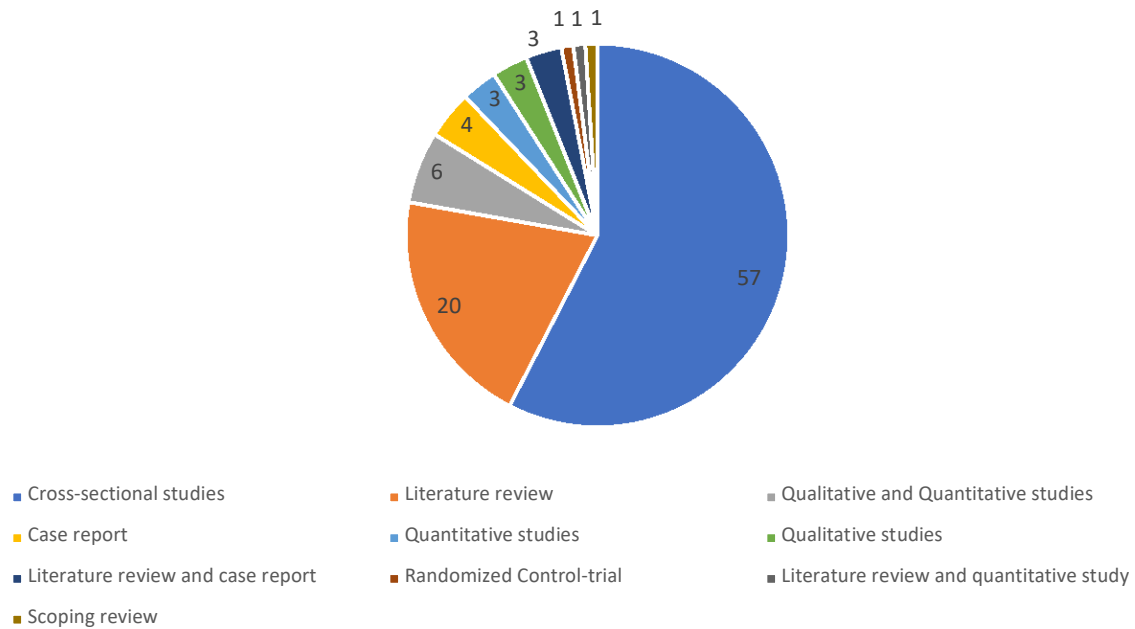


Figure 2. Percentage distribution of the included study types.

Cross-sectional studies obtained their results through questionnaires, 30 of these studies analysed the knowledge and attitudes of dentists in relation to CAN; 9 analysed the knowledge of dentists in CAN; 8 the attitudes of dentists in reporting CAN; 4 studies analysed which barriers prevent dentists from reporting CAN; 3 the dentists' knowledge in recognizing signs of CAN; 3 studies analysed the knowledge and attitudes of dental students with suspected CAN and 1 the need for education and instruction improvement in dental institutions in relation to CAN.

Within included literature CAN reviews, 5 described how dentists should make the identification and how to report; 5 Informed the role of dentists; 3 analysed the main oral manifestations and dental aspects; 2 investigated the relationship between CAN and oral health; 1 revealed the level of knowledge and report of dentists; 1 investigated the legal and ethical aspects in 4 different countries; 1 highlighted the main barriers for dentists in reporting; 1 methods and applications of forensic odontology; 1 described how dentists should manage and report suspected cases; 1 described CAN laws in Colombia.

The remaining 21 studies in this scoping review included 7 reported cases of child abuse, where 3 associated a literature review with the case report. Two described how child abuse survivors behave in the dental office and 7 analysed the quality of

knowledge and the approach of dentists in CAN. 3 studies looked at head and neck injuries that dentists should recognize as signs of CAN. 1 randomized trial looked at oral consequences in adult patients who experienced child abuse and neglect. Finally, a qualitative study proposes an online referencing platform for dental professionals to know more about signs of CAN.

Cross-sectional studies (n= 57) were made all around the world. The distribution was: 15 belong to Middle East countries, 5 are from Turkey, 3 from Pakistan, 3 from Saudi Arabia, 3 are from United Arab Emirates and 1 from Iran. 20 belong to European countries, where 5 are from the United Kingdom, 4 from Norway, 2 from Denmark, 1 from Sweden, 1 from Poland, 2 from Germany, 1 from Scotland, 1 from the Netherlands, 1 from Greece, 1 from Bosnia and 1 from Croatia. 8 studies belong to Asian countries, 6 to India, 1 to Malaysia and 1 to Mongolia. 9 studies belong to America, 1 from the USA and 8 from South America, where 7 are from Brazil and 1 from Colombia. 3 studies belong to Oceania, 2 from New Zealand and 1 from Australia. 2 studies belong to African countries where 1 is from Egypt and the other from Nigeria. The remaining information collected can be seen in *Figure 3 and 4*.



Figure 3. World map with respective countries and their studies.

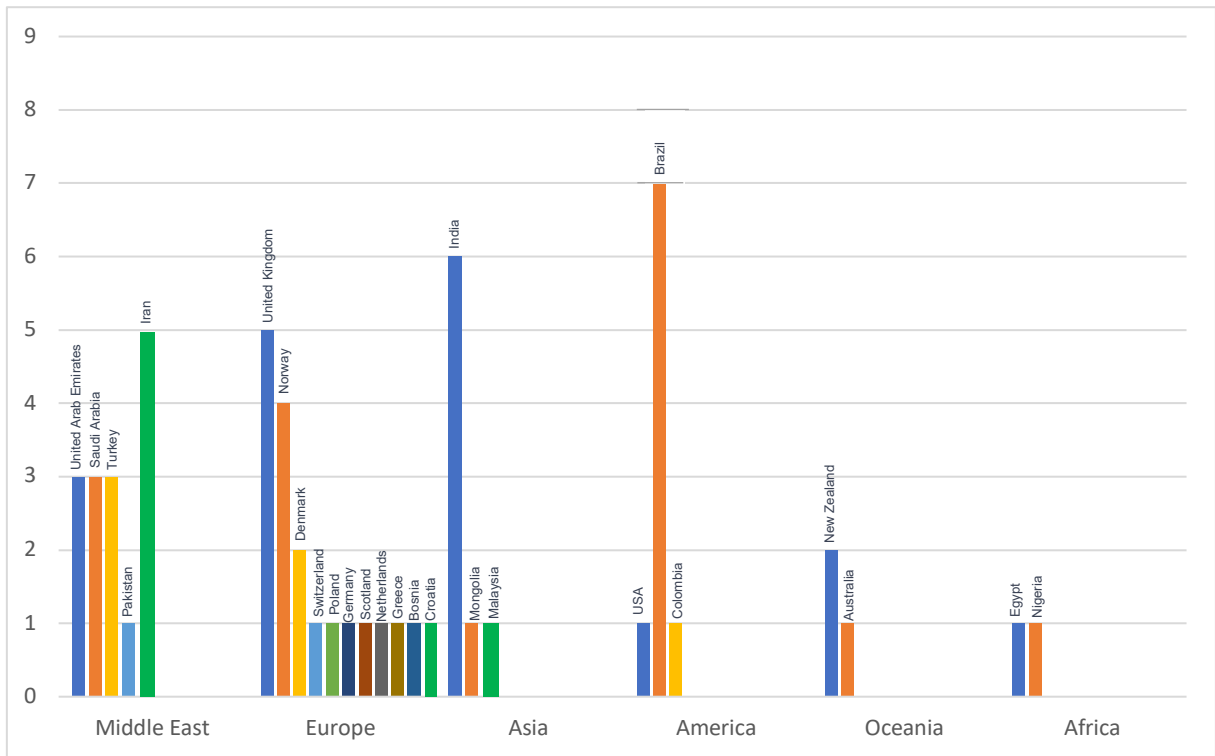


Figure 4. Graphic with respective countries and their percentage of cross-sectional studies.

Table 6. Overview of cross-sectional articles broken down by year, country, and purpose of study *udy*

Articles *	Year	Country	Purpose
6, 16, 26, 45, 53	2018/2020/2022	Turkey	Assessed the level of knowledge, attitudes, and awareness of CAN among dentists, paediatric dentists and dental students in Turkey.
3, 48, 49	2021	Pakistan	Assessed the level of knowledge, attitudes, and awareness of CAN and forensic among dentists in Pakistan.
2, 10, 42	2014/2016/2021	Saudi Arabia	Assessed the level of knowledge, attitudes, and awareness of CAN in dentists and dentistry graduates in Saudi Arabia.
1, 22, 32	2013/2016/2018	United Arab Emirates	Assessed the level of knowledge, attitudes, and awareness of CAN among dentists and dental students in UAE.
34	2017	Iran	Evaluate the knowledge, attitude, and practice of the general dentists regarding child abuse and child neglect.
12, 15, 31, 44, 46	2016/2020/2022/2023	United Kingdom	Investigating the barriers to reporting child dental neglect general medical practitioners in Greater Manchester and their awareness. To determine whether paediatric dentists' rates of child protection training and experience.
4, 24, 25, 54	2019/2018/2016	Norway	The intention of public DHP to report suspected child-maltreatment to child welfare services / To identify the barriers and reasons why public DHP are reluctant to report suspected child maltreatment. To evaluate the frequency of reporting and failing to report to CWS.
19 and 35	2017/2019	Denmark	Dental professionals' experience with and handling of suspicion of child maltreatment.
7	2014	Sweden	To exam the factors that lead specialists in paediatric dentistry to suspect child abuse or neglect and the considerations that influence the decision to report these suspicions to social services.
17	2021	Poland	To identify the influence of domestic violence on a child's behaviour in the dental office.
23 and 47	2021/2022	Germany	To evaluate the levels of knowledge of child abuse among students attending the School of Dental and Oral Medicine at the University of Hamburg- Eppendorf. To evaluate the way dental practices are currently addressing dental neglect in children are examined.
30	2013	Scotland	To investigate the Scottish dental practitioner's role in managing child abuse and neglect.
5 and 11	2014/2022	New Zealand	Understand the knowledge and attitudes of New Zealand dental and oral health therapists in detecting and reporting child abuse and neglect.
38	2013	Greece	To describe the training, experience, and personal views of dentists practicing in the Prefecture of Attica regarding the recognition and referral of abused and neglected children.
40	2015	Bosnia	To assess knowledge and attitude of dentists in Bosnia and Herzegovina regarding signs and symptoms of CAN, reporting procedure and level of education.
56	2014	Croatia	To evaluate Croatian dentists' level of knowledge, experience, and attitude toward CAN issue.
13, 18, 27, 36, 39, 52	2015/2016/2017/2020/2021	India	To assess knowledge, awareness, attitude of dental practitioners regarding CA and to identify the barriers in reporting it. To question the efforts of the educational institutions to improve this knowledge for the better future of the younger generation.
33	2016	Malaysia	To assess the knowledge, attitudes, and experience of a group of Malaysian dental health care providers regarding CPA cases in terms of frequency of occurrence, diagnosis, risk factors and reporting.
57	2022	Mongolia	To investigate the association between CA and oral habits in adolescents in Mongolia.
28	2021	United States	To identify and compare the final year dental student's knowledge, attitudes, and practice in relation to CA.
8, 21, 41, 43, 50, 51, 55	2013/2014/2015/2019/2020/2021	Brazil	To analyse training, experience, knowledge, and attitudes of dentists in the GPs on reporting the mistreatment of children and adolescents and to analyse factors associated.
37	2021	Australia	To assess the knowledge and attitudes of Western Australian DHPs towards identifying and reporting CA.
29	2022	Egypt	Frequency of reporting suspected child abuse by Egyptian dentists and their capability, opportunity, motivation, and behaviour
20	2017	Colombia	To describe knowledge, attitudes, and practices CA in dentists in Cartagena.
30	2013	Scotland	To investigate the Scottish dental practitioner's role in managing child abuse and neglect.

*The articles numbered above are attached with the respective numbers in appendix 1.

DISCUSSION

4. DISCUSSION

4.1 Cross-sectional studies

Across multiple studies, a significant proportion of dental practitioners reported suspected cases of CAN. In the United Arab Emirates (UAE), over 39% of the responders suspected CAN, while in Saudi Arabia, approximately 59% of the respondents had experienced a case of child abuse or neglect in their practice over the previous five years.^(31-33, 36, 46)

The studies in the UAE and Saudi Arabia indicated that male dentists suspected more cases of CAN than female dentists. Additionally, orthodontists and paediatric dentists demonstrated greater knowledge about diagnosing CAN compared to other dental specialists⁽³¹⁻³²⁾.

Several studies identified gaps in the training and knowledge of dental practitioners regarding CAN. In the UAE, although a significant percentage of dentists believed that CAN should be addressed, more than half were unaware of local child protection guidelines^(31,37-40). Similarly, in Pakistan, a majority of healthcare professionals, including doctors and dentists, did not take any action in suspected cases of child physical abuse, despite recognizing its value^(33,73,76).

Various barriers to reporting suspected cases of child maltreatment were identified among dental practitioners. Fear of family violence, lack of knowledge of the referral process, and lack of diagnosis certainty were frequently reported barriers. Moreover, concerns about family reprisal and the potential consequences against the child were significant factors hindering reporting.^(8, 12, 25, 41-45)

The studies analysed consistently emphasized the importance of child protection training for dental practitioners^(13, 23, 46-51). The findings from Norway indicated that training and education significantly influenced the intention of dental health personnel to report suspected child maltreatment^(40,53). Similarly, in Brazil, the majority of participants expressed a need for more training and knowledge on reporting mistreatment of children and adolescents^(38,77,78).

The cross-sectional studies conducted in various countries provide insights into the frequency of reporting suspected abuse by dentists, as well as the factors associated with reporting within the dental profession^(24, 52-57).

One common finding across several studies is the gap between the number of dentists suspecting abuse and those reporting it. This suggests a need for improvement in reporting practices and mechanisms within the dental profession⁽⁵⁸⁾.

Another significant finding is the association between better professional attitudes towards reporting and higher odds of reporting suspected abuse. This highlights the importance of addressing attitudes and perceptions of dental professionals to encourage reporting^(10, 59-62).

Some articles also reveal disparities in knowledge and attitudes among dental professionals, with some dentists demonstrating a good understanding of child abuse and the need for reporting, while others lack knowledge about signs and symptoms, reporting procedures, and legal obligations^(41, 63-66).

Most of the studies included in this review, indicate the importance of dental schools in providing education and information on child abuse. Dental students expressed a need for further training and concrete educational experiences in dealing with child abuse cases⁽⁶⁷⁻⁷⁰⁾.

Other studies conducted in smaller-scale societies like the Faroe Islands highlight the potential influence of social structure on dental professionals' suspicions and handling of child maltreatment⁽⁷¹⁻⁷⁴⁾.

According to Cukovic-Bagic *et al*, 26.27% of dentists had suspected cases of CAN at some point during their professional careers but only 11.4% of dentists were familiar with the proper reporting procedures. The study also demonstrated that approximately 80% of participating dentists expressed a desire for additional training in identifying and reporting physical abuse⁽⁸⁹⁾.

Overall, these cross-sectional studies emphasize the need for continuous education and training programs for dental professionals to improve their knowledge, attitudes, and practices related to child abuse and neglect. Standardizing reporting procedures,

raising awareness, and creating a supportive environment within dental practices can contribute to better identification and reporting of child abuse cases^(64, 73, 75-79).

4.2 The most important literature review studies

According with Costacurta *et al*, Blackley *et al* and Singh *et al*, various orofacial injuries, such as bruises, fractures, and bite marks, are common indicators of physical abuse in children ^(7,80,81). Additionally, certain oral signs, including erythema, ulcers, and vesicles, can suggest sexual abuse^(34,76). Dental neglect, characterized by poor oral hygiene and untreated dental conditions, is another form of abuse that can have a detrimental impact on a child's overall health^(80, 81 84,7).

Dentists are well-positioned to recognize and report cases of child abuse, given that many victims present injuries to the head, face, and mouth. However, according to Mathur *et al*, Nagarajan *et al* and Rodrigues *et al*, there is a lack of training and awareness among dental professionals, both globally and in specific regions like India, regarding the identification and reporting of child abuse cases. Standardized diagnostic and reporting protocols are also absent, leading to challenges in accurately identifying and differentiating abusive injuries from non-abusive ones⁽⁸³⁻⁸⁵⁾.

On the other hand, some authors concluded that reporting laws and requirements for child abuse vary across jurisdictions, highlighting the need for harmonious and precise international policies. They agreed that dental professionals can play a crucial role in recognizing and reporting child abuse, but barriers such as inadequate knowledge, diagnostic uncertainty, and concerns about the consequences for the child hinder effective reporting. It is essential to enhance dentists' knowledge, awareness, and communication skills through education and training programs⁽⁸⁶⁻⁸⁸⁾.

A few studies believe that the collaboration with other healthcare providers, particularly paediatric dentists and forensic odontologists, can facilitate the identification and management of child abuse cases. Organizations like the Prevent Abuse and Neglect through Dental Awareness (PANDA) coalition offer resources and training opportunities in this field. Research and development of consistent guidelines are necessary to address child dental neglect effectively^(89 - 91).

Dental professionals are vital in identifying and reporting child abuse and neglect, as reporting laws aim to assist children in need. However, Cukovic-Bagic *et al* affirms that reporting requirements and consequences differ across jurisdictions. The authors emphasize the significance of educating dental professionals on child abuse and neglect, along with the necessity for cohesive international policies to strengthen child protection⁽⁵⁸⁾ .

In countries like Australia, there is a need for uniform national mandatory reporting legislation to improve dentists' response to physical child abuse and dental neglect. Failure to report suspected cases of abuse can lead to legal consequences for dentists, highlighting their legal and ethical obligation to report any suspicions or known cases. Increasing awareness about the indicators and symptoms of abuse is crucial for encouraging reporting^(92- 94) .

Baptista *et al* and Badoi *et al* agreed that despite uncertainties in diagnosing dental neglect, dental professionals must fulfil their obligation to report suspected cases. Dental neglect has severe consequences for a child's quality of life and overall health and identifying it can also indicate broader neglect in the child's life. Integration into multidisciplinary healthcare teams is vital for addressing these issues effectively and providing necessary interventions and support for the child and their family^(95, 96) .

It is essential for the dental community to improve its understanding of child abuse, enhance training and awareness, and recognize the legal and ethical responsibility to report suspected or known cases. Collaboration, education, and standardized protocols are key in tackling this social problem and safeguarding the well-being of children^(97, 98) .

4.3 Other studies

Survivors of child sexual abuse (CSA) encounter difficulties in accessing dental care due to their trauma history. Trauma-informed dental treatment can address these difficulties by offering individualized care and considering the underlying psychological trauma, and survivor choice and control are crucial in creating a safe and empowering dental experience⁽⁹⁹⁾ .

Dentists may inadvertently contribute to the feeling of being invaded and objectified during dental treatment, possibly due to traumatic coupling. To address this, clinicians should employ specific communication and behaviour skills that decrease the patient's sense of invasion, entrapment, and objectification. Understanding the expressed needs of CSA survivors and adopting a trauma-sensitive approach can help reduce traumatic couplings and the risk of reliving abusive experiences during and after dental treatment⁽¹⁰⁰⁾.

According to estimates from the United Kingdom and the National Society for the Prevention of Cruelty to Children, it is believed that for every child who is identified as requiring protection from abuse, there are eight other children who are experiencing abuse^(99,111,112). As dental professionals, it is our responsibility to take every possible action to ensure the protection and well-being of these children⁽¹⁰¹⁾.

A quantitative and qualitative study carried out in Saudi Arabia showed that a training program in child abuse and neglect showed that after training there was an effectiveness and improvement in the identification and knowledge of CAN, in addition, the dentists who did the training became more proactive in protection children in their daily practice⁽¹⁰²⁾.

Another quantitative and qualitative study made in Germany affirms that it is evident that there is a significant need for improvement in the treatment of dental neglect cases⁽¹⁰³⁾. The development of effective strategies to prevent and address dental neglect, along with the associated risks to children's health, requires strong support from the public and government. Swift action is crucial to enhance the well-being of many children affected by dental neglect. It is a collective responsibility of dentists, physicians, and the public health system to prioritize this issue and ensure the protection of children from dental neglect⁽¹⁰³⁾.

In Portugal a qualitative and quantitative study was conducted and, the findings of this study highlight the need for improved knowledge and training among health professionals, particularly dentists, in recognizing and responding to cases of child abuse⁽¹⁰⁸⁾. While a significant percentage of respondents recognized the importance of clinical history and the need for comprehensive examinations, there were deficiencies in identifying the most likely injured areas in cases of abuse⁽⁹⁵⁻¹⁰⁷⁾.

Additionally, the study revealed gaps in knowing how to appropriately handle abusive situations, with a notable proportion of respondents unsure of how to follow up or report cases. Fear of reprisals, uncertainty in diagnosis, and concerns about wasting time in court were identified as barriers to reporting. It is crucial to address these deficiencies through education and training programs to enhance professionals' ability to detect and report child abuse, ultimately improving the protection and well-being of vulnerable children⁽¹⁰⁴⁾.

A case report study made in Brazil related that injuries are common in cases of child abuse, with oral injuries often caused by various instruments or substances⁽¹⁰⁶⁾. A thorough intraoral and perioral examination is necessary when abuse is suspected, along with a comprehensive evaluation of the child's overall well-being. Risk factors, such as unwanted pregnancies, parental abandonment, and substance abuse during pregnancy, can increase a child's vulnerability to maltreatment. Gender differences also play a role, with girls being more susceptible to sexual abuse and boys at higher risk of physical punishment. Identifying certain characteristics and behaviours of the aggressor, such as non-parental individuals bringing the child to appointments or one parent assuming a passive role, can aid in recognizing abuse. Dentists have a crucial role in detecting and reporting suspected cases of child abuse, and proper training is necessary to support their forensic education and improve their ability to manage such cases. Dentists are often required by law to report suspected cases of domestic violence against children. Overall, healthcare providers, especially paediatric dentists, need to be aware of the oral and dental manifestations of abuse and establish a trusting relationship with the child to encourage disclosure of maltreatment⁽¹⁰⁵⁾.

A study made with 61 dentists from 10 different countries, highlights the need for further training that includes realistic scenarios to reduce dentists' fear when reporting such cases⁽¹¹⁰⁾. It is important to inform dentists about their rights to report and assure them of legal protection from prosecution when reporting cases to save lives. The study shows that while 59% of dentists are aware of various forms of child abuse and neglect, further training using realistic examples is necessary⁽¹¹⁰⁾. Increasing awareness on how to report suspected cases of child abuse is crucial, as evidenced by 92% of participants expressing the need for further training. Forensic dentists were found to be more knowledgeable about reporting cases and signs of child abuse compared to

pediatric dentists. However, further research is required to explore the difference in opinions between the two groups⁽³⁴⁾.

In a reported case of child abuse in Kenya, the desired outcomes were successfully achieved, and the child received the complete benefits of this approach⁽¹⁰⁶⁾. The study conducted through this case emphasizes that managing child abuse can be a complex task that necessitates a multidisciplinary approach. This approach involves professionals who are responsible for identifying the underlying cause of abuse or neglect, addressing immediate issues, and referring the child to the appropriate child protection authorities for further action. However, the author believes that counselling services for both the child and the caregiver should be an integral part of the management plan⁽¹⁰⁶⁾.

A reported case study and literature review conducted in Mexico state that, paediatric dentists play a crucial role in recognizing child abuse as oral and facial injuries are common manifestations⁽¹⁰⁷⁾. They have regular contact with children and families, allowing them to observe their psychological well-being and family dynamics. However, many dental health professionals fail to report cases of abuse due to fear, lack of knowledge, and training. It is crucial for dentists, particularly those treating children, to undergo further training to recognize and document oral signs of abuse and promptly report any suspicions. A comprehensive protocol should be followed when suspicions of abuse arise, involving thorough clinical history, careful questioning, and collaboration with other professionals. Multiple injuries, discrepancies in the history, and changes in the child's behaviour should raise suspicions. Suspected cases must be reported to the appropriate authorities for investigation and multidisciplinary management. Dental health personnel should continually educate themselves on child abuse and actively participate in protecting and caring for these vulnerable victims. Proper training and awareness among dentists worldwide are essential to effectively address orofacial injuries and emotional damage caused by child maltreatment, ensuring the well-being and safety of their young patients who are unable to protect themselves⁽¹⁰⁷⁾.

The papers showed how important is the aspects related to child abuse and the role of dentists in its recognition and management. Survivors of CSA face challenges in accessing dental care, and trauma-informed dental treatment can address these

difficulties by providing personalized care that considers the underlying psychological trauma. Dentists should be mindful of inadvertently contributing to feelings of invasion and objectification, and specific communication and behaviour skills can help create a safe and empowering dental experience for survivors. It is estimated that there are many more children experiencing abuse than those identified, underscoring the responsibility of dental professionals to protect and ensure the well-being of these children^(108, 109).

Training programs on child abuse and neglect have shown positive results in improving dentists' knowledge and proactive involvement in protecting children. However, there is a need for further training using realistic scenarios and increased awareness on reporting suspected cases of child abuse. Education and training programs are crucial to enhance professionals' ability to detect and report child abuse, addressing deficiencies in knowledge, identification of injuries, appropriate handling of abusive situations, and reporting barriers^(110, 111).

Oral and dental manifestations of abuse should be recognized and establishing a trusting relationship with the child is essential to encourage disclosure of maltreatment. Managing child abuse requires a multidisciplinary approach involving professionals who can identify the underlying cause, address immediate concerns, and provide appropriate support and referrals^(112, 113).

It is crucial for dentists, especially those treating children, to undergo further training to recognize and document oral signs of abuse, promptly report suspicions, and follow a comprehensive protocol. Dental health personnel should continually educate themselves on child abuse and actively participate in protecting and caring for these vulnerable victims. By doing so, they can effectively address orofacial injuries and emotional damage caused by child maltreatment, ensuring the well-being and safety of their young patients^(114, 115).

CONCLUSION

5. Conclusion

The studies emphasize the significance of education and training for healthcare professionals, particularly dental healthcare professionals, in diagnosing and reporting cases of child abuse and neglect. Barriers such as fear of reprisal, lack of knowledge, and diagnostic uncertainty need to be addressed, while support should be provided to professionals encountering such cases. Enhancing reporting rates plays a vital role in safeguarding children from abuse and neglect. To achieve this, increased awareness, and education on child abuse among DHPs are necessary, along with the establishment of an environment that encourages reporting of suspected cases. Dental schools should offer formal training, and clear guidelines and protocols should be in place to ensure confidentiality and protection against retaliation. These findings inform policymakers, healthcare professionals, and educators about the need for training and education programs to enhance the identification and reporting of CAN. Additionally, efforts should be made to bridge the gaps in education and training, as well as dentists' knowledge and confidence in identifying and reporting suspected cases of CPA and DV. It is crucial to address the common reasons for not reporting, including uncertainty about whom to contact, concerns about unfounded suspicions, and fear of retaliation from relatives. A comprehensive global improvement in dental education is required, necessitating modifications to training programs, in order to effectively combat child abuse and neglect.

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APPENDIXES

APPENDIX 1 – Cross-sectional studies table

Article	Author	Type of Study	Country/Population	Purpose	Results	Conclusion
1 Assessment of the knowledge of United Arab Emirates dentists of Child Maltreatment, protection and safeguarding	H. Al Hajeri, M. Al Halabi, M. Kowash, A. H. Khamis, R. Welbury and I. Hussein	Cross-sectional	United Arab Emirates	Knowledge and practice of CAN and safeguarding issues using a self-administered anonymous questionnaire.	Over 39 % (n=152) of the responders suspected CAN; male dentists suspected more CAN than females (p=0.015). Orthodontists, paediatric dentists (p<0.001) and female dentists (p=0.001) were more knowledgeable about diagnosing CAN. Paediatric dentists attended more CAN-related postgraduate training (p<0.001) than other specialties. Over 90% (n=346) believed that CAN should be addressed, 58.1% (n=224) and 54.1% (n=206) had CAN undergraduate and postgraduate training respectively but 53.5% (n=204) were unaware of local child protection guidelines. Dentists' barriers to child protection reporting were fear of family violence (59.6%, n=227), lack of knowledge of referral process (60.2%, n=228) and lack of diagnosis certainty (54.9%, n=206). UAE dentists qualified in Western and Asian countries had fewer barriers for child protection reporting (p=0.022) than the Arab and Gulf Cooperation Council qualified dentists.	A large minority of UAE dentists suspected CAN. Factors influencing child protection reporting were identified. Dentists' gender, speciality, and country of qualification affected their knowledge of CAN and practice of safeguarding. Child protection training is recommended.
2 Knowledge, attitudes, and experience of dentists living in Saudi Arabia toward child abuse and neglect	R. Al-Dabaan, J. T. Newton and K. Asimakopoulou	Cross-sectional	Saudi Arabia	To analyze the experience and knowledge of dental practitioners in Saudi Arabia regarding the identification of child abuse and neglect (CAN), to identify barriers that prevent the reporting of suspected cases of child maltreatment by dental practitioners, and to assess the need for training dentists in child protection	The respondents (n = 122) demonstrated good knowledge of the forms and indicators of CAN. Moreover, a large proportion (59%) had experienced a case of child abuse or neglect in their practice over the previous five years. However, only about 10% of these respondents made a report. Fear of family reprisal, lack of certainty about the diagnosis of child maltreatment, and uncertainty about case management were critical barriers to the reporting of the suspected child maltreatment. In addition, only 20.9% of the respondents reported having knowledge of a child protection policy in their workplace.	Based on the results of this survey, it appears that the level of knowledge among the respondents regarding the forms and indicators of CAN is good. However, a large proportion of respondents did not act regarding suspected cases of CAN in their practice over the past five years. Therefore, additional resources and training are needed to support the identification and management of cases of child maltreatment by dental practitioners.
3 Child physical abuse: awareness and practices of medical and dental doctors in Pakistan	H. M. Ali Khan, N. Mansoori, M. H. Sohail, M. A. Humayun, A. Liaquat and S. M. Mubeen	Cross-sectional	Pakistan	To determine the awareness and practices of doctors and dentists in detecting and reporting suspected cases of child physical abuse.	Of the 575 healthcare professionals, 371(64.5%) were doctors and 204(35.5%) were dentists; 347(60.3%) were males; 446(77.6%) were working in private hospitals; 384(66.8%) had <10 years of experience; and 99(17.2%) had received formal training of child abuse. While 450(78.3%) subjects strongly agreed on the value of identifying and documenting child physical abuse, 336(58%) did not take any action in suspected cases.	Although doctors and dentists had a positive attitude regarding child physical abuse, the majority preferred to remain silent in suspected cases.
4 Explaining the intention of dental health personnel to report suspected child maltreatment using a reasoned action approach	I. V. Brattabo, R. Bjorknes, K. Breivik and A. N. Astrom	National Cross-sectional	Norway	The aim of 1) predicting the intention of public dental health personnel (PDHP) to report suspected child-maltreatment to child welfare services (CWS); 2) estimating the effects of the theoretical constructs of RAA, including experiential and instrumental attitudes, injunctive and descriptive norms, and perceived capacity and autonomy regarding PDHP's behavioural intentions; and 3) exploring whether the RAA operates equivalently (i.e., is invariant) in male and female providers.	A total of 77.8% (1200) of those surveyed responded to the survey. The present study provided support for the utility of the RAA across both male and female providers in predicting their intention to report suspected child-maltreatment to the CWS. The final modified SEM model revealed that instrumental attitudes and perceived behavioural control (based on merged capacity and autonomy parameters) were the strongest predictors of intention to report, followed by the reporting of descriptive norms, injunctive norms and experiential attitudes. These factors explained 63.6% of the observed variance in the reporting intention.	he large amount of explained variance suggests that RAA is a well-functioning theory that predicts PDHP's reporting intentions to CWS across gender, and gives an understanding of the socio-cognitive factors involved. To strengthen reporting intention among dental personnel, this study suggests educators should focus on the value and positive consequences of reporting, the resources available and how to overcome obstacles; attention to normative expectations and individuals' feelings about reporting may also be helpful.
5 Child abuse knowledge and attitudes among dental and oral health therapists in Aotearoa New Zealand: a cross-sectional study	H. Han, A. B. Lees, Z. Morse and J. Koziol-McLain	Cross-sectional	Aotearoa, New Zealand	Understand the knowledge and attitudes of New Zealand dental and oral health therapists in detecting and reporting child abuse and neglect.	Among the 92 dental and oral health therapists, 72% agreed that they could recognise the signs and symptoms of child abuse and neglect. Yet, only 48% agreed they were familiar with the reporting process. During their professional careers, 62% had at least 1 suspected case; and only 21% had ever reported their concerns. Fear of false reporting (70%) was the most significant barrier.	Participants understood child abuse and neglect as significant social issues; however, the knowledge and attitudes to respond were limited. Efforts to enhance the knowledge and attitudes will be necessary to promote child safety and wellbeing.
6 Awareness and Experience regarding Child Abuse and Neglect Among Dentists in Turkey	D. Kural, Z. Abbasoglu and I. Tanboga	Cross-sectional	Turkey	Assessed the level of knowledge, attitudes, and awareness of child abuse and neglect (CAN) among dentists.	Of the participating dentists, 32.7% were able to identify cases of CAN cases, while 17.1% had suspected cases of child abuse and only 1% of them, reported these, to the authorities. The most frequently cited reasons for hesitation to report CAN cases were lack of adequate history (45%), lack of knowledge about the healthcare worker's role in reporting CAN (18.3%), and considerations of the possible consequences against the child (18.8%). Only 11.6% of the participants had received undergraduate level training on the topic of CAN; The majority (86.5%) expressed the need for further education on this issue, and, also, 84.3% believed that it should be a part of postgraduate education.	Improvements in CAN education and continuing education courses are necessary to equip dentistry professionals with adequate knowledge about the physical and behavioral indicators of possible abuse, the current legislation regarding mandated reporting and the procedures for reporting suspected cases.

7	The dilemma of reporting suspicions of child maltreatment in pediatric dentistry	T. Kvist, A. Wickstrom, I. Miglis and G. Dahllof	Cross-sectional	Sweden	To exam the factors that lead specialists in paediatric dentistry to suspect child abuse or neglect and the considerations that influence the decision to report these suspicions to social services.	The analysis process elicited key concepts and identified one main theme, which we labelled 'the dilemma of reporting child maltreatment'. We found this dilemma to pervade a variety of situations and divided it into three sub-themes: to support or report; differentiating concern for well-being from maltreatment; and the supportive or unhelpful consultation.	Reporting a suspicion about child maltreatment seems to be a clinical and ethical dilemma arising from concerns of having contradicting professional roles, difficulties confirming suspicions of maltreatment, and perceived shortcomings in the child-protection system.
8	Training and knowledge of professionals of the health family team on reporting mistreatment of children and adolescents	G. A. Moreira, A. A. Vasconcelos, A. Marques Lde and L. J. Vieira	Cross-sectional	Brazil	To analyse training and knowledge of professionals in the Family Health Team on reporting the mistreatment of children and adolescents.	There was a predominance of professionals who had not participated in violence against children and adolescents training (86.3%); who knew the Child and Adolescent Statute (90.2%), and how to notify mistreatment (62.7%). Most interviewees said that the health unit had the form (70.5%), and they knew where to refer victims to (82.3%). Most professionals did not have any contact with mistreatment situations (62.8%). Only 37.2% had already identified some case and, among them, 60.0% reported the occurrences. There was a significant association (p=0.035) between the act of notifying and the participation in a training on the subject.	This study showed that the participants have difficulties in the reporting mistreatment of children and adolescents, and there are gaps in knowledge and weaknesses in training in this area.
9	Experience and knowledge of child abuse and neglect: A survey among a group of resident doctors in Nigeria	O. O. Olatosi, P. U. Ogori, F. A. Oredugba and E. O. Sote	Cross-sectional	Nigeria	The aim of this study was to determine the experience and knowledge of CAN among a group of Nigerian dental residents.	Data were collected from 179 respondents, with a mean age of 33.1 +/- 5.2 years. The respondents demonstrated good knowledge of the forms of child abuse, with an average score of 95.2%. The risk factors for CAN were correctly identified by 153 (85.5%) respondents as children with physical/mental disabilities, 151 (84.4%) as products of unwanted pregnancies, 128 (71.5%) as children from polygamous families and 122 (68.2%) as children from low socioeconomic families. Physical, sexual and emotional abuse and neglect were majorly identified as bruises behind the ears, 162 (90.5%); oral warts, 114 (63.7%); poor self-esteem, 158 (88.3%) and untreated rampant caries, 137 (76.5%), respectively. Seventy-four (46.5%) of the respondents did not evaluate children for CAN and only 12 (14.1%) of those who observed suspected cases of CAN reported to the social service. Lack of knowledge of referral procedures and concerns about confidentiality were the major barriers to reporting cases of CAN.	The dentists had good theoretical knowledge of the indicators, risk factors and signs of CAN but lagged in clinical detection and reporting of such suspected cases. There is a need for continuing education and advancement of the postgraduate dental curriculum to improve the educational experiences regarding CAN.
10	Knowledge Levels and Educational Experiences among Dental Graduates in Saudi Arabia Regarding Child Abuse and Neglect: A National Study	A. M. Sulimany, A. Alsamhan, A. A. Alawwad, M. Aqueel, N. Alzaid, O. A. Bawazir, et al	Cross-sectional	Saudi Arabia	The aim of this study was to assess the CAN-related knowledge and educational experiences among Saudi dental graduates.	A total of 988 dental graduates completed the questionnaire. The majority of them were dissatisfied with the amount of education they had received in their school (56.4%). Around 60% of the participants had inadequate knowledge regarding CAN. Graduates from government schools who received dental education about CAN and female participants had significantly higher odds of having adequate knowledge scores than others (odds ratio = 2.0, 3.1, and 1.7, respectively). Only 39.5% of the participants felt confident in their ability to identify CAN cases, and only 9.7% knew how to report such cases.	Graduate dental students have insufficient knowledge about CAN. More time should be dedicated to educating students about this important topic in dental curricula.
11	New Zealand dental therapists' beliefs regarding child maltreatment	D. Tilwala, C. Murray, R. Farah and J. M. Broadbent	Cross-sectional	New Zealand	To investigate dental therapists' perceptions of the problem of child maltreatment and their roles in child protection, their experience/recollections of past training, and how frequently they suspect (and report) abuse or neglect.	The participation rate was 49.8% (N=320 of 643). Most dental therapists (77.1%) believed rates of death due to child abuse were greater in NZ than other countries. More than 81% desired more continuing professional education courses. During the past year, 18.1% had suspected physical abuse, 30.9% had suspected neglect and 53.1% had suspected dental neglect in their patients. About half of all suspected cases were never reported. The major barrier was a fear of mistakenly reporting a non-abuse case.	Most NZ dental therapists believe they have an important role in child protection, yet their suspicions are frequently unreported. Dental therapists may benefit from appropriate support and clear advice from their employers when dealing with suspected cases of maltreatment.
12	What is stopping GPs from reporting child dental neglect?	Thomas Turner	Cross-sectional	Greater Manchester - UK	An exploratory study investigating the barriers to reporting child dental neglect concerns among general medical practitioners in Greater Manchester.	Interestingly, only 60% of the GPs received child protection training during their undergraduate training; however, 96% had participated in this training after completing their medical degree. Sixty-four percent of the GPs felt they were not appropriately trained to identify child dental neglect and 80% reported a lack of confidence in escalating and referring these patients. Eighty-eight percent of the GPs felt more training and guidance on child dental neglect was needed.	This study highlighted limited training, confidence, and knowledge around recognising, escalating and referring cases of suspected child dental neglect amongst GPs. Dentists may be able to play a key role in the provision of training for GPs in the area and supporting guidance development.
13	Child abuse: Cross-sectional survey of general dentists	H. Kaur, S. Chaudhary, N. Choudhary, N. Manuja, T. R. Chaitra and S. A. Amit	Cross-sectional	Moradabad district, India	A cross-sectional survey was undertaken to assess knowledge and attitude of dental practitioners regarding child abuse and to identify the barriers in reporting the same.	Overall response rate to the questionnaires was 97%. Lack of knowledge about dentist's role in reporting child abuse accounted to 55% in the reasons for hesitancy to report. Pearson chi-square test did not show any significant difference between male and female regarding reason for hesitancy to report and legal obligation of dentists.	Although respondent dentists were aware of the diagnosis of child abuse, they were hesitant and unaware of the appropriate authority to report. Increased instruction in the areas of recognition and reporting of child abuse and neglect should be emphasized.
14	Recognizing and reporting domestic violence: attitudes, experiences and behavior of Dutch dentists	B. A. van Dam, W. J. van der Sanden and J. J. Bruers	Cross-sectional	Netherlands	A web-survey was conducted to investigate how general dental practitioners (GDPs) deal with the RCD and what their experiences are with (signs of) DV and CA.	Of all GDPs invited to participate 264 (25 %) responded. 82 % of these GDPs are aware of their obligation to use the reporting code. 54 % of the GDPs are in favour of this obligation. 76 % of the GDPs have taken notice of the KNMT's RCD and 51 % of the GDPs have implemented the reporting code in one form or another in their practice. 24 % of the GDPs stated having suspected DV during the last twelve months in the case	Most GDPs are aware of the new legislation and have taken cognizance of the RCD. Even though many GDPs are not opposed to using a reporting code, over half of them have not yet implemented the code in practice. An important factor in this regard seems to be that a substantial minority of the GDPs says they are not sufficiently informed about aspects of reporting a case and about the steps they must take.

					of 2.4 patients on average. 81 % took note of this in the patient's record and 58 % also acted in different ways. 54 % wants to complete the e-learning module.		
15	An exploratory study investigating the barriers to reporting child dental neglect concerns among general medical practitioners in Greater Manchester	L. Whyatt and S. Barry	Cross-sectional	Greater Manchester - UK	To investigate the current awareness of child dental neglect among GPs in Greater Manchester and to investigate barriers to the reporting of concerns.	In total, 25 GPs completed the questionnaire. It was found 60% received undergraduate child protection training and 96% completed postgraduate training. Only 20% felt adequately trained in the referral of suspected child dental neglect and the majority acknowledged that more training is required. Furthermore, 42% had been suspicious of child dental neglect; however, only 80% recorded their observations. Plus, 32% had suspected child dental neglect and not completed a referral	Common barriers to reporting included lack of knowledge of referral procedures and lack of certainty of diagnosis. Conclusion Barriers to referral of suspected cases of neglect were reported and there is a demand for further training among GPs.
16	Knowledge, Attitudes, and Experiences of a Group of Turkish Dentists Regarding Child Abuse	Derya Ceyhan PhD	Cross-sectional	Turkey	Aimed to evaluate knowledge, attitudes, experiences of dentists regarding child abuse and to increase relevant awareness of them.	183 (60.0%) returned filled out questionnaires. Majority of participants knew signs and symptoms of child abuse. Of the participants, more than half were well-informed on what to do, however, one quarter had no knowledge about where to report in case of child abuse. In identifying child abuse, 39.3% of the participants found themselves inadequate. The most stated reason for low rate of reporting was hesitancy to identify the case as abuse, and all participants needed more training. Only 12 (6.6%) participants suspected a case of child abuse	Dentists who had children and were long-time experienced and generalist did not have sufficient knowledge about legal obligations, signs, and symptoms of child abuse (p<0.05). Arrangements and training programs to increase knowledge, awareness, and responsibility levels of dentists about child abuse appear to be a critically important topic.
17	Assessment of psychological indicators of domestic violence against children and youth from the child's behavior in the dental office	Anna Pantelewicz, Tomasz Krasuski, Dorota Olczak-Kowalczyk	Analytical study	Warsaw, Poland	To identify the influence of domestic violence on a child's behavior in the dental office.	The study was carried out in 2017–2019 and involved 404 in the study group (average age 11.4 ± 3.7) and 378 in the control group (average age 8.53 ± 3.92). The presence of physical (n = 123, 30.45%), sexual (n = 19, 4.7%) and emotional abuse (n = 266, 66.34%) in the study group was confirmed. Behaviours observed only in the study group were a sense of guilt, aggressive reaction to stress, self-mutilation, lack of basic hygiene and mismatched clothing. The study revealed a connection between physical and emotional abuse and behaviours coming from auto-aggressive reactions and reduced self-esteem. Sexual abuse related to excessive anxiety and aggressive and irritable reactions in the relationship with parents/caregivers and the doctor.	Children experiencing violence are characterized by typical behaviors, the knowledge of which can help to dispel doubts in case of suspicion of domestic violence.
18	Knowledge, attitude, and practice regarding child abuse and neglect among dental practitioners	Rachana P. B. Supriya H. Seema M.Vijaya Lakshmi G. Meghashree Kerpala, Charisma Thimmaiah	Cross-sectional	Dakshina Kannada district, Karnataka-India	Assess the knowledge, awareness, and behavioral practice towards child abuse and neglect.	The participants in the current study demonstrated sufficient knowledge of the signs and symptoms of child physical abuse, actions that should be taken in suspected cases, circumstances in which to report such cases, and the legal authorities to which they should be reported. Most of the participants desired for further training such as courses or workshops on examining, diagnosing, and reporting cases of child abuse.	The study suggests that dental practitioners need an effective education to increase their knowledge and awareness on CAN for its precocious identification and diagnosis as an assay for early intervention.
19	How Danish dentists and dental hygienists handle their role in child abuse and neglect matters	Birgitte Uldum, Hanne Nødgaard Christensen, Richard Welbury and Dorte Haubek	Cross-sectional	Denmark	To identify how the dental team perceives its role in safeguarding children, to identify barriers to referral to social services, to compare data with data previously reported from Denmark, and to assess if increased focus on safeguarding children has had an effect on how the dental team handles its responsibility to refer to social services.	The number of returned questionnaires was 964 (67.0 %) with valid data. Of these, 40.8% had had a suspicion of child abuse or neglect and 50.0 % had referred their concern to social services. Frequently reported barriers to referral were uncertainty about observations, signs, and symptoms of abuse and neglect, and uncertainty about referral procedures. A total of 84 (8.9%) of the respondents had received both undergraduate and postgraduate training on the topic, and 64.4% of the respondents found that the dental staff could recognize signs and symptoms of abuse and neglect.	Findings suggest a continuous need for a focus on the awareness and training of the Danish dental staff on the important topic of child abuse and neglect.
20	Knowledge, attitudes and practices on child abuse in dentists from Cartagena (Colombia)	Katherine Arrieta Vergara, Shirley Diaz Cardenas, Ketty Ramos Martinez	Cross-sectional	Cartagena - Colombia	To describe knowledge, attitudes and practices (KAP) on child abuse (CA) in dentists in Cartagena (Colombia).	The current occurrence of cases of suspected CA was 5.3% and at some time during their professional practice it was 34.4%. For the KAP level on CA, average scores of 16.8/26, 8.7/12 and 2.4/8 were obtained, respectively. When relating the level of knowledge and sociodemographic variables, attitudes and practices, only statistical significance was found for the socioeconomic stratum (p=0.001), and between attitudes, with the place of origin (p=0.04) and age (p=0.002).	The level of knowledge about CA was deficient, while the attitudes were favorable; however, when a suspected case is presented, their practices are inadequate, as they do not describe injuries, make notes in the clinical history, and report cases.
21	Factors associated with the reporting of child and adolescent abuse in primary healthcare	Gracyelle Alves Remigio Moreira, Luiza Jane Eyre de Souza Vieira, Sueli Ferreira Deslandes, Maria Augediva Juca Pordeus, Isabelle da Silva Gama, Aline Veras Moraes Brilhante	Cross-sectional	Ceará- Brazil	This study aimed to analyze factors associated with the reporting of child and adolescent abuse in primary healthcare (GPs).	There was a frequency of 17% of abuse reporting by basic healthcare professionals. The multivariate analysis showed that participating in the training on the issue (OR = 2.18; CI95% = 1.05–4.53), being familiar with the reporting form (OR = 3.03; CI95% = 1.47–6.24) and knowing how to refer the case properly (OR = 2.55; CI95% = 1.01–6.43) increased the chance of professionals reporting child and adolescent abuse.	The variables identified in the final model showed a direct association between the act of reporting and matters related to knowledge and training on the issue. Investments in the training of healthcare professionals are required to favor the qualification of the practice for this public health problem.

22	Reporting child abuse cases by dentists working in the United Arab Emirates (UAE)	S. H. Al-Amad, M. A. Awad, L. H. Al-Farsi and R. H. Elkhaled	Cross-sectional	United Arab Emirates	To assess the UAE dentists' experiences in child abuse recognition, the factors that prevent them from reporting suspicious cases to authorities and their perceived training needs.	One hundred and ninety-three respondents satisfied the inclusion criteria. Forty-seven (25%) dentists reported encountering a suspicious child abuse case at least once in their career, but only 15 (32%) of those reported their suspicion. Fear of making the wrong diagnosis was the most frequent challenge hindering reporting and dentists who demonstrated a need for specialized training were more likely to express this fear (OR = 5.88, 95% CI: 0.07, 0.45; P = 0.00).	Many UAE dentists do not report their suspicion to authorities and specialized training should be offered to build dentists' capacity in diagnosing and appropriately reporting suspicious child abuse cases.
23	Child physical abuse: knowledge of dental students in Hamburg, Germany	A. Al-Ani, R. Hashim, U. Schiffer and C. H. Splieth	Cross-sectional	Hamburg - Germany	This study was aimed at evaluating the levels of knowledge of child abuse among students attending the School of Dental and Oral Medicine at the University of Hamburg-Eppendorf, Germany.	The students (181) were aware of their legal and ethical responsibilities towards the children and their parents. More than two-thirds (69.6%) responded positively when asked whether a dentist should be legally responsible to report cases of child abuse brought to their attention. Most of the students (96.1%) agreed that dentists had an ethical duty to report such cases. However, the students were unable to define or describe the signs, symptoms, and social indicators of child abuse. Approximately 93.4% of the students lacked basic training related to child abuse, while 95.7% of them indicated that there was insufficient training in issues related to child abuse.	There is a general lack of information regarding child abuse among dentistry students. The majority of the students showed interest in the topic of child abuse and neglect but were unable to clearly identify the signs and symptoms. More lectures and workshops relating to child abuse should be available to all dentists to reinforce their knowledge as well as to strengthen their confidence when confronted with suspected cases of child abuse.
24	Why are they reluctant to report? A study of the barriers to reporting to child welfare services among public dental healthcare personnel	R. Bjorknes, A. C. Iversen, A. Nordrehaug Astrom and I. Vaksdal Brattabo	Cross-sectional	Norway	Aims of the present paper are to identify the reasons why public dental healthcare professionals are reluctant to report suspected child maltreatment to CWS and to determine whether there are differences in the identified barriers according to socio-demographic variables.	The most frequently chosen reason for not reporting was "unsure of own assessment" (90.4%). Thirteen items pertaining to not reporting were factorised into three factors of barriers. These factors were "insufficient knowledge of child maltreatment and reporting", "fear of the consequences for oneself and the dental clinic", and "fear of the consequences for the patient and their family". A t test revealed that public dental healthcare personnel who had not received training on maltreatment and reporting to CWS during their professional education scored significantly higher on the barrier "insufficient knowledge of child maltreatment and reporting" than did dental personnel who had received such training.	Dental personnel with more years of experience (11+) scored higher on this barrier than did dental personnel with less experience. No other significant differences in barriers were observed. Public dental healthcare personnel have a mandatory obligation to report to CWS if they suspect child maltreatment. Despite this obligation, the present study reveals that several barriers to reporting exist. This study underscores the importance of strengthening knowledge among dental hygienists and dentists about when and how to report, both during education and in clinical practice.
25	Reasons for reported suspicion of child maltreatment and responses from the child welfare - a cross-sectional study of Norwegian public dental health personnel	I. V. Brattabo, R. Bjorknes and A. N. Astrom	Cross-sectional	Norway	The objectives of this study were to (1) explore the reasons that PDHP send reports of concern, (2) examine how CWS (child welfare service) responds to PDHP (public dental health personnel) reports, and (3) assess whether different reasons for concern are associated with a given response from CWS.	Of a total of 1542 questionnaire recipients, 1200 (77.8%) responded to the survey. From 2012 to 2014, 42.5% of the respondents sent 1214 reports to CWS, with a mean number of 2.7 (SD = 2.0) reports per respondent. The PDHP sent the reports due to suspicion of neglect or physical, sexual and/or psychological abuse. Non-attendance at dental appointments and grave caries were reported most frequently. Among the reports, 24.5% resulted in measures being taken by CWS, 20.7% were dropped, and 29.4% lacked information from CWS on the outcome. Reports due to suspicion of sexual abuse, (OR 1.979, 95% CI (1.047-3.742), P = 0.036), grave caries (OR 1.628, 95% CI (1.148-2.309), P = 0.006), and suspicion of neglect (OR 1.649, 95% CI (1.190-2.285), P = 0.003) had the highest association with the implementation of measures.	PDHP report on several forms of child maltreatment and contributes to detection of victimized children. However, the relatively low number of measures being taken by CWS and the number of reports that lack a response to reporters reveal a need for a closer cooperation between the services, as this would benefit both the children at risk and the services.
26	Knowledge, attitudes, and perceptions regarding child abuse and neglect among dentists in Turkey	B. Buldur, C. Buyukkok and A. L. Cavalcanti	Cross-sectional	Turkey	Aimed to examine Turkish dentists' knowledge about, attitudes toward, and perceptions of CA/N.	Knowledge about legal obligations was associated with occupational experience, highest CA/N education, frequency of child dental treatment. Prior experience with case of suspected CA/N demonstrated the greatest effects. Knowledge about the orofacial characteristics and findings that are indicative of CA/N was associated with prior experience with at least one case of suspected CA/N. The most frequently provided reasons for failure to report cases of suspected CA/N were fear that the child would be harmed.	Turkish dentists demonstrated moderate levels of knowledge about their legal obligations and the orofacial characteristics and findings that are indicative of CA/N. Dentists should receive detailed education on CA/N in their undergraduate and postgraduate education. In addition, it is necessary to increase awareness and knowledge about CA/N by providing in-service trainings at the institutions where they work.
27	Knowledge and attitude in regards to physical child abuse amongst medical and dental residents of central Gujarat: a cross-sectional survey	A. Deshpande, C. Macwan, K. S. Poonacha, S. Bargale, S. Dhillon and P. Porwal	Cross-sectional	Gujarat - India	The aim of this study was to determine the level of knowledge and attitudes of medical and dental residents with regards to physical child abuse of central Gujarat.	Knowledge regarding the social indicator of child abuse was found to be poor in 27.7% (n = 36), average in 68.5% (n = 89), and good in 3.8% (n = 5); and for physical indicator it was found to be poor in 10.8% (n = 14), average 66.9% (n = 87), and good 22.3% (n = 29). Forty-nine percent (n = 64) of the respondents reported having formal training in recognizing child abuse, and 32% (n = 42) had read literature on the topic. Fifty-five percent (n = 72) stated that education regarding child abuse is extremely important.	Result of the present study found that medical and dental residents are not sufficiently prepared to endure their role in protection of child from abuse. A significant gap existed between recognizing signs of physical child abuse and responding effectively. Improvements in child abuse education and continuing education courses are advised to provide adequate knowledge.
28	Self-reported knowledge, attitudes, and practice of final-year dental students in relation to child abuse: A multi-centre study	C. Duman, O. B. Al-Batayneh, S. Ahmad, C. S. Durward, A. Kobylinska, A. R. Vieira, et al	Cross-sectional	AUS, PK, TR, JO, CY, PL, SA, NG, KH, and USA	To identify and compare the final-year dental student's knowledge, attitudes, and practice in relation to child abuse.	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.	The study showed that dental students have 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.

29	Capability, Opportunity, Motivation, and Behaviour (COM-B) model association with Egyptian dentists' reporting of suspected abuse	M. El Tantawi, N. Nabil, S. H. Mahmoud and F. Elhendawy	Cross-sectional	Egypt	This study assessed the frequency of reporting suspected abuse by Egyptian dentists who have examined patients with manifestations of abuse and factors associated with this reporting within the framework of the Capability, Opportunity, Motivation, and Behaviour (COM-B) model.	The response rate was 68.2% (821/1203), mean age (SD) = 29.7 (10.0) years, 43.1% had examined patients with suspected abuse last year and 4.3% reported their suspicions. PCA identified two attitude components scored out of 10: professional attitude towards reporting (mean (SD) = 6.7 (2.2)) and negative perception of workplace commitment to reporting (mean (SD) = 7.2 (2.1)). Higher odds of reporting suspected abuse were associated with better professional attitude towards reporting (AOR = 1.87, P = 0.003) and less negative perception of workplace commitment to reporting (AOR = 0.77, P = 0.04), but not with previous training (P = 0.74), awareness of the presence of victims' support agencies (P = 0.68) or a hotline (P = 0.88).	Only a minority of dentists reported suspected abuse. Dentists who reported their suspicions had better professional attitude towards reporting and better perception of their workplace commitment to reporting. Thus, the motivation component of the COM-B framework was significantly associated with reporting suspected abuse. The present training methods to manage abuse, and dentists' unawareness of national efforts to manage the problem do not seem to encourage reporting.
30	The Scottish dental practitioner's role in managing child abuse and neglect	C. M. Harris, R. Welbury and A. M. Cairns	Cross-sectional	Scotland	The aim of this research was to investigate whether this gap has changed between 2003 and 2010. Method A postal questionnaire based on that used by Cairns et al. was sent to 50% of GPs in Scotland in March 2010.	The response rate was 52% (53% male). Some 29% and 55% of respondents had received undergraduate or postgraduate training in child protection respectively. Over two thirds (37%) had suspected child abuse/neglect in one or more of their paediatric patients but only 11% had referred a case. The most common factor affecting the decision to refer was 'lack of certainty of the diagnosis' (74%). Some 77% thought that abused/neglected children had an increased caries increment and 73% of dentists were willing to get involved in detecting neglect.	Dentists in Scotland appear to be suspecting and referring more cases of child abuse/neglect than previously. The vast majority are willing to get involved in detecting neglect.
31	Paediatric dentists' role in child protection practice: Progress over time?	J. C. Harris, S. R. Baker and C. Elcock	Cross-sectional	United Kingdom	To determine whether paediatric dentists' rates of child protection training, experience and practice have changed and to identify factors currently associated with maltreatment recognition and referral.	Response rates were 66.3% in 2005 and 62.4% in 2016. Increases were observed in respondents' postgraduate child protection training (87.2% vs. 99.7%), multi-agency training (27.9% vs. 49.2%), ever suspected (67.9% vs. 82.3%) and ever referred child maltreatment (30.7% vs. 61.0%). The proportion who had suspected maltreatment but never referred a child reduced from 37.2% to 21.3%. Having referred more than five times in the preceding five years rose from 0.4% to 14.6% of respondents, yet those seeing children with neglected dentitions daily or more frequently remained unchanged.	This repeated cross-sectional survey demonstrates a substantial improvement in UK paediatric dentists' training and practice, but a gap remains between suspecting and referring maltreatment concerns such that some children remain at risk.
32	Child physical abuse: assessment of dental students' attitudes and knowledge in United Arab Emirates	R. Hashim and A. Al-Ani	Cross-sectional	United Arab Emirates	To investigate dental students' educational experience, attitude	The results indicated that there was lack of knowledge of reporting procedure, signs of physical abuse and social indicators among all respondents. Over 80% of the students agreed that dentists should be legally mandated to report abuse cases and a high percentage (94.3%) of the participants believed they had an ethical duty to report child abuse. Most students indicated that their dental school was the main source of information on this topic. Most of the respondents expressed a need for further training.	Dental students were not sufficiently prepared to know what to look for when they suspect child abuse and what to do when they encounter this problem in a professional setting. To provide better care for these young domestic violence victims, dental schools' curriculum modifications should focus on providing students with concrete educational experiences regarding child abuse cases.
33	Dental health care providers' views on child physical abuse in Malaysia	A. S. Hussein, R. Ahmad, N. Ibrahim, A. Yusoff and D. Ahmad	Cross-sectional	Malaysia	To assess the knowledge, attitudes, and experience of a group of Malaysian dental health care providers regarding child physical abuse (CPA) cases in terms of frequency of occurrence, diagnosis, risk factors and reporting.	The response rate was 74.7%. Half of the respondents (52.8%) stated that the frequency of occurrence of CPA is common in Malaysia. Full agreement between dental health care providers was not determined concerning the identification of signs of CPA and its risk factors. Although 83.3% were aware that reporting CPA is a legal requirement in Malaysia, only 14.8% have reported such cases. Lack of adequate history was the main reason for not reporting. Virtually two-thirds of the respondents (62%) indicated that they had not received sufficient information about CPA and were willing to be educated on how to diagnose and report child abuse cases (81.5, 78.7%, respectively).	There were considerable disparities in respondents' knowledge and attitudes regarding the occurrence, signs of suspected cases, risk factors and reporting of CPA. Despite being aware of such cases, only a handful was reported. Enhancement in the education of Malaysian dental health care providers on recognising and reporting CPA is recommended.
34	A Survey of Knowledge, Attitude and Practice of Iranian Dentists and Pedodontists in Relation to Child Abuse	F. Jahanimoghadam, M. Kalantari, A. Horri, H. Ahmadipour and E. Pourmorteza	Cross-sectional	Iran	The objective of the current study was to evaluate the knowledge, attitude and practice of the general dentists and pedodontists regarding child abuse and child neglect.	The mean score of knowledge, attitude, and practice of the participants regarding child abuse was 10.24±2.68, 41.54±11.24 and 2.78±1.05, respectively. The knowledge of pedodontists was significantly higher than knowledge of general dentists. No statistically significant difference was observed in attitude and practice (p > 0.05).	Dentists had a moderate knowledge, poor attitude, and moderate practice regarding child abuse. Considering this fact, improvements in child abuse education for undergraduate students and continuing post-graduate training in this field are recommended.
35	Dental professionals' experience with and handling of suspicion of child maltreatment in a small-scale society, the Faroe Islands	U. Jakobsen, A. S. Fjalheim, H. Gislason, E. Gudmundsen, S. Poulsen and D. Haubek	Cross-sectional	Faroe Islands - Denmark	The aims of the present study were to describe how frequently dental professionals in a small-scale society like the Faroe Islands, experience suspicion on child maltreatment, and how they handle their suspicion.	51 (72%) returned a valid questionnaire. Of these, 61% experienced suspicion of child maltreatment at some point in their career, 33% within the last 6 months, and 10% percent were certain of child maltreatment during the last six months. Of those respondents who had experienced suspicion at some point of their career, 39% had reported their suspicion. The main reasons for withholding a suspicion were: uncertainty as to whether the suspicion was reliable, fear of the consequences for the child, and lack of procedural knowledge. Faroese dental professionals suspected child maltreatment much more frequently (61%) than their Danish (38%), Scottish (29%), and Croatian colleagues (26%) did.	Child maltreatment raises concern among the Faroese dental professionals more frequently than among their colleagues in larger societies. They also seem to report their concern more frequently than their Scottish colleagues do. Thus, the present study indicates that the social structure in small-scale societies may affect dental professionals' suspicions, and handling of child maltreatment.

36	Child maltreatment: Cross-sectional survey of general dentists	H. Kaur, K. S. Vinod, H. Singh, L. Arya, P. Verma and B. Singh	Cross-sectional	Moradabad city - India	A cross-sectional survey was conducted to assess knowledge and attitude of dental professionals on the exigent issue of child abuse.	The overall response rate to the questionnaires was 97%. Lack of knowledge about dentist role in reporting child abuse accounted to 55% in the reasons for hesitancy to report. Pearson's Chi-square test did not show any significant difference between male and female regarding the reason for hesitancy to report and legal obligation of dentists. Although respondent dentists were aware of the diagnosis of child abuse, they were hesitant and unaware of the appropriate authority to report.	Increased instruction in the areas of recognition and reporting of child abuse and neglect should be emphasized.
37	Knowledge, experiences and attitudes of dental health professionals towards reporting child abuse in Western Australia	S. Kugananthan, T. Nguyen, J. Patel and R. Anthonappa	Cross-sectional	Australia	This study aimed to assess the knowledge and attitudes of Western Australian DHPs towards identifying and reporting CA.	A total of 228 participants completed the questionnaire (representing 7% of DHPs, 60% of paediatric dentists and 11% of all dental hygienists and therapists in Western Australia). The majority of participants (66.2%, $P < 0.05$) felt that they were unlikely to recognize a patient with physical abuse, or detect signs of sexual abuse (90.8%, $P < 0.001$). Uncertainty around diagnosing abuse was a barrier towards reporting cases (86.4%, $P < 0.05$) and most participants (78.0%, $P < 0.05$) felt that they did not have adequate safeguarding training to report CA.	Self-reported confidence in identifying and reporting CA cases was low; with most of the dental professionals participating in this study unlikely to recognize signs of CA. Inadequate training and knowledge around correct reporting protocols were identified as barriers, which warrants an appropriate change to improve child safeguarding.
38	Child protection training, experience, and personal views of dentists in the prefecture of Attica, Greece	A. Laud, S. Gizani, S. Maragkou, R. Welbury and L. Papiagiannoulis	Cross-sectional	Attica, Greece	To describe the training, experience, and personal views of dentists practicing in the Prefecture of Attica regarding the recognition and referral of abused and neglected children.	With a response rate of 83%, findings are reported from 368 interviews (54% male, mean age 43 years). Only 21% of respondents had received training on child protection at undergraduate level. Suspected abuse was 13% and suspected neglect was 35%. Only six of the 368 respondents made an official report of a suspected case of child maltreatment. The most common reason that might prevent a dentist from reporting a case was doubt over the diagnosis (44%). Ninety-seven per cent of dentists believed that recognition and referral of incidents should be part of undergraduate training.	Dental practitioners did not feel adequately informed on recognizing and referring child abuse and neglect cases. The low percentage of reported incidents and the lack of legislation indicate a great need for continuously educating dentists on child maltreatment as well as for setting up an organized system in Greece for reporting such incidents to protect the dentist referring the case as well as the child being victimized.
39	Child Abuse and Neglect: Do We know enough? A Cross-sectional Study of Knowledge, Attitude, and Behavior of Dentists regarding Child Abuse and Neglect in Pune, India	S. Malpani, J. Arora, G. Diwaker, P. K. Kaleka, A. Parey and P. Bontala	Cross-sectional	Pune - India	The authors are testing the knowledge of the dentists toward CAN and also trying to question the efforts of the educational institutions to improve this knowledge for the better future of the younger generation.	There were 762 responses to the questionnaire, yielding a response rate of 68.9%. Although dentists consider themselves able to identify suspicious cases, only a small percentage of the participants correctly identified all signs of abuse and 76.8% knew the indicators of child abuse. Most of them were willing to get involved in detecting a case and about 90% believed that it is their ethical duty to report child abuse. Only 7.2% suspected an abuse case in the past. The numbers indicate a lack of awareness about CAN in these participants. No differences were observed between sexes, year of graduation, types of licenses, frequency at which children were treated, and formal training already received	A large proportion of child physical abuse cases go undocumented and unreported. The data showed that not all dental care providers and students were prepared to fulfill their legal and professional responsibilities in these situations. There should be modifications in the dental school curriculum focusing on educational experiences regarding child abuse to strengthen their capability to care and protect children.
40	Knowledge and Attitudes Regarding Child Abuse and Neglect	N. Markovic, A. A. Muratbegovic, S. Kobaslija, E. Bajric, M. Selimovic-Dragas, A. Huseinbegovic, et al.	Cross-sectional	Bosnia and Herzegovina	The aim of this study was to assess knowledge and attitude of dentists in Bosnia and Herzegovina (BH) regarding signs and symptoms of child abuse and neglect (CAN), reporting procedure and level of education.	Dentists in BH are very rarely provided (80%) with training related to recognition and reporting of CAN. Sixty six percent of dentists had never suspected CAN in their practice. Only nine percent of dentists would report suspicious of CAN. Prevailing reasons for not reporting suspected case of CAN was lack of knowledge of the reporting procedure (43%), and combination of indicated answers that never had a case and lack of knowledge about the procedure (31%).	Results of this study suggest that dentists need an effective education to increase their knowledge and awareness of all aspects of CAN.
41	Physical abuse of children and adolescents: do health professionals perceive and denounce?	P. A. Martins-Junior, D. C. Ribello, G. S. O. Peruch, S. M. Paiva, L. S. Marques and M. L. Ramos-Jorge	Cross-sectional	Diamantina - Brazil	This study aimed to evaluate whether health professionals perceive and report physical abuse in children/adolescents. A total of 62 health professionals (dentists, physicians and nurses) from Diamantina/MG who attend to children and adolescents answered a questionnaire.	All professionals had identified and reported the occurrence of physical abuse in children/adolescents. Significant association was observed between the specialty of the professional and the recognition of abuse as well as denunciation to the authorities. The main difficulties presented to denounce the cases to the authorities were lack of knowledge in identifying the abuse and how to make the complaint.	Most participants expressed that they would like to receive training in identifying and reporting abuse. Health professionals perceive child abuse, and physicians are the ones who most report the cases.
42	Knowledge, attitudes, and behaviors of dentists regarding child physical abuse in Jeddah, Saudi Arabia	M. Mogaddam, I. Kamal, L. Merdad and N. Alamoudi	Cross-sectional	Jeddah - Saudi Arabia	The aims of the study were to (1) assess dentists' knowledge of child physical abuse, (2) assess dentists' attitudes towards child physical abuse, and (3) assess the behaviours of dentists in identifying and reporting child physical abuse.	The participants in current study demonstrated insufficient knowledge of the signs and symptoms of child physical abuse, actions that should be taken in suspected cases, circumstances in which to report such cases, and the legal authorities to which they should be reported. The attitudes of participants towards detecting and reporting cases were generally positive. Only 11% of the participants had suspected a case of child abuse, and only 3% of them reported it. Lack of knowledge about referral procedures and fear of anger from family members were the main causes of underreporting.	This study showed that dentists have insufficient knowledge about child physical abuse but positive attitudes towards their role in detecting and reporting it. This topic should be covered and emphasized in dental schools' curricula, and healthcare and academic institutes must have a clear protocol to be followed if a case of abuse is suspected.
43	Prevalence of recognition and reporting of child physical abuse by dental surgeons and associated factors	L. S. Nunes, F. Silva-Oliveira, F. F. Mattos, F. B. F. Maia, E. F. E. Ferreira and P. Zarzar	Cross-sectional	Belo Horizonte - Brazil	This study aimed to assess the prevalence of recognition and reporting of child physical abuse (CPA) by Brazilian dentists in primary care and associated factors.	A total of 181 dentists participated in the study. Among them, 73 (40.3%) had already recognized some cases of CPA, but only 11 (6.1%) ended up reporting. Dentists with six to 19 years of experience as a municipal worker presented 2.38 times [PR = 2.38 (95%CI: 1.29-4.41)] more probability to recognize cases of CPA than the ones with less than six years. Having a graduate degree with a major in childcare [PR = 4.50 (95%CI: 1.08-18.68)] was associated with a larger number of reports.	The employment duration as municipal worker was positively associated with the recognition of CPA cases and the prevalence of reporting was low.

44	Do you see what I see? Identification of child protection concerns by hospital staff and general dental practitioners	S. Olive, D. Tuthill, E. J. Hingston, B. Chadwick and S. Maguire	Cross-sectional	Cardiff - UK	An exploration of the threshold that dentists, doctors and nurses recognise for dental and child protection (CP) actions in sample clinical cases, and any differences between these professional groups.	Dentists were significantly better at answering the dental element than the doctors and nurses, (P <0.0001) with no significant difference between these two; only 8% of the latter had undergone any training in assessment of dental health. Although 90.6% of all professionals had undergone CP training, dentists were significantly less accurate at identifying the CP component than doctors and nurses, (P <0.0001) between whom there were no significant differences. Those with higher levels of CP training were most accurate at identifying correct CP actions.	CP training is effective at improving recognition of child maltreatment, although there remains a worrying lack of knowledge about thresholds for action among dentists. Doctors and nurses have minimal training in, or knowledge of, dental health in children, thus precluding appropriate onward referrals.
45	Turkish paediatric dentists' knowledge, experiences and attitudes regarding child physical abuse	N. Ozgur, E. Ballikaya, H. C. Gungor and A. S. Atac	Cross-sectional	Turkey	The present study aimed to evaluate Turkish paediatric dentists' knowledge, experiences and attitudes regarding child physical abuse.	The response rate was 40.9% (n = 212). Participants who completed their undergraduate education before 1997 received significantly less education on child physical abuse than participants who completed their education more recently (P < 0.001). Although statistically insignificant, participants who completed their doctorate/specialty training after 2012 received increased education on child physical abuse (P = 0.06). Of the participants, 43.9% suspected physical abuse; however, only 12.7% reported it. 'I did not know where and how to report' was the most common reason for not reporting physical abuse. The rate of suspicion was higher among dentists from state hospitals or oral health centres (P < 0.05). Of the participants, 70.3% did not know about the legal sanctions for delay in or not reporting suspected cases. Only 15.6% assessed themselves as competent to diagnose and report physical abuse. Almost all of them acknowledged their need for more education on this topic.	Turkish paediatric dentists' educational needs for diagnosing and reporting of child physical abuse cases should be met.
46	Can child safeguarding training be improved?: findings of a multidisciplinary audit	A. Patrick, T. Kandiah and R. Welbury	Cross-sectional	Surrey and Sussex - UK	Aimed to identify and address the barriers of reporting safeguarding concerns amongst the hospital team.	Group 1 (n = 100) reported 64% experience of reporting compared with group 2 (n = 100) 43% and group 3 (n = 76) 51%. Confidence was higher in those with more experience in child protection. The most common barrier was the uncertainty of diagnosis. More barriers to reporting existed in the new style of training in groups 2 and 3. The scenarios were answered with appropriate concern and reporting by groups 1 and 2, however, less for group 3. DISCUSSION: Experienced and trained practitioners are more likely to refer children to child protection teams when they have concerns of abuse or neglect. Personalising training was shown to be less effective, and the focus should be more on diagnosis and local protocols. Early training from undergraduate level was a unanimous request.	Focused training on diagnosis and local protocols, accompanied by bespoke teaching for specific specialities would be the most constructive tool for safeguarding children. Exploring modern methods such as simulation-based training could be effective. Structured forms and local policies that are familiar to clinicians prevent omissions and encourage professional awareness.
47	Dental Neglect and Its Perception in the Dental Practice	S. Pawlis, T. Lindeman and R. Lemke	Cross-sectional	Germany	In this study, the prevalence of DN in Germany and the way dental practices are currently addressing the topic are examined.	The three most common reasons for a suspected case of child maltreatment were the interaction of children with parents, or a legal guardian, insufficient oral or general hygiene, and grave caries. Even though most of the participating dentists agree that it is the task of the dentist to report suspected cases of child maltreatment, only few of them have done so in the past themselves. Not only insecurity about recognition and whom to contact in the suspected case, but also concern about unfounded suspicion were the most common reasons not to report a suspected case of DN.	The detection and communication of suspected cases should be encouraged to protect affected children.
48	Knowledge, Attitude, and Practices of Dental Practitioners Regarding Domestic Violence in Pakistan	M. N. Saleem, H. Z. Raja, A. Shakoor, H. Rashid, H. Nasir and E. Yusuf	Cross-sectional	Pakistan	The objective of this study was to assess the knowledge and practices of dental practitioners of Pakistan about domestic violence.	Only 10.6% of participating dentists received formal training in the management of domestic violence cases. Approximately 55% of participants knew that physical abuse should be reported in all circumstances; however, half of them could not accurately identify the legal authorities where suspected cases should be reported. Only 20% of the participating dentists had ever suspected a case of physical abuse and 30% of those reported it to legal authorities. Participants characterized fear of anger from relatives as the most significant barrier toward reporting suspected cases. The analysis revealed that Pakistan's dentists lack adequate knowledge regarding domestic violence in terms of identification, relevant physical signs/symptoms, and social indicators.	Dentists of Pakistan had insufficient knowledge about the identification, management, and reporting of domestic violence cases. However, formal training and dentists' qualification were positively associated with overall awareness and practices regarding domestic violence case management.
49	Pakistan's position in the world of forensic odontology and dental records	F. M. Shah Syed, S. Shoro and S. Manica	Cross-sectional	Pakistan	This study investigated the awareness, information, training, practice and interest in FO in dental professionals in Pakistan. Another aim was to design tools to deliver primary knowledge about FO and emphasize the importance of dental records.	476 dentists (51%female symbol, 49 %male symbol) aged 20 - 50+ years responded and 98.53% confirmed that FO was not taught in the dental schools. 66% were aware of the field and 62% were only informed. 99% were not trained and 89.7% were not working in this field; however, 89% were interested in training within Pakistan. Considering dental charts, 60.92% do not produce detailed charts but 55% maintain them and the majority do so manually. Radiographs were the most stored type.	Most dentists are aware of the existence of FO, but they need to acknowledge the significance of dental record keeping and encourage implementation of FO. Regardless of the absence of any governing body for FO and negligible education, training and implementation in Pakistan, this field is gradually progressing. The authorities should introduce detailed guidelines for recording, managing and storing dental records. They should ensure the future acknowledgement of this subject in the education system and assign forensic odontologists to the Disaster Victim Identification (DVI) team.

50	Recognition of child physical abuse by a group of Brazilian primary care health professionals	F. Silva-Oliveira, C. I. Andrade, M. O. Guimaraes, R. C. Ferreira, E. F. Ferreira and P. M. Zarzar	Cross-sectional	Brazil	To evaluate the frequency of the recognition by Brazilian health professionals in primary care of child physical abuse (CPA) and associated factors.	Among the 715 health professionals, 499 (69.8%) had some type of postgraduate degree and 414 (57.9%) recognized suspected or proved cases of CPA. The recognition was associated with occupation, as paediatricians recognized 14.11-fold [OR = 14.11 (95% CI: 3.73 to 53.43)] more cases of CPA compared with dentists. The recognition was also associated with a longer period working in the city [OR = 2.79 (95% CI: 1.24 to 6.29)].	The recognition of cases was positively associated with the longer working time in the municipal network and with paediatricians. The dentist was the category that was least associated with the recognition of CPA.
51	Reporting of child physical abuse by a group of Brazilian primary care health professionals and associated factors	F. Silva-Oliveira, R. C. Ferreira, G. P. Alencar, E. F. Ferreira and P. M. Zarzar	Cross-sectional	Brazil	To evaluate the frequency of non-reporting behaviour of child physical abuse (CPA) among Brazilian primary care health professionals who recognized some cases in their careers and associated factors with reporting.	A total of 715 professionals participated (response rate: 98.89%), 414 (57.3%) recognized cases, of which 171 (41.3%) reported. Reporting was associated with the type of profession, as paediatricians reported cases more than dentists [OR = 6.05 (95% CI: 1.24-29.50)], with the willingness to become involved [OR = 2.01 (95% CI: 1.02-3.97)] and knowledge regarding where to report cases [OR = 2.68 (95% CI: 1.25-5.74)]. Confidentiality was the barrier associated with a lower probability of reporting CPA cases [OR = 0.22 (95% CI: 0.08-0.66)].	There is a high frequency of non-reporting behaviour. Paediatricians reported more CPA cases, followed by family doctors and nurses. Dentists were those who reported fewer cases. Reporting was also associated with a willingness to be involved in detecting/reporting abuse and knowing where to report CPA.
52	Perspectives towards child abuse and neglect among dental practitioners in Belagavi city: A cross-sectional study	T. V. Soumya Mohanan, R. M. Sankeshwari and A. V. Ankola	Cross-sectional	Belagavi - India	To assess the perspectives toward CA and neglect among dental practitioners of Belagavi city.	59.8% had learned the topic of CA and neglect as a student. Overall, 16 participants have recognized suspicious case of CA and neglect in their dental office. Only 34.3% had knowledge regarding the findings pointing to CA and neglect, and 96% had reported that there are barriers regarding reporting the same. 93% are of opinion that the topic is of utmost importance and more training is required in this aspect.	Training and continuing dental education programs should be tailored to the specific needs of all professionals to diagnose, report, and prevent CA.
53	Assessment of knowledge and attitudes of dental students in regard to child abuse in Turkey.	E. Hazar Bodrumlu, A. Av'sar and S. Arslan	Cross-sectional	Turkey	The aim of this study was to investigate dental students' knowledge about and attitudes towards child abuse.	The questionnaire completion rate was 100%. About 67.74% of the third year, 40.71% of the fourth year and 16.67% of the fifth year believed that they could detect child abuse cases. However, results indicated a major lack of knowledge of social indicators, signs of physical abuse and reporting procedure amongst all respondents. The assessment of the total correct answers exhibited significant differences amongst third-, fourth- and fifth-year students' answers. Fifth-year students had the highest rate of correct responses (P < 0.05). Most students wanted to receive more knowledge about this topic.	Dental students in Turkey are not sufficiently prepared for their role in diagnosing suspected cases of child abuse.
54	Experience with suspecting child maltreatment in the Norwegian public dental health services, a national survey.	Ingfrid Vaksdal Brattaba, Anette Christine Iversen, Anne Nordrehaug Astrøm and Ragnhild Bjørknes	Cross-sectional	Norway	This study aimed to assess PDHP's frequency of reporting and failing to report to CWS and whether the frequencies varied according to personal, organizational, and external characteristics.	The majority 60.0%, reported having sent reports of concern to CWS throughout their career, 32.6% had suspected child-maltreatment but failed to report it in their career and 42.5% had sent reports during the three-year period from 2012 to 2014. The reporting frequency to CWS was influenced by PDHP's personal, organizational and external characteristics, while failure to report was influenced by personal characteristics.	Compared to international studies, PDHP in Norway sends reports of concern and fails to report to CWS at relatively high rates. PDHP's likelihood of reporting was influenced by age, working experience, number of patients treated, size of the municipality and geographical region, while failure to report to CWS was influenced by working experience.
55	Child abuse: perception and knowledge by Public Health Dentistry teams in Brazil	Mariana Dalledone Ana Paula Borges de Paola Gisele Maria Correr Eduardo Pizzatto Juliana Feltrin de Souza Estela Maris Losso	Cross-sectional	Brazil	To evaluate the experience, knowledge and attitudes of dentists and oral health technicians (OHTs) who work in Basic Health Units in the city of Curitiba, PR, Brazil, regarding cases of abuse against children and adolescents.	The mean age of the dentists was 40±8.29 years, and 53.43% treated more than 10 children per week. The OHTs' mean age was 45.39±9.71 years, and 62.35% attended to more than 10 children per week. Although the dentists perceived 185 suspected cases of maltreatment, only 35.67% were reported to authorities. In the OHT group, 22.08% were reported to authorities. Sixty-eight dentists (47%) and 11 OHTs (14.28%) reported having treated at least one case of orofacial trauma in the previous 6 months, totalizing 166 orofacial traumas. About the mechanism for reporting suspected cases, 83% of the respondents knew how to report. Over 50% of the responses concerning why the professionals did not report cases of physical violence against children included fear of retaliation and difficulties in diagnosis.	Suspected cases of maltreatment against children and adolescents are underreported. More information is required to recognize suspected maltreatment cases and notify authorities.
56	Croatian dentists' knowledge, experience, and attitudes in regard to child abuse and neglect.	Cukovic-Bagic I, Dumancic J, Kujundzic Tijak M, Drvaric I, Boric B, Kopic V, Krupic I, Bakarcic D, Budimir M, Welbury RR.	Cross-sectional	Croatia	To evaluate Croatian dentists' level of knowledge, experience and attitude toward CAN issue.	Of a total of 510 dentists who returned a questionnaire with valid data 26.27% reported to have had suspicion of CAN during professional career and 5.1% reported their suspicion within the last six months, mostly to social services and police. Fear of violence towards the child and uncertainty about observations were the most frequently reported barriers towards referring and only 11.4% knew the procedure. About 80% respondents want further training in identifying and reporting of physical abuse.	Study showed a lack of knowledge and uncertainty in recognizing and reporting CAN cases in Croatian dentists. They expressed the need for undergraduate and postgraduate continuing education on this issue.
57	Association between Child Abuse and Poor Oral Habits in Mongolian Adolescents	Aina Okawara , Yusuke Matsuyama, Miyu Yoshizawa Araki, Yuko Unnai Yasuda, Takuya Ogawa et al.	Cross-sectional	Mongolia	This study aimed to investigate the association between child abuse and oral habits in adolescents in Mongolia.	Biting nails/lips/pens and bruxism were reported by 39.0% and 17.5% of the respondents, respectively. Biting nails/lips/pens was significantly associated with physical abuse but was not significantly associated with psychological abuse (prevalence ratio, PR [95% confidence interval, CI]: 1.44 [1.07-1.95] and 1.34 [0.98-1.83], respectively). However, bruxism was not associated with physical or psychological abuse (PR [95% CI]: 1.16 [0.77-1.77] and 1.04 [0.68-1.61], respectively).	Child abuse was associated with biting habits among Mongolian adolescents.

APPENDIX 2 – Literature review and scoping review studies

Article	Author	Type of Study	Country/Population	Purpose	Results	Conclusion
Oral and dental signs of child abuse and neglect	M. Costacurta, D. Benavoli, G. Arcudi and R. Docimo	Literature review	Rome	The aim of this report is to identify the main oral and dental aspects of physical and sexual abuse and dental neglect in childhood, contributing to the precocious identification and diagnosis in a dental practice.	This present study has been carried out a qualifying close examination of oral and dental manifestations that can be found more frequently in child abuse and neglect and must lead the dentist to a suspected diagnosis.	A precocious diagnosis of child abuse, in a dental practice, could considerably contribute to the identification of violence cases and in an early intervention.
Child abuse and the role of a dentist in its identification, prevention and protection: A literature review	V. Singh and G. Lehl	Literature review	NA	Aims to collect all literature available on PubMed, PubMed Central, MEDLINE, Google Scholar, and Google search engines on the role of dentists in child abuse identification and information and summarize these details	It is seen that dentists generally shy away when it comes to reporting child abuse cases. Although majority of them confirm that they can identify abuse, ironically, the same majority is hesitant to report it to appropriate authorities, because of: Fear of legal entanglement, fear of losing patients, apathy to the gravity of the crime, wary of being accosted by the family, lack of faith in child protection services, improper education, and training on the subject.	Increasing exposure of dental graduates to cases of child abuse, increasing exposure of dental graduates to cases of child abuse, introduction of certificate courses on the subject, programs, on the line of the Prevent Abuse and Neglect through Dental Awareness, should be planned to train healthcare providers, teachers, and childcare providers, medical providers with expertise in this area should make themselves available to dentists and dental organizations for consultation and education.
Child dental neglect laws: Specifications and repercussions for dentists in 51 jurisdictions	J. M. Burgette, S. M. Safdari-Sadaloo and E. Van Nostrand	Systematic Review	District of Columbia, Washington, D.C. - U.S.A.	Child neglect laws were identified in 51 jurisdictions (50 states and the District of Columbia) by performing a Westlaw legal database search, conducting a systematic internet search, and engaging in direct communication with each jurisdiction. Laws on 2 domains relative to dentists were evaluated: protection from civil and criminal liability when reporting child neglect and sanctions for failing to report child neglect.	All jurisdictions have child neglect laws; however, only 8 specify failing to seek dental treatment as child neglect and none adopt the American Academy of Paediatric Dentistry's definition. Although all jurisdictions protect dental professionals who report child dental neglect in good faith, sanctions for failing to report neglect include imprisonment from 6 months (49%) through 5 years (2%) and fines from \$1,000 (61%) through \$10,000 (6%).	Although the laws vary across jurisdictions, dentists are protected when reporting child dental neglect but can be sanctioned for failing to report it. PRACTICAL IMPLICATIONS: Dentists may not be aware of the current sanctions or interjurisdictional differences. Becoming informed about these laws may incentivize dentists to establish reporting protocols for child dental neglect.
Role of a Dentist in the Diagnosis of Child Abuse and Neglect: A Literature and Narrative Review	Maria Melo , Fadi Ata-Ali , Teresa Cobo , Jose Diago , Maria Teresa Chofre-Lorente, Leticia Bagan , Cristina Sanchez-Recio and Javier Ata-Ali	Systematic Review	Spain	To determine the level of knowledge, the aptitudes and capacity of dentists in reporting cases of CA; the barriers facing the reporting of cases; and the key clinical characteristics for the detection of CA.	Injuries caused by CA are largely located in the orofacial region – the most prevalent being caries, burns and fractures. The most frequently identified risk factor is behavioural alterations on the part of the parents or caregivers. The reviewed studies reflect a discrepancy between suspected and reported cases of CA.	Although dentists can detect injuries, there is a great lack of knowledge about how to report cases of CA to the authorities. It is interesting to establish guidelines for the detection and reporting of suspicious cases. Improved training in forensic and legal dentistry is needed, together with the establishment of detection and reporting protocols. The clinical signs detected in the case of CA and neglect include untreated caries, poor oral hygiene, traumatism, burns, lacerations, and biting. The recognition of such signs and correct case history compilation are essential for the detection of CA.
Child Abuse Reporting: Role of Dentist in India – A Review	Bharti Patil, Sushmini Hegde, Anisha Yaji	Systematic Review	India	The objective of this paper is to review briefly the role of dentist in identifying child abuse and the norms about reporting it in our country.	This literature review shows that there are very few attempts made to report child abuse from dental offices in India whereas it is mandatory to report child abuse in many other parts of the world.	This difference could be attributed to laws regarding this matter and lack of awareness and knowledge of the procedures to be followed.
The "Neglected" Relationship Between Child Maltreatment and Oral Health? An International Scoping Review of Research	C. Bradbury-Jones, L. Isham, A. J. Morris and J. Taylor	Literature review - Scoping review	NA	The aim was to explore the relationship between child maltreatment and oral health and how this complex issue is addressed in contemporary dental, health, and social work practice.	The review identified 68 papers, analysis of which identified three themes: (1) There is a relationship between poor oral health and child maltreatment that is well evidenced but conceptually underdeveloped. (2) There are discrepancies between the knowledge of members of the dental team about child maltreatment and their confidence and aptitude to identify and report child protection concerns. (3) There are areas of local-level policy and practice development that seek to improve working relationships between dentists and health and social work practitioners; however, there is widespread evidence that the oral health needs of this group of vulnerable children are not consistently met	The review's findings are likely to be of interest to researchers, practitioners, and policy makers working across dentistry, health and social work.
Child protection: legal and ethical obligation regarding the report of child abuse in four different countries	I. Cukovic-Bagic, R. R. Welbury, G. B. Flander, S. Hatibovic-Kofman and E. Nuzozlese	Literature review	Croatia, United Kingdom, Italy and Canada.	Investigate the legal and ethical Acts, and the similarities vs. differences in obligations regarding reporting child abuse and neglect (CAN) cases in four countries: Croatia, United Kingdom, Italy, and Canada.	In all four countries all health professionals have a duty to report their suspicion if a child is in a harmful situation. All of them who fail to report, or even neglect or delay to report a suspicion, are liable on conviction to a pecuniary fine which varies from country to country. Depending on the country, if a professional has reasonable grounds to suspect that a child is or may need protection, must report to: CAS (children's aid society), to CSS (centre for social services), to police, to a Juvenile Court, or to the ombudsman. In all four countries, dentists are not asked to diagnose 'child maltreatment', but simply report the suspicion with supportive evidence. Ethical obligation comes from medical and dental ethical codes regulated by the Chamber or Council of Dentists. In all four countries legal and ethical obligations in reporting CAN are similar. Differences are related mostly to fines for nonreporting or a delay in reporting.	Expanded investigation through other European countries and standard operational procedures is needed, to harmonize policies and guidelines for reporting CAN and maximize children protection.

Oral and Dental Aspects of Child Abuse and Neglect	S. A. Fisher-Owens, J. L. Lukefahr, A. R. Tate, S. O. O. H. American Academy Of Pediatrics, A. Committee On Child, Neglect, et al.	Literature review	NA	The purpose of this report is to review the oral and dental aspects of physical and sexual abuse and dental neglect in children and the role of paediatric care providers and dental providers in evaluating such conditions.	Oral health issues can also be associated with bullying and are commonly seen in human trafficking victims. Some medical providers may receive less education pertaining to oral health and dental injury and disease and may not detect the mouth and gum findings that are related to abuse or neglect as readily as they detect those involving other areas of the body.	Therefore, paediatric care providers and dental providers are encouraged to collaborate to increase the prevention, detection, and treatment of these conditions in children.
Dental Neglect in Children: A Comprehensive Review of the Literature	M. Kiatipi, S. Davidopoulou, K. Arapostathis and A. Arhakis	Literature review	NA	The purpose of this review is to present the most recent bibliography regarding the etiology, risk factor indicators, types of dental neglect, and the epidemiological studies, showing the relationship between neglect and dental caries indices. Moreover, the review will focus on the role of oral healthcare professionals in evaluating such conditions	Dental neglect can be a part of a child's general neglect with short-term complications, such as caries, as well as long-term consequences that extend to adulthood, such as poor growth and impaired quality of life.	Early diagnosis of dental neglect plays an important role in avoiding adverse impacts on children. Signs and risk factors for dental neglect should alert the dental team to intervene in time and prevent suspected cases.
Combating Child Abuse: The Role of a Dentist	S. Mathur and R. Chopra	Literature review	India	This study reviews the overall scenario of child abuse in India as well as the role of the dentist in recognising and thereby combating this problem.	Among health professionals, dentists are probably in the most favourable position to recognise child abuse, with opportunities to observe and assess not only the physical and the psychological condition of the children, but also the family environment. The high frequency of facial injuries associated with physical abuse places the dentist at the forefront of professionals to detect and treat an abused child. Screening for maltreatment should be an integral part of any clinical examination performed on a child. Although many injuries are not caused by abuse, dentists should always be suspicious of traumatic injuries. The dental professional's role in child abuse and neglect is to know the current state law regarding reporting child abuse and to follow the law. Awareness, identification, documentation, and notification should be carried out by the dentist	Paediatric dentists can provide valuable information and assistance to physicians about oral and dental aspects of child abuse and neglect. Such efforts will strengthen the ability to prevent and detect child abuse and neglect and enhance care and protection for the children.
Craniofacial and oral manifestation of child abuse: A dental surgeon's guide	S. K. Nagarajan	Literature review	NA	Informative	Children should be given the privilege to mature in a loving, supportive family environment that promotes the development of an individual to his/her full potential. The abuse and neglect of children is a problem that pervades all segments of society. Dentists/forensic odontologists are in a strategic position to recognize mistreated children. While the detection of dental care neglect is an obvious responsibility for dentists, other types of child abuse and neglect also may present themselves in the dental office. Once this information is known to the dentist, he/she can join physicians in protecting children from injury.	Dentists with an interest in child abuse and some training in forensic dentistry should express their interest to various state agencies, such as state welfare departments and hospital trauma teams, in serving as dental consultants. It is extremely important for all appropriate agencies and for central registries at central, state, and local levels to have dental consultants for evaluation of oral lesions in cases of suspected abuse and for training of personnel.
A systematic review and meta-analysis of failure to take history as a barrier of reporting child abuse by dentists in private and state clinics	F. Nilchian, M. J. Tarrahi and N. Zare	Literature review	NA	This study was aimed to explore the prevalence of failure to take history as a barrier to reporting child abuse by dentist around the world.	A total of 17 articles were included in the meta-analysis. The prevalence of lack of knowledge about referral procedures as a barrier was determined according to the meta-analysis of the number of relevant articles and was (55%, confidence interval: 0.48, 0.62).	The analysis of various studies revealed lack of information about referral procedures as an important barrier to report child abuse by dentists.
Domestic violence against children detected and managed in the routine of dentistry - A systematic review	J. Rodrigues, A. P. B. Lima, J. Y. Nagata, L. Rigo, G. O. Cericato, A. Franco, et al	Literature review	NA	Aimed to investigate the perception, knowledge and attitude of dentists towards the detection and management of DVAC cases.	The search resulted in 1,024 articles, of which 18 fit the eligibility criteria. The knowledge for detecting cases of DVAC obtained during the undergraduate course was classified by the dentists (in 39% of the articles) as "insufficient". When suspecting of cases involving domestic violence, most of the dentists (in 77.75% of the articles) considered reporting to the competent authorities. However, the dentists are not sure about who these authorities are (in 31.25% of the articles).	More attention must be given to the Forensic education in Dentistry. Specifically, proper training is necessary to support the dentists on the detection and management of pediatric patients under domestic violence.
Mandatory reporting of child physical abuse and dental neglect by Australian dentists	R. Sarkar, J. Ozanne-Smith and R. Bassed	Literature review	Australia	The purpose of this review was to investigate the evidence base for the legislative obligations of Australian dentists as mandatory reporters; the functionality of dental practice in the determination of orofacial signs of abuse and neglect; and relevant knowledge and practice demonstrated by the Australian dental work force.	The study found that child protection laws lack an evidence base for including/excluding dentists as reporters. Child abuse and neglect is associated with strong orofacial signs, thus imparting a key advantage to utilizing dentists as potential notifiers. An action response to child abuse is not seen in the Australian dental service.	This review identifies gaps in the dental literature concerning mandatory reporting, calls for optimization of the related evidence base, and uniform Australian child abuse reporting requirements.
Child Abuse in the Dental Setting	Caroline Blakley and Ryan D Brown*	Literature review	Oklahoma - USA	The following article is meant to shed some light on the broad spectrum of child maltreatment: the epidemiology, the types, the presentations, and how to report.	NA	Laws vary by state regarding reporting possible child abuse or neglect, but nearly every state has a law mandating certain professionals (medical, educational, law enforcement, etc.) and institutions to inform a CPS agency of suspected child abuse and neglect. Mandatory reporters are required to report the facts that led them to suspect child abuse but are not required to provide proof. Reports can be made 24 hours-a-day, 7 days- a-week.
Dentist's Behavior Regarding Children and Adolescents Maltreatment	Ana Lídia Soares Cota; Andreza Maria Correia de Queiroz; Mariana Maria Castro Jatoba Remígio; Daniel Alves Reisa; Daniela do Carmo Kabengelea	Literature review	Brazil	The aim of the present study, through an integrative review, to guide dentists in the identification and report of children and adolescents' maltreatment.	Based on the critical analysis carried out, it is concluded that it is an ethical, legal and moral duty of these healthcare professionals to recognize signs and behaviours indicative of any kind of child neglect, violence (physical, sexual and / or psychological abuse).	The suspected or confirmed cases must be reported to the competent organs, aiming at the interruption of violent episodes and ensuring the inclusion of minors in policies that promote their full and healthy development.

A review of child abuse and the role of the dental team in South Africa.	N. Mohamed, S. Naidoo	Literature review	South Africa	To inform the type of abuse, factors that contribute to abuse, recognition, the extent of the problem, behavioural signs, clinical signs...	NA	There is a need for an increased awareness among dental personnel about child abuse and neglect and their legal and ethical responsibilities to report cases of suspected or known abuse should be emphasised. ¹⁰ The primary goal is to "detect child abuse and prevent further injury". Dentists will not be held liable if reports of suspected abuse are fair and based on reasonable grounds but if they fail to report a suspected case of abuse, they can be held legally responsible by the victim. ⁵ According to the Children's Act, reporting cases of suspected abuse is considered mandatory and "failure to report is a breach of the law". Raising awareness about the signs and symptoms of abuse will probably result in an increase in the number of reported cases.
Dental Neglect, one type of child abuse – Narrative review	Ana Sofia Baptista, Elisa Laranjo, Ana Alves Norton, David Casimiro de Andrade, Cristina Areias, Ana Paula Macedo	Literature review	Portugal	To clarify, according to the current scientific literature, the clinical indications for the identification of dental neglect in children.	NA	Thus, inserting the dentist in teams of analysis in case of suspicion proves to be indispensable for the detection of this and other situations of abuse.
Forensic Odontology: The New Dimension in Dental Analysis	K. P. Divakar	Literature review	NA	This article will give you a collective review on the evolution, various methods, and applications of forensic odontology, which plays a major role in keeping the dental records accurately, and providing required information, which will help the legal authorities to recognize negligence, malpractice, fraud or abuse and identification of unknown individuals.	NA	This article aims to provide an overview into the importance of forensic odontology with an emphasis various method how to do so. DNA profiling provides information regarding physical characteristics, ethnicity and sex determination. Forensic odontology is that branch forensic medicine has established itself as an important and indispensable service in medico legal matters toward the creation of justice and secures society for the future inhabitants.
Mantle of forensics in child sexual abuse	Preethi Murali and Manoj Prabhakar	Literature review	NA	This review will culminate the investigations required by us not only as dentists but also as socially responsible adults.	NA	The role and responsibility a dental practitioner holds is to create awareness, identify, document, and notify. A definite follow-up consultation is needed. ^[15] There can be various educatory programs for dental practitioners organized by the dental association regarding identifying the victim, reporting them, handling the psychological aspect of the child and the child's family. In view of great hopes that such incidents should not prevail and if it does should not be left unnoticed. The dentist's incapability would not be a crime, but ignorance would be.
A critical review of child abuse and its management in Africa	Eben Badoo	Literature review	NA	The aim of this review was to outline current management of child abuse (especially sexual abuse) and highlight current preventive practice that could be beneficial in a resource-limited environment.	NA	The lack of data and guidelines for managing child abuse in African countries creates a gap in child protection services. Education of the public and government action is needed to address this threat. Further research on the economic impact of child abuse can help convince governments to resource local child protection and prevention services.

APPENDIX 3 – Other Studies

Article	Author	Type of Study	Country/Population	Purpose	Results	Conclusion
Avoiding psychological (re)traumatisation in dentistry when working with patients who are adult survivors of child sex abuse	S. Alyce, D. Taggart, I. Montague and J. Turton	Qualitative study	United Kingdom	Aims To analyse and report CSA survivor perspectives of dental care and offer suggestions for practice	Three main themes were identified: the dental encounter ('it really panics me'); the opportunity to disclose; and choice and control.	This is the first UK study to present qualitative data from CSA survivors about their experiences of dental care. Survivors wish to access dental care, but tailored support is needed to ameliorate reminders of abuse and traumatic stress triggers. Trauma-informed care may address difficulties with treatment if dental staff adopt flexible approaches and work collaboratively with survivors to facilitate relational safety. (Please note, in this paper, 'survivors' refers to those sexually abused as children).
Preparing for attack and recovering from battle: Understanding child sexual abuse survivors' experiences of dental treatment	T. V. Fredriksen, S. Sofestad, V. Kranstad and T. Willumsen	Qualitative studies	Norway	The aim of this paper was to explore child sexually abused survivors' experiences of dental treatment in order to obtain a deeper understanding of them as dental patients.	A conceptual framework was generated, and a core concept was constructed from the informants' reports of their experiences of dental treatment: Preparing for attack and recovering from battle based on four main categories: (a) Expecting danger, (b) Battling anxiety, (c) Reliving abuse and (d) Struggling with the aftermath.	The analyses increase the understanding of how child sexual abuse survivors prepare before-battle during-and recover after dental treatment. This study revealed child sexual abuse survivors' experiences of extensive anxiety, triggered by sensory stimuli such as sensations, movement, muscles, touch, sight, sound, smell, and taste, associated with dental procedures per se, but also sensory stimuli similar to previous traumatic experiences. The findings suggest that child sexual abuse survivors' dental anxiety is primarily trauma-driven and possibly being one of the long-term effects of child sexual abuse. This may be an important contribution to the understanding of CSA survivors and should affect the approach of clinicians treating dental patients with such a history.
Child Protection: Case Scenarios and Discussions	Christine Park	Qualitative study	NA	In this article we look at three scenarios that could arise which I am often asked about during teaching and training sessions on safeguarding and child protection for dental teams.	This article cannot be completely prescriptive as there will be local variations, but it gives general guidance on issues raised by the scenarios.	The importance of being aware of the signs and symptoms of abuse or neglect, recording observations and referring concerns cannot be over-emphasised. As dental professionals we must do all we can to protect our young people.
Effectiveness of a web-based child protection training programme designed for dental practitioners in Saudi Arabia: a pre- and post-test study	R. Al-Dabaan, K. Asimakopoulou and J. T. Newton	Qualitative and Quantitative study	Saudi Arabia	The purpose of this research was to evaluate a web-based training program in child protection on dental practitioners' knowledge and practice in Saudi Arabia.	Eighty-two participants completed the whole training package and 62 completed the one-month post-training survey. A significant increase in knowledge was found immediately after taking part in the child protection training program in comparison to baseline knowledge ($P < 0.001$). The course was highly rated by those who completed it. At one month following the training program, 21% have or intend to adopt a child protection policy in their practice, 29% identified a staff member to lead on child protection since completing the program, almost all participants have been aware of child abuse and neglect (CAN) signs in their daily practice and 27.4% have made a report of a suspected case of CAN in the last month since the training.	The web-based training program in child protection was appraised positively and was effective in increasing knowledge and changing attitudes towards safeguarding children.
Care for children with dental neglect: identification of problems and approaches to solving them	B. Hartung, J. Schaper, K. Fischer and S. Ritz-Timme	Qualitative and Quantitative study	Germany	In order to develop effective strategies for an optimization of dental care in cases of dental neglect, a better understanding of the situation, and in particular an investigation into the unsolved questions of dentists in these cases, is needed.	Severe and complex challenges in the handling of dental neglect in dental practice were identified. The study revealed that steps towards an optimization of the care for children with suspicion on dental neglect, which is much more than the treatment of caries, are needed.	The establishment of efficient strategies of prevention and treatment of dental neglect and associated risks for the health of affected children will only be achieved with intense public and governmental support.
Child maltreatment - prevalence and characteristics of mandatory reports from dental professionals to the social services	T. Kvist, M. Coccozza, E. M. Annerback and G. Dahlöf	Qualitative and Quantitative study	Sweden	This study investigates the prevalence and characteristics of mandated reports from dental professionals to the social services. Furthermore, it analyses associations between dental professionals reporting suspicions of maltreatment with such reports from other sources.	The total prevalence of reports from dental care services to the social services was 1.5 per 1000 children with a significant increase between 2008 and 2011 ($P < 0.001$). The primary cause for a report concerned parental deficiencies in care ($n = 93$) and secondly, a concern for dental neglect ($n = 52$) ($P < 0.001$). Among all reports, 86% involved children with prior contacts with the social services.	Reports to the social services from dental care services on suspicions of child maltreatment concern parental deficiencies (failure to attend appointments) and neglect (dental neglect). Mandated reports from dental care services often co-occur with other mandated reports.
Domestic violence on children: development and validation of an instrument to evaluate knowledge of health professionals	L. B. Oliveira, F. A. Soares, M. F. Silveira, L. Pinho, A. P. Caldeira and M. T. Leite	Qualitative and Quantitative study	Brazil	To develop and validate an instrument to evaluate the knowledge of health professionals about domestic violence on children.	The final instrument included 56 items; the Cronbach alpha was 0.734, the Kappa test showed a correlation greater than 0.6 for most items, and the student t-test showed a statistically significant value to the level of 5% for the two selected variables: years of education and using the Family Health Strategy.	The instrument is valid and can be used as a promising tool to develop or direct actions in public health and evaluate knowledge about domestic violence on children.
Dentists and undergraduate dental students require more information relating to child abuse	Ana Rodrigues Moura, Armanda Amorim, Luis Proenca, Virginia Milagrel	Qualitative and Quantitative study	Portugal	To evaluate the preparation for, and the appropriate approach of dentists to the diagnosis of patient mistreatment.	Among dentists, 38% do not know which area of the organism is the most affected, 43% know it is proper to officially report the fact; out of these, 48% know that the information may be provided anonymously. There are 47% who state that they received no undergraduate training in this area. However, 60% of the students in the last year declare they did receive training.	Dentists are not sufficiently familiar with the subject of child abuse. A regular approach to this matter in undergraduate education is important. It will be very useful to create a working tool unifying the criteria for screening, diagnosing, and registering such events.

Orofacial Injuries in Children and Adolescents (2009-2013): A 5-Year Study In Porto, Portugal	Humberto Gomes Vidal, Inês Morais Caldas, Luiz Gutenberg Toledo de Miranda Coelho Júnior, Eliane Helena Alvim de Souza et al.	Qualitative and Quantitative study	Portugal	The aim of this study was to verify the prevalence of acts of aggression to the head, face and neck towards victims of Physical Violence against Children and Adolescents (PVCA) who were examined at the National Institute of Legal Medicine and Forensic Sciences Delegation North (INMLCF-DN) in Porto, Portugal.	Within the 5-year timespan, 1,380 cases were identified with clinical relation with physical aggression. Most subjects evaluated were male adolescents and the most affected body region was the face, to which 747 injuries (24.7%) were recorded, with statistically significant association between sex and region (head and face). Victims in 15-17-year-old age group are more susceptible to violence than those in the 0-14-year-old age range.	Den­tists routinely examine the face, neck and skull, which make them the most appropriate health professionals to identify cases of aggression early.
Teaching dental students to interact with survivors of traumatic events: development of a two-day module	S. Raja, C. F. Rajagopalan, M. Kruthoff, A. Kupersmidt, P. Chang and M. Hoersch	Quantitative study	Illinois, Chicago U.S.A	The aim of this article is to describe how we developed and assessed an interactive and educational module on trauma-informed care for dental students, we also explore how future educational efforts on this topic could be structured.	Comparison of pre and post tests and needs assessments between the initial and final modules indicated that the extended, more interactive final module was more effective in meeting the educational objectives. Results showed that the final module increased the students' knowledge in the health-related manifestations of traumatic events and slightly improved their confidence levels in treating survivors of trauma.	Den­tists who are prepared to deliver trauma-informed care may help individual patients feel more at ease and increase engagement in regular preventive care. Suggestions for future educational efforts in this area are discussed.
Evaluation of the Orofacial Features in the Victims of Abuse and Neglect of 5-16-Year-old Age Children	W. Barbi, R. S. Sonawane, P. Singh, S. Kumar, B. R. Kumar and A. Arora	Quantitative study	India	The present study was conducted to evaluate the orofacial features of children between the age group of 5-16 years suspected to be victims of child abuse/neglect.	Two hundred and fifty children were enrolled in the study. Seventy-two children (30%) presented with laceration of various sites including lip (n = 13), frenum (n = 8), buccal mucosa (n = 26), palate (n = 16), and floor of the mouth (n = 9). Twenty-nine participants exhibited the features of avulsion (11.6%). Eighteen children revealed dento-alveolar fractures, 104 presented with dental caries (41.6%), 19 presented with missing teeth (7.6%), all the candidates presented with deposits (100%).	Careful intraoral and perioral examination of the participants victimized to abuse and/neglect is necessary as the oral cavity is a central focus for physical abuse, which may be allied to its importance in communication and nutrition. Physicians and dentists should work together to increase the prevention, detection, and treatment of these conditions.
Condyloma acuminata in the tongue and palate of a sexually abused child: a case report	A. C. Percinoto, M. Danelon, M. M. Crivellini, R. F. Cunha and C. Percinoto	Case report	Brazil	The authors report the clinical case of a five-year-old Caucasian male with lesions located in the dorsal surfaces of the posterior tongue and palate. Both lesions had a firm consistency, reddish appearance and presence of whitish areas and regions of ulceration. During the interview, the mother reported that the boy had been sexually abused	In children, the isolation of a sexually transmitted organism may be the first indication that an abuse has occurred. Although the presence of a sexually transmissible agent from a child beyond the neonatal period is suggestive of sexual abuse, exceptions do exist.	Sexually transmitted disease may occur during sexual abuse. Dentists as well as pediatricians have a role to play in identifying and treating these children. The diagnosis is essentially clinical (anamnesis and physical examination), but also the use of cytology eventually resorts to biopsy of the suspicious lesions for histological examination. The therapeutic option was the excision of the lesions.
Unrecognized Lower Jaw Fracture in a Physically and Emotionally Abused Child	J. Perucic, M. Tarle, P. Danic, I. Crivjevic and I. Salarić	Case report	Croatia	We will present a case in which a physically and emotionally abused four-year-old boy had an undiagnosed lower jaw fracture for almost eight months.	After several visits with his foster mother, the child was finally diagnosed with a lower jaw fracture and a psychosomatic disorder. Physical abuse by his birth parents was later on confirmed, and the consequences were insufficient growth, non-perception of pain and reduced speech development.	This report emphasizes the importance of taking a detailed medical history along with a thorough clinical examination.
The dentist as a child abuse informer: a case report	Ana Lucia Vollu, Marta Lua P.W. Almeida, Maria de Fatima C. Vasconcelos, Claudia M. Gomes, Roberto Braga de C. Vianna, Fernanda Barja-Fidalgo, Andrea Fonseca-Goncalves	Case report	Brazil	We report the case of a 9-year-old victim of maltreatment who was diagnosed during dental treatment.	The existence of physical injuries (a hematoma in the left orbit and burns on the left hand and in the lips) aroused the attention of the paediatric dentistry, whose brought the case to the responsible authorities.	Professionals must properly conduct cases through complaints to protect children from future occurrences.
Severe caries are a clue for child neglect: a case report	Henk Sillevius Smitt, Nancy Mintjes, Reinanke Hovens, Jenny de Leeuw, Tjalling de Vries	Case report	Netherlands	We describe a 4-year-old Caucasian boy who had severe dental caries. This was a result of insufficient dental care: he refused to brush his teeth and drank sweetened drinks. We considered this dental neglect to be a manifestation of child neglect and social services were consequently called in to help the family.	NA	There is a strong association between child abuse and neglect and dental caries. Abused children often have severe dental caries and in children who had dental caries, child abuse and neglect are often established. An important factor is insufficient parenting; therefore, we believe that severe dental caries is an important indicator for child abuse and neglect.
Child abuse: A classic case report with literature review	Arthur M Kemoli, Mildred Mavindu	Literature review and case report	Kenya	In the present case report, a 12-year-old orphaned boy was physically abused by a close relative who caused actual bodily and emotional trauma to the boy.	NA	The management of child abuse can be complicated, and often require a multidisciplinary approach, encompass professionals who will identifying the cause of the abuse or neglect, treatment of the immediate problems and referral of the child to the relevant child protection authority for action. Counselling services for the child and the caregivers should form part of the management regime. In the present case, the objectives were met and the patient got full benefits of this approach.
Establishing comprehensive oral assessments for children with safeguarding concerns	C. M. Park, R. Welbury, J. Herbison and A. Cairns	Literature review and case report	Glasgow and Clyde	Informative	Readers will learn what a comprehensive medical assessment for children with welfare concerns is and what the dental input to these assessments involves. Readers will be aware of the challenges they may face when setting up such clinics. Readers will see examples of the benefit of dental input in the assessment of children with wellbeing concerns.	Comprehensive oral assessment clinics have been successfully introduced and established as an integral part of CMAs for children with a welfare concern in Greater Glasgow and Clyde. An assessment protocol and standardised paperwork for COA's has been developed to enhance information sharing and patient access to appropriate care. This included a 'dental appendix' to the established CMA report. Discussion of cases from the COAs demonstrates the usefulness of dental input in these cases.

Dentist attitudes and responsibilities concerning child sexual abuse. A review and a case report	A. Garrocho-Rangel, R. Marquez-Preciado, A. I. Olguin-Vivar, S. Ruiz-Rodriguez and A. Pozos-Guillen	Literature review and case report	Mexico	The aim of the present report is to inform about the most relevant aspects of child abuse and the characteristics of injuries to the head, neck, and orofacial regions, in addition to the suggested role of, and management by, the dentist for the evaluation of this condition, and also for reporting a case of a physically and sexually abused girl aged 5 years 8 months.	Throughout the appointments, some type of abuse in this patient was suspected by the treating dentists at the clinic, mainly due to the initial behaviour exhibited by the patient in the dental chair. Based on the clinical diagnostic an intensive preventive plan and restorative treatment was realized.	The timely detection of the signs and symptoms of sexual abuse, often present in the orofacial region, place the paediatric dentist in a strategic situation, with the capacity to recognize, register, and later report those cases considered as suspect, including the dental treatment delivered and the intensive behavioural-psychological management. In order to achieve acceptance by the otherwise very anxious patient of the indicated restorative and preventive dental procedures.
Understanding the association between self-reported poor oral health and exposure to adverse childhood experiences: a retrospective study	K. Ford, P. Brocklehurst, K. Hughes, C. A. Sharp and M. A. Bellis	Randomized Controlled trials	South of England (Hertfordshire, Luton and Northamptonshire)	This study examines whether experiencing adverse childhood experiences before the age of 18 years is associated with self-reported poor dental health in later life.	Strong associations were found between exposure to childhood adversity and poor dental health. The prevalence of tooth loss was significantly higher (8.3%) in those with 4+ adverse childhood experiences compared to those who had experienced none (5.0%; $p < 0.05$). A similar relationship was found for levels of missing or filled teeth (13.4%, 4+ adverse childhood experiences; 8.1%, none; $p < 0.001$). Exposure to 4+ adverse childhood experiences was associated with a higher level of tooth loss and restorations at any age, compared to individuals who had not experienced adversity. Demographically adjusted means for tooth loss increased with adverse childhood experience count in all age groups, rising from 1.0% (18-29 years) and 13.0% (60-69 years) in those with none, to 3.0% and 26.0%, respectively in those reporting 4+.	Exposure to childhood adversity could be an important predictive factor for poor dental health. As oral health is an important part of a child's overall health status, approaches that seek to improve dental health across the life-course should start with safe and nurturing childhoods free from abuse and neglect. Given the growing role that dental professionals have in identifying violence and abuse, it seems appropriate to raise awareness in the field of dentistry of the potential for individuals to have suffered adverse childhood experiences, and the mechanisms linking childhood adversity to poor dental health.
Non-accidental head and neck injuries in children and adolescents	Wahaj Anees, Ademir Franco, Schella Manica	Systematic Review and Quantitative research	Made in UK but addressed to dentists with specialty in multiple countries	This study aimed to propose an online referencing platform for dental professionals to know more about signs of child abuse and neglect (CAN) and how suspicious head and neck injuries might look like in real-life scenarios by proposing a 3D design.	A total of 61 dentists from 10 different countries filled the survey, of which 83.1% had seen common head and neck injuries involved in CAN, 61% knew about the dentist's role in reporting such cases, and 66.1% were familiar with local law enforcements to contact. Second result: only 4-10 participants managed to figure the aspects vital to check before reporting such cases which include a proper detailed history, any previous injuries and their stage of progression, clinical examination of injuries and finally whether the injuries are consistent with the history given.	There is insufficient representation of the real-life head and neck injuries for dentists to see related to child abuse. Also, all specialists agreed that they require further training regarding CAN management with real-life examples. To address this, a 3d model of commonly seen head and neck injuries in CAN along with some other tools, was created for training and educational purposes and was embedded in a website https://3datlasofchildabuse.webflow.io/ .
Assessment of psychological indicators of domestic violence against children and youth from the child's behavior in the dental office	Anna Pantelewicz, Tomasz Krasuski, Dorota Olczak-Kowalczyk	Analytical study	Warsaw, Poland	To identify the influence of domestic violence on a child's behaviour in the dental office.	The study was carried out in 2017–2019 and involved 404 in the study group (average age 11.4 ± 3.7) and 378 in the control group (average age 8.53 ± 3.92). The presence of physical ($n = 123$, 30.45%), sexual ($n = 19$, 4.7%) and emotional abuse ($n = 266$, 66.34%) in the study group was confirmed. Behaviours observed only in the study group were a sense of guilt, aggressive reaction to stress, self-mutilation, lack of basic hygiene and mismatched clothing. The study revealed a connection between physical and emotional abuse and behaviours coming from auto-aggressive reactions and reduced self-esteem. Sexual abuse related to excessive anxiety and aggressive and irritable reactions in the relationship with parents/caregivers and the doctor.	Children experiencing violence are characterized by typical behaviours, the knowledge of which can help to dispel doubts in case of suspicion of domestic violence.

APPENDIX 4 – 2023 IOFOS Congress, abstract "Dentists and child abuse and neglect- a review" accepted and registered for an oral student presentation. It will be published in Book of Abstracts and Journal of Forensic Odonto-Stomatology at the end of the year 2023.

Gmail - IOFOS 2023 Congress: Abstract Accepted

20/07/2023, 12:05



Diana Astori Nogueira <diana.astori18@gmail.com>

IOFOS 2023 Congress: Abstract Accepted

8 messages

Ivana Savić Pavićin <savic@sfzg.hr>
To: diana.astori18@gmail.com

29 May 2023 at 14:33

Dear Diana Astori Nogueira ,

On behalf of the Organising Committee for the 2023 IOFOS Congress, I am pleased to inform you that your abstract "Dentists and child abuse and neglect- a review" has been accepted for a student presentation. Congratulations! Thank you for sharing your research as part of this gathering of forensic odontologists.

For confirmation of your participation it is necessary that you REGISTER with an early registration fee by June 20, 2023. Otherwise, your abstract will be withdrawn from the programme.

Best regards,

Professor Ivana Savić Pavićin
IOFOS2023 Organizing Committee



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29 May 2023 at 14:54

